МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА
И ПРОДОВОЛЬСТВИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

ГЛАВНОЕ УПРАВЛЕНИЕ ОБРАЗОВАНИЯ, НАУКИ И КАДРОВ

Учреждение образования
«БЕЛОРУССКАЯ ГОСУДАРСТВЕННАЯ
СЕЛЬСКОХОЗЯЙСТВЕННАЯ АКАДЕМИЯ»

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# АНГЛИЙСКИЙ ЯЗЫК

# ENGLISH FOR AGRICULTURISTS

*Рекомендовано учебно-методическим объединением
по образованию в области сельского хозяйства в качестве
учебно-методического пособия для студентов
учреждений высшего образования, обучающихся
по специальностям 1-74 02 01 Агрономия,
1-74 02 02 Селекция и семеноводство*

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Приведены тексты и упражнения для обучения специальной лексике и развития умений чтения профессиональной литературы.

Для студентов учреждений высшего образования, обучающихся по специальностям 1-74 02 01 Агрономия, 1-74 02 02 Селекция и семеноводство.

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## ВВЕДЕНИЕ

Учебно-методическое пособие предназначено для студентов агрономических специальностей учреждений высшего образования. Цель пособия заключается в формировании лексических и грамматических навыков чтения, создании внутреннего профессионального лексикона и потенциального словаря обучаемых, а также развития умений чтения профессионально значимой литературы.

Учебно-методическое пособие состоит из 23 уроков (Units), включающих в себя разделы, посвященные словообразовательной работе, разделы, содержащие краткие сведения о грамматическом материале, который активизируется в комплексе упражнений, лексические словари, тексты для чтения и упражнения на проверку понимания содержания и смысла прочитанного.

Текстовый материал позаимствован из зарубежных источников, его тематика определена программой подготовки специалистов агрономического профиля. Комплекс упражнений направлен на формирование компетентной личности агронома средствами иностранного языка.

Учебно-методическое пособие может быть рекомендовано для аудиторной работы и для самостоятельного изучения языка.

## UNIT 1

## Beginnings of Agriculture

### Словообразование

Суффиксы **-er/-or**, прибавляемые к основе глагола, обозначают орудие действия, лицо, производящее действие, или профессию:

to receive (получать) – a receiv**er** (получатель);

to read (читать) – a read**er** (читатель);

to edit (редактировать) – an edit**or** (редактор).

**Exercise 1. Form the nouns using the suffixes -er/-or. Translate the nouns into Russian.**

**Model:** an apparatus for cooling – a cooler.

An apparatus for mixing, an apparatus for regulating, an apparatus for boiling, an apparatus for refrigerating.

**Model:** to listen – a listener.

To read, to subscribe, to lead, to defend, to advise, to elect, to sing, to write, to produce.

**Model:** to visit – a visitor.

To create, to initiate, to possess, to work, to inspect, to construct, to decorate, to narrate.

### The Plural Nouns

### (Множественное число имен существительных)

| Тип окончания | Множественное число |
|---|---|
| Существительные образуют множественное число, прибавляя к форме единственного числа окончание **-s**. | book – books |
| Существительные, оканчивающиеся на -o, -ss, -sh, -x, -ch + -es | potato – potatoes, boss – bosses, brush – brushes, match – matches, box – boxes |
| -f, -fe переходят в v + -es | wolf – wolves, knife – knives |
| -y (перед ней стоит согласная) переходит в i + -es<br>-y (перед ней стоит гласная) – + -s | lady – ladies<br><br>day – days |
| Составные существительные: schoolboy (пишется слитно) | schoolboys, copybooks |
| Составные существительные: sister-in-law (пишется через дефис) | sister**s**-in-law (форму множественного числа обычно принимает слово, несущее основной смысл) |

| | | |
|---|---|---|
| Исключения | man – men, woman – women, foot – feet, tooth – teeth, goose – geese, mouse – mice, child – children, deer – deer, sheep – sheep | |
| Слова латинского или греческого происхождения | on – a | phenomenon – phenomena |
| | um – a | datum – data, medium – media |
| | us – i | radius – radii, stimulus – stimuli |
| | is – es | crisis – crises, basis – bases |
| | a – ae | antenna – antennae, formula – formulae |

**Exercise 2. Put the following nouns in the Plural.**

A field, a stone, a disc, a furrow, a man, a bus, a woman, a grain, a stem, a leaf, a root, a flower, a blossom, a cultivator, a tree, a corncob, a potato, a season, a mouse, a knife, a insect, a negro, a master, a datum, a wolf.

**Exercise 3. Put the following nouns in the Singular.**

Cereals, fields, crises, antennae, radii, farmers, cows, media, crops, sheep, teeth, children, Germans, deer, materials, people, foxes, cars, windows, wheels, potatoes, plants, fruits, heroes, radios, photos, teachers.

## The Cardinal Numerals

## (Количественные числительные)

| 1–12 | 13–19 | 20–90 | 100 и более |
|---|---|---|---|
| 1 one<br>2 two<br>3 three<br>4 four<br>5 five<br>6 six<br>7 seven<br>8 eight<br>9 nine<br>10 ten<br>11 eleven<br>12 twelve | 13 thirteen<br>14 fourteen<br>15 fifteen<br>16 sixteen<br>17 seventeen<br>18 eighteen<br>19 nineteen | 20 twenty<br>21 twenty-one<br>22 twenty-two<br>и т. д.<br>30 thirty<br>40 forty<br>50 fifty<br>60 sixty<br>70 seventy<br>80 eighty<br>90 ninety | 100 a (one) hundred<br>101 a (one) hundred and one<br>102 a (one) hundred and two<br>и т. д.<br>200 two hundred<br>300 three hundred<br>400 four hundred<br>и т.д.<br>1,000 a (one) thousand<br>1,001 a (one) thousand and one<br>1,250 a (one) thousand two hundred and fifty<br>2,000 two thousand<br>2,001 two thousand and one<br>2,235 two thousand two hundred and thirty-five<br>3,000 three thousand<br>4,000 four thousand<br>100,000 a (one) hundred thousand<br>1,000,000 a (one) million<br>1,000,000,000 a (one) billion |

1. Числительные от 13 до 19 включительно образуются от соответствующих числительных первого десятка посредством суффикса **-teen**:

four + teen – four**teen**;

six + teen – six**teen**.

При этом числительные **three** и **five** видоизменяются:

three – **thirteen**;

five – **fifteen**.

Числительные, оканчивающиеся на **-teen**, могут иметь ударение как на первом, так и на втором слоге:

thirteen ['θɜ:'ti:n];

fourteen ['fɔ:'ti:n].

Когда такие числительные определяют существительные (относятся к существительным), они имеют ударение на первом слоге:

fifteen ['fɪfti:n] books;

sixteen ['sɪksti:n] chairs.

2. Числительные, обозначающие десятки, образуются от соответствующих числительных первого десятка посредством суффикса **-ty**:

six + ty – six**ty**;

seven + ty – seven**ty**.

При этом числительные **two**, **three**, **four** и **five** видоизменяются:

two – **twenty**;

three – **thirty**;

four – **forty**;

five – **fifty**.

Числительные, обозначающие десятки, имеют ударение на первом слоге:

forty ['fɔ:tɪ];

fifty ['fɪftɪ];

sixty ['sɪkstɪ].

3. Между десятками и следующими за ними единицами ставится дефис (черточка):

twenty-one;

thirty-five;

forty-seven.

4. Перед числительными **hundred**, **thousand**, **million** ставится неопределенный артикль **a** или числительное **one**:

a (one) hundred;

a (one) thousand.

5. Числительные **hundred**, **thousand** и **million** не принимают окончания **-s**, когда перед ними стоит числительное **two**, **three**, **four** и т. д.:

two hundred;

three thousand;

four million.

Числительные **hundred**, **thousand** и **million** могут принимать окончание **-s**, когда они выражают неопределенное количество *сотен, тысяч, миллионов*. В этом случае они превращаются в существительные и после них употребляется существительное с предлогом **of**:

*Hundreds of students* were present at the meeting. – Сотни студентов присутствовали на собрании.

*Thousands of people* greeted the Russian representatives. – Тысячи людей приветствовали российских представителей.

6. В составных числительных в пределах каждых трех разрядов перед десятками (а если их нет, то перед единицами) ставится союз **and**:

375 – three hundred *and* seventy-five;

305 – three hundred *and* five;

2,075 – two thousand *and* seventy-five;

2,005 – two thousand *and* five.

1,225,375 – one million two hundred and twenty-five thousand three hundred and seventy-five.

7. При обозначении количественных числительных при помощи цифр каждые три разряда (справа налево) отделяются запятой:

3,734;

2,720,000.

**Exercise 4. Read the following Cardinal numerals.**

14; 20; 21; 25; 3; 1; 11; 13; 12; 100; 145; 378; 478; 567; 692; 704; 803; 958; 1,450; 2,000; 2,981; 4,995; 5,946; 10,005; 11,036; 15,637; 38,482; 59,303; 102,386; 176,986; 274,748; 829,549; 583,087; 684,276; 1,000,001; 1,765,765; 4,888,797; 68,876,389.

28 books; 45 days; 84 trees; 158 computers; 483 people; 753 carpets; 809 wheels; 1,003 harrows; 5,983 students; 25,985 pages; 185,382 cups; 593,432 engines; 678,808 bytes; 1,858,004 films.

## The Demonstrative Pronouns

## (Указательные местоимения)

Английские указательные местоимения **this** *этот, эта, это* и **that** *тот, та, то* имеют формы множественного числа **(this** – **these**, **that** –

**those)** и согласуются в числе с существительными, которые они определяют, например: **this** book – **these** books, **that** student – **those** students.

Местоимения **this** и **these** употребляются для указания на предметы, которые находятся в непосредственной близости к говорящему, а местоимения **that** и **those** – для указания на предметы, находящиеся на удалении, например:

1. *This* is a door. – *Это* дверь.

*That* is a window. – *Это* (*то, там*) – окно.

2. *These* magazines are in Russian. – *Эти* журналы на русском.

*Those* magazines are in English. – *Те* журналы на английском.

**Exercise 5. Translate the following sentences paying attention to the demonstrative pronouns.**

1. This is a door. 2. That is a black crow. 3. Is this your pencil? 4. That is not a large house. 5. Is that a book on the table? 6. Where are those students? 7. These are red pencils. 8. Are those brown doors? 9. The teachers are not in that corridor. 10. Are these small windows? 11. Those are not questions. 12. These are not clocks, these are watches. 13. This information is top secret. 14. That fax was for you.

**Exercise 6. Make the following sentences plural.**

1. This is a new dictionary. 2. That is my file. 3. This incident is rather strange. 4. That was not my idea. 5. That man is a busker. 6. Give me that letter, please. 7. That was a good day. 8. They lived in that place for many years. 9. This computer is mine, and that one is my co-worker's. 10. We'll never forget that year. 11. Is this your disk? 12. Can you see that tall man? 13. Who is that woman? 14. This child is being difficult today. 15. Was that an old or a new edition? 16. That year was a lucky one.

**Exercise 7. Read and memorize the following words and word combinations.**

Middle English ['mɪdl 'ɪŋglɪʃ] – среднеанглийский язык (*11–15 веков*)
adaptation [ˌædæp'teɪʃən] – заимствование
farming ['fɑːmɪŋ] – занятие сельским хозяйством, животноводством
horticulture ['hɔːtɪkʌlʧə] – садоводство
animal husbandry ['ænɪməl 'hʌzbəndrɪ] – животноводство
forestry ['fɔrɪstrɪ] – лесное хозяйство
fibre ['faɪbə] – волокно
related services [rɪ'leɪtɪd 'sɜːvɪsɪz]– сопутствующие услуги
ancient ['eɪnʃənt] – древний
furnish ['fɜːnɪʃ] – снабжать
primitive ['prɪmɪtɪv] – первобытный

supplement ['sʌplɪment] – дополнять
have recourse to [hæv rɪ'kɔːs tu] – прибегнуть
continuous [kən'tɪnjuəs] – длительный;
diminished [dɪ'mɪnɪʃt] – более низкий
force [fɔːst] – вынуждать
nomadic [nəu'mædɪk] – кочевой, кочующий
centre ['sentə] – сосредоточиваться, концентрироваться на
excreta [ɪks'kriːtə] – выделения, испражнения
luxuriantly [lʌg'ʒurɪəntlɪ] – пышно
meagre ['miːgə] – скудный, ограниченный

**Exercise 8. Try to guess the meanings of the following words without a dictionary.**

Adaptation, sector, cultivation, product, condition, primitive, resource, industry, agronomy, practice, natural, occupation, realize, population, selection, civilization, Central Asia, America, complex, service.

**Exercise 9. Read and translate the following text.**

1. The word *agriculture* is a late Middle English adaptation of Latin *agricultūra*, from *ager*, "field", and *cultūra*, "cultivation" or "growing". This definition includes arable farming or agronomy, and horticulture, all terms for the growing of plants, animal husbandry and forestry. To practice agriculture means to use natural resources to "produce commodities which maintain life, including food, fiber, forest products, horticultural crops, and their related services". Agriculture is a very ancient occupation of mankind. It is so old that nobody can say with certainty when and where it was first begun. It probably appeared when man through necessity discovered that certain wild plants about him would furnish him food in the form of fruits and seeds.

2. The primitive man perhaps also realized that the fruits and seeds gathered were not sufficient to meet his needs and those of his family. This led him to the cultivation of crops so as to supplement the natural supply. He then had recourse to the clearing of jungles for the growing of his crops. But he probably found out also that the continuous growing of crops in the same place gives diminished yields. Therefore, he moved about from place to place. Later as population grew, he was forced to restrict himself to a certain locality. This again must have resulted in competition for certain favourable localities, and the giving up of his nomadic life.

3. In course of time this primitive man again must have discovered that certain wild plants which he was growing gave him more and better food than others. This must have led him to the selection of certain wild plants

for cultivation. In this way, primitive man made a remarkable choice of crops.

4. Civilization began to centre around the growing of certain crops like wheat in Central Asia, rice in China and south-eastern Asia, and maize and the potato in tropical America. By this time man had also learnt the usefulness of animals as a source of food and clothing. At first he went out to hunt for them, but later he learned that they could be domesticated. He probably noticed that where the animals dropped their excreta the plants grew more luxuriantly. This led him to apply animal excreta to his fields. This was the discovery of the use of animal manure for the growing of crops. And herein lies the beginning of the development of the art of farming.

5. This was the condition of farming beginning in most parts of the world, yet the development of scientific agriculture has been the result or only very recent efforts. It should be noted that agriculture, as a science, is more or less a recent development of the art of raising crops as well as animals is almost as old as man himself. The science of agriculture within recent years has so developed that it has drawn into its area almost all the modem sciences and arts. With a little study of agriculture one soon realizes that it is not a simple subject but rather a very complex one.

6. Some people who are not acquainted with the subject usually consider that agriculture is the meagre knowledge that a village farmer usually possesses. But the more one studies this subject, the more he realizes its complexity and its far-reaching inter-relationship with other sciences and industries. Over one third of the world's workers are employed in agriculture, second only to the service sector, although the quantity of agricultural workers in developed countries has decreased significantly over the past several centuries.

**Exercise 10. Translate the following words and word combinations into English.**

Заимствование, культивация, занятие сельским хозяйством, сельскохозяйственные культуры, плоды и семена, первобытный человек, удовлетворять потребности, расчистка джунглей, непрерывный, урожай, определенная местность, дикие растения, селекция, полезность, источник пищи и одежды, приручать, использовать, животный навоз, искусство ведения сельского хозяйства, выращивание сельскохозяйственных культур, сложный предмет, скудные знания, науки и отрасли, число сельскохозяйственных рабочих.

**Exercise 11. Agree or disagree with the following statements beginning with:**

**Of course, it is true because according to the text …**

**It is false because according to the text …**

1. To practice agriculture means to use artificial resources to "produce commodities which maintain life. 2. Man felt the necessity to clear jungles for the growing of his crops. 3. Man noticed that the plants grew badly where the animals dropped their excreta. 4. If one studies agriculture a little, there will soon be understanding that it is rather a complex subject.

**Exercise 12. Complete the sentences using suitable words or word combinations from the text.**

1. The quantity of ___ workers in developed countries has decreased significantly. 2. Yet the development of ___ ___ has been the result or only very recent efforts. 3. This was the discovery of the use of ___ ___ for the growing of crops. 4. Later as ___ grew, he was forced to restrict himself to a certain ___. 5. It is so old that nobody can say with ___ when and where it was first.

**Exercise 13. Make up word combinations using the text and translate them into Russian.**

| | |
|---|---|
| 1) practice | a) natural resources |
| 2) to use | b) agriculture means |
| 3) to produce | c) the natural supply |
| 4) to supplement | d) commodities |
| 5) to restrict himself | e) a remarkable choice of crops |
| 6) to make | f) to a certain locality |
| 7) to apply | g) crops as well as animals |
| 8) to raise | h) animal excreta to his fields |

**Exercise 14. Translate the words and word combination in brackets into English.**

1. Agriculture is a very (*древнее занятие*) of mankind. 2. This must have led him to the (*селекции определенных диких растений*) for cultivation. 3. But he (*вероятно, обнаружил*) also that the continuous (*выращивание сельскохозяйственных культур*) in the same place gives (*ограниченные урожаи*). 4. At first he went out (*чтобы охотиться на них*), but later he learned that they (*могли быть приручены*). 5. The (*сельскохозяйственная наука*) within recent years has so developed that it has drawn into its area (*почти все современные науки*) and arts.

**Exercise 15. Translate the following words and word combinations into Russian.**

Horticulture, primitive man, arable farming, agronomy, fiber, forest product, horticultural crop, ancient occupation, wild plant, fruits and seeds, cultivation of crops, natural supply, diminished yield, favourable locality, better food, remarkable choice of crops, development of scientific agriculture, usefulness of animals, source of food and clothing, apply animal excreta, art of farming, art of raising crops, meagre knowledge, science of agriculture, far-reaching inter-relationship sciences and industries.

**Exercise 16. Answer the following questions.**

1. What does the definition of "cultivation" or "growing" mean in farming? 2. When did agriculture probably appear? 3. What did the primitive man discover in course of time? 4. What made man apply animal excreta to his fields? 5. Agriculture, as a science is almost as old as man himself, isn't it? 6. How many people are employed in agriculture worldwide?

**Exercise 17. Choose the correct preposition.**

1. Man discovered that certain wild plants *from/about* him would furnish him food *in/for* the form *with/of* fruits and seeds.

2. This again must have resulted *in/to* competition *for/in* certain favourable localities, and the giving up *of/to* his nomadic life.

3. And herein lies the beginning *of/in* the development *of/on* the art *for/of* farming.

4. The science *to/of* agriculture *for/within* recent years has so developed that it has drawn *into/onto* its area almost all the modem sciences and arts.

5. The quantity *from/of* agricultural workers *in/with* developed countries has decreased significantly *in/over* the past several centuries.

## UNIT 2

## Production Practices

### Словообразование

Суффиксы ***-ness*** и ***-(i)ty***, прибавляемые к прилагательному, образуют существительное и обозначают качество или состояние:

soft (мягкий) – soft**ness (**мягкость);

legal (законный) – legal**ity** (законность).

**Exercise 1. Express in one word using the suffix *-ness*. Translate the nouns into Russian.**

**Model**: kind – kindness.

White, yellow, black, happy, weary, glad, joyful.

**Exercise 2. Express in one word using the suffix -(*i*)*ty*. Translate the nouns into Russian.**

**Model**: solid – solidity.

Stupid, timid, responsible, rare, equal, fatal, hostile, neutral, public.

## The Possessive Case

## (Притяжательный падеж)

| | |
|---|---|
| единственное число существительного + **'s** (знак апострофа и буква **-s**) | famer**'s** house – дом фермера |
| составные существительные | my mother-in-law**'s** house – дом моей тещи |
| к существительному в форме множественного числа с окончанием **-s, (-es)** присоединяется только апостроф | countries**'** export – экспорт стран<br>**но**: men**'s** jobs – профессии мужчин |

С апострофом могут употребляться существительные, обозначающие:

1) время (year, month, day, hour – *one minute's talk*), части дня (morning, afternoon, evening – *night's travel*), времена года (spring, summer, autumn – *winter's cold*), расстояние (metre, kilometre, – *a mile's walk*), стоимость (*five dollars' worth*);

2) понятия: world, earth, nature; continent, ocean, sea, river и их названия; country, town, city и их названия; ship, train, plane и другие средства передвижения и их названия; названия газет и др.

Например: *Africa's future, Canada's population, London's museums, the ship's crew*;

3) сообщества людей: party, army, family, crew, society, nation, government и др. Например: *the society's members, the nation's wealth*;

4) звезды, планеты, спутники, например: *the moon's surface, the sun's rays*;

5) такие наречия времени, как today, yesterday, tomorrow. Например: today's newspaper, yesterday's excursion;

6) притяжательный падеж могут иметь местоимения, заменяющие одушевленные существительные: **somebody, someone, anybody, anyone, everyone, everybody, nobody, no one** и др. Например: It's **nobody's** business.

**Exercise 3. Transform the sentences using the Possessive Case.**

**Model:** The country house of my boss. – My boss's country house.

1. The letter of Fred. 2. The policy of our government. 3. The climate of Africa. 4. The table of the teacher. 5. The harvester of Kate. 6. The bags of Nick and Jane. 7. The toys of the children. 8. The name of his cat. 9. The newspaper of yesterday. 10. The filling station of that businessman. 11. The talk of one hour. 12. The agricultural industry of Britain. 13. The phones of these women. 14. The field of these farmers. 15. The outline of the island. 16. The weight of one ton. 17. The walk of three hours. 18. The farmstead of my uncle and aunt.

Конструкция **существительное + of + существительное** выражает отношение *принадлежности*. Существительное после предлога при переводе на русский язык обычно принимает форму *родительного падежа*, например:

the house **of** *my friend* – дом *моего друга*.

**Exercise 4. Transform the sentences using the** *noun + of +noun* **construction.**

**Model:** My neighbour's farm. – The farm of my neighbour.

1. My friend's car. 2. Our government's residence. 3. Three hour's conversation. 4. Tom's teacher. 5. Japan's economy. 6. These boys' new pens. 7. The children's room. 8. Jack and Sue's car. 9. Mark's keys. 10. Five mile's walk. 11. Jane's notebook. 12. Our guests' suitcases. 13. My son's bedroom. 14. Picasso's famous painting. 15. Pushkin's poems 16. Our boss's helicopter. 17. The students' dictionaries.

## The Ordinal Numerals

## (Порядковые числительные)

Порядковые числительные образуются путем прибавления окончания **-th** к количественному числительному:

four – **the fourth** (четыре – четвертый)

eleven – **the eleventh** (одиннадцать – одиннадцатый)

**Исключения**:

one – **the first** (один – первый);

two – **the second** (два – второй);

three – **the third** (три – третий);

five – **the fifth** (пять – пятый);

eight – **the eighth** (восемь – восьмой);

nine – **the ninth** (девять – девятый);

twelve – **the twelfth** (двенадцать – двенадцатый).

При образовании порядковых числительных, которые оканчиваются на **-y** (т. е. все числительные, обозначающие десятки, начиная с 20), конечная **y** меняется на **i** и перед окончанием **-th** добавляется **e**:

eighty – **the** eight**ieth** (восемьдесят – восьмидесятый);

ninety – **the** ninet**ieth** (девяносто – девяностый).

При образовании составных порядковых числительных последний разряд выражается порядковым числительным с окончанием **-th**, а предшествующие разряды – количественными числительными (как и в русском языке):

the 21st – the twenty-**first**;

the 142nd – the one hundred and forty-**second**;

the 3,665th – the three thousand six hundred and sixty-**fifth**;

the 421st – the four hundred and twenty **first**;

the 5,111th – the five thousand, one hundred and **eleventh**;

the 58,764,129th – the fifty eight million, seven hundred and sixty four thousand, one hundred and twenty **ninth**.

Когда порядковые числительные пишутся в виде числа, обычно к числу добавляются последние две буквы соответствующего порядкового числительного:

the first = 1**st**;

the second = 2**nd**;

the third = 3**rd**;

the fourth = 4**th**;

the twenty sixth = 26**th**.

**Exercise 5. Match the pairs of the Ordinal numbers.**

| | |
|---|---|
| 1.the $30^{th}$ | a) the forty-ninth |
| 2. the $2^{nd}$ | b) the sixty-eighth |
| 3. the $17^{th}$ | c) the thirtieth |
| 4. the $81^{st}$ | d) the fifth |
| 5. the $5^{th}$ | e) the second |
| 6. the $23^{rd}$ | f) the eighty-first |
| 7. the $49^{th}$ | g) the seventy-fourth |
| 8. the $116^{th}$ | h) the twenty-third |
| 9. the $74^{th}$ | i) the seventeenth |
| 10. the $68^{th}$ | j) the one hundred and sixteenth |

**Exercise 6. Complete the following sentences.**

1. … is the first month of the year.
2. … is the second month of spring.
3. … is the third month of summer.

4. … is the fourth month of the year.

5. May is the … month of the year.

6. January is the …month of the year.

7. February is the …month of winter.

8. August is the … month of the year.

**Exercise 7. Make the word of the letters.**

The first letter is **B**. The second letter is **I**. The third letter is **R**. The fourth letter is **T**. The fifth letter is **H**. The sixth letter is **D**. The seventh letter is **A**. The eighth letter is **Y**.

**Exercise 8. Read and memorize the following words and word combinations.**

primarily [praɪ'merəlɪ] – в основном, главным образом

dislocated ['dɪsləukeɪtɪd] – перемещенный

nutrient incorporation ['nju:trɪənt ɪnˌkɔ:pə'reɪʃən] – внесение питательных веществ

no-till [nəu'tɪl] – гербицидная обработка почвы (*без вспашки*)

prone [prəun] – предрасположенный

trigger ['trɪgə] – вызывать

decomposition [ˌdi:kɔmpə'zɪʃən] – разложение, гниение

pest control [pest kən'trəul] – борьба с вредителями (*в сельском хозяйстве*)

mite [maɪt] – клещ

cultural practices ['kʌlʧərəl 'præktɪsiz] – агротехнические приемы

crop rotation [krɔp rə'teɪʃən] – севооборот

culling [kʌlɪŋ] – выбраковка

cover crop ['kʌvək rɔp] – покровная культура, запашная культура (*прикрывается землёй при вспашке и выращивается специально для обеспечения плодородия почвы*)

intercropping [ɪn'tɜ:krɔpɪŋ] – междурядное размещение культур

composting ['kɔmpɔstɪŋ] компостирование, приготовление компоста

resistance [rɪ'zɪstənts] – резистентность, устойчивость

pest management [pest 'mænɪʤmənt] – меры борьбы с вредителями

nutrient management ['nju:trɪənt 'mænɪʤmənt] – использование питательных веществ

inputs ['ɪnputs] – затраты (*на производство*)

nutrient inputs ['nju:trɪənt 'ɪnputs] – нормы внесения удобрения

crop nutrient use [krɔp 'nju:trɪənt ju:s] – внесение удобрений под сельскохозяйственные культуры

cultural techniques ['kʌlʧərəl tek'ni:ks] – агротехнические методы

fallow ['fæləu] – невспаханная, парующая (*о земле*); вспаханный под пар (*о поле*); вспаханный (*но не засеянный)*

managed intensive rotational grazing ['mænɪʤd ɪn'tensɪv rə'teɪʃənəl 'greɪzɪŋ] – система интенсивного пастбищеоборота

spreading [spredɪŋ] – разброс

formulation [ˌfɔ:mju'leɪʃən] – форма

cropland ['krɔplænd] – пахотное угодье

irrigation [ˌɪrɪ'geɪʃən] – полив, орошение

fallow year ['fæləu jɪə] – паровой год

crop alteration ['krɔpˌɔ:ltə'reɪʃən] – изменение сельхозкультуры

breeding practice ['bri:dɪŋ 'præktɪs] – селекция, улучшение сорта

genetic make-up [ʤɪ'netɪk 'meɪkʌp] – генетический код

drought-tolerance [draut'tɔlərəns] – засухоустойчивость

crop breeding ['krɔp 'bri:dɪŋ] – селекция сельскохозяйственных культур

molecular technique [mə'lekjulə tek'ni:k] – молекулярный метод

nutritional value [nju:'trɪʃənəl 'vælju:] – питательная ценность

mutagenesis [mju:təˈʤenəsɪz] – мутагенез

induced [ɪn'dju:st] – вызванный

commercial variety [kə'mɜ:ʃəl və'raɪətɪ] – товарный сорт

impact ['ɪmpækt] – влияние

**Exercise 9. Try to guess the meanings of the following words without a dictionary.**

Practice, process, service, control, characteristic, productivity, erosion, organic, organism, pesticide, mechanical, period, composting, method, economic, production, utilization, inorganic, mineral, selection, region.

**Exercise 10. Read and translate the following text.**

1. Farming is the practice of agriculture by specialized labour in an area primarily devoted to agricultural processes, in service of a dislocated population usually in a city. Tillage is the practice of plowing soil to prepare for planting or for nutrient incorporation or for pest control. Tillage varies in intensity from conventional to no-till. It may improve productivity by warming the soil, incorporating fertilizer and controlling weeds, but also makes soil more prone to erosion, triggers the decomposition of organic matter releasing $CO_2$, and reduces the abundance and diversity of soil organisms.

2. Pest control includes the management of weeds, insects, mites, and diseases. Chemical (pesticides), biological (biocontrol), mechanical (tillage), and cultural practices are used. Cultural practices include crop rota-

tion, culling, cover crops, intercropping, composting and resistance. Integrated pest management attempts to use all of these methods to keep pest populations below the number which would cause economic loss, and recommends pesticides as a last resort.

3. Nutrient management includes both the source of nutrient inputs for crop and livestock production, and the method of utilization of manure produced by livestock. Nutrient inputs can refer to chemical inorganic fertilizers, manure, green manure, compost and mined minerals. Crop nutrient use may also be managed using cultural techniques such as crop rotation or a fallow period. Manure is used either by holding livestock where the feed crop is growing, such as in managed intensive rotational grazing, or by spreading either dry or liquid formulations of manure on cropland or pastures.

4. Water management is needed where rainfall is insufficient or variable, which occurs to some degree in most regions of the world. Some farmers use irrigation to supplement rainfall. In other areas farmers use a fallow year to conserve soil moisture to use for growing a crop in the following year. Agriculture represents 70% of freshwater use worldwide.

5. Crop alteration has been practiced by humankind for thousands of years, since the beginning of civilization. Altering crops through breeding practices changes the genetic make-up of a plant to develop crops with more beneficial characteristics, for example, larger fruits or seeds, drought-tolerance, or resistance to pests. Crop breeding includes techniques such as plant selection with desirable traits, self-pollination and cross-pollination, and molecular techniques that genetically modify the organism

6. Domestication of plants has, over the centuries increased yield, improved disease resistance and drought tolerance, eased harvest and improved the taste and nutritional value of crop plants. Careful selection and breeding have had enormous effect on the characteristics of crop plants. Extensive X-ray and ultraviolet induced mutagenesis efforts (i.e. primitive genetic engineering) during the 1950s produced the modern commercial varieties of grains such as wheat, corn (maize) and barley.

7. According to a report by the International Food Policy Research Institute, agricultural technologies will have the greatest impact on food production, food security and trade by 2050. The mentioned above Institute found that the number of people at risk from hunger could be reduced by as much as 40 % and food prices could be reduced by almost half.

**Exercise 11. Read and translate the following attributive phrases.**

Nutrient incorporation, pest control, soil organism, crop rotation, pest management, pest population, economic loss, crop and livestock production, water management, crop breeding, disease resistance, crop plant, Research Institute report, food production, food security, food prices.

**Exercise 12. Translate the following words and word combinations into English.**

Занятие сельским хозяйством, перемещенное население, выполнение вспашки почвы, подготовить для посадки, разниться по интенсивности, улучшить плодородие, внесение удобрения, органическое вещество, сдерживать популяцию вредителей, неорганическое удобрение, зеленый навоз, пахотное угодье или пастбище, водопользование, сохранить почвенную влагу, полезная характеристика, желательное свойство, тщательная селекция, обширные рентгеновские лучи, производство продуктов питания, генная инженерия, под угрозой голода.

**Exercise 13. Complete the sentences. Choose the suitable words from the box.**

| Techniques, nutrient, technologies, freshwater, productivity, utilization, matter. |
|---|

1. Tillage may improve ___ by warming the soil. 2. Tillage triggers the decomposition of organic ___ releasing $CO_2$. 3. Nutrient management includes the method of ___ of manure. 4. Crop ___ use may also be managed using cultural techniques. 5. Agriculture represents 70 % of ___ use worldwide. 6. Crop breeding includes ___ such as self-pollination and cross-pollination. 7. Agricultural ___ will have the greatest impact on food production, food security and trade.

**Exercise 14. Translate the words and word combination in brackets into English.**

1. The (*число людей*) at risk from hunger (*может быть уменьшено*) by as much as 40 %.

2. The (*простая генная инженерия*) during the 1950s produced the modern commercial (*сорта зерновых культур*) such as wheat, corn (maize) and barley.

3. Crop alteration (*практиковалась человечеством*) for thousands of years, (*с начала цивилизации*).

4. (*На других территориях*) farmers use a fallow year (*сохранить почвенную влагу*) to use for growing a crop (*в следующем году*).

5. Cultural practices include (*севооборот, выбраковывание, покровные культуры*) intercropping, composting and (*устойчивость*).

**Exercise 15. Translate the following words and word combinations into Russian.**

Practice of agriculture, specialized labour, agricultural process, practice of plowing soil, nutrient incorporation, pest control, decomposition of organic matter, weed, insect, mite, disease, crop rotation, culling, cover crop, intercropping, composting, pest population, source of nutrient inputs, crop and livestock production, chemical inorganic fertilizer, green manure, intensive rotational grazing, drought-tolerance, desirable traits, resistance to pests, plant selection, desirable trait, self-pollination, cross-pollination, nutritional value of crop, mutagenesis effort, genetic engineering, agricultural technology, food security, wheat, maize, barley, fallow period.

**Exercise 16. Answer the following questions.**

1. What area is farming primarily devoted to? 2. What is the purpose of the integrated pest management in farming? 3. What can the nutrient inputs refer to? 4. Is water management so important for farming? 5. Which beneficial characteristics can be achieved by altering crops? 6. How could one assess the domestication of plants for farming development? 7. Will agricultural technologies have any impact on food production food security and trade by 2050?

**Exercise 17. Match the synonyms.**

| | |
|---|---|
| 1. conventional | a) administration |
| 2. management | b) ordinary |
| 3. conserve | c) farmland |
| 4. cropland | d) preserve |
| 5. supplement | e) origination |
| 6. beginning | f) nourishment |
| 7. enormous | g) mercantile |
| 8. commercial | h) huge |
| 9. food | i) addition |

**Exercise 18. Find the words in the texts with the following meanings.**

1. Turning up the earth of (an area of land) with a plow. (*paragraph 1*)

2. A chemical or natural substance added to soil to increase its fertility. (*paragraph 1*)

3. A very large quantity of something. (*paragraph 1*)

4. A substance used for destroying insects or other organisms harmful to cultivated plant. (*paragraph 2*)

5. The ability not to be affected by something, especially adversely. (*paragraph 2*)

6. The animal dung used for fertilizing land. (*paragraph 3*)

7. The use of water pumped from boreholes or diverted from rivers to assist agriculture. (*paragraph 4*)

8. The scientific and practical activity to develop new agricultural crops. (*paragraph 5*)

9. The action of carefully choosing someone or something as being the best or most suitable. (*paragraph 6*)

## UNIT 3

## Farm Operations

### Словообразование

Суффикс ***-ment,*** прибавляемый к глаголу, обозначает процесс, результат действия или состояние:

to settle (поселиться) – settle**ment** (поселение);

to establish (учредить) – establish**ment** (учреждение);

to embarrass (затруднить) – embarrass**ment** (затруднение).

**Exercise 1. Form the nouns using the suffix *-ment*. Translate the nouns into Russian.**

**Model**: to pay – payment

To resent, to assign, to employ, to develop, to astonish, to achieve, to amuse, to enlarge, to enrich, to attain, to acknowledge, to amaze.

Суффиксы ***-hood*** и ***-ship,*** прибавляемые к существительным, обозначают состояние:

child (ребенок) – child**hood** (детство);

owner (собственник) – owner**ship** (собственность).

**Exercise 2. Form the nouns using the suffix *-hood* and *-ship*. Translate the nouns into Russian.**

**Model**: brother – brotherhood.

Lady, woman, mother, man, baby, boy, father, parent, sister, girl.

**Model**: leader – leadership.

Comrade, relation, professor, citizen, member, friend, author, editor.

## The Degrees of Comparison of Adjectives

## (Степени сравнения прилагательных)

| Группа | Положительная | Сравнительная | Превосходная |
|---|---|---|---|
| 1) односложные<br>2) двухсложные<br>прилагательные,<br>оканчивающиеся<br>на -y, -er, -ow, -le. | big<br>happy<br>clever<br>simple<br>narrow | bigger<br>happier<br>cleverer<br>simpler<br>narrower | the biggest<br>the happiest<br>the cleverest<br>the simplest<br>the narrowest |
| 3) многосложные<br>прилагательные | famous<br>successful<br>interesting | more famous<br>more successful<br>more interesting | the most famous<br>the most successful<br>the most interesting |
| 4) исключения | good<br>bad<br>little<br>many, much<br>far | better<br>worse<br>less<br>more<br>farther,<br>further | the best<br>the worst<br>the least<br>the most<br>the farthest,<br>the furthest |

**Exercise 3. Supply the comparative and superlative forms of the following adjectives.**

Big, wide, easy, brave, good, active, nervous, fine, fat, powerful, efficient, dirty, beautiful, old, long, little, warm, new, much, many, high, comfortable, deep, cold, large, short, interesting, possible, young, far, busy, happy, low, tall.

## The Constructions of Comparison

## (Сравнительные конструкции)

| | |
|---|---|
| than | Minsk is larger **than** Mogilev. |
| as … as | Mogilev is **as** large **as** Brest. |
| not so (as) … as | Vitebsk is **not so (as)** large **as** Minsk. |
| the more …, the better | **The more** we want, **the less** we get. |

**Exercise 4. Translate into Russian the following sentences.**

1. The 1-st of September isn't the longest day. 2. The mouse is smaller than the cat. 3. My hands are cleaner than your hands. 4. Russia is the largest country. 5. In the city the rivers are dirtie than in the country. 6. This is the best film I have ever watched. 7. Ann is the most beautiful girl in our group. 8. I think this book is the least interesting of all. 9. My brother is the highest pupil in his class. 10. I think monkeys are the most intelligent ani-

mals the in the Zoo. 11. The ocean is larger than the sea. 12. Camels are stronger than horses. 13. The tree is higher than the grass.

**Exercise 5. Put the adjectives in brackets into the necessary degree of comparison.**

1. The winter crops are (perfect) than they were last season. 2. My new automobile is (powerful) than yours. 3. That hardy corn variety was (good) than this we have just bought. 4. The subsoil layer is (thick) of all. 5. The cereals, beet roots, vegetables will be (productive) in future than they are now. 6. One combine is (efficient) than one man with a scythe. 7. This tractor is as (powerful) as that one. 8. This cabbage is not so (productive) as that one we bought last year. 9. The harvest we collected yesterday is as (big) as that we had before. 10. The (many) implements a new tractor can trail, the (much) work can be done during one pass. 11. The (little) we forget, the (much) we know. 12. The (fast) you come to the party, the (many) people you meet there. 13. Their fields are as (dry) as ours.

**Exercise 6. Choose the right variant.**

1. Let's take a *later/latest* train. 2. Computers are one of the *latest/last* discoveries of the 20th century. 3. Oh, I am very sorry. I'm late – am I the *last/latest*. 4. That's a further/farther reason to do it. 5. This poem belongs to his *latter/later* works. 6. Jane is 2 years *older/elder* than Jack. 7. Jane is *older/elder* than Jack by two years. 8. My *older/elder* brother is 5 years older/elder than me. 9. Where is the *nearest/next* post office? 10. The teacher told us about the *latest/last* elections in this country. 11. The *nearest/next* house to ours is 2 miles away.

## The Dates in English

## (Чтение дат по-английски)

1. Годы, в отличие от русского языка, обозначаются количественными числительными следующим образом:

1900 г. – nineteen hundred;

1904 г. – nineteen hundred and four;

1915 г. – nineteen fifteen (nineteen hundred and fifteen);

1949 г. – nineteen forty-nine (nineteen hundred and forty-nine).

Слово **year** после обозначения года не употребляется, но иногда употребляется перед ним:

в 1915 г. – in the year nineteen fifteen.

2. Даты обозначаются порядковыми числительными:

15 мая 1948 года – the fifteenth of May, nineteen forty-eight или May the fifteenth, nineteen forty-eight.

Даты могут строиться двумя способами: месяц день, год (используется преимущественно в США) и день, месяц, год (стандартно). Обратите внимание, что в первом случае запятая ставится только между днем и годом, а во втором запятые не употребляются. Если дата отвечает на вопрос *когда*?, то перед ней ставится предлог **on**:

April 1, 2000 (April the first, two thousand) – первое апреля 2000 года

1 April 2000 (the first of April, two thousand) – первое апреля 2000 года;

on 1 April 2000 (on the first of April, two thousand) – первого апреля 2000 года.

Если в дате отсутствует число, то между названием месяца и годом запятая не ставится, а перед месяцем употребляется предлог **in**:

in March 2003 – в марте 2003 года.

3. Века, как правило, прописываются полностью и с маленькой буквы:

the ninteenth century – девятнадцатый век

the seventh and eighth centuries – седьмой и восьмой века.

Возможно следующее употребление веков:

the ninetheen hundreds – девятнадцатый век.

**Exercise 7. Read in English the following sentences.**

1. My son was born on …… (02.12.2000). 2. Our dog was born on …… (21.08.2008). 3. My granddad was born on …… (23.06.1900). 4. My granny was born on …… (18.02.1910). 5. The Women's Day is on ……(08.03). 6. Victory Day is on ……(09.05). 7. Christmas in Russia is on ……(06.01). 8. Christmas in America is on ……(25.12). 9. Epiphany [ɪ'pɪfənɪ] in Russia is on (19.01). 10. The Defender of Fatherland Day is on (23.02).

**Exercise 8. Read and memorize the following words and word combinations.**

variation [ˌveərɪ'eɪʃən] – варьирование, неравномерность

timberland ['tɪmbəlænd] – лесные участки, лесные угодья

handling ['hændlɪŋ] – обращение

cropping practices [krɔpɪŋ 'præktɪsɪz] – методы выращивания сельскохозяйственных культур

continuous [kən'tɪnjuəs] – непрерывный

put land aside [put lænd ə'saɪd] – прерывать обработку земли

marked degree [mɑ:kt dɪ'gri:] – существенная степень

care [keə] – уход

virgin soil ['vɜːʤɪn sɔɪl] – целина
upset [ʌp'set] – нарушать
diverse [daɪ'vɜːs] – разнообразный
result in [rɪ'zʌlt ɪn] – приводить к
treatment ['triːtmənt] – обращение, обработка
adjusting [ə'ʤʌstɪŋ] – корректировка, настройка, регулировка
crop arrangement [krɔp ə'reɪnʤmənt] – последовательность сельскохозяйственных культур
go hand in hand [gəu hænd ɪn hænd] – быть неразрывно связанными
deterioration [dɪˌtɪərɪə'reɪʃən] – ухудшение (*состояния или качества*)
failure ['feɪljə] – неспособность, несостоятельность
unwise [ʌn'waɪz] – неблагоразумный
neglecting [nɪ'glekt] – пренебрежение, игнорирование
fertilize ['fɜːtɪlaɪz] – удобрять, обогащать почву, вносить удобрение
depletion [dɪ'pliːʃən] – истощение (*ресурсов*)
deficiency [dɪ'fɪʃənsɪ] – недостаток
breakdown ['breɪkdaun] – разрушение
undertaking [ˌʌndə'teɪkɪŋ] – предприятие, дело
prolonging [prə'lɔŋɪŋ] – продление.

**Exercise 9. Read the following words, state their parts of speech and translate them into Russian.**

Variety, available, continuous, organic, profitably, leading, length, most, marked, productive, agricultural, diversification, nutrients, known, management, deficiency, kept.

**Exercise 10. Read and translate the following text.**

1. Soils are used in a great variety of ways, agriculture being the leading soil user. There has always been great variation in the quality of soils available for agriculture. In most instances, the better soils are used for crops, and the less suitable ones are kept for pastures or timberlands.

2. Properties that determine the agricultural quality of soils include: 1) ability to produce high crop yields under good and careful handling; 2) the ease with which they can be used profitably; 3) the amount and kind of care they require. Good soils respond well to proper management, which involves correct cropping practices, use of fertilizers, and effective protection against damage.

3. Land use is a continuous operation. Farmers normally do not put their land aside while they are restoring their soils; they repair and improve them while the land is in use. The ways that soils are used, the length of time they remain productive, and the harvests they yield depend to a marked degree upon the care they receive.

4. Time makes little change in virgin soils. But when soils are used for crops or pasture, the balance that nature has given them is upset in various ways and to varying degrees. Changes in the nature of soils cannot be avoided as they are put to diverse uses. These changes may result in improvement in productivity. Frequently, however, soil use results in soil damage and decreased yields. Thus careful treatment of soils in ways that will keep them productive through continuous use is the aim of every good agricultural programme.

5. The systematic alternating of crops from field to field is known as crop rotation, which is one of the methods of soil conservation. A good rotation system consists of adjusting the crop arrangement to the physical nature of the land and, in the same time, maintaining a balanced economic farming programme. Rotation implies the growing of more than one crop on a farm. In other words, rotation and diversification go hand in hand.

6. Improper use may result in the deterioration of soil structure; several things may contribute to this deterioration, including: plowing when soil is too wet; failure to return organic matter; unwise use or lack of lime; neglecting to rotate crops. An even more serious and widespread kind of soil damage is the loss of essential plant nutrients. This may result from continuous growing of the same crop and from failing to fertilize it properly. Still another serious cause of depletion in most soils is known to be the loss of organic matter.

7. Most kinds of soil damage are related to each other in many ways. For example, organic deficiency is definitely a factor in soil erosion and in structural breakdown as well as in the deficiency of plant nutrients. Consequently, understanding these relationships and properly evaluating them in a balanced farming programme make modern agriculture truly a scientific undertaking.

8. Under careful and proper use soils may continue indefinitely to produce good yields. It is improper use and lack of care that harm soils. Thus good care is of vital importance in prolonging the useful life of soils.

**Exercise 11. Insert the necessary words and word combinations given below the line.**

1. There has always been great variation in the ___ available for agriculture.

2. Farmers normally ___ their soils while the land is in use.

3. Good soils respond well to ___, which involves correct cropping practices.

4. ___, however, soil use results in soil damage and decreased yields.

5. ___ implies the growing of more than one crop on a farm.

6. An even more serious and widespread kind of ___ is the loss of essential plant nutrients.

7. Thus good care is of vital importance in ___ the useful life of soils.

_____

Rotation, soil damage, frequently, proper management, repair and improve, quality of soils, prolonging.

**Exercise 12. Translate the following words and word combinations into Russian.**

Great variety, better soils, pastures or timberlands, agricultural quality, high crop yields, careful handling, amount and kind of care, effective protection, length of time, diverse uses, improvement in productivity, soil damage, decreased yields, careful treatment, continuous use, agricultural programme, alternating of crops, from field to field, methods of soil conservation, physical nature, lack of lime, rotation and diversification, deterioration of soil structure, serious and widespread, essential plant nutrients, loss of organic matter, soil erosion, modern agriculture, vital importance.

**Exercise 13. Match these words and expressions with their Russian translation.**

| | |
|---|---|
| 1) protection against damage | a) постоянная операция |
| 2) continuous operation | b) защита от ущерба |
| 3) remain productive | c) незначительное изменение |
| 4) little change | d) оставаться плодородным |
| 5) in various ways | e) улучшение плодородия |
| 6) improvement in productivity | f) разными способами |
| 7) agricultural programme | g) консервация почвы |
| 8) soil conservation | h) сельскохозяйственная программа |
| 9) physical nature | i) причина истощения |
| 10) cause of depletion | j) физическая природа |

**Exercise 14. Choose the right option to complete the sentences.**

1. Land use is a ___ operation.

a) usual; b) temporary; c) continuous.

2. These changes may ___ improvement in productivity..

a) result from; b) result in; c) realize.

3. Rotation implies the ___ of more than one crop on a farm.

a) harvesting; b) growing; c) transplanting.

4. In other words, rotation and ___ go hand in hand.

a) diversification; b) fertilizing; c) deterioration.

5. Still another serious cause of depletion in most soils is known to be the loss of ___.

a) subject matter; b) organic matter; c) serious matter.

6. Thus good care is of vital importance in ___ the useful life of soils.

a) evaluating; b) neglecting; c) prolonging.

**Exercise 15. Answer the following questions.**

1. How are the soils available for agriculture used at present? 2. What does the proper soil management involve? 3. The ways that soils are used depend to a marked degree upon the care they receive, don't they? 4. What is the aim of every good agricultural programme? 5. What is crop rotation? 6. There are many things that may contribute to soil deterioration, aren't there? 7. How are organic deficiency and soil erosion and deficiency of plant nutrients related to each other?

**Exercise 16. Choose the correct preposition.**

1. It is improper use and lack *in/of* care that harm soils.

2. Thus good care is *for/of* vital importance *on/in* prolonging the useful life *from/of* soils

3. Most kinds *through/of* soil damage are related *to/above* each other *to/in* many ways.

4. An even more serious and widespread kind *of/to* soil damage is the loss *with/of* essential plant nutrients.

5. A good rotation system consists *of/to* adjusting the crop arrangement *to/in* the physical nature *of/from* the land.

6. Changes *for/in* the nature *of/under* soils cannot be avoided as they are put *to/into* diverse uses.

**Exercise 17. Match the antonyms.**

| | |
|---|---|
| 1. variation | a) heedless |
| 2. careful | b) stabilization |
| 3. productive | c) identical |
| 4. diverse | d) barren |
| 5. arrangement | e) improperly |
| 6. properly | f) disorganization |
| 7. breakdown | g) cease |
| 8. continue | h) integration |

## UNIT 4

## Soils

### Словообразование

Суффиксы ***-ance* (*-ence*)**, прибавляемые к глаголу, обозначают действие, состояние или качество:

to disturb (нарушить) – disturb**ance (**нарушение);

to refer (ссылаться) – refer**ence** (ссылка);

to ignore (игнорировать) – ignor**ance** (невежественность).

**Exercise 1. Form the nouns using the suffix *-ance* (*-ence*). Translate the nouns into Russian.**

**Model**: to allow – allowance

To assist, to resist, to inherit, to appear, to annoy, to avoid, to accept.

**Model**: to differ – difference

To indulge, to interfere, to adhere, to insist, to persist, to correspond.

Суффиксы ***-ion* (*-tion, -ation*)**, прибавляемые к глаголу, обозначают состояние, процесс или результат действия:

to oppress (подавлять) – oppress**ion** (гнет);

to educate (обучить) – educa**tion** (обучение);

to form (придавать форму) – form**ation (**формирование).

**Exercise 2. Form the nouns using the suffix *-ion* (*-tion, -ation*). Translate the nouns into Russian.**

**Model**: to exhibit – exhibition.

To connect, to limit, to consider, to invent, to express, to impress, to translate, to dedicate, to prevent, to protect, to participate, to activate.

### The Pronouns

### (Местоимения)

| Личные местоимения | | Притяжательные местоимения | | Возвратные местоимения |
|---|---|---|---|---|
| Именительный падеж | Объектный падеж | Местоимения прилагательные | Абсолютная форма | |
| I | me | my | mine | myself |
| he | him | his | his | himself |
| she | her | her | hers | herself |
| it | it | its | its | itself |
| we | us | our | ours | ourselves |
| you | you | your | yours | yourself / yourselves |
| they | them | their | theirs | themselves |

**Exercise 3. Read the sentences with the correct pronoun.**

1. Can you help *I/me* with this text? 2. We usually meet *they/them* at the sports-ground. 3 Who told *he/him* this news? 4. They asked *we/us* to come at 3 sharp. 5. I asked *she/her* to help me but *she/her* didn't agree. 6. Ann is leaving tonight. Would you go to see *she/her* off? 7. Those shoes are really nice. I'd like to buy *they/them*. 8. What is he talking about? We can't understand *he/him*. 9. I'm sorry for *she/her*. She looks so tired.

**Exercise 4. Put in a suitable pronoun.**

1. She told me of a friend of (she/her/hers). 2. It seems to (my/mine/me) he is right. 3. They are highly qualified. It is difficult to choose between (they/them/theirs). 4. We were rather disappointed in (him/he/his). 5. Speak for yourself! It's not business of (you/your/yours). 6. The final decision is (me/my/mine). 7. I'm sure if I asked (he/him/his), he wouldn't object to help. 8. We went on holiday with some friends of (our/ours). 9. That's a good idea, but ... is better, (he/his/him). 10. Do you think that most people are happy in ... jobs? (they/their/theirs).

**Exercise 5. Put in a suitable reflexive pronoun.**

1. She cut ... badly and had to go to hospital. 2. Tom, I think you'll enjoy ... at the party. 3. I think they are making fools of ... . 4. He introduced ... to me. 5. She is quite capable, she can do it ... . 6. When we are alone we talk to ... . 7. I'm not angry with you. I'm angry with ... . 8. I don't like people who think only about ... . 9. Did you make it ...? 10. She will be very upset but I have to tell her the news ... . 11. We ... did most of the work. Nobody helped us.

## The Fractional Numerals

## (Дробные числительные)

1. В простых дробях числитель выражается *количественным* числительным, а знаменатель – *порядковым* числительным:

1/2 – a (one) half;

1/3 – a (one) third;

1/4 – a (one) quarter;

1/5 – a (one) fifth;

1/8 – an (one) eighth.

Когда числитель больше единицы, знаменатель принимает окончание **-s**:

2/3 – two thirds;

3/5 – three fifths.

2. Существительное, следующее за дробью, стоит в единственном числе:

2/3 ton (читается: two thirds of a ton);

3/4 kilometre (читается: three quarters of a kilometre);

1/2 ton (читается: half a ton).

При этом следует обратить внимание на отсутствие артикля перед **half** и на отсутствие предлога **of** перед существительным.

3. Существительное, к которому относится смешанное число, употребляется во множественном числе:

2 1/2 tons (читается: two and a half tons или two tons and a half).

При чтении смешанного числа, целое число которого равно единице, существительное употребляется во множественном числе, когда оно читается после смешанного числа. Когда же существительное читается между единицей и дробью, оно употребляется в единственном числе:

1 1/2 hours (читается: one and a half hours или one (an) hour and a half).

4. В десятичных дробях целое число отделяется от дроби точкой (в русском – запятой). При чтении десятичных дробей каждая цифра читается отдельно. Точка, отделяющая целое число от дроби, читается **point**. Нуль читается **nought** [nɔ:t]. Если целое число равно нулю, то оно часто не читается:

0.25 – nought point two five или point two five;

14.105 – one four (или fourteen) point one nought five.

Существительное, следующее за десятичной дробью, стоит в единственном числе, когда целое число равно **нулю**:

0.25 ton (читается: nought point two five **of a ton**).

В других случаях существительное стоит во множественном числе:

1.25 tons (читается: one point two five tons);

23.76 tons (читается: two three point seven six tons или twenty-three point seven six tons).

5. Проценты обозначаются следующим образом:

2 %, или 2 per cent., или 2 p. c. (читается: two per cent).

Per cent (сокращенно p. c.), В английском языке cent не принимает окончания **-s**. Дробные доли одного процента обозначаются следующим образом:

3/8 %, или 3/8 per cent, или 3/8 p. c. (читается: three eighths per cent, или three eighths of one per cent.)

1/2 %, или 1/2 per cent, или 1/2 p. c. (читается: a half per cent, или a half of one per cent.)

0.2 %, или 0.2 per cent, или 0.2 p. c. (читается: nought point two per cent, или nought point two of one per cent).

**Exercise 6. Read the following Fractional numbers.**

2/3; 5/16; ¼; 1/10; 7 ½; 2 ¼; 9.2416; 0.54; 0.2; 0.4; 0.02; 0.34; 1.8; 12.99; 31/7; 8 ½; 3 ¼; 4/16; 4.254; 0.63; 2.5; 1.11; 12.842; 66.6; 999.209; ⅛; ⅞; 1⅓; 9¾; 5½.

**Exercise 7. Read and memorize the following words and word combinations.**

surface ['sɜːfɪs] – земная поверхность

breakdown ['breɪkdaun] – разрушение

rock [rɔk] – горная порода, скальная порода

decay [dɪ'keɪ] – гнить, разлагаться (*об органических веществах*)

evolve [ɪ'vɔlv] – эволюционировать, развиваться

grassland ['grɑːslænd] – сенокосное угодье, луг, пастбище

cropland ['krɔlænd] – пахотное угодье

fertility [fɜː'tɪlətɪ] – плодородие

pore [pɔː] – пора

average ['ævərɪʤ] – нормальный, обычный, средний

remainder [rɪ'meɪndə] – оставшаяся часть

animal waste ['ænɪməl weɪst] – отходы животноводства

essential [ɪ'senʃəl] – важнейший, необходимый, основной

release [rɪ'liːs] – выделять

silicon ['sɪlɪkən] – кремний

magnesium [mæg'niːzɪəm] – магний

sodium ['səudɪəm] – натрий

potassium [pə'tæsɪəm] – калий

parent rock material ['peərənt rɔk mə'tɪərɪəl] – почвообразующая порода, материнская порода

alkaline ['ælkəlaɪn] – щелочной

leach [liːʧ] – выщелачивать, вымывать

fraction ['frækʃən] – доля, порция, часть

term [tɜːm] – называть, обозначать

clay [kleɪ] – глина

silt [sɪlt] – ил, наносы ила

sand [sænd] – песок

gravel ['grævəl] – гравий

coarse [kɔːs] – крупнозернистый

retain [rɪ'teɪn] – сохранять, удерживать
content ['kɔntent] – содержание
aggregate ['ægrɪgeɪt] – соединять(ся)
plate [pleɪt] – пластина
block [blɔk] – глыба
prism ['prɪzəm] – призма
granule ['grænju:l] – гранула, мелкая частица
arrangement [ə'reɪndʒmənt] – расположение, расстановка (*в определенном порядке*)
translate [trænz'leɪt ] – преобразовывать
pedologist [pɪˈdɒlədʒɪst] – почвовед
horizon [hə'raɪzən] – горизонт
leaching [li:ʧɪŋ] – выщелачивание, вымывание
downward ['daunwəd] – направленный вниз
mineralization [ˌmɪnərəlaɪ'zeɪʃən] – минерализация.

**Exercise 8. Try to guess the meanings of the following words without a dictionary.**

Mineral, gas, material, aluminum, factor, physical, system, profile, region, chemical, proportion, general, geographic, component, bacteria, mixture, microscopic, function, element, silicon, geological, climate, fraction, substance, structure, classification, horizon, mineralization.

**Exercise 9. Read and translate the following text.**

1. Soil is the layer of mineral and organic material that covers most of the earth's land surfaces. It is made by the slow, continuous physical and chemical breakdown of rock and by the decay of organisms that were once alive. Soil is dynamic. It evolves constantly as the proportions of its mineral, organic, air and water content change. Soil provides nutrients to environments such as grasslands, croplands, and forests, which supply people and other life forms with food and shelter. The fertility of a soil is determined by its capacity to supply plants with the nutrients they need to grow.

2. Soils in general are made up of major components, or parts: minerals, organic matter, water, and air. These components are combined in mixture of decomposing rock material and decaying plant and animal matter. The mixture contains openings called pores, which can hold water and air. Pores make up about half of the volume of an average soil. Much of rest of the volume consists of mineral particles of varying sizes.

3. The remainder of the soil, commonly ranging from one to twelve percent of the total volume, consists of organic matter, which includes decaying leaves, twigs, animal wastes, and the remains of dead animals, as well

as variety of living magnesium. These include rodents, insects, worms, and microscopic bacteria. Microorganisms, living in the organic portion of soil, perform the essential function of decomposing plant and animal matter, releasing nutrients to be used by growing plants.

4. Besides organic matter, soil is largely composed of elements and compounds of silicon, aluminum, iron, oxygen, and, in smaller quantities, calcium, magnesium, sodium, and potassium. Factors determining the nature of soil are vegetation type, climate, and parent rock material; geographic relief and the geological age of the developing soil are also factors. Acidic soils occur in humid regions because alkaline minerals are leached downward: alkaline soils occur in dry regions because alkaline salts remain concentrated near the surface. Geologically young soils resemble their parent material more than older soils, which have been altered over time by climate and vegetation.

5. The inorganic fraction of soil may include various sizes and shapes of rocks and minerals; in order of increasing size these are termed clay, silt, sand, gravel, and stone. Coarser soils have lower capacity to retain organic plant nutrients, gases, and water, which are essential for plants. Soils with higher clay content, which tend to retain these substances, are therefore usually better suited for agriculture. In most soils, clay and organic particles aggregate into plates, blocks, prisms, or granules. The arrangement of particles, known as soil structure, largely determines the soil's pore space and density, which translates into its capacity to hold air and water.

6. There are many kinds of soils. Soil scientists, called pedologists, have designed classification systems to identify the kinds of soils found around the world. This system divides soil into distinctive horizons of the soil profile. The A horizon, the surface layer, contains most of the humus. The B horizon contains inorganic compounds formed by decomposition of organic material, a process known as mineralization; the material is brought to the B layer by the downward leaching action of water. The lowest soil layer, the C horizon, represents the weathered mineral parent substance.

**Exercise 10. Translate the following words and word combinations into Russian.**

Organic material, earth's surface, continuous breakdown, decomposition, air and water content, life forms, organic matter, rock material, animal matter, average soil, mineral particles, decaying leaves, remains of animals, organic portion of soil, growing plants, nature of soil, geological age, acidic soil, alkaline minerals, dry regions, fraction of soil, arrangement of particles, pore space, hold air and water, kinds of soils, downward leaching.

**Exercise 11. Read the text and insert the necessary propositions.**

1. There are many kinds __ soils. 2. This system divides soil __ distinctive horizons __ the soil profile. 3. The inorganic fraction __ soil may include various sizes and shapes __ rocks and minerals. 4. Older soils have been altered __ time __ climate and vegetation. 5. Much __ rest __ the volume consists __ mineral particles __ varying sizes. 6. Pores make up __ half __ the volume __ an average soil. 7. Soil is the layer __ mineral and organic material that covers most __ the earth's land surfaces.

**Exercise 12. Translate the expressions into Russian paying attention to the prepositions.**

The layer *of* mineral and organic material; it is made *by* the continuous breakdown of rock; supply people *with* food and shelter; the fertility *of* a soil; to supply plants *with* the nutrients; soils made up *of* major components; much *of* rest *of* the volume; mineral particles *of* varying sizes; remains *of* dead animals; nutrients to be used *by* plants; acidic soils occur *in* humid regions; salts remain *near* the surface; particles aggregate *into* granules; soils found *around* the world; system divides soil *into* distinctive horizons.

**Exercise 13. Find in *B* the English equivalents to the Russian words in *A*.**

| ***A*** | ***B*** |
|---|---|
| 1) непрерывный | a) distinctive; b) continuous; c) decaying. |
| 2) снабжать | a) to supply; b) to grow; c) to determine. |
| 3) компонент | a) opening; b) compound; c) component. |
| 4) важный | a) essential; b) general; c) material. |
| 5) многообразие | a) capacity; b) variety; c) fertility. |
| 6) калий | a) magnesium; b) organism; c) potassium. |
| 7) разложение | a) decomposition; b) vegetation; c) fraction. |
| 8) развивающийся | a) opening; b) developing; c) ranging. |

**Exercise 14. Translate the following words and word combinations into English.**

Слой минерального и органического материала, физическое и химическое разрушение горной породы, изменение содержания воды, пастбище, пахотное угодье, другие формы жизни, плодородие почвы, снабжать растения питательными веществами, смесь разрушающегося каменного материала, гниющие листья, разнообразие живых организмов, грызуны, насекомые, черви, выполнять важную функцию, остатки растительных и животных организмов, элементы и соединения, определять природу почвы, географический рельеф, щелочные минералы,

более древние почвы, разные размеры и формы, большее содержание глины, пористое пространство и плотность, поверхностный слой.

**Exercise 15. Answer the following questions.**

1. How is soil made?
2. What are the soil components combined in?
3. What does the soil mixture contain?
4. What is the function of the microorganisms, living in the organic portion of soil?
5. What elements and compounds is soil largely composed of?
6. What regions do the acidic soils occur in?
7. What minerals does inorganic fraction of soil include?
8. How can you describe distinctive horizons of the soil profile?

## UNIT 5

## Soils Characteristics

### Словообразование

Суффикс ***-ist***, прибавляемый к существительному, обозначает последователя определенного учения, теории или специалиста в какой-либо области:

Michurin – Michurin**ist** (мичуринец);

agronomy (агрономия) – agronom**ist** (агроном).

**Exercise 1. Form the nouns using the suffix *-ist*. Translate the nouns into Russian.**

**Model**: psychology – psychologist.

Biology, psychiatry, mineralogy, Latin, science, colony, optimism.

Суффикс ***-ism***, прибавляемый к существительному или прилагательному, обозначает учение, качество или особенность речи:

modern (современный) – modern**ism** (модернизм);

hero (герой) – hero**ism** (героизм);

American (американский) – American**ism** (американизм).

**Exercise 2. Form the nouns using the suffix *-ism*. Translate the nouns into Russian.**

**Model**: individual – individualism

Classic, Calvin, Darwin, material, ideal, professional, capital, feudal.

## The Article

## (Артикль)

Артикль – это служебное слово, являющееся одним из основных формальных признаков существительного. Он не имеет самостоятельного значения и не переводится на русский язык. В английском языке есть два артикля – неопределенный и определенный.

1. Неопределенный артикль имеет две формы: *a* и *an*.

Форма *a* употребляется перед словами, которые начинаются с согласного звука: *a man, a table*. Форма *an* употребляется перед словами, которые начинаются с гласного звука: *an answer, an old man.*

2. Определенный артикль имеет одну графическую форму *the*.

Определенный артикль происходит от указательного местоимения that – *mom* и употребляется перед существительными в единственном и множественном числе.

## The Indefinite Article

## (Неопределенный артикль)

1. Неопределенный артикль употребляется:

| | |
|---|---|
| 1. Для обозначения принадлежности предмета к какому-либо классу предметов (со значением *какой-то, один из, любой*). | I am a student.<br>I have read an interesting book.<br>A fool may ask more questions in an hour than a wise man can answer in seven years. |
| 2. В значении *один* перед исчисляемыми существительными, обозначающими *время, вес, стоимость, расстояние.* | once a week, twice a month, in an hour, two pounds a kilo, 70 km. an hour |
| 3. С исчисляемыми существительными, упоминаемыми впервые. | I have bought a coat. The coat is not very expensive. |
| 4. С числительными: a dozen, a hundred, a thousand, a million – в значении один. | If she had a million pounds, she would not work. |

## The Definite Article

## (Определенный артикль)

2. Определенный артикль употребляется:

| | |
|---|---|
| 1. Перед существительным, обозначающим конкретный предмет, о котором даются или выясняются дополнительные сведения; с существительными, упоминаемыми раньше. | The village is not far from the city.<br>I've bought a flat. The flat is very cozy. |

| | |
|---|---|
| 2. Перед существительным, являющимся единственным в своем роде или данной обстановке, а также: the sky, the ground, the country, the environment, the world, the cinema, the theater, the radio (but: television), the government, the weather. | The earth, the moon, the sun, the universe, the equator, the horizon, the atmosphere, the kosmos, the Milky Way.<br><br>Open the door, please. |
| 3. Перед существительным, обозначающим вещество в определенном количестве или в определенном месте в данной обстановке. | Pass me the salt, please!<br>Where is the sugar? |
| 4. Перед существительным, имеющим определение, выраженное прилагательным в превосходной степени. | This is the most interesting book I've got. |
| 5. Перед существительными, обозначающими социальные классы людей. | the workers<br>the bourgeoisie |
| 6. Перед существительными в единственном числе, обозначающими целый класс предметов. | The dog is a friend of man.<br>The rose is my favorite flower. |
| 7. Перед существительными: the police, the army, the fire brigade, the bank, the post office, the doctor, the dentist, the press, the telegraph. | The police are looking for the thief.<br>I am not well. I am going to the doctor. |
| 8. С датами (в устной речи). | On the first of May. |
| 9. Перед названиями организаций, документов, официальных титулов, политических партий, этнических групп, открытий, музыкальных инструментов, танцев. | The Constitution, the United Nations, the Pentagon, the President, the Conservative Party, the Indians, the telephone, the piano, the waltz. |

## 3. Перед именами собственными

| | |
|---|---|
| 1. Перед именем собственным, обозначающим всю семью. | The Smiths, the Browns. |
| 2. Перед названием стран, которые включают слова republic, union, kingdom, state, а также употребленными во множественном числе, с названием некоторых местностей, исторических событий, эпох. | The USA, the Republic of Belarus, the United Kingdom, The Netherlands, the French Revolution, the Ice Age. |
| 3. Перед названиями океанов, морей, рек, озер, горных цепей, пустынь, каналов, групп островов. | The Atlantic Ocean, the Black Sea, the Thames, the British Isles, the Ontario (but Lake Ontario), the Alps, the Sahara, the Sues Canal. |
| 4. Перед названиями четырех сторон света. | The North, the South, the East, the West. |
| 5. Перед названиями гостиниц, театров, кинотеатров, музеев и галерей, ресторанов и баров, кораблей и английских газет, а также перед названиями с предлогом **of**. | The Hilton Hotel, the Odeon, The Tate Gallery, the Times, the Queen Elizabeth (корабль), the Titanic, the University of London. |

## The Zero Article

## (Нулевой артикль в английском языке)

4. Нулевой артикль употребляется:

| | |
|---|---|
| 1. Перед абстрактными существительными; перед названием вещества, если речь не идет о конкретном количестве. | Life in not interesting without love and care.<br>– Tea or coffee? – Tea, please. |
| 2. Перед существительными во множественном числе в общем смысле. | Children like ice-cream. |
| 3. Перед именами собственными, с названиями городов, улиц, площадей, парков, вокзалов, аэропортов, мостов, горных вершин, отдельных островов, планет, праздников и видов спорта.<br>Перед названиями университетов, имеющих имя собственное. | Alex, London, Trafalgar square, Downing street, Buckingham Palace, Westminster Abbey, Eiffel Tower, Venus, Victory Day, Elbrus, Madagascar, Hyde Park, Tower Bridge, football.<br>Oxford University, London University |
| 4. С названиями стран и континентов, перед официальными званиями с именами собственными | Russia, South America, Asia, Queen Elizabeth. |
| 5. Перед названиями наук. | Economics, History. |
| 6. Перед существительными, определяемыми притяжательными (my, his, her, its, our, your, their), указательными (this, that, these, those), вопросительными (what, which, whose) и неопределенными (some, any, each, every, much, many и no) местоимениями. | There is no theater in our town.<br>Take any book you like. |
| 7. Перед названиями магазинов, банков, отелей с именами их основателей (часто в притяжательном падеже). | Barclays Bank, Harrods, McDonald's. |

**Exercise 3. Fill in the blanks with *a* or *an*.**

1. That flower is ... rose. 2. This is ... English class. 3. I spent ... hour and ... half to fulfill my homework. 4. It takes me half ... hour to get to the station. 5. A football match is ... interesting thing. 6. That is ... hotel. 7. ... apple is ... fruit. 8. This is ... historical monument. 9. My mother has ... headache. 10. ... hotel room in New York is very expensive. 11. This is ... important document. 12. She is ... pretty woman.

**Exercise 4. Insert *the* if necessary.**

1. ... youngest boy has just started going to ... school, ... eldest boy is at ... college. 2. She lives on ... top floor of an old house. When ... wind blows,

all ... windows rattle. 3. Excuse me, please. Do you know ... time? – Yes, ... clock in ... hall has just struck nine. 4. … Atlantic Ocean is between … USA and …Europe. 5. ... family hotels are ... hotels which welcome ... parents and ... children. 6. Did you come by ... air? – No, I came by ... sea. I had a lovely voyage on ... Queen Elisabeth II. 7. On ... Sundays my father stays in ... bed till eleven o'clock, reading ... Sunday papers. 8. Then he gets up, puts on ... old clothes, has ... breakfast and starts ... work in ... garden.

**Exercise 5. Supply *the, a/an* or no article.**

1. Who opened ... windows? 2. She lives in ... centre of Glasgow. 3. I'd like ... glass of water. 4. ... man in ... next flat is French. 5. He's ... oldest child in ... school. 6. Who's ... girl by ... piano? 7. Today is ... only day that I'm free. 8. Which coat is yours? ... red one. 9. … Alps are … highest mountains in ...Europe. 10. … Madagascar is to … East of … Africa. 11. My grandparents live in ... town. 12. ... windows give me ... view of ... garden. 13. My brother Bob lives in ... York. 14. There's ... beautiful carpet on ... floor. 15. My cousin works at ... school. 16. … Volga is the longest river in … Russia. 17. … Browns lived in this house 10 years ago.

**Exercise 6. Read and memorize the following words and word combinations.**

rate [reɪt] – темп, скорость

layer ['leɪə] – слой, пласт

body of soil ['bɔdɪ əv sɔɪl] – почвенный массив

boundary ['baundərɪ] – граница

surrounding [sə'raundɪŋ] – ближайший

noticeable ['nəutɪsəbl] – видный, заметный, приметный

highly ['haɪlɪ] – весьма, очень

topsoil ['tɔpsɔɪl] – верхний слой почвы, пахотный слой почвы

subsoil ['sʌbsɔɪl] – подпочва

weathering ['weðərɪŋ] – выветривание

parent material ['peərənt mə'tɪərɪəl] – минеральное или органическое вещество из материнской породы, материнская порода

range [reɪndʒ] – варьировать

estimate ['estɪmeɪt] – оценивать

grain [greɪn] – песчинка

silt [sɪlt] – ил, наносы

loam [ləum] – суглинок, глина и песок с перегноем

drainage ['dreɪnɪdʒ] – дренаж, дренирование

aggregate ['ægrɪgət] – собирать (*в одно целое*), собираться

clump [klʌmp] – глыба, ком
ped [ped] – почвенная отдельность, почвенный агрегат
arrangement [ə'reɪnʤmənt] – строение
stick [stɪk] – слипаться, склеиваться
consistence [kən'sɪstəns] – консистенция, степень плотности
shape [ʃeɪp] – форма
platelike [ˈpleɪtlaɪk] – пластинчатый
prism like ['prɪzəmlaɪk] – призмовидный
block like ['blɔklaɪk] – глыбовидный
column-shaped ['kɔləmʃeɪpt] – колонкообразный
rounded ['raundɪd] – округленный,
flat [flæt] – ровный
curved ['kɜːvd] – изогнутый, кривой
acid ['æsɪd] – кислота
alkali ['ælkəlaɪ] – щелочь
cation exchange ['kætaɪən ɪks'ʧeɪnʤ] – катионный обмен
humus ['hjuːməs] – гумус, перегной
leach [liːʧ] – выщелачивать, вымывать
nonnutrient [ˌnɔn'njuːtrɪənt] – непитательное вещество.

**Exercise 7. Read and translate the following text.**

1. The method and rate of soil formation differs throughout a body of soil. As a result, the soil develops layers. These layers are called soil horizons. Soil horizons may be thick or thin, and they may resemble or differ from the surrounding horizons. The boundaries between the layers can be distinct or barely noticeable.

2. Most soils include three major horizons. The upper two, called the **A** and **B** horizons, are the most highly developed layers. The **A** horizon is also known as topsoil. The lowest horizon, called the **C** horizon or the subsoil, is exposed to little weathering. Its composition resembles that of the parent material. Pedologists describe soils by the characteristics of the soil horizons, including (1) color, (2) texture, (3) structure, and (4) chemical conditions.

3. *Color*. Soils range in colour from yellow and red to dark brown and black. The color of a soil helps pedologists estimate the amounts of air, water, organic matter, and certain elements in the soil. For example, a red color may indicate that iron compounds are present in the soil.

4. *Texture*. Texture of a soil depends on the size of its mineral particles. Sands are the largest particles. The individual grains can be seen and felt.

Silts are just large enough to be seen and clays are microscopic. Pedologists divide soils into textural classes according to the amounts of sand, silt, and clay in a soil. For example, the mineral portions of soils classified as loam contain from 7 to 27 per cent clay and less than 52 per cent sand. In silty clay, more than 40 per cent of the mineral particles are clay, and more than 40 per cent are silt. Texture helps determine how thoroughly water drains from a soil. Sands promote drainage better than clays.

5. *Structure*. When soil particles aggregate, they form clumps of soil that are called peds. Most peds range from less than 1/2 to 6 inches (1.3 to 15 centimeters) in diameter. Their shape and arrangement determine a soil's structure. The ability of peds and soil particles to stick together and hold their shape is called consistence. Most soils contain two or more kinds of structures. Some soils have no definite structure. In some such soils, the peds lack a definite shape or arrangement. In others, the particles do not aggregate.

6. There are three main kinds of soil structures: (1) platelike, (2) prismlike, and (3) blocklike. Platelike peds are thin, horizontal plates that occur in any horizon. Prismlike peds are column-shaped subsoil structures. Blocklike peds look like blocks with flat or curved sides. Large, flat-sided, blocklike peds commonly occur in subsoils. Small, rounded, blocklike peds make up most topsoils. They contain more organic matter and hold water and nutrients better than do larger peds.

7. *Chemical Conditions*. Soils can be acid, alkaline, or neutral. The amounts of acid and alkali in a soil influence the biological and chemical processes that take place there. Highly acid or alkaline soils can harm many plants. Neutral soils support most of the biological and chemical processes, including the process by which green plants obtain many nutrients. This process is called cation exchange.

8. Many nutrients and other elements dissolve in the soil solution, forming positively charged particles called cations. The negatively charged clay and humus attract some cations and prevent them from being leached (washed away) from the topsoil by drainage waters. The solution that remains in the soil contains other cations. Nutrient cations on the clay and humus and those in the soil solution change places with non-nutrient cations that are on roots. The roots can then absorb the nutrients.

**Exercise 8. Find the odd words in the sentences and change them for the correct ones using the text.**

1. These layers are called celestial horizons. 2. The boundaries between the countries can be distinct. 3. The subsoil is exposed to considerable

weathering. 4. Pedologists recover soils by the characteristics of the soil horizons. 5. The color of a soil helps agronomists estimate the amounts of air. 6. Sands are the smallest particles. 7. Horizon helps determine how thoroughly water drains from a soil. 8. Highly acid or alkaline soils can favour many plants. 9. This process is called cation sequence. 10. The stems can then absorb the nutrients.

**Exercise 9. Translate the following words and word combinations into English.**

Метод и скорость, формирование почвы, слои почвы, почвенные горизонты, пахотный слой почвы, незначительное выветривание, химические условия, количество определенных элементов в почве, соединения железа, минеральные частицы, отдельная песчинка, текстурный класс, пески способствуют дренированию, частицы почвы, форма и строение, удерживать форму, определенная структура, подпочвенная структура, удерживать воду и питательные вещества, нейтральная почва, биологический процесс, катионный обмен, почвенный раствор, заряженные частицы, поглощать питательные вещества.

**Exercise 10. Look through the text and find the words having the same meaning as:**

| | |
|---|---|
| development (*paragraph 1*) | fully (*paragraph 4*) |
| neighbouring (*paragraph 1*) | form (*paragraph 5*) |
| chief (*paragraph 2*) | arched (*paragraph 6*) |
| structure (*paragraph 2*) | impact (*paragraph 7*) |
| quantities (*paragraph 3*) | soak up (*paragraph 8*) |

**Exercise 11. Match the synonyms.**

| | |
|---|---|
| 1) develop | a) neighbouring |
| 2) surrounding | b) evolve |
| 3) composition | c) infinitesimal |
| 4) microscopic | d) structure |
| 5) thoroughly | e) atom |
| 6) particle | f) completely |
| 7) nutrient | g) impact |
| 8) influence | h) food |
| 9) support | i) alter |
| 10) change | j) maintain |

**Exercise 12. Agree or disagree with the following statements beginning with:**

**I agree with this statement because…**

**That's absolutely false because...**

1. The boundaries between the layers can be barely distinct. 2. The **C** horizon is exposed to intensive weathering. 3. The colour of a soil helps pedologists estimate the amounts of straw. 4. Texture of a soil depends on the size of its mineral particles. 5. The ability of peds and soil particles to stick together and hold their shape is called soil solution. 6. Soils can be only neutral. 7. Many nutrients and other elements dissolve in the soil solution. 8. Highly acid or alkaline soils cannot cause any harm to plants.

**Exercise 13. Translate the following words and word combinations into Russian.**

Soil formation, soil horizon, soil layer, boundaries between the layers, major horizon, water, organic matter, lowest horizon, subsoil, pedologist, color, texture, structure, chemical condition, color of a soil, amount of air, textural class, amount of sand, mineral particle, ability of ped, soil particle, shape and arrangement, horizontal plate, column-shaped subsoil structure, small, rounded, blocklike, biological and chemical processes, alkaline or neutral soil, positively charged particle, drainage waters, cations.

**Exercise 14. Match the words with their definitions.**

| | |
|---|---|
| 1) humus | a) a liquid that can react with other substances |
| 2) acid | b) the organic component of soil |
| 3) matter | c) a substance that provides nourishment |
| 4) nutrient | d) physical substance in general |
| 5) particle | e) a compacted mass of something |
| 6) clump | f) a minute portion of matter |
| 7) composition | g) a thickness of some homogeneous substance |
| 8) layer | h) a thing composed of various elements |
| 9) rate | i) the persistent underground part of a plan |
| 10) root | j) the speed with which something happens |

**Exercise 15. Answer the following questions.**

1. How are layers of soil called? 2. How many layers are there in most soils? 3. What characteristics do pedologists use to describe soils? 4. Is the color of a soil important for pedologists? 5. Are sands the largest particles? 6. Do pedologists divide soils into textural classes? 7. What is the size of most peds? 8. What is soil consistence? 9. What kinds of soil structures are there? 10. The amounts of acid and alkali in a soil influence the biological and chemical processes, don't they? 11. Do the negatively charged clay and humus attract or repel some cations?

## UNIT 6

## How Soil is Formed

### Словообразование

Суффикс ***-ly***, прибавляемый к прилагательному, образует наречие:

happy (счастливый) – happi**ly** (счастливо).

Суффикс ***-ly***, прибавляемый к существительному, образует прилагательное, указывающее на определенное качество или повторяемость:

friend (друг) – friend**ly** (дружелюбный);

month (месяц) – month**ly** (ежемесячный).

**Exercise 1. Form the adverbs using the suffix *-ly*. Translate the adverbs into Russian.**

**Model**: practical – practically.

Soft, ready, attentive, weak, strong, comfortable, slow, skillful, regular.

**Model**: king – kingly.

Sloven, time, world, god, heaven, brother, wife, soldier, day, week, year.

Суффикс ***-ward***, прибавляемый к существительному и наречию, образует наречие со значением «в направлении»:

north (север) – north**ward** (на север).

**Exercise 2. Form the adverbs using the suffix *-ward*. Translate the adverbs into Russian.**

**Model**: west – westward.

Earth, home, sky, wind, east, sea, south, in, up, down, back, out.

### The Present Indefinite Active

### (Настоящее неопределенное время в активном залоге)

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **work** | I **do not work** | **Do** I **work**? |
| We **work** | We **do not work** | **Do** we **work**? |
| You **work** | You **do not work** | **Do** you **work**? |
| They **work** | They **do not work** | **Do** they **work**? |
| He **works** | He **does not work** | **Does** he **work**? |
| She **works** | She **does not work** | **Does** she **work**? |
| It **works** | It **does not work** | **Does** it **work**? |

Настоящее неопределенное время в активном залоге (The Present Indefinite Active) употребляется:

1) для выражения обычного повторяющегося действия с такими обстоятельствами времени, как **never** – никогда, **regularly** – регулярно, **usually** – обычно, **always** – всегда, **daily** – ежедневно, **often** – часто, **seldom** – редко, **sometimes** – иногда, **every day** (**week, month**) – каждый день (неделю, месяц):

We *drink* coffee *every morning*. – Мы *пьем* кофе *каждое утро*;

2) для передачи общеизвестных фактов, простых истин, действий и состояний:

The Earth *goes* round the Sun. – Земля *вращается* вокруг солнца;

3) для выражения ряда последовательных действий в настоящем:

I *get up* at seven, *do* morning exercises, and then I *have* breakfast. – *Я встаю* в семь, *делаю* утреннюю зарядку, а затем *завтракаю*.

4) для выражения действий, происходящих в соответствии с расписаниями автобусов, поездов, самолетов, графиками работы (кино) театров, магазинов, занятий:

The airplane *lands* at 5 a. m. – Самолет *приземляется* в 5 утра.

The classes *start* at 9 o'clock. – Занятия *начинаются* в 9 часов.

В 3-м лице единственного числа форма **Present Indefinite Active** образуется прибавлением к основе глагола окончания ***-s*** или ***-es***:

1) если глагол заканчивается на **-o**, **-ss**, **-sh**, **-ch**, **-x**, в 3-м лице единственного числа к нему прибавляется ***-es:*** do – do**es,** fix – fix**es,** watch – watch**es,** wash – wash**es**;

2) в глаголах, оканчивающихся на букву **-y** с предшествующей согласной, **y** переходит в **i** и прибавляется **-es**: copy – cop**ies**.

В глаголах, оканчивающихся на букву **-y** с предшествующей гласной, **y** не изменяется: play – pla**ys**.

**Exercise 3. Put the verbs in brackets in the Present Indefinite.**

1. Children (ask) a lot of questions. 2. They usually (drink) coffee after their evening meal. 3. You always (forget) my birthday. 4. She never (listen) to me. 5. I (love) classical music. 6. She (drive) to work when the weather's cold. 7. Nick (understand) Arabic very well. 8. Tom (learn) two languages at school. 9. My sister (watch) TV most evenings. 10. Lessons (start) at 8.30 every morning. 11. Victor and Sam (come) from school at 5 every day. 12. Our friend (not, like) to listen to pop-music. 13. I (not go) to the cinema very often. 14. You (drink) coffee in the morning?

## The Verb *To Be* in the Present Indefinite

## (Глагол *to be* в настоящем неопределенном времени)

Глагол **to be** может употребляться:

1) как *глагол-связка*:

Mike *is* a driver. – Майк водитель.

2) как *смысловой* глагол, обозначающий *местонахождение,* например:

The duster *is* on the blackboard. – Тряпка *находится* на доске.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **am** | I **am not** | **Am** I? |
| He **is** | He **is not** | **Is** he? |
| She **is** | She **is not** | **Is** she? |
| It **is** | It **is not** | **Is** it? |
| We **are** | We **are not** | **Are** we? |
| You **are** | You **are not** | **Are** you? |
| They **are** | They **are not** | **Are** they? |

**Exercise 4. Use the verb** *to be* **in the Present Indefinite.**

1. I ... a pupil. 2. My father ... not a teacher, he ... a designer. 3. … your aunt a doctor? – Yes, she ... . 4. ... they at home? – No, they ... not at home, they ... at work. 5. My brother ... a worker. He … at work. 6. ... you an engineer? – Yes, I ... . 7. … your brother a good combine operator? – No, he ... not a combine operator, he ... a turner. 8. ... your brother an adjuster? – Yes, he ... . 9. ... your friend at storehouse now? – No, she ... not in the field. 10. My ... sister … at the agricultural machinery production plant.

## The Modal Verb *Must*

## (Модальный глагол *must*)

Модальный глагол **must** имеет только одну форму. Действие, выраженное инфинитивом в сочетании с **must**, может относиться к *настоящему* и *будущему* времени.

| | | |
|---|---|---|
| I<br>He<br>She<br>We<br>You<br>They | must<br>(must not) | get ready for examinations in summer.<br>finish the diploma paper.<br>test this new technique.<br>work hard to know how to apply this fertilizer.<br>prepare the report by Friday.<br>come to the office in time. |
| Must | I<br>he<br>she<br>we<br>you<br>they | come and see your new dress?<br>know main characteristics of this substance?<br>present the additional information?<br>put into operation new equipment?<br>prepare the flat by Tuesday?<br>come to the meeting early in the morning? |

Модальный глагол **must** в утвердительной форме имеет следующие значения:

1) *обязанность*, *приказ* – в этом значении он переводится на русский язык *должен*, *обязан*:

I *must go* to work at 8 o'clock. – Я *должен* уходить на работу в восемь часов (*обязанность*).

You *must do* as I tell you! – Ты *должен* делать так, как я тебе говорю (*приказ*);

2) настоятельный *совет* или *приглашение* – в этом значении он переводится на русский язык (*обязательно*) *должен*, (*обязательно*) *нужно*:

You *must come* and see us next week! – Вы *должны* навестить нас на следующей неделе! (*приглашение*).

You *must consult* a doctor. – Ты *должен* обратиться к врачу (*совет*);

3) в вопросительном предложении глагол **must** имеет значение *обязательно ли должен*, поскольку вопрос выражает нежелание выполнить данное действие:

*Must* I *do* it now? – Я *должен* сделать это сейчас?

4) категорический запрет в значении *запрещается*, *не должен*:

You *must not smoke* here! – Тебе нельзя курить здесь! (*запрет*);

5) уверенное предположение, которое говорящий считает правдоподобным, со значением *должно быть*:

Sandy *must remember* my address. – Должно быть, Санди помнит мой адрес (*предположение*).

**Exercise 5. Put *must* or *must not* in the blanks.**

1. You look pale. I think you … see the doctor. 2. It's very slippery outside. You … run there. 3. You … throw litter on the pavement. 4. Children … look neat and clean at school. 5. You … make noise in the library now. 6. You … brush your teeth before going to bed. 7. You … fas-

ten your seatbelt in a car. 8. Children … watch TV a lot. 9. You … light a fire in the forest. 10. You … be friendly to other people.

**Exercise 6. Put the following sentences into negative and interrogative forms.**

1. We must attend a lecture on German history on Tuesday. 2. You must return my magazines on Wednesday. 3. You must take your children to the country for the weekend. 4. I must go to see your grandmother on my day off. 5. I must do it tomorrow. 6. I must answer this letter. 7. You must make your bed yourself. 8. I must ring him up at 10. 9. You must come and see our new house. It's so lovely. 10. They must know his address.

**Exercise 7. Read and memorize the following words and word combinations.**

environmental [ɪnˌvaɪərən'mentəl] – климатический
through [θru:] – на протяжении
resemble [rɪ'zembl] – походить, иметь сходство
glacier ['glæsɪə] – ледник
destroy [dɪ'strɔɪ] – разрушать
effect [ɪ'fekt] – воздействие
parent material ['peərənt mə'tɪərɪəl] – материнская порода, коренная порода
surface ['sɜ:fɪs] – поверхность
feature ['fi:ʧə] – особенность,
determine [dɪ'tɜ:mɪn] – определять
weathering ['weðərɪŋ] – выветривание
disintegration [dɪsˌɪntɪ'greɪʃən] – разрушение, дезинтеграция
decomposition [ˌdi:kɔmpə'zɪʃən] – разложение, декомпозиция
cause [kɔ:z] – вызывать
wear down [weə daun] – стирать
composition [ˌkɔmpə'zɪʃən] – состав
silt [sɪlt] – ил, наносы ила
affect [ə'fekt] – воздействие
humidity [hju:'mɪdətɪ] – сырость, влажность
encourage [ɪn'kʌrɪʤ] – стимулировать, способствовать
decaying [dɪ'keɪŋ] – гниение
shallow ['ʃæləu] – неглубокий
terrain [tə'reɪn] – местность, территория
influence ['ɪnfluəns] – влиять, воздействовать
expose [ɪk'spəuz] – подвергать
support [sə'pɔ:t] – прокормить, питать

cover ['kʌvə] – покров

vegetation [ˌveʤɪ'teɪʃən] – растительность

protect [prə'tekt] – защищать, предохранять.

**Exercise 8. Read and translate the international words.**

Organic, process, factor, disintegration, material, erosion, climate, physical, chemical, temperatures, composition, structure, element, substance, biological, activity, region, organism, period.

**Exercise 9. Read and translate the following text.**

1. Soil begins to form when environmental forces break down rocks and similar materials that lie on or near the earth's surface. As soil develops through the centuries, organic material collects, and the soil resembles the parent material less and less. Glaciers, rivers, wind, and other environmental forces may move parent material and soil from one area to another. Soils are constantly being formed and destroyed. Some processes, such as wind and water erosion, may quickly destroy soils that took thousands of years to form. Soil formation differs according to the effects of various environmental factors. These factors include (1) kinds of parent material, (2) climate, (3) land surface features, (4) plants and animals, and (5) time.

2. *Kinds of Parent Material*. The type of parent material helps determine the kinds of mineral particles in a soil. A process called weathering breaks down parent material into mineral particles. There are two kinds of weathering, physical disintegration and chemical decomposition. Physical disintegration is caused by ice, rain, and other forces. They wear down rocks into smaller particles that have the same composition as the parent material. Sand and silt result from physical disintegration.

3. Chemical decomposition mainly affects rocks that are easily weathered. In this kind of weathering, the rock's chemical structure breaks down, as when water dissolves certain minerals in a rock. Chemical decomposition results in elements and in chemical compounds and elements that differ from the parent material. Some of these substances dissolve in the soil solution and become available as plant nutrients. Others recombine and form clay particles or other new minerals.

4. *Effects of Climate.* Climate affects the amount of biological and chemical activity in a soil, including the kinds and rates of weathering. For example, physical disintegration is the main form of weathering in cool, dry climates. Higher temperatures and humidity encourage chemical decomposition as well as disintegration. In addition, decaying and most other soil activities require warm, moist conditions. These activities slow down or even stop in cold weather. Therefore, soils in cool, dry climates tend to be

shallower and less developed than those in warm, humid regions.

5. *Effects of Land Surface.* Land surface also influences the amount of soil development in an area. For example, water running off the land erodes the soil and exposes new rock to weathering. Also, soils on slopes erode more rapidly than those on flat areas. They generally have less time to form and therefore develop less than do soils on flat terrains.

6. *Effects of Plants and Animals.* Soil organisms and organic material help develop soil, and they also protect it from erosion. The death and decay of animals and plants add organic material to the soil. This organic material helps the soil support new organisms. Soils that have a cover of vegetation and contain large amounts of organic material are not easily eroded.

7. *Effects of Time*. Soils that are exposed to intense soil formation processes for long periods of time become deep and well developed. Soils that erode quickly or have been protected from such processes for a long time are much less developed.

**Exercise 10. Agree or disagree with the following statements beginning with:**

**Of course, I agree with this statement because …**

**I disagree entirely because according to the text …**

1. Rocks and similar materials are broken down so soil begins to form. 2. Glaciers, rivers, wind, and other environmental forces do not participate in soil formation. 3. Five environmental factors are involved in soil formation. 4. The process of weathering breaks down parent material into organic particles. 5. Chemical decomposition results in converting parent material. 6. Higher temperatures and humidity encourage chemical decomposition. 7. Soils on slopes develop more than do soils on flat terrains. 8. Dead and decayed animals and plants in the soil support new organisms.

**Exercise 11. Translate the following words and word combinations into English.**

Климатические силы, лежать на поверхности земли, на протяжении веков, походить все меньше и меньше, перемещать материнскую породу, ветровая и водная эрозия, разрушать почву, образование почвы, растения и животные, химическое разложение, вид минеральных частиц, почвенный раствор, питательные вещества для растений, биологическая и химическая активность, прохладный и сухой климат, температура и влажность, гниение, теплый и влажный регион, результат формирования почвы, подвергать, почвенный организм, ровное местность, защищать от эрозии, большое количество.

**Exercise 12. Find in the text the antonyms of the following words.**

| | |
|---|---|
| occasionally (*paragraph 1*) | discourage (*paragraph 4*) |
| differ (*paragraph 1*) | deeper (*paragraph 4*) |
| organic (*paragraph 2*) | uneven (*paragraph 5*) |
| integration (*paragraph 2*) | slowly (*paragraph 5*) |
| unavailable (*paragraph 3*) | moderate (*paragraph 7*) |

**Exercise 13. Make up word combinations using the text and translate them.**

| | |
|---|---|
| 1) environmental | a) erosion |
| 2) earth's | b) forces |
| 3) water | c) particles |
| 4) mineral | d) surface |
| 5) to affect | e) processes |
| 6) chemical | f) activity |
| 7) soil | g) nutrients |
| 8) plant | h) structure |
| 9) biological | i) solution |
| 10) formation | j) rocks |

**Exercise 14. Translate the sentences into English.**

1. Некоторые процессы, такие как ветровая и водная эрозия, могут быстро разрушить почву.

2. Высокая влажность и температуры способствуют быстрому гниению.

3. Почвы на склонах не так хорошо сформированы, как на ровных площадях.

4. Химическое разложение приводит к созданию разных химических соединений.

5. Растительный покров почв защищает их от эрозии и интенсивного выветривания.

**Exercise 15. Complete the sentences using suitable words from the text.**

1. Soil begins … when environmental forces break down rocks.
2. Glaciers, rivers, wind move ... material and soil.
3. … disintegration is caused by ice, rain, and other forces.
4. Some of these … dissolve in the soil solution.
5. Climate affects the amount of biological and … activity.
6. Decaying and most other … … require warm, moist conditions.
7. Water running off the land … new rock to weathering.
8. The death and decay of animals and plants add … … to the soil.
9. This organic material helps the soil … new organisms.

**Exercise 16. Translate the following words and word combinations into English.**

Similar material, glacier, environmental force, river, wind, earth's surface, parent material, land surface feature, plants and animals, time, rate of weathering, physical disintegration, chemical decomposition, wear down rocks into smaller particles, sand and silt, rock's chemical structure, soil solution plant nutrients, death and decay of animals and plants, new organism, cover of vegetation, large amounts of organic material, intense soil formation process, add organic material to the soil.

**Exercise 17. Answer the following questions.**

1. When does the soil begin to form?
2. What environmental forces move parent material and soil?
3. What soil formation factors do you know?
4. What process breaks down parent material into mineral particles?
5. What kinds of weathering can you name?
6. What is the result of chemical decomposition?
7. Climate affects the amount of biological and chemical activity in a soil, doesn't it?
8. Does land surface influence the soil development in an area?
9. Do soil organisms and organic material help develop soil?

## UNIT 7

## Soil Temperature

### Словообразование

Суффикс ***-ant*(*-ent*)**, прибавляемый к глаголу, образует существительное, которое указывает на деятеля или профессию:

to assist (помогать) – assist**ant** (помощник);

to correspond (переписываться) – correspond**ent** (корреспондент).

**Exercise 1. Form the nouns using the suffix *-ant*(*-ent*). Translate the nouns into Russian.**

**Model:** to attend – attendant.

***-ant*:** inhabit, serve, combat, inform, resist, ignore, append, emigrate.

***-ent*:** preside, reside, superintend, depend, insist, differ, oppone.

Суффикс ***-ee***, прибавляемый к глаголу, образует существительное, которое указывает на человека, причем данный суффикс является ударным:

employ (нанимать) – employ**ee** (работающий по найму).

**Exercise 2. Form the nouns using the suffix *-ee*. Translate the nouns into Russian.**

**Model:** to address – addressee [ˌædre'siː].

Assign, trust, present, grant, promise, train, pay, interview, abandon.

## The Past Indefinite Active

## (Прошедшее неопределенное время в активном залоге)

В английском языке существуют две группы глаголов: правильные (стандартные) и неправильные (нестандартные). Поэтому утвердительные формы в прошедшем неопределенном времени активного залога (The Past Indefinite Active) образуется двумя способами:

1. Правильные глаголы образуют утвердительную форму в прошедшем неопределенном времени посредством добавления к инфинитиву окончания **-ed**: to work – work**ed**, to like – lik**ed**.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **worked** | I **did not work** | **Did** I **work**? |
| We **worked** | We **did not work** | **Did** we **work**? |
| You **worked** | You **did not work** | **Did** you **work**? |
| They **worked** | They **did not work** | **Did** they **work**? |
| He **worked** | He **did not work** | **Did** he **work**? |
| She **worked** | She **did not work** | **Did** she **work**? |
| It **worked** | It **did not work** | **Did** it **work**? |

2. Неправильные глаголы образуют утвердительную форму в прошедшем неопределенном времени не по правилу, так как являются исключениями, и все их формы, собранные в таблицу, нужно заучивать наизусть. В прошедшем неопределенном времени употребляется вторая форма, например: to drink – ***drank*** – drunk.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **drank** | I **did not drink** | **Did** I **drink**? |
| We **drank** | We **did not drink** | **Did** we **drink**? |
| You **drank** | You **did not drink** | **Did** you **drink**? |
| They **drank** | They **did not drink** | **Did** they **drink**? |
| He **drank** | He **did not drink** | **Did** he **drink**? |
| She **drank** | She **did not drink** | **Did** she **drink**? |
| It **drank** | It **did not drink** | **Did** it **drink**? |

Прошедшее неопределенное время в активном залоге (The Past Indefinite Active) употребляется:

1) для выражения *единичных действий*, совершенных в прошлом, где момент совершения действия обозначается обстоятельствами времени, такими, как **yesterday** – вчера, **a year/a month/a week ago** – год/месяц/неделю назад, **last year/month/week** – в прошлом году/месяце/на прошлой неделе, **last night** – вчера вечером, **last Thursday** – в прошлый четверг, **the other day** – на днях, **just now** – только что, **at 8 o'clock**, **in June, in 2003**:

We *lived* in the country *last month.* – Мы *жили* за городом в *прошлом месяце*;

2) для выражения *действий обычных, повторяющихся или постоянных*, при этом часто употребляются обстоятельства, например: **usually, sometimes, every day.**

He *always came* to the university on time. – Он *всегда приходил* в университет вовремя;

3) для выражения *цепи последовательных действий* в прошлом:

John *took* a book, *opened* it and *began* reading it. – Джон *взял* книгу, *открыл* ее, и *начал* читать.

4) для выражения *характеристики* подлежащего в прошлом:

He was chubby when he was 4 years old. – Он был пухленьким, когда ему было 4 года.

**Exercise 3. Make the following sentences negative and interrogative.**

1. Tom always believed his father. 2. Mary went to Central America last month. 3. We all visited Mike's party. 4. The children were happy to rest at the seaside. 5. Mary slept at home that evening. 6. The university had a good basketball team. 7. John ran a long distance in the evening. 8. Peter and Sue met in Asia last week. 9. Sandra got up at 8 yesterday. 10. This sportsman won the World Cup last season.

## The Verb *To Be* in the Past Indefinite

## (Глагол *to be* в прошедшем неопределенном времени)

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **was** | I **was not** | **Was** I? |
| He **was** | He **was not** | **Was** he? |
| She **was** | She **was not** | **Was** she? |
| It **was** | It **was not** | **Was** it? |
| We **were** | We **were not** | **Were** we? |
| You **were** | You **were not** | **Were** you? |
| They **were** | They **were not** | **Were** they? |

**Exercise 4. Put the verb *to be* into the Past Indefinite.**

1. I ... a schoolboy last year. 2. This man ... a farmer the day before yesterday. 3. My friend ... in the garden yesterday. 4. We ... in town the other day. 5. My father ... a tractor driver a week ago. 6. The pupils ... in the classroom an hour ago. 7. She ... an engineer in 1999. 8. I ... busy all day yesterday. 9. Our teacher ... young 20 years ago. 10. They ... in the park on Sunday. 11. When you … a child, you loved that toy very much.

## The Modal Verbs *Ought to, Should*

## (Модальные глаголы *ought to, should*)

Модальный глагол **ought to** – *следует*, *быть должным* – используется в тех случаях, когда человек «*должен*» что-то сделать, исходя из моральных норм поведения, а не потому, что имеется какое-то обязательство.

Модальный глагол **should** – *следует*, *стоит*, *нужно*, *должен* – используется в предложениях для выражения *совета*, *обязательства*, *вероятности* в настоящем и будущем времени. Частица **to** после **should** не употребляется.

| | | |
|---|---|---|
| I | should | put the pen on the table. |
| He/She | should (not) | support innovative efforts. |
| We | ought to | buy new rings. |
| You | ought (not) to | rotate this merry-go-round. |
| They | | plant new plants. |

Модальный глагол **ought to** может употребляться:

1) для выражения *рекомендации*, *морального долга*, *совета*:

You *ought to* be more polite with that old lady. – Тебе *следует* быть повежливей с той пожилой дамой;

2) для выражения *мнения*, что именно данное действие будет правильным в той или иной ситуации.

She *ought to* ask the parents for advice first and only then go to the forest. – Ей *следовало бы* сначала спросить совета у своих родителей, а потом уже идти в лес;

3) для выражения *предположения с оттенком уверенности* в значении «*пожалуй*», «*наверное*»:

He *ought to* be able to do everything. – Он, *пожалуй*, сможет сделать все;

4) модальный глагол *ought to* в сочетании с перфектным инфинитивом выражает *порицание, упрек* за то, что не было сделано или было сделано неправильно:

You *ought to have done* it previously. – Тебе следовало сделать это ранее.

Модальный глагол **should** может употребляться:

1) для выражения *совета:*

You *should* sleep – Тебе *следует* спать;

2) для выражения *обязательства*:

I *should* be at work in an hour. – Я *должен* быть на работе через час;

3) для выражения *вероятности*, *ожидания*:

By now, they *should* be in Moscow. – К этому времени они уже *должны* быть в Москве (*вероятно*, они уже в Москве).

4) Модальный глагол *should* в сочетании с перфектным инфинитивом употребляется для выражения невыполненного необходимого действия, другими словами, того, что следовало бы сделать, но сделано не было:

I *should have stayed* home. – Мне следовало бы остаться дома.

**Exercise 5. Translate the given sentences into Russian:**

**A**. 1. You ought to say a word or two about yourself. 2. I don't think we ought to grumble. 3. Oughtn't you to be more careful? 4. A liar ought to have a good memory. 5. I think we ought to go now. 6. You ought to remember the rule. 7. He ought to have done what I told him.

**B**. 1. I think the government should help homeless people. 2. We should think twice before buying that yacht. 3. I shouldn't stay up too late. 4. A real lady should be delicate in her words and doings. 5. Why should I stay here? 6. When is he going back? – How should I know? 7. Do you think I should buy the red or the blue dress? 8. You shouldn't have eaten so much.

**Exercise 6. Read and memorize the following words and word combinations.**

property ['prɔpətɪ] – свойство, особенность
germination [ˌʤɜːmɪ'neɪʃn] – прорастание
seedling ['siːdlɪŋ] – сеянец
emergence [ɪ'mɜːʤəns] – появление
shoot growth [ʃuːt grəuθ] – рост побегов
rye [raɪ] – рожь
mustard ['mʌstəd] – горчица
clover ['kləuvə] – клевер

wheat [wiːt] – пшеница
barley ['bɑːlɪ] – ячмень
pea [piː] – горох
lentil ['lentəl] – чечевица
winter crop ['wɪntə krɔp] – озимая культура
sugar beet ['ʃugə biːt] – сахарная свекла
sunflower ['sʌnflauə] – подсолнечник
potato [pə'teɪtəu] – картофель
corn [kɔːn] (maize [meɪz]) – кукуруза
millet ['mɪlɪt] – просо
bean [biːn] – фасоль
namely ['neɪmlɪ] – а именно, то есть
absorption [əb'zɔːpʃn] – впитывание, абсорбция, поглощение
decomposition [ˌdiːkɔmpə'zɪʃən] – разложение
solubility [ˌsɔlju'bɪlətɪ] – растворимость, растворяемость
insoluble [ɪn'sɔljəbl] – нерастворимый
microbial [maɪˈkrəʊbɪəl] – микробный
proliferation [prəˌlɪfə'reɪʃn] – пролиферация, размножение, разрастание путем новообразований
water transmission ['wɔːtə trænz'mɪʃən] – водопроницаемость
soil aggregation [sɔɪlˌægrɪ'geɪʃən] – слипание частиц почвы
ultimately ['ʌltɪmətlɪ] – в конечном счете, в конце концов
temperate crop ['tempərət krɔp] – культура умеренного пояса
sorghum ['sɔːgəm] – сорго
cotton ['kɔtən] – хлопок
sesame ['sesəmɪ] – кунжут, сезам
moong [muːŋ] – фасоль маш
encourage [ɪn'kʌrɪdʒ] – содействовать росту, стимулировать рост
succulent ['sʌkjələnt] – мясистый, сочный
suberise ['sjuːbə,raɪz] – становиться пробкообразным
branching [brɑːnʧɪŋ] – ветвление, разветвление
seedling time ['siːdlɪŋ taɪm] – рассадный период
phosphate ['fɔsfeɪt] – фосфат
thermophilic [θɜːməˈfɪlɪk] – теплолюбивый
moderate ['mɔdəreɪt] – сдерживать, замедлять
respiration [ˌrespə'reɪʃn] – дыхание
rate [reɪt] – скорость, интенсивность
take up ['teɪk ʌp] – впитывать, поглощать
activity [æk'tɪvətɪ] – активность

ammonify [ə'məunɪfaɪ] – аммонифицировать, аммонифицироваться
nitrify ['naɪtrɪfaɪ] – нитрифицировать, превращать в селитру
spore [spɔ:] – спора
cellulolytic [seljulouˈlɪtɪk] – целлюлолитический (*способный разлагать/расщеплять целлюлозу*)
actinomycetes [ˌæktɪnəuˈmaɪsi:ts] – актиномицеты
fluctuating ['flʌkʧueɪtɪŋ] – пременный, флуктуирующий
nodule ['nɔdju:l] – корневой клубенек
initiation [ɪˌnɪʃɪ'eɪʃn] – образование
solarisation [səʊləraɪˈzeɪʃn] – соляризация
injurious [ɪn'ʤuərɪəs] – вредный
beneficial [ˌbenɪ'fɪʃl] – благотворный.

**Exercise 7. Match the English names of crops in A with their Russian translations in B.**

**A.** Clover, barley, corn, cotton, wheat, lentil, mustard, potato, rye, pea, sugar beet, sunflower, millet, bean, sorghum, sesame, moong.

**B.** Рожь, просо, сорго, подсолнечник, сахарная свекла, чечевица, пшеница, фасоль, кунжут, горох, клевер, горчица, ячмень, фасоль маш, хлопок, картофель, кукуруза,

**Exercise 8. Translate the following words paying attention to the prefixes, suffixes and endings. State the parts of speech.**

Indirectly, required, germination, decomposition, movement, solubility, transmission, branching, harmful, beneficial, bacteria, nitrifying, greater, growth, highest, influenced, significantly, encourage, different.

**Exercise 9. Read and translate the following text.**

1. It is evident that soil temperature is also an important physical property which indirectly affects seed germination, seedling emergence, root and shoot growth etc. The minimum temperature of 1–3 °C is required for germination of winter crops seeds like rye, mustard, clover, wheat, barley, pea, lentil etc. Other winter crops like sugar beet, sunflower, potato need a minimum temperature of 5–8 °C.

2. Corn, millets and beans do not germinate if the soil temperature falls below 10 °C. Many of the important soil processes are affected by soil temperature namely, decomposition of organic matter, movement and absorption of ions, solubility of insoluble compounds, microbial proliferation, water transmission, soil aggregation, soil colour etc. which ultimately affect the plant growth.

3. The optimum soil temperature for many temperate crops is about 20 °C, while for other crops like sorghum, cotton, summer vegetables, ses-

ame, moong etc. the possible temperature is in between 30–35 °C. Soil temperature affects the type of root growth i.e. low temperature encourages white succulent roots that suberise slowly with little branching, while high temperatures encourage browner or dark brown roots with more branching which suberise quite rapidly.

4. Low soil temperature is harmful at seedling time to crops, such as sorghum which require high temperature during active seedling stage. The rate at which roots take up water and nutrients from soil also increases with soil temperature. As the movement of phosphate in soils is very slow, optimum soil temperature can facilitate its movement through soil.

5. Soil temperature also affects the microbial proliferation particularly of thermophilic microorganisms that can carry out various beneficial processes undergoing in the soil system by moderating different physical and chemical and biological properties of soil. The optimum temperature for fast development of the microorganisms is in between 25–35 °C. The rate of microbial activity like respiration becomes more than double for every 10 °C rise in temperature. The activity of ammonifying and nitrifying bacteria, spore forming bacteria, cellulolytic bacteria, actinomycetes decreases as the soil temperature decreases from 35 to 15 °C.

6. Optimum microbial growth occurs at constant temperature than fluctuating temperatures. Nodule initiation, nodule growth and fixation of nitrogen decreases at or above 30 °C. When the atmospheric temperature is greater than 35 °C, soil temperature becomes greater than 50 °C and this heating process is known as “solarisation” which reduces certain fungal plant diseases.

7. Solarisation is used to control pests and diseases of highly valued crops. A low temperature produces toxic substances which are injurious to plants, whereas a high decomposition rate at optimum temperature generally produces beneficial substances for plant growth. The plant growth usually starts only when the soil is reached a minimum or threshold temperature and the rate of plant growth increases until approaching towards an optimum temperature.

8. However, the highest and lowest soil temperature varies from crop species and stages of crops. Root growths as well as activity of roots are greatly influenced by soil temperature. The rate of water absorption and uptake of nutrients are significantly affected by soil temperature. Phosphorus deficiency symptoms are usually found in winter season due to increase in soil temperature.

**Exercise 10. Answer the following questions.**

1. What minimum temperature is required for germination of winter crops? 2. What soil processes are affected by soil temperature? 3. What is the optimum soil temperature for many temperate crops? 4. The rate of taking up water and nutrients from soil increases with soil temperature, doesn't it. 5. How can thermophilic microorganisms carry out various beneficial processes in the soil system? 6. At what temperature do the soil microorganisms develop fast? 7. What is soil solarisation? 8. Are water absorption and uptake of nutrients significantly affected by soil temperature?

**Exercise 11. Translate the words and word combination in brackets into English.**

1. Soil temperature (опосредованно влияет) seed germination, seedling emergence, (рост побегов и корней) etc.

2. (Низкая температура) encourages white succulent roots that (медленно становится пробкообразным) with little branching.

3. (Высокие температуры) encourage browner or (темно-коричневые) roots с (более объемным ветвлением) which suberise quite rapidly.

4. The rate at which roots (впитывают воду и питательные вещества) from soil also (увеличивается по мере роста температуры).

5. The (активность аммонифицирующих и нитрифицирующих бактерий), spore forming bacteria, (целлюлолитических бактерий), actinomycetes decreases (по мере того как температура снижается) from 35 to 15 °C.

6. Solarisation (применяется для борьбы с вредителями и болезнями) of highly valued crops.

**Exercise 12. Translate the following words and word combinations into English.**

Температура почвы, важное физическое свойство, минимальная температура, оптимальная температура, высокая температура, прорастание семян, важные почвенные процессы, разложение, впитывание, нерастворимое соединение, микробная пролиферация, культура умеренного пояса, летние овощи, тип роста корня, движение фосфата, замедлять различные физические процессы, респирация, постоянная температура, переменная температура, недостаток фосфора, самая высокая и самая низкая температура, бороться с вредителями и болезнями, токсические вещества, грибковые болезни растений, микроорганизмы, озимые культуры.

**Exercise 13. Match the antonyms.**

| | |
|---|---|
| 1) important | a) nonproliferation |
| 2) minimum | b) cessation |
| 3) movement | c) inessential |
| 4) proliferation | d) maximum |
| 5) encourage | e) cooling |
| 6) rapidly | f) injurious |
| 7) decrease | g) insignificantly |
| 8) heating | h) discourage |
| 9) beneficial | i) slowly |
| 10) significantly | j) increase |

**Exercise 14. Join the halves of the sentences.**

| | |
|---|---|
| 1. The minimum temperature of 1–3 °C … | a) need a minimum temperature of 5–8 °C. |
| 2. Other winter crops like sugar beet, sunflower, potato … | b) the soil temperature falls below 10 °C. |
| 3. Corn, millets and beans do not germinate if … | c) is required for germination of winter crops seeds. |
| 4. The rate at which roots take up water and nutrients … | d) of nitrogen decreases at or above 30 °C. |
| 5. The optimum temperature for fast development … | e) of the microorganisms is in between 25–35 °C. |
| 6. Nodule initiation, nodule growth and fixation … | f) greatly influenced by soil temperature. |
| 7. Root growths as well as activity of roots are … | g) from soil also increases with soil temperature. |

**Exercise 15. Translate the following words and word combinations into Russian.**

Rate of water absorption, decomposition rate, succulent root, soil temperature, development of microorganisms, seedling emergence, temperature falls below 10 °C, movement and absorption of ions, fixation of nitrogen at 30 °C, soil aggregation, pests and diseases, phosphorus deficiency symptoms, physical and chemical and biological properties of soil, water transmission, proliferation of thermophilic microorganisms, low soil temperature, decomposition of organic matter, solubility of insoluble compounds, microbial proliferation, substances injurious to plants, temperature required for germination, absorption and uptake of nutrients.

**Exercise 16. Find in *B* the English equivalents to the Russian words in *A*.**

| A | B |
|---|---|
| 1) прорастание | a) solarisation; b) germination; c) decomposition. |
| 2) рост | a) season; b) colour; c) growth. |
| 3) нуждаться | a) require; b) influence; c) approach. |
| 4) способствовать | a) absorb; b) facilitate; c) affect. |
| 5) ниже | a) than; b) above; c) below. |
| 6) болезнь | a) disease; b) threshold; c) season. |
| 7) особенно | a) significantly; b) slowly; c) particularly. |
| 8) развитие | a) optimum; b) development; c) movement. |
| 9) грибковый | a) microbial; b) fungal; c) beneficial. |
| 10) становиться | a) germinate; b) carry out; c) become. |

**Exercise 17. Fill in the correct preposition using the text.**

1. Low soil temperature is harmful … seedling time to crops.
2. The rate … water absorption and uptake … nutrients are significantly affected … soil temperature.
3. Phosphorus deficiency symptoms are usually found … winter season.
4. Root growths as well as activity … roots are greatly influenced … soil temperature.
5. The optimum temperature … fast development … the microorganisms is … between 25–35 °C.
6. As the movement … phosphate … soils is very slow.
7. Many … the important soil processes are affected … soil temperature.
8. The minimum temperature … 1–3 °C is required … germination … winter crops seeds.

## UNIT 8

## Hydroponics

### Словообразование

Приставка ***anti-***, прибавляемая к существительным или прилагательным, образует слова с отрицательным значением:

social (общественный) – **anti**social (антиобщественный).

**Exercise 1. Form the new words using the prefix *anti-*. Translate them into Russian.**

**Model**: league – anti-league.

Body, national, clerical, war, slavery, cyclone, thesis, aircraft, toxin.

Приставка ***counter-***, прибавляемая к существительным, образует слова с отрицательным значением:

attack (атака) – **counter**attack (контратака).

**Exercise 2. Form the new nouns using the prefix *counter-*. Translate them into Russian.**

**Model**: espionage – counterespionage.

Weight, agent, threat, blast, blow, offensive, revolution, plot, statement.

## The Future Indefinite Active

## (Будущее неопределенное время в активном залоге)

Будущее неопределенное время в активном залоге (The Future Indefinite Active) образуется при помощи вспомогательных глаголов **shall** (для первого лица единственного и множественного числа), **will** (для второго и третьего лица единственного и множественного числа) и основы смыслового глагола. Вспомогательный глагол **shall** используется для обращения с просьбой о совете: What **shall** I **do**?, чтобы выразить готовность выполнить какое-либо распоряжение: **Shall** I **help** you? – и выразить предложение: **Shall** we **go** out this evening?

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **shall work** | I **shall not work** | **Shall** I **work**? |
| We **shall work** | We **shall not work** | **Shall** we **work**? |
| You **will work** | You **will not work** | **Will** you **work**? |
| They **will work** | They **will not work** | **Will** they **work**? |
| He **will work** | He **will not work** | **Will** he **work**? |
| She **will work** | She **will not work** | **Will** she **work**? |
| It **will work** | It **will not work** | **Will** it **work**? |

Будущее неопределенное время в активном залоге (The Future Indefinite Active) употребляется для выражения:

1) *предсказаний* в будущем:

It looks as if Jack *will lose* his job. – Похоже, Джек *потеряет* свою работу;

2) *цепи последовательных действий* в будущем:

Phil *will ring* you up and *tell* you everything. – Фил *позвонит* тебе и все тебе *расскажет*;

3) *однократного действия* в будущем:

The factory *will open* in July. – Фабрика *откроется* в июле;

4) *просьб*:

*Will* you *give* me your pen? – *Дай* мне, пожалуйста, свой карандаш;

5) *обещаний*:

I promise, you *will* not ***lose*** your job. – *Я* обещаю, ты не *потеряешь* свою работу.

При выражении будущих действий часто употребляются следующие обстоятельства времени: **tomorrow** – *завтра,* **tonight** – *сегодня вечером,* **next week/month/year** – *на следующей неделе/в следующем месяце/году,* **in two days** – *через два дня,* **in a week/an hour** – *через неделю/через час,* **the day after tomorrow** – *послезавтра,* **soon** – скоро**.**

**Exercise 3. Put the verbs in brackets in the Future Indefinite Active.**

I. I (to play) baseball tomorrow in the evening. 2. Grandparents (not to watch) TV the day after tomorrow. 3. Nick (to go) to the cinema in two days? 4. Nick (to fly) to Japan next month. 5. Tom (to come) to my place in an hour? 6. You (to buy) this book soon? 7. What you (to do) in three days? 8. What you friend (to do) tomorrow? 9. You (to show) me the way to the theatre tomorrow? 10. They (not to take) care of the garden next summer. 11. We (to go) to the zoo tomorrow? 12. What we (to read) tomorrow?

## The Verb *To Be* in the Future Indefinite

## (Глагол *to be* в будущем неопределенном времени)

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **shall be** | I **shall not be** | **Shall** I **be**? |
| We **shall be** | We **shall not be** | **Shall** we **be**? |
| He **will be** | He **will not be** | **Will** he **be**? |
| She **will be** | She **will not be** | **Will** she **be**? |
| You **will be** | You **will not be** | **Will** you **be**? |
| They **will be** | They **will not be** | **Will** they **be**? |
| It **will be** | It **will not be** | **Will** it **be**? |

**Exercise 4. Put the verb *to be* in the Present, Past or Future Indefinite.**

1. My father ... a farmer. 2. He … a twenty years ago. 3. I ... a construction worker when I grow up. 4. My sister ... not ... at home tomorrow. 5. She … at assembly shop tomorrow. 6. ... you ... at home tomorrow? 7. ... your father at work yesterday? 8. My sister ... ill last week. 9. She ... not in the

cowshed now. 10. Yesterday we … at the milking parlour. 11. Where ... your sheep pen now?

## The Modal Verb *Can*

## (Модальный глагол *can*)

Модальный глагол **can** (*мочь, уметь*) имеет две формы: настоящее время **can** и прошедшее время **could**. Для выражения действия в будущем времени вместо глагола **can** используется эквивалент **shall/will be able to**.

| | | |
|---|---|---|
| I<br>We<br>He<br>She<br>You<br>They | can<br>cannot<br>(can't)<br>could<br>could not<br>couldn't | create new consumer goods.<br>prepare working conditions.<br>open the window.<br>repair the watch.<br>manufacture equipment.<br>bring new materials. |

| | | |
|---|---|---|
| Can<br>Could | I<br>he /she<br>we /you /they | sharpen knives?<br>visit the art exhibition?<br>solve this problem?<br>use the longer pencil? |

| | | | |
|---|---|---|---|
| I<br>We | shall | (not) be able | to plant trees and shrubs.<br>to break the automatic system. |
| He<br>She<br>You<br>They | will | | to carry a heavy suitcase.<br>to operate a new machine.<br>to develop a new device.<br>to harvest sugar beets. |
| Shall | I<br>we | be able | to repair the broken mechanism?<br>to fix the shoes? |
| Will | he<br>she<br>you<br>they | | to cut an apple into four parts?<br>to employ a magnetic equipment?<br>to watch a new cartoon?<br>to bring a new visitor?<br>to press the "start" button? |

Модальный глагол **can** имеет значение возможности или способности, как физической, так и умственной. Он может использоваться для

выражения просьбы, разрешения или запрещения, а также вероятности или невероятности, например:

1) выражает *физическую способность*:

I *can ride* a horse. – Я *умею* ездить на лошади;

2) выражает *умственную способность*:

Tom *could read* French. – Том *умел* читать по-французски;

3) выражает *теоретическую возможность* выполнения действия:

We s*hall be able to stay* with my brother when we are in Paris. –

Когда будем в Париже, мы *сможем* остановиться у моего брата;

4) выражает *запрещение* в значении «*запрещено*» (в отрицательной форме) и *разрешение*:

She *cannot stay* out after 10 pm. – Она *не может* гулять после 10 вечера.

You *can* use dictionaries. – Ты *можешь* пользоваться словарями;

5) выражает *просьбу*:

*Can* you hand me the stapler? – Не можешь передать мне степлер?

6) выражает *вероятность*:

Any child *can* grow up to be a scientist. – *Любой* ребенок может вырасти и стать президентом;

7) выражает значение *малой, сомнительной вероятности*, а также *досады и недоумения* в отрицательной и вопросительной форме.

It *can't cost* more than a dollar. – *Не может быть*, чтобы это стоило дороже доллара.

*Can* she *be working* now? – *Неужели* она сейчас *работает*?

**Exercise 5. Put the following sentences in the negative and interrogative forms.**

1. Peter can fulfill a carburettor adjustment to enable the latter to function without any failures. 2. The chief mechanic could make machine operation more productive yesterday. 3. His friends will be able to plow and harrow that field on Sunday to prepare the seedbed properly. 4. Our specialists can read and speak English. 5. The developers will be able to test the new subsoilers before dark. 6. Some drills can have attachments for spreading fertilizers. 7. He could buy a central-forward cultivator a day before. 8. You will be able to apply herbicides. 9. I can remove the silage from the silo to transport to the troughs. 10. He could prepare the seedbed with a field cultivator without using a plough.

**Exercise 6. Read and memorize the following words and word combinations.**

hydroponics [ˌhaɪdrəu'pɔnɪks] – гидропоника

soilless agriculture ['sɔɪlləs 'ægrɪkʌlʧə] – беспочвенное земледелие
nutriculture [ˈnjuːtrɪkʌlʧə] – гидропоника
chemical culture [ˌkemɪk(ə)lˊkʌltʃə] – гидропоника
nitrogen ['naɪtrəʤən] – азот
phosphorus ['fɔsfərəs] – фосфор
potassium [pə'tæsɪəm] – калий
container [kən'teɪnə] – контейнер, емкость
coarse sand [kɔːs sænd] – грубозернистый песок, крупнозернистый песок
gravel ['grævəl] – гравий
substrate [ˈsʌbstreɪt] – субстрат, подложка
range [reɪnʤ] – варьироваться, колебаться в пределах
pot [pɔt] – горшок
tank [tæŋk] – емкость
large-scale [ˌlɑːʤ'skeɪl] – крупномасштабный
indoors [ˌɪn'dɔːz] – в помещении
water culture ['wɔːtə 'kʌlʧə] – водная культура
aggregate culture ['ægrɪgət 'kʌlʧə] – гидропонная культура
suspend [sə'spend] – подвешивать
submerge [səb'mɜːʤ] – погружать
anchor ['æŋkə] – удерживать
oxygen ['ɔksɪʤən] – кислород
pump into [pʌmp 'ɪntə] – закачивать, накачивать
nutrient ['njuːtrɪənt] – питательное вещество
solution [sə'luːʃən] – раствор
pound [paund] – фунт (*современная мера веса, используемая в англоговорящих странах = 453,6 г*)
ounce [auns] – унция (*единица веса = 28,3 г*)
potassium nitrate [pə'tæsɪəm 'naɪtreɪt] – калийная селитра
ammonium [ə'məunɪəm] – аммоний
sulfate ['sʌlfeɪt] – сульфат
magnesium [mæg'niːzɪəm] – магний
monocalcium phosphate ['mənəu'kælsɪəm'fɔsfeɪt] – монокальций-фосфат
gallon ['gælən] – галлон (*мера жидких и сыпучих тел; английский галлон = 4,54 л; американский = 3,78 л*)
manganous [ˈmaŋgənəs] – марганцевый
sulfuric acid [sʌlˈfjʊ̄ərɪk 'æsɪd] – серная кислота
ferrous sulfate ['ferəs̄ 'sʌlfeɪt] – сульфат железа

peat [piːt] – торф

perlite [ˈpəːlʌɪt] – перлит (*материал вулканического происхождения*), вулканическое стекло

vermiculite [vəˈmɪkjʊlʌɪt] – вермикулит

pump up [ˈpʌmp ʌp] – нагнетать

trickle down ['trɪkl daun] – стекать

prove [pruːv] – доказывать

sturdy ['stɜːdɪ] – выносливый, крепкий

ratio ['reɪʃɪəu] – пропорция, соотношение

suggest [sə'ʤest] – предлагать

crop production [krɔp prə'dʌkʃən] – растениеводство (*отрасль народного хозяйства*).

**Exercise 7. Match the English names of chemical susbstances in A with their Russian translations in B.**

**A**. Nitrogen, phosphorus, potassium, potassium nitrate, ammonium sulfate, magnesium sulfate, monocalcium phosphate, calcium sulfate, manganous sulfate, sulfuric acid, ferrous sulfate, oxygen.

**B**. Кислород, сульфат аммония, фосфор, серная кислота, тетрагидрат сульфата марганца, монокальцийфосфат, сульфат магния, нитрат калия, калий, сульфат железа, сульфат кальция, азот.

**Exercise 8. Read and translate the following text.**

1. Hydroponics is the science of growing plants without soil. Developed during the mid-1800's, it is also called soilless agriculture, nutriculture, or chemical culture.

2. Land plants normally obtain nitrogen, phosphorus, potassium, and other nutrients from the soil. Plants need these chemical substances for proper growth. Hydroponics involves growing plants in containers filled with water or with coarse sand, gravel, or other materials, known as substrate materials, to which nutrients have been added. The containers should be made of metal or plastic. They range in size from small pots for individual plants to huge tanks for large-scale growing.

3. Plants growing without soil require the same amount of light and warmth that they would if they were growing in soil. Growers who use hydroponics indoors provide a source of light and heat.

4. *Methods of Hydroponics*. There are two main methods of growing plants without soil. They are water culture and aggregate culture. In water culture, plants are suspended with their roots submerged in water that contains plant nutrients. The roots absorb water and nutrients but do not anchor the rest of the plant. Therefore, the plants must be mechanically supported

from above. Because oxygen is also taken up by the roots, air must be regularly pumped or mixed into the nutrient solution.

5. There are many different kinds of nutrient solutions. A basic solution might contain 5 pounds 13 ounces (2.6 kilograms) of potassium nitrate, 1 pound (0.5 kilogram) of ammonium sulfate, 4 ½ pounds (2 kilograms) of magnesium sulfate, 2 ½ pounds (1.1 kilograms) of monocalcium phosphate, and 5 pounds (2.3 kilograms) of calcium sulfate. Mixed together, these materials will provide enough nutrients for 1,000 gallons (3,800 liters) of water. Once the solution is in the tank, 1 gallon (3.8 liters) of water containing 1 ounce (28 grams) of manganous sulfate and 3 to 5 drops of concentrated sulfuric acid should be added to each 1,000 gallons of solution once a month. In addition, 4 ounces (113 grams) of ferrous sulfate in 1 gallon (3.8 liters) of water should be added once a week.

6. In aggregate culture, although plants are grown without soil, the roots not only absorb water and nutrients, but also anchor the plant. Instead of being placed directly in a water and nutrient solution, the roots are placed in a substrate material, such as coarse sand, gravel, peat, perlite, or vermiculite. A nutrient solution is then repeatedly applied to the substrate material. The solution is either pumped up from below the roots or trickled down from above them.

7. *Importance of Hydroponics.* Scientists have not proved that hydroponics produces sturdier plants and better and larger crops. However, growing plants without soil is an effective way to study the needs of plants. By varying the amounts of nutrients, scientists can find the best ratio for successful growth. Some scientists have suggested using hydroponics for commercial crop production. In places where soil is not available, such as on ships at sea and in ice-covered Arctic areas, hydroponics is an effective alternative.

8. Good soil has the nutrients necessary for plant growth. When plants are grown without soil, all plant nutrients must be added to allow for proper growth. The nutrients a plant receives in its early growth stages will largely determine how well the plant will grow and its later quality.

**Exercise 9. Point out the best answers to the questions.**

1. What is hydroponics?

a) the science of growing plants within greenhouses;

b) the science of growing plants without soil;

c) the science of growing plants by using organic nutrient solutions.

2. What does hydroponics involve?

a) growing plants in containers filled with substrates only;

b) growing plants in containers filled with water and various substrates;

c) growing plants in containers filled with water only.

3. What do plants growing without soil require?

a) much less amount of light and warmth and nutrients;

b) the same amount of light and warmth;

c) plants growing without soil indoors require no source of light and heat whatsoever.

4. Why must the plants grown with the use of hydroponics be mechanically supported from above?

a) the roots absorb water and nutrients fast so the plants get too big and heavy;

b) the roots do not anchor the rest of the plant;

c) oxygen is taken up by the roots which deteriorates nutrient solution.

5. Do we need to suppor plants mechanically in aggregate culture?

a) no, in aggregate culture the roots absorb water and nutrients and anchor the rest of the plant;

b) yes, in aggregate culture the roots absorb water and nutrients and do not anchor the rest of the plant;

c) hydroponics supposes mechanical suppor for plants grown whether by water culture or by aggregate culture.

6. Hydroponics becomes very important nowadays because:

a) scientists have proved that hydroponics produces sturdier plants;

b) scientists have proved that hydroponics produces better and larger crops;

c) hydroponics is an effective way to study the needs of plants.

7. When plants are grown without soil:

a) nutrient solution is applied to the substrate material only once;

b) all plant nutrients must be added to allow for proper growth;

c) air may not be pumped or mixed into the nutrient solution.

**Exercise 10. Translate the expressions into Russian paying attention to the prepositions.**

Plants are grown *without* soil, nutrients necessary *for* plant growth, obtain nutrients *from* the soil, substances *for* proper growth, growing plants *in* containers, containers made *of* plastic, range *in* size *from* small pots *to* huge tanks, two methods *of* growing plants, anchor the rest *of* the plant, oxygen taken up *by* the roots, different kinds *of* nutrient solutions, 5 drops *of* concentrated sulfuric acid, to study the needs *of* plants, best ratio *for* successful growth, nutrients necessary *for* plant growth.

**Exercise 11. Translate the following words and word combinations into English.**

Наука о выращивании растений без почвы, беспочвенное земледелие, азот, фосфор, калий, химические вещества, нормальный рост, материалы подложки, металл или пластик, варьироваться в размере, крупномасштабное выращивание, количество света и тепла, источник, основные методы, содержать питательные вещества для растений, удерживать остальную часть растения, механически, основной раствор, фунт, унция, галлон, литр, калийная селитра, концентрированный, раз в неделю, гидропонная культура, водный раствор питательных веществ, грубозернистый песок, торф, гравий, перлит, более выносливое растение, потребности растений, покрытый льдом, действенная альтернатива, самое лучшее соотношение, ранние стадии роста.

**Exercise 12. Choose the best translation for the underlined part of the sentence.**

1. Developed during the mid-1800's, it is also called soilless agriculture, nutriculture, or chemical culture.

a) также называет беспочвенное земледелие;

b) также называется беспочвенное земледелие.

2. They range in size from small pots for individual plants to huge tanks for large-scale growing.

a) до больших емкостей для крупномасштабного выращивания;

b) до больших танков для крупномасштабного выращивания.

3. Plants growing without soil require the same amount of light and warmth that they would if they were growing in soil.

a) нуждаются в том же количестве света и тепла;

b) требуют то же количество света и тепла.

4. In water culture, plants are suspended with their roots submerged in water that contains plant nutrients.

a) погруженными в воду, которая содержит питательные вещества для растений;

b) погруженными в воду, которая содержит питание для растений.

5. In aggregate culture, although plants are grown without soil, the roots not only absorb water and nutrients, but also anchor the plant.

a) корни не только впитывают воду и питательные вещества;

b) корни не только упитывают воду и питательные вещества.

6. By varying the amounts of nutrients, scientists can find the best ratio for successful growth.

a) ученые могут найти самое лучшее соотношение;

b) ученые могут найти то же самое соотношение.

7. When plants are grown without soil, all plant nutrients must be added to allow for proper growth.

a) когда растения выращиваем без почвы;

b) когда растения выращиваются без почвы.

**Exercise 13. Join the halves of the sentences.**

| | |
|---|---|
| 1. Hydroponics is the science … | a) mechanically supported from above. |
| 2. Growers who use hydroponics indoors … | b) but do not anchor the rest of the plant. |
| 3. Therefore, the plants must be … | c) of growing plants without soil. |
| 4. The roots absorb water and nutrients … | d) substances for proper growth. |
| 5. A nutrient solution is then … | e) necessary for plant growth. |
| 6. Good soil has the nutrients … | f) repeatedly applied to the substrate material. |
| 7. Plants need these chemical … | g) provide a source of light and heat. |

**Exercise 14. Translate the following words and word combinations into Russian.**

Better and larger crops, once a week, substrate material, concentrated acid, water and nutrients, calcium sulfate, light and heat, nitrogen, phosphorus, potassium, soilless agriculture, early growth stages, provide a source, ice-covered areas, commercial crop production, needs of plants, trickled down, nutrient solution, during the mid-1800's, anchor the plant, manganous sulfate, ferrous sulfate, monocalcium phosphate, plants are suspended, aggregate culture, huge tanks, chemical substances, light and warmth, proper growth, chemical culture, science of growing plants without soil, containers made of metal or plastic.

## UNIT 9

## Soil Conservation

### Словообразование

Приставка ***de-***, прибавляемая к глаголам или существительным, образует слова с отрицательным значением:

to militarize (милитаризировать) – **de**militarize (демилитаризовать).

**Exercise 1. Form the new words using the prefix *de-*. Translate them into Russian.**

**Model**: to civilize – to decivilize.

To colonize, to throne, to compose, to mobilize, to moralize, to gasify, to electrify, to code.

Приставка ***dis-***, прибавляемая к глаголам, существительным и прилагательным, образует слова с отрицательным значением:

to appear (показываться) – to **dis**appear (исчезать);

advantage (преимущество) – **dis**advantage (неудобство);

loyal (верный) – **dis**loyal (нелояльный).

**Exercise 2. Form the new words using the prefix *dis-*. Translate them into Russian.**

**Model**: to please – to displease.

To arrange, honesty, similar, union, to connect, to like, to agree, to allow, to approve, to colour, to comfort, to obey, to place, to engage, to join, to order, to satisfy, to regard.

## The Word Order

## (Порядок слов)

Предложения в английском языке имеют твердый порядок слов и выстраиваются по определенной схеме, элементы которой нельзя менять местами.

| 1. Подлежащее | 2. Сказуемое | 3. Дополнение | | | 4. Обстоятельство | | |
|---|---|---|---|---|---|---|---|
| | | беспредложное косвенное | прямое | предложное косвенное | образа действия | места | времени |
| The buyers | chartered | | a steamer | | | | |
| We | sent | the buyers | the documents | | | | |
| We | sent | | the documents | to the buyers | | | |
| The sellers | received | | a telegram | from the buyers | | | |
| I | met | | him | | by chance | at the theatre | a few days ago |

Иногда обстоятельства времени и места могут стоять перед подлежащим:

*Last night* he talked to her. – *Прошлой ночью* он говорил с ней.

*In the quietness of the flat* the telephone rang softly. – В тишине квартиры тихо зазвонил телефон.

Обстоятельства времени стоят обычно после дополнений, а если дополнения нет, то после глагола-сказуемого:

I had a letter *this morning*. – *Сегодня утром* я получил письмо.

Robert will return *in half an hour*. – Роберт вернется *через полчаса*.

Если в предложении есть другие обстоятельства, то обстоятельства образа действия стоят перед обстоятельствами места и времени, например:

They worked *hard* *at home yesterday*. – Они *усердно* работали *дома вчера*.

Обстоятельства образа действия, выраженные наречиями, ставятся после глагола-сказуемого и его дополнения (если оно есть в наличии); они могут также стоять перед сказуемым, но после глагола **to be**, после вспомогательных и модальных глаголов

I am going to speak to Peter *seriously*. – Я собираюсь поговорить с Питером *серьезно*.

Maggie *quietly* entered the room. – Мэгги *тихо* вошла в комнату.

The boy was *thoughtfully* looking at the picture. – Мальчик *задумчиво* смотрел на картину.

Boris can *quickly* read and write. – Борис может *быстро* читать и писать.

Если в предложении есть несколько обстоятельств времени, то обстоятельство, которое указывает более точное время, ставится перед обстоятельством, которое указывает время в более обобщенном виде:

I was there *at eight* *this evening*. – Я был там *в восемь сегодня вечером*.

Обстоятельства, выраженные наречиями **always** – *всегда*, **often** – *часто,* **sometimes** – *иногда,* **seldom** – *редко*, **never** – *никогда*, **already** – *уже,* **usually** – *обычно* и др., ставятся между подлежащим и сказуемым, но если в составе сказуемого есть глагол **to be**, вспомогательные или модальные глаголы, то после них:

I *never* heard her name. – Я *никогда* не слышал ее имя.

Gerald will *never* forget this. – Джеральд *никогда* этого не забудет.

Max was *always* alone. – Макс *всегда* был один.

**Exercise 3. Put the words in the correct order to make sentences.**

1. I drive (every morning, to work).
2. She goes (by train, to Moscow, every month).
3. He studied (last year, a lot, at university).
4. The quartet performed (at the recital, magnificently, last night).
5. They walked (through the park, home, this afternoon).

**Exercise 4. Make the right choice.**

1. Often/the cinema/the Milnes/to/go:
a) The Milnes go to the cinema often;
b) The Milnes often go to the cinema.
2. Cigarettes/his/give/him:
a) Give his cigarettes him;
b) Give him his cigarettes.
3. The theatre/go/often/very/we/to:
a) We go to the theatre very often;
b) We very often go to the theatre;
c) Very often we go to the theatre.
4. Him/give/to/cigarettes/his:
a) Give to him his cigarettes;
b) Give his cigarettes to him.
5. The news/yesterday/saw/television/I/on:
a) I yesterday saw the news on television;
b) I saw on television the news yesterday;
c) Yesterday I saw the news on television.
6. The novel/much/I/very/liked:
a) I very much liked the novel;
b) I liked very much the novel;
c) I liked the novel very much.
7. To/came/the office/he/yesterday/taxi/by:
a) He came by taxi to the office yesterday;
b) He came to the office by taxi yesterday;
c) Yesterday he came by taxi to the office.
8. The table/and/on/is/there/two/a book/pens:
a) There is a book and two pens on the table;
b) There is two pens and a book on the table;
c) On the table there is a book and two pens.

## The Construction *There + be*

## (Конструкция *there + be*)

Если необходимо в предложении выразить мысль о предмете и его местонахождении, то она передается в английском языке двумя разными способами:

1) если мы строим предложение на русском языке, начиная с обстоятельства места, и ведем речь о том предмете, который нам известен, то на английском языке необходимо употреблять конструкцию **there + be**, например:

*На столе находится ручка. – **There is** a pen on the table;*

2) если мы строим предложение на русском языке, начиная с предмета, и хотим сообщить о его местонахождении, то сам предмет в предложении находится на месте подлежащего, например:

*Ручка находится на столе. – The **pen** is on the table.*

Синтаксическая конструкция ***there + be*** используется следующим образом:

утвердительная и отрицательная формы:

| | | | |
|---|---|---|---|
| There | is (not) | a pencil<br>chalk | on the table. |
| | are (not) | books | |
| | was (not) | a pen<br>coffee | |
| | were (not) | pictures | |
| | will (not) be | a journal<br>boxes<br>tea | |

вопросительная форма:

| | | | |
|---|---|---|---|
| Is | there | a pencil<br>chalk | on the table? |
| Are | | books | |
| Was | there | a pen<br>coffee | |
| Were | | pictures | |
| Will | there be | a journal<br>boxes<br>tea | |

**Exercise 5. Fill in the blanks with the appropriate forms of the verb *to be.***

1. There ... books on the table now. 2. There ... an armchair in the corner yesterday. 3. There ... two men in the living room tomorrow. 4. There ... children at the table in half an hour. 5. There ... no newspapers on the shelf the day before yesterday. 6. There ... one man and several women in the shop next Saturday. 7. There ... no wardrobe in my room soon. 8. There ... a lot of furniture in the living room today. 9. There … plenty of people in the park tomorrow. 10. There … five combines in the field the other day.

## The Verb *To Have* in the Present, Past, Future Indefinite

## (Глагол *to have* в настоящем, прошедшем, будущем неопределенном времени)

Глагол **to have** означает *иметь, обладать* и выражает отношение принадлежности. В **Present Indefinite** у глагола **to have** имеются две формы: **have** или **has** – в зависимости от лица, в котором он употребляется:

I *have* a good car. – У меня *есть* хороший автомобиль.

Tom *has* a big house – У Тома *есть* (Том *имеет*) большой дом.

В **Past Indefinite** имеется одна форма, которая употребляется во всех лицах:

He *had* a big house. – У него *был* большой дом.

В **Future Indefinite** глагол **to have** употребляется вместе со вспомогательными глаголами будущего времени **shall**, **will**:

I shall have a good job. – У меня *будет* хорошая работа.

They *will have* a small office. – У них *будет* небольшой офис.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **have** | I **have not** | **Have** I? |
| We **have** | We **have not** | **Have** we? |
| You **have** | You **have not** | **Have** you? |
| They **have** | They **have not** | **Have** they? |
| He **has** | He **has not** | **Has** he? |
| She **has** | She **has not** | **Has** she**?** |
| It **has** | It **has not** | **Has** it**?** |

| | | |
|---|---|---|
| I **had** | I **had not** | **Had** I? |
| We **had** | We **had not** | **Had** we? |
| You **had** | You **had not** | **Had** you? |
| They **had** | They **had not** | **Had** they? |
| He **had** | He **had not** | **Had** he? |
| She **had** | She **had not** | **Had** she**?** |
| It **had** | It **had not** | **Had** it**?** |
| I **shall have** | I **shall not have** | **Shall** I **have**? |
| We **shall have** | We **shall not have** | **Shall** we **have**? |
| You **will have** | You **will not have** | **Will** you **have**? |
| They **will have** | They **will not have** | **Will** they **have**? |
| He **will have** | He **will not have** | **Will** he **have**? |
| She **will have** | She **will not have** | **Will** she **have?** |
| It **will have** | It **will not have** | **Will** it **have?** |

**Exercise 6. Use the right form of the verb *to have*.**

1. Peter … a tape recorder last year. 2. You … many relatives there now. 3. My sister … music lessons next week. 4. The children … many toys in a week. 5. We … coffee every day in the afternoon. 6. Her daughter … a piano last year. 7. The children … lunch in an hour and a half. 8. Jane … a bookshelf the day after tomorrow. 9. I … a bath once a week. 10. I … his textbook on physics last year. 11. We have … snow this winter. 12. They … breakfast an hour ago. 13. His uncle … a garden now. 14. I … paper to write three letters soon. 15. I … a collection of Shakespeare's plays last month. 16. He … a new bicycle when he was a schoolboy.

**Exercise 7. Read and memorize the following words and word combinations.**

soil conservation [sɔɪlˌkɔnsə'veɪʃən] – сохранение плодородия почвы
erosion [ɪ'rəuʒən] – эрозия
overusage ['əuvə'juːsɪʤ] – чрезмерное использование
acidification [əˌsɪdɪfɪ'keɪʃən] – окисление
salinization [sælɪnaɪˈzeɪʃn] – засолонение (*почв*)
conventional [kən'venʃənəl] – обычный, традиционный
practice ['præktɪs] – прием
invoke [ɪn'vəuk] – применять, прибегать
contour ploughing ['kɔntuə plauɪŋ] – контурная вспашка
ridge [rɪʤ] – гребень
furrow ['fʌrəu] – борозда
excessive [ɪk'sesɪv] – чрезмерный,
gully ['gʌlɪ] – овражек, канава, ров (*образованные потоками воды*)

run-off ['rʌnɔf] – сток
row crop [rəu'krɔp] – пропашная культура
contour pattern ['kɔntuə 'pætən] – очертания контура
minimize ['mınımaız] – минимизировать, сводить к минимуму
successively [sək'sesıvlı] – последовательно
receding [ri:'si:dıŋ] – зд. нисходящий
terracing ['terəsıŋ] – террасирование
hillside ['hılsaıd] – склон горы, холма
step [step] – уступ, терраса
windbreak ['wındbreık] – защитная лесополоса
dense [dens] – густой
windward exposure ['wındwəd ık'spəuʒə] – наветренная сторона
evergreen ['evəgri:n] – вечнозеленый
deciduous [dı'sıdjuəs] – лиственный
fallowing ['fæləuıŋ] – парование
decayed [dı'keıd] – прогнивший
subsoil ['sʌbsɔıl] – подпочвенный
cover crop ['kʌvəkrɔp] – покровная культура, запашная культура *(прикрывается землей при вспашке и выращивается специально для обеспечения плодородия почвы*)
range [reınʤ] – ряд
legume ['legju:m] – растение из семейства бобовых
white turnip [waıt 'tɜ:nıp] – белая репа
radish ['rædıʃ] – редис
cash crop ['kæʃ¸krɔp] – товарная культура (*сельскохозяйственная культура, производимая для продажи на рынке*)
blanket ['blæŋkıt] – покрывать (*густо какую-л. поверхность чем-л.)*
replenish [rı'plenıʃ] – восполняться
critical ['krıtıkəl] – важный, необходимый
suppress [sə'pres] – сдерживать, подавлять
crop rotation [krɔp rə'teıʃən] – севооборот
successive [sək'sesıv] – следующий один за другим
maintain [meın'teın] – сохранять
Norfolk Rotation [¸nɔ:fəkrəu'teıʃən] – норфолкский четырехпольный севооборот
pea [pi:] – горох
bean [bi:n] – боб; фасоль
clover ['kləuvə] – клевер
vetch [veʧ] – вика

convert ['kɔnvɜ:t] – преобразовывать

nitrogenous nodules [naɪ'trɔdʒɪnəs 'nɔdju:l] – азотистые клубеньки

water management ['wɔ:tə 'mænɪdʒmənt] – использование водных ресурсов, водопользование

aeration [eə'reɪʃən] – аэрация, насыщение кислородом

marginal land ['mɑ:dʒɪnəl lænd] – малоплодородная земля

promote [prə'məut] – стимулировать

macronutrient [ˌmækrəʊ'nju:trɪənt] – питательный макроэлемент

excrete [ɪks'kri:t] – выделять

egesta [i:'dʒɛstə] – экскреты

selection [sɪ'lekʃən] – набор

**Exercise 8. Read and translate the following text.**

1. Soil conservation includes all such measures that help in protecting the soil from erosion, reduced fertility caused by overusage, acidification, salinization and other measures, which are usually taken by farmers to protect soil from erosion. There are conventional practices that farmers have invoked for centuries.

2. *Contour Ploughing.* If ploughing is done at right angles to the hill slope, following the natural contour of the hill, the ridges and furrows break the flow of the water down the hill. This prevents excessive soil loss, as gullies are less likely to develop and also reduce run-off so that plants receive more water. Row crops and small grains are often planted in contour pattern so that the plants can absorb much of the rain, and erosion is minimized.

3. *Terracing* is the practice of creating successively receding flat steps or platforms in a hillside area for more effective farming. Terraced fields decrease both erosion and surface runoff.

4. *Windbreaks* are sufficiently dense rows of trees at the windward exposure of an agricultural field subject to wind erosion. Evergreen species provide year-round protection and the effect of deciduous trees may be adequate.

5. *Fallowing*. Sometimes it is important to allow much used land to rest or lie fallow, so that the natural forces can act on the soil. The decayed natural vegetative matter helps to increase the plant nutrients in the soil. Fallowing also increases the subsoil moisture and improves the general structure of the soil.

6. *Cover crops.* The primary uses of cover crops is to increase soil fertility. They use a range of soil macronutrients and micronutrients. Cover crops such as legumes, white turnip, radishes and other species are rotated

with cash crops to blanket the soil year-round. They act as green manure that replenishes nitrogen and other critical nutrients. Cover crops also help suppress weeds.

7. *Crop Rotation*. By rotating different types of crops in successive years, soil fertility can be naturally maintained. The best known crop rotation is the Norfolk Rotation which involves the growing of four crops in a given field over a period of four years. Legumes such as peas, beans, clover, vetch and many other plants, add nitrates to the soil by converting free nitrogen in the air into nitrogenous nodules on their roots.

8. *Water Management.* One of the major ways in which land can be improved for farming is by water management. By regulating the amount of water in the soil aeration can be improved, activity by useful bacteria can be stimulated and crop yields can be improved. In addition, by draining or irrigating land, areas which are marginal or useless in their natural state, such as deserts or swamps can be brought into agricultural production.

9. *Soil organisms.* Promoting the viability of beneficial soil organisms is an element of soil conservation; moreover this includes macroscopic species, notably the earthworm, as well as microorganisms. Positive effects of the earthworm are known well, as to aeration and promotion of macronutrient availability. When worms excrete egesta, a balanced selection of minerals and plant nutrients is made into a form accessible for root uptake.

**Exercise 9. Translate the following words and word combinations into Russian.**

Protect soil from erosion, salinization, reduced fertility, take measures, acidification, right angle, terraced fields, natural contour, flow of water, excessive soil loss, reduce run-off, plants absorb much of the rain, receding flat steps, erosion and surface runoff, soil fertility, micronutrients, sufficiently dense rows, wind erosion, year-round protection, natural force, decayed natural, subsoil moisture, cover crops, range of soil macronutrients, blanket the soil year-round, green manure, critical nutrient, suppress weed, successive years, crop rotation, over a period of four years, nodules on plant roots, water management, draining or irrigating, macroscopic species.

**Exercise 10. Agree or disagree with the following statements beginning with:**

**Of course, it is true because according to the text …**

**It is false because according to the text …**

1. Soil conservation helps protect the soil only from erosion. 2. Contour ploughing prevents excessive soil loss. 3. Terracing is the practice of creat-

ing conditions for effective farming. 4. Deciduous trees are not used for windbreaks. 5. Fallowing is sometimes used to give land a rest. 6. Cover crops replenish nitrogen and other critical nutrients. 7. The Norfolk Rotation involves the growing of five crops in a given field. 8. Marginal or useless lands can be brought into agricultural production by draining or irrigating.

**Exercise 11. Make up word combinations using the text and translate them.**

| | |
|---|---|
| 1) protect | a) of the water down the hill |
| 2) flow | b) soil from erosion |
| 3) plants | c) subject to wind erosion |
| 4) general | d) of soil macronutrients |
| 5) field | e) receive more water |
| 6) range | f) structure of the soil |
| 7) amount | g) of soil conservation |
| 8) viability | h) accessible for root uptake |
| 9) element | i) of water in the soil |
| 10) form | j) of beneficial soil organisms |

**Exercise 12. Translate the words and word combination in brackets into English.**

1. There are (обычные приемы) that farmers have invoked (на протяжении веков). 2. This (предотвращает чрезмерную потерю почвы), as gullies are less likely to develop and (также уменьшают сток) so that plants receive (больше воды). 3. Evergreen species (обеспечивают круглогодичную защиту) and the (действие лиственных деревьев) may be adequate. 4. The (сгнивший природный материал растительного происхождения) helps to increase the (питательные вещества для растений) in the soil. 5. They (действуют как зеленый навоз) that replenishes nitrogen and other (важные питательные вещества). 6. (Положительное воздействие) of the earthworm are known well, as to (аэрация и стимулирование) of macronutrient availability.

**Exercise 13. Choose the correct preposition.**

1. Ploughing is done … right angles … the hill slope.
2. The primary uses … cover crops is to increase soil fertility.
3. They use a range … soil macronutrients and micronutrients.
4. Soil conservation helps … protecting the soil … erosion.
5. Row crops and small grains are often planted … contour pattern.
6. Deserts or swamps can be brought … agricultural production.

**Exercise 14. Translate the following words and word combinations into English.**

Сохранение плодородия почвы, сниженное плодородие, защитить почву от эрозии, склон холма, следовать естественному контуру холма, гребень и борозда, пропашные культуры и хлебные злаки, впитать большее количество дождя, холмистая местность, эффективное сельское хозяйство, террасированное поле, подверженный ветровой эрозии, парование, воздействовать на почву, оставаться под паром, покровная культура, питательный макроэлемент, пополнять азотом, выращивание четырех культур, водопользование, благотворный почвенный организм, макроскопический вид, микроорганизм.

**Exercise 15. Find in *B* the English equivalents to the Russian words in *A*.**

| **A** | **B** |
|---|---|
| 1) мера | a) moreover; b) measure; c) farmer. |
| 2) предотвращать | a) invoke; b) receive; c) prevent. |
| 3) поверхность | a) surface; b) matter; c) gully. |
| 4) подвергание | a) protection; b) management; c) exposure. |
| 5) растительный | a) vegetative; b) effective; c) active. |
| 6) естественно | a) notably; b) naturally; c) likely. |
| 7) вид | a) legumes; b) species; c) nutrients. |
| 8) аэрация | a) aeration; b) production; c) rotation. |
| 9) наличие | a) fertility; b) creativity; c) availability. |
| 10) дренаж | a) draining; b) irrigating; c) regulating. |

**Exercise 16. Answer the following questions.**

1. What is the aim of measures concerning the soil conservation?
2. How should the contour ploughing be made to prevent the flow of the water down the hill?
3. What is terracing in a hillside area?
4. What species of trees are used to create windbreaks?
5. Is fallowing important to maintain soil fertility?
6. What cover crops are rotated with cash crops to blanket the soil?
7. How can the marginal or useless land be brought into agricultural production?
8. Is viability of soil organisms essential for soil conservation?

## UNIT 10

## Soil Types in Belarus

### Словообразование

Приставки ***en-(em-)***, прибавляемые к существительным или прилагательным, образуют глаголы:

cage (клетка) – to **en**cage (сажать в клетку);

bitter (горький) – to **em**bitter (наполнять горечью).

**Exercise 1. Form the new words using the prefixes *en-(em-)*. Translate them into Russian.**

**Model**: rank – to enrank;

brown – to embrown.

**en-** trap, danger, able, act, close, circle, frame, plane, camp, queue;

**em-** bed, body, blaze, blazon, boss, bow, brace, brangle, brittle.

Приставка ***mis-***, прибавляемая к глаголам или существительным, образует слова, выражающие неправильное или неточное выполнение действия:

direct (прямой) – to **mis**direct (неправильно направлять);

fortune (везение) – **mis**fortune (неудача).

**Exercise 2. Form the new words using the prefix *mis-*. Translate them into Russian.**

**Model**: to manage – to mismanage.

To translate, to interpret, to state, to behave, to guide, to pronounce, to lay, information, location, management, match, persuasion.

### The Present Continuous Active

### (Настоящее продолженное время в активном залоге)

Настоящее продолженное время в активном залоге (The Present Continuous Active) является сложной видо-временной формой, которая образуется при помощи вспомогательного глагола **to be** в настоящем времени и причастия настоящего времени (The Participle I) смыслового глагола. Причастие настоящего времени (The Participle I) образуется от инфинитива присоединением окончания **-ing**: to lead – lead**ing**, to pay – pay**ing**. При этом соблюдаются следующие правила орфографии:

1. Немая буква **e** на конце глагола перед окончанием **-ing** опускается, например: to tak**e** – tak**ing**.

2. Конечный согласный звук удваивается, если ему предшествует краткий ударный гласный: to put – pu**tt**ing, to refer – refe**rr**ing.

3. Буква **l** в конце слова всегда удваивается: to trave**l** – trave**ll**ing.

4. Буква **y** в конце слова сохраняется, независимо от того, какой звук ей предшествует, например: to study – stud**ying**, to stay – sta**ying**.

5. Буквосочетание **-ie** в конце слова заменяется на **-y**: to tie – t**y**ing.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **am working** | I **am not working** | **Am** I **working**? |
| He **is working** | He **is not working** | **Is** he **working**? |
| She **is working** | She **is not working** | **Is** she **working**? |
| It **is working** | It **is not working** | **Is** it **working**? |
| We **are working** | We **are not working** | **Are** we **working**? |
| You **are working** | You **are not working** | **Are** you **working**? |
| They **are working** | They **are not working** | **Are** they **working** |

Настоящее продолженное время в активном залоге (The Present Continuous Active) употребляется для выражения:

1) длительного действия, совершающегося в *момент речи* с такими обстоятельствами времени, как **today** – *сегодня*, **nowadays** – *в наши дни*, **now** – *сейчас*, **still** – *все ещё*, **at present** – *в настоящее время*, **at the moment** – *в данный момент*:

She *is typing* a letter *now*. – Она *печатает* письмо *сейчас*;

2) длительного действия, совершающегося в *настоящий период*, но необязательно в *момент речи*:

Catherine wants to work in Italy, so she *is learning* Italian. – Катрин хочет работать в Италии, поэтому она *учит* итальянский язык;

3) будущего *запланированного* действия (в предложении иногда есть обстоятельство, указывающее на будущее):

Now listen, Roger *is coming* home tomorrow. – Сейчас слушай, Роджер *приезжает* домой *завтра*.

Следует помнить о том, что в английском языке существуют глаголы, которые не употребляются в Present Continuous:

1) **чувственного восприятия**: feel, look, notice, observe, hear, see, smell, sound, taste;

2) **умственной деятельности**: advise, believe, consider, doubt, forget, guess, hope, imagine, insist, know, mean, promise, realize, recognize, recommend, regret, remember, require, seem, suggest, suppose, suspect, think, understand, wonder;

3) **чувств**: admire, envy, adore, astonish, concern, despise, detest, dislike, hate, impress, like, love, surprise;

4) **желания**: desire, lack, need, please, prefer, satisfy, want, wish;

5) **принадлежности**: belong, consist, contain, depend, have, include, involve, keep owe, own, possess;

6) **некоторые другие глаголы**: agree, apologize, appear, cost, deny, deserve, equal, exist, fit, forgive, impress, lack, last, look like, matter, reach, refuse, remain, resemble, stop, suit, survive.

**Exercise 3. Use the correct tense: the Present Indefinite or Present Continuous.**

1. Vegetarians are people who (don't eat/aren't eating) meat. 2. Look out! My brother (comes/is coming). 3. Some people still think the Sun (goes/is going) round the Earth. 4. What (happens/is happening) in golf if you lose the ball? 5. I (play/am playing) tennis at present. 6. Look! She (wears/is wearing) the same shoes as me. 7. What (are you looking/do you look) at? – A strange bird. 8. I (stay/am staying) with John for a few weeks until my flat is ready. 9. At the moment we (stay/are staying) with Peggy. 10. The boys (are studying/study) still the chassis.

## The Indefinite Pronouns *Some, Any, No*

## (Неопределенные местоимения *some, any, no*)

Неопределенное местоимение **some** употребляется в утвердительных предложениях перед исчисляемыми существительными во множественном числе в значении *некоторые*, *какие-то*, *несколько* и перед неисчисляемыми существительными в значении *немного*, например:

I have *some* pens. – У меня есть *несколько* ручек.

I have *some* coffee. – У меня есть *немного* кофе.

Неопределенное местоимение **any** употребляется в отрицательных предложениях перед всеми видами существительных в значении *никакой, никакие*, например:

Tom *does not* read *any* book. – Том не читает *никакую* книгу.

Peter *does not* repair *any* engines. – Питер не ремонтирует *никакие* двигатели.

Nick *does not* drink *any* coffee. – Ник не пьет *никакой* кофе.

Неопределенное местоимение **any** употребляется в вопросительных предложениях перед всеми видами существительных в значении *какой-нибудь, какие-нибудь*, например:

*Did* you see *any* film yesterday? – Ты видел *какой-нибудь* фильм вчера?

*Are* there *any* cars in the street? – Есть *какие-нибудь* автомобили на улице?

*Have* they got *any* tea? – У них есть *какой-нибудь* чай?

Неопределенное местоимение **any** употребляется в утвердительных предложениях в значении *любой:*

*Any* boy can run fast. – *Любой* мальчик может бегать быстро.

You can read *any* newspapers. – Ты можешь читать *любые* газеты.

Неопределенное местоимение **no**, находясь в предложении, делает его отрицательным, глагол-сказуемое употребляется в утвердительной форме, но при этом на русский язык переводится в отрицательной форме. Данное местоимение употребляется перед всеми видами существительных, причем неопределенный артикль перед исчисляемым существительным в единственном числе не употребляется, например:

They have *no* water. – У них *нет* воды.

Mike made *no* mistakes. – Майк не сделал *ни одной* ошибки.

Sue has got *no* *pencil*. – У Сью *нет* карандаша.

**Exercise 4. Use the indefinite pronouns** *some, any, no*.

1. There are not … powerful engines here. 2. Are there ... technical characteristics in your book? 3. There are ... flowers here in winter. 4. I can see … all-wheel drive cars in the yard. They are very reliable. 5. Are there ... new harvesters on your farm? 6. There are ... people in the park because it is cold. 7. I saw … bulldozers at the construction-site, but workers did not operate them. 8. They brought ... tractors from the nearby plant. 9. Give me ... spanners, please.

## The Modal Verb *Have to*

## (Модальный глагол *have to*)

Модальный глагол **have to** – *должен*, *придется*, *вынужден* – выражает *необходимость* совершения действия, вызванную обстоятельствами. По смыслу близок модальному **must** (обязанность или необходимость с точки зрения говорящего).

В этом значении он может употребляться во всех формах и временах, в предложениях любых типов в сочетании с простым инфинитивом с частицей **to**. Он имеет формы времени: **have** / **has to** – настоящее время, **had to** – прошедшее время, **shall** / **will have to** – будущее время.

| | | | | |
|---|---|---|---|---|
| I<br>He /She<br>We<br>You<br>They | | have<br>has<br>had<br>shall have<br>will have | | to present a new company.<br>to fix the broken telephone.<br>to control the natural resources.<br>to adjust the rate of rotation.<br>to go to bed early. |
| Do<br>Dose<br>Did<br>Shall<br>Will | | I<br>he /she<br>we<br>you<br>they | have | to make the dicision at once?<br>to check the homework?<br>to connect two ends?<br>to find a shorter way?<br>to prepare the car? |
| I<br>He/She<br>We<br>You<br>They | do<br>does<br>did<br>shall<br>will | (not) | have | to leave the classroom.<br>to make the best choice.<br>to clean the floor.<br>to build a new cottage.<br>to reconstruct the old building. |

Модальный глагол **have to** употребляется в предложении:

1) для выражения *обязанности, в определенном случае наступающей извне:*

You *have to work* hard if you want to succeed. – Ты *должен работать* много, если хочешь достичь цели;

2) для выражения *обязанности или необходимости*, вызванной *законом, правилом* или *властью* конкретного человека:

Children *have to go* to school when they are 7 (*закон*). – Дети должны идти в школу с семи лет.

Mum says that you *have to be* at home at 9.00 p. m. (*приказ матери*). – Мама говорит, что ты *должен быть* дома в девять часов вечера;

3) для выражения *обычной повторяющейся обязанности*:

I *have* always *to tell* my parents where I am going. – Я всегда *должен говорить* моим родителям, куда я иду;

4) модальный глагол **have to** может выступать в качестве *безличного* глагола:

People all over the world *have to learn* English. – Люди во всем мире *должны изучать* английский язык;

5) для указания на *отсутствие необходимости* в отрицательных предложениях:

You *don't have to go* there. (Вам *не нужно* (нет необходимости) *идти* туда).

**Exercise 5. Put in *have to* or *don't have to*.**

1. Shop assistants ___ know Italian. 2. Doctors ___ work with all people. 3. Architects ___ work at night. 4. Businessmen ___ think very much. 5. Pilots ___ wear uniform. 6. Teachers ___ travel. 7. Diplomats ___ know English wery well. 8. Secretaries ___ get up early. 9. Bus drivers ___ write letters. 10. Bankers ___ count money.

**Exercise 6. Use the right form of the modal verb *have to*.**

**A**. 1. Why __ he __ stay after classes? Mrs. Green, our teacher, gave him lines. 2. Eton is a strict school. Students there __ wear their uniform every day. 3. __ you __ learn the poem by heart? – No, I have already learned it. 4. You __ buy bread. Mum has already bought it. 5. Jimmy __ get up early. It's holiday-time. 6. Tom __ take his PE kit to school on Monday and Tuesday. He has PE lessons on these days. 7. __ we __ walk to school? – No, let's take a bus. 8. Sally has no pen. She __ ask somebody for a pen. 9. Nelly is studying literature. She __ read a lot of books.

**B**. 1. You __ (not run). You won't miss the bus. 2. Pete's eyes are very bad, and he __ (wear) glasses. 3. School starts at eight o'clock, so we __ (get) up early. 4. My friend gave me some tickets for the concert, so I __ (not pay)! 5. We __ (study) maths, because it's compulsory. 6. She's got lots of time. She __ (not hurry). 7. We __ (not take) any exams at the end of this term. 8. My mum sometimes __ (work) at weekends.

**Exercise 7. Use the necessary form of the modal verb *have to*.**

1. She __ (приходится) buy some food. 2. She __ ( пришлось) buy some food. 3. She __ (придется) buy some food. 4. Peter and Tom __ (придется) work hard. 5. Peter and Tom __ (пришлось) work hard. 6. Peter and Tom __ (приходится) work hard.

**Exercise 8. Read and memorize the following words and word combinations.**

strongly ['strɔŋlɪ] – очень, чрезвычайно

specific [spə'sɪfɪk] – характерный

multifunctional [ˌmʌltɪ'fʌŋkʃənəl] – универсальный, многофункциональный

distribution [ˌdɪstrɪ'bju:ʃən] – распределение

settlement ['setlmənt] – населенный пункт

forestry management ['fɔrɪstrɪ 'mænɪʤmənt] – лесное хозяйство

agricultural management [ˌægrɪ'kʌlʧərəl 'mænɪʤmənt] – экономика и организация сельскохозяйственного производства

constituent [kən'stɪtjuənt] – составная часть

indispensable [ˌɪndɪ'spensəbl] – неотъемлемый

biomass ['baɪəʊˌmæs] – биомасса

environmental protection policy [ɪnˌvaɪrən'mentl prə'tekʃn 'pɔləsɪ] – политика охраны окружающей среды

genesis ['ʤenɪsɪs] – происхождение, генезис

sod-podzolic soil [sɔdˈpɔdzɔlɪk sɔɪl] – дерново-подзолистая почва

waterlogged soil ['wɔːtəlɔgd sɔɪl] – заболоченная почва

sod soil [sɔd sɔɪl] – почва с дерновым горизонтом

sod carbonate soil [sɔd 'kɑːbəneɪt sɔɪl] – дерново-карбонатная почва

sod carbonate waterlogged soil [sɔd 'kɑːbəneɪt 'wɔːtəlɔgd sɔɪl] – заболоченная дерново-карбонатная почва

bog soil [bɔg sɔɪl] – болотистая почва

flood plain [flʌd pleɪn] – пойменная площадь

alluvial soil [ə'luːvɪəl sɔɪl] – аллювиальная почва

granulometric [ˌgranjʊləʊˈmɛtrɪk] – гранулометрический

genesis ['ʤenɪsɪs] – происхождение

morainic [mɔˈreɪnɪk] – моренный

aqueoglacial [ækwɪəʊˈgleɪsɪəl] – водно-ледниковый

lacustrine-glacial [ləˈkʌstrʌɪnˈgleɪsɪəl] – озерно-ледниковый

eolian [iː'əulɪən] – эоловый (*нанесенный ветром*)

lacustrine-bog [ləˈkʌstrʌɪnbɔg] – озерно-болотный

river-borne ['rɪvəbɔːn] – речного происхождения

deposit [dɪ'pɔzɪt] – отложение

light sandy loamy soil [laɪt 'sændɪ 'ləumɪ sɔɪl] – легкая супесчаная почва

loamy soil ['ləumɪ sɔɪl] – суглинистая почва

comparatively [kəm'pærətɪvlɪ] – сравнительно, относительно

loamy sand ['ləumɪsænd] – суглинистый песок, супесь

underlie [ˌʌndə'laɪ] – лежать внизу

clayey soil [ˌkleɪɪ'sɔɪl] – глинистая почва

clayey loamy soil [ˌkleɪɪ 'ləumɪ sɔɪl] – глинисто-суглинистая почва

loamy ['ləumɪ] – суглинистый, мергельный

peatland ['piːtˌlænd] – торфяник

automorphous [ɔːtəˈmɔːfəs] – автоморфный

gleyey ['gleɪɪ] – глееватый (*о почве*)

gleyic ['gleɪɪk] – глеевый

prevalence ['prevələns] – распространенность
fen peat soil [ˌfen 'pi:t sɔıl] – болотная торфяная почва
loosened soil ['lu:sənd sɔıl] – рыхлая почва
turf podzol [ˌtɜ:f ˈpɔdzɔl] – дерново-подзолистая почва
acidity [ə'sıdətı] – кислотность
stoniness [ˈstəunınəs] – каменистость, завалуненность
susceptibility [səˌseptə'bılətı] – подверженность
turf-carbonate soil [ˌtɜ:f 'kɑ:bəneıt sɔıl] – дерново-карбонатная почва
river-valley soil ['rıvə'vælı sɔıl] – почва долины реки
upland heath ['ʌpləndhi:θ] – нагорная пустошь
floodplain soil [ˈflʌdpleın sɔıl] – пойменная почва
bedding ['bedıŋ] – напластование, наслоение
peat-gley soil ['pi:tgleı sɔıl] – торфяно-глеевые почвы
peat-bog soil ['pi:tbɔg sɔıl] – торфяная почва
alluvial [ə'lu:vıəl] – аллювиальный, наносный
sedimentation [ˌsedımen'teıʃən] – седиментация, свободное осаждение.

**Exercise 9. Match the English names of soil types in A with their Russian translations in B.**

**A.** Waterlogged soil, sod-podzolic soil, sod soil, sod carbonate soil, sod carbonate waterlogged soil, bog soil, flood plain, alluvial soil, light sandy loamy soil, loamy soil, clayey soil, clayey loamy soil, fen peat soil, loosened soil, turf-carbonate soil, river-valley soil, floodplain soil, peat-gley soil, peat-bog soil.

**B.** Аллювиальная почва, пойменная почва, глинистая почва, суглинистая почва, легкая супесчаная почва, пойменная площадь, дерново-карбонатная почва, заболоченная дерново-карбонатная почва, почва с дерновым горизонтом, болотистая почва, заболоченная почва, дерново-подзолистая почва, глинисто-суглинистая почва, почва долины реки, рыхлая почва, торфяно-глеевые почвы, дерново-карбонатная почва, болотная торфяная почва, торфяная почва.

**Exercise 10. Read and translate the following text.**

1. Land is the main natural and national resource of the Republic of Belarus. Social, economic and ecological situation in the country strongly depends on its effective use and protection. The specific feature of land is its multifunctional character: land is a basic resource for material production; provides space for the distribution of economic sector, settlements and infrastructure; serves as a basis for agricultural and forestry management; is a constituent and indispensable part of natural systems. Belarusian soils pos-

sess the unique quality of fertility – ability to produce biomass.

2. Soil conservation and its rational use are the priorities of environmental protection policy. There are various types of soils on the territory of Belarus: sod-podzolic, sod-podzolic waterlogged, sod and sod carbonate, sod and sod carbonate waterlogged, bog and flood plain (alluvial) soils. The difference of granulometric composition is determined by a genesis variety of soil forming materials, represented by morainic, aqueoglacial, lacustrine-glacial, eolian, lacustrine-bog and river-borne deposits.

3. Light sandy loamy and loamy soils are the most suitable for agriculture. They have comparatively stable water regime and abundant supply of nutrients. Harvests, grown on loamy sands, almost half of which are underlain by loams and clays from the depth of up to 1 m, are substantially cut down. The lowest fertility rate is characteristic of sandy soils. Agricultural lands are composed of clayey and clayey loamy soils – 0.4 %, loamy and light loamy soils – 20.1 %, loamy sands – 45.6 %, sandy – 21.2 %, peatlands – 12.7 %.

4. Moisture content is one of the most important characteristics, determining quality composition of agricultural lands, especially arable. The share of waterlogged lands in the total amount of arable lands is 51.3 %. Thus, automorphous (normally wetted soils) constitute 34.9 %, slightly gleyey (temporarily excessively wetted soils) – 22.9 %, gleyic – 21.4 %, gleyey – 7.0 %, bog – 13.8 %. The distinctive feature of the country's territory is prevalence of peat soils, their distribution within the regions being uneven. The total territory of peat bogs before their intensive drainage constituted 2.9 million ha, or 14% of the country's territory. The main part of fen peat soils is concentrated in the Belarusian Polessye.

5. At present there are 3416.0 thousand ha (16.5 % of the country's territory) of drained lands, of which 2902.0 thousand ha are occupied by agricultural lands. 1068.2 thousand ha of bogs have been drained for agricultural purposes. About 30 % of drained agricultural lands are occupied by sandy and loosened soils of light granulometric composition.

6. Turf podzols are not highly fertile because of their shallow humus layer, naturally low humus content, acidity, poor aeration, fragile structure, stoniness, susceptibility to erosion, unfavourable hydrophysical properties and the complexity of their contours. Turf and turf-carbonate soils are less widespread but have the highest natural fertility in the region.

7. Peat soils are classified as river-valley soils (78 % of the total), upland heath (4 %) and floodplain soils (18 %) depending on genesis, bedding conditions, water supply and vegetation. They vary in thickness from up to

30 cm (peat-gley), 30–50 cm and 50 cm and more (peat-bog). Waterlogged meadow soils develop in flood plains, under specific conditions combining high-water flooding and alluvial sedimentation along with the soil formation factors in the zone.

**Exercise 11. Answer the questions.**

1. Does social and economic situation depend on effective land use?
2. How is the difference of granulometric composition determined?
3. What do you know about the harvests grown on loamy sands?
4. What is the distinctive feature of the country's territory?
5. Are turf podzols highly fertile? Why not?
6. What percentage of drained agricultural lands is of light granulometric composition?
7. How do waterlogged meadow soils develop?

**Exercise 12. Read the text once again and insert the necessary prepositions.**

1. About 30 % … drained agricultural lands are occupied … sandy and loosened soils … light granulometric composition.
2. Moisture content is one … the most important characteristics, determining quality composition … agricultural lands, especially arable.
3. Harvests, grown … loamy sands, almost half … which are underlain … loams and clays … the depth … up … 1 m, are substantially cut down.
4. … present there are 3416.0 thousand ha … drained lands, … which 2902.0 thousand ha are occupied … agricultural lands.
5. Waterlogged meadow soils develop … flood plains, … specific conditions combining high-water flooding and alluvial sedimentation along … the soil formation factors … the zone.
6. The difference … granulometric composition is determined … a genesis variety … soil forming materials, represented … morainic, aqueoglacial, lacustrine-glacial, eolian, lacustrine-bog and river-borne deposits.

**Exercise 13. Make up word combinations using the text and translate them.**

| | |
|---|---|
| 1) resource | a) of granulometric composition |
| 2) difference | b) of the Republic of Belarus |
| 3) possess | c) stable water regime |
| 4) comparatively | d) the unique quality of fertility |
| 5) share | e) feature of the country's territory |
| 6) distinctive | f) of waterlogged lands |
| 7) soils | g) natural fertility in the region |
| 8) highest | h) of light granulometric composition |

9) because of i) and alluvial sedimentation
10) flooding j) their shallow humus layer

**Exercise 14. Match the beginning of each sentence with its end.**

1. They vary in thickness from up … .
2. Turf and turf-carbonate soils are … .
3. The main part of fen peat soils … .
4. The share of waterlogged lands in … .
5. They have comparatively stable water … .
6. Soil conservation and its rational use … .
7. Belarusian soils possess the unique … .
8. Light sandy loamy and loamy soils … .

a) … less widespread but have the highest natural fertility in the region.
b) … to 30 cm (peat-gley), 30-50 cm and 50 cm and more (peat-bog).
c) … the total amount of arable lands is 51.3 %.
d) … is concentrated in the Belarusian Polessye.
e) … are the priorities of environmental protection policy.
f) … regime and abundant supply of nutrients.
g) … are the most suitable for agriculture.
h) … quality of fertility – ability to produce biomass.

**Exercise 15. Translate the following words and word combinations into Russian.**

Economic and ecological situation, multifunctional character, material production, deposit, settlement and infrastructure, constituent and indispensable, various types of soils, alluvial soils, granulometric composition, aqueoglacial, stable water regime, supply of nutrients, from the depth of up to 1 m, fertility rate, loamy sand, composition of lands, automorphous, wetted soil, country's territory, intensive drainage, agricultural purpose, vegetation, granulometric composition, highly fertile, humus layer, poor aeration, hydrophysical property, complexity of contours, widespread, specific condition, vary in thickness, soil formation.

**Exercise 16. Translate the words and word combination in brackets into English.**

1. The specific feature of land (является ее универсальное свойство): land is a basic (ресурс для материального производства); provides space for the (распространение экономической сферы), settlements and infrastructure; serves as a basis for agricultural and (лесного хозяйства); is a constituent and indispensable (часть естественных систем).

2. (Содержание влаги) is one of the most important characteristics, determining (качественный состав сельскохозяйственных земель), especially arable.

3. The (разница в гранулометрическом составе) is determined by a genesis variety of (материалов, образующих почву), represented by morainic, aqueoglacial, (озерно-ледниковыми, эоловыми, озерно-болотными) and river-borne deposits.

4. Turf podzols (не являются высоко плодородными) because of their shallow humus layer, naturally (низкое содержание гумуса), acidity, poor aeration, (хрупкая структура), stoniness, susceptibility to erosion, (неблагоприятные гидрофизические свойства) and the complexity of (их контуров).

**Exercise 17. Translate the following words and word combinations into English.**

Основной природный ресурс, обеспечивает пространство, населенные пункты и инфраструктура, белорусские почвы, производить биомассу, консервация почвы, рациональное использование, различные типы почв, гранулометрический состав, разнообразие генезиса, водно-ледниковый, самый пригодный для сельского хозяйства, обильный запас питательных веществ, состав сельскохозяйственных земель, пахотные земли, слегка глееватые почвы, распределение по регионам, интенсивный дренаж, подверженность эрозии, дерново-карбонатная почва, разниться по толщине слоя, в специфических условиях.

## UNIT 11

## Over-cultivation

### Словообразование

Приставка ***out-***, прибавляемая к глаголам и иногда к существительным, образует слова, указывающие на превосходящий, чрезмерный результат действия, например:

to weight (взвешивать) – to **out**weight (перевешивать).

**Exercise 1. Form the new words using the prefix *out-*. Translate them into Russian.**

**Model**: to class – to outclass.

To cast, to come, to outpour, to stay, to jump, to eat, to live, to fly.

Приставка ***re-***, прибавляемая к глаголам, образует слова, значения, которых указывают на повтор действия, например:

to consider (рассматривать) – to **re**consider (пересматривать).

**Exercise 2. Form the new words using the prefix *re-*. Translate them into Russian.**

**Model**: to import – to reimport.

To arrange, to furnish, to read, to sell, to issue, to make, to appoint.

## The Past Continuous Active

## (Прошедшее продолженное время в активном залоге)

Прошедшее продолженное время в активном залоге (The Past Continuous Active) является сложной видо-временной формой, которая образуется при помощи вспомогательного глагола **to be** в прошедшем времени и причастия настоящего времени (The Participle I) смыслового глагола.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **was working** | I **was not working** | **Was** I **working**? |
| He **was working** | He **was not working** | **Was** he **working**? |
| She **was working** | She **was not working** | **Was** she **working**? |
| It **was working** | It **was not working** | **Was** it **working**? |
| We **were working** | We **were not working** | **Were** we **working**? |
| You **were working** | You **were not working** | **Were** you **working**? |
| They **were working** | They **were not working** | **Were** they **working** |

Прошедшее продолженное время в активном залоге (The Past Continuous Active) используется для выражения действия, происходившего или длившегося в определенный момент в прошлом. Этот момент в прошлом может быть выражен:

1) точным указанием *времени*, например:

I *was reading* a book at *5 o'clock yesterday*. – *Я читал* книгу *в пять часов вчера*;

2) точным указанием *отрезка времени*, например:

Victor *was working* in the garden *from 4 to 7 o'clock yesterday*. – Виктор *работал* в саду *с 4 до 7 часов вчера*;

3) *другим действием*, выраженным глаголом в Past Indefinite, например:

It *was raining* when I *arrived* home. – *Шел* дождь, когда я *приехал* домой;

4) *параллельным действием*, выраженным глаголом в Past Continuous, например:

While Sally *was cooking*, Mary *was laying* the table. – *В то время как* Салли *готовила* пищу, Мэри *накрывала* на стол;

5) прошедшее продолженное время (Past Continuous Active) используется для *описания обстановки*, на фоне которой происходили события, например:

It was a warm summer day. The sun *was shining* and the birds *were singing*. – Это был теплый летний день. Солнце *светило*, и птицы *пели*.

Прошедшее продолженное время (Past Continuous Active) часто используется в предложениях вместе с такими обстоятельствами времени, как **at 9 o'clock yesterday** – *в 9 часов вечера*, **all day long** – *весь день*, **all the time** – *все время*, **the whole evening** – *весь вечер*, **from 3 to 7** – *от 3 до 7 часов*, **at that time yesterday** – *в то время вчера*, **this time last month** – *в это время в прошлом месяце*, **when** – *когда*, **while** – *в то время как*, **when he came** – *когда он пришел* и др.

**Exercise 3. Translate the following sentences.**

1. Tom was playing the piano at four o'clock yesterday. 2. I was going to the cinema when you met me. 3. Sue was doing her homework the whole evening yesterday. 4. Mike was running in the yard when his mother came home. 5. Tim and Daniel were washing the floor from five till eight yesterday. 6. I was reading a book at six o'clock yesterday. 7. When I came into the kitchen, my mother was cooking. 8. Pat was sitting at the table the whole evening yesterday. 9. What was Nick writing when you came to his place? 10. What you were doing when I rang you up?

**Exercise 4. Put the verbs in brackets in the Past Continuous Active.**

1. When I came, Tom (sit) in the armchair and (read) a book. 2. The teacher met Kate when she (go) a shop. 3. He couldn't speak because he (die) of laugh. 4. What you (do) from 2 to 5 the day before yesterday? I phoned you several times. – I (listen) to music. 5. When I looked out of the window that afternoon, the sun (shine) brightly, the birds (sing) and the wind (blow). 6. When you called me yesterday, I (take) a shower. 7. Sam entered the room while Dan (sleep). 8. I (sit) by the door when Sue came back. 9. It (rain) cats and dogs while I (run) towards Pat's house 10. Just as Pete (cross) the avenue, a bike came round the comer.

## The Derivative Pronouns of *Some, Any, No*

## (Производные местоимения от *some, any, no*)

Местоимения ***some, any, no*** со словами ***thing***, ***body*** и ***one*** образуют сложные местоимения: ***something***, ***somebody***, ***someone***, ***anything***, ***anybody***, ***anyone***, ***nothing***, ***nobody***, ***no one***.

Местоимение ***something*** употребляется в утвердительных предложениях в качестве подлежащего в значении *что-то*, при этом сказуемое должно употребляться в форме 3-го лица единственного числа:

*Something* is wrong here. – Что-то здесь не так.

Местоимение ***something*** употребляется в утвердительных предложениях в качестве дополнения в значении *что-то*:

John saw *something* in the dark. – Джон увидел *что-то* в темноте.

Местоимение ***anything*** употребляется в отрицательных предложениях в значении *ничего*, в вопросительных предложениях в значении *что-нибудь* и в утвердительных предложениях в значении *всё*:

I did not see *anything* there. – Я *ничего* там не видел.

*Did* you do *anything* yesterday? – Ты делал *что-нибудь* вчера?

She cooks *anything* she wants. – Она готовит *все*, что хочет.

Местоимение ***somebody*** употребляется в утвердительных предложениях в качестве подлежащего в значении *кто-то*, при этом сказуемое должно употребляться в форме 3-го лица единственного числа:

*Somebody* comes here. – *Кто-то* идет сюда.

Местоимение ***somebody*** употребляется в утвердительных предложениях в качестве дополнения в значении *кто-то*:

Bob saw *somebody* in the forest. – Боб увидел *кого-то* в лесу.

Местоимение ***anybody*** употребляется в отрицательных предложениях в значении *никто*, *никого,* в вопросительных предложениях в значении *кто-нибудь* и в утвердительных предложениях в значении *все*:

He did not phone *anybody* last Saturday. – Он *никому* не звонил в субботу.

*Did* you show *anybody* that road? – Ты показывал *кому-нибудь* ту дорогу?

Maggie helps *anybody* she is asked to. – Мэгги помогает *всем*, кто ее попросит.

Отрицательное местоимение ***nothing*** употребляется в качестве подлежащего в значении *ничто*, *ничего*, при этом сказуемое должно упо-

требляться в утвердительной форме в 3-м лице единственного числа, а переводиться на русский язык в отрицательной:

*Nothing* changes here. – *Ничего* не меняется здесь.

Отрицательное местоимение ***nothing*** употребляется в предложениях в качестве дополнения в значении *ничто, ничего*. Сказуемое должно употребляться в утвердительной форме, а переводиться на русский язык в отрицательной:

Drake took *nothing* from the table. – Дрейк *ничего* не брал со стола.

Отрицательное местоимение ***nobody*** употребляется в качестве подлежащего в значении *никто*, при этом сказуемое должно употребляться в утвердительной форме в 3-м лице единственного числа, а переводиться на русский язык в отрицательной:

*Nobody* likes bad weather. – *Никто* не любит плохую погоду.

Отрицательное местоимение ***nobody*** употребляется в предложениях в качестве дополнения в значении *никто*. Сказуемое должно употребляться в утвердительной форме, а переводиться на русский язык в отрицательной:

Bill saw *nobody* there. Билл *никого* не видел там.

**Exercise 5. Make the right choice.**

1. We haven't … bread, butter and cucumbers (no, any). 2. They have ... pens pencils (any, no). 3. I don't want ... today, thank you (nothing, anything). 4. "I haven't got … textbook," said a student (any, no). 5. "Didn't you buy ... fertilizer yesterday (any, no)? 6. I didn't see ... in the farmyard when I went out (anybody, nobody). 7. We didn't harvest … crop because it was raining all day long (no, any). 8. There is ... at the filling station (anybody, nobody). 9. How much did you pay for these new varieties? – I didn't pay … (nothing, anything). 10. Have you damaged … (anything, nothing)?

**Exercise 6. Put the following sentences into negative and interrogative forms.**

1. They saw something interesting. 2. The engineer gave them some axles. 3. Tim will bring something to us. 4. Bruce showed some gears to Mike. 5. She was reading something. 6. He will write somebody a letter. 7. Peter has something in his garage. 8. They have some mounted plows. 9. There are some powerful tractors here.

**Exercise 7. Read and memorize the following words and word combinations.**

over-cultivation ['əuvə¸kʌltı'veıʃən] – чрезмерно интенсивная обработка земель

tremendously [trı'mendəslı] – чрезвычайно

secure [sɪ'kjuə] – обеспечивать
recover [rɪ'kʌvə] – восстанавливать(ся)
technique [tek'ni:k] – приемы, метод
ever ['evə] – постоянно;
inputs ['ɪnputs] – затраты
produce ['prɔdju:s] – продукция
linear relationship ['lɪnɪə rɪ'leɪʃənʃɪp] – линейная связь
pour into ['pɔ'ɪntə] – вложить
yield [ji:ld] – производить
unsustainable [ˌənsəˈstānəbəl] – истощительный, расточительный
permanent ['pɜ:mənənt] – постоянный, неизменный
point [pɔɪnt] – стадия
desertification [ˌdezətɪfɪ'keɪʃən] – опустынивание
impact ['ɪmpækt] – сильное воздействие, влияние
clear [klɪə] – расчищать
initial [ɪ'nɪʃəl] – первоначальный
response [rɪ'spɔns] – реакция
worsen ['wɜ:sən] – ухудшать
wildlife ['waɪldlaɪf] – живая природа
coastal ['kəustəl] – береговой, прибрежный
find one's way [faɪnd wʌnz weɪ] – проникнуть, попасть
sedimentation [ˌsedɪmen'teɪʃən] – седиментация, свободное осаждение
freshwater ['freʃˌwɔ:tə] – пресноводный
marine [mə'ri:n] – морской
habitat ['hæbɪtæt] – место распространения, ареал (*животного, растения*)
community [kə'mju:nətɪ] – местное сообщество, население
reverse [rɪ'vɜ:s] – отменять
take action [teɪk 'ækʃən] – принять меры
renew [rɪ'nju:] – возобновлять
land manager [lænd 'mænɪʤə] – землепользователь
shelter belt ['ʃeltəbelt] – полезащитная лесная полоса
hedge [heʤ] – живая изгородь
untouched [ʌn'tʌʧt] – нетронутый
reforest [ˌri:'fɔrɪst] – восстанавливать лесные массивы
profitability [ˌprɔfɪtə'bɪlətɪ] – прибыльность
food security [fu:d sɪ'kjuərətɪ] – продовольственная безопасность
internal [ɪn'tɜ:nəl] – внутренний

scarce [skeəs] – скудный, дефицитный

instance ['ınstəns] – пример, случай

(UN) [ˌjuː'en]; United Nations [juː'naıtıd 'neıʃənz] – ООН; Организация Объединенных Наций

FAO [efeıˈəʊ]; Food and Agricultural Organization [fuːd ænd ˌægrɪ'kʌlʧərəl ˌɔːgənaɪ'zeıʃən] – Продовольственная и сельскохозяйственная организация ООН

Sustainable Development Goals [sə'steınəbl dı'veləpmənt gəul] – цели в области устойчивого развития

implement ['ımplımənt] – применить.

**Exercise 8. Try to guess the meanings of the following words without a dictionary.**

Productivity, nation, reform, intensive, region, decade, priority, population, risk, resource, pesticide, real, problem, negative, degradation, erosion, vegetation, specific, local, practice, rotation, minimize, conserve, natural, critical.

**Exercise 9. Read and translate the following text.**

1. Over the last 5 decades increases in agricultural productivity have made it possible to produce more crops on the same amount of land. And that helped tremendously secure food for an increasing population. It is important to remember that at the time many regions of the world were recovering from years of war, particularly in Europe. So, access to food was a priority for governments as they were rebuilding their nations.

2. Unfortunately, however, today's intensive farming techniques have come to require ever increasing inputs of resources such as fertilisers and pesticides to yield ever increasing produce. The problem with this is that this is not a linear relationship. In other words, there comes a time when no matter how much resources and capital is poured into the land in the form of water or fertilizer, it will not yield more crops; indeed, the opposite may happen. This when the point of over-cultivation has been reached.

3. We now know that over-cultivation is an unsustainable use of land and in extreme circumstances, it can lead to permanent damage to the productivity of the land to the point of desertification. Desertification is a real risk as over-cultivation creates a number of problems.

4. First, it has a very negative impact on the soil as over-cultivation can lead to both soil degradation and erosion. As natural vegetation of a specific area is cleared to make space for farming and then when the farmland is ploughed, the topsoil can be blown away by wind or washed away by rain.

5. Second, while an initial response to lack of natural nutrients is to use

fertilizers, in the long-term this can increase and worsen the problem. One key reason for this is that fertilisers and pesticides can pollute local water resources and harm wildlife. It is also important to note that eroded soil also finds its way into rivers, lakes and coastal areas. Sedimentation causes serious damage to freshwater and marine habitats, as well as the local communities that depend on these habitats.

6. This is not to say that there is no way to reverse the effects of over-cultivation if proper action is taken on time. For example, practices that encourage crop rotation and fallow periods can help minimize soil erosion and degradation. By growing different crops each year, it is possible for soil nutrients to be replenished while fallow periods, that is time when the land rests, give the soil time to renew its fertility.

7. To minimize soil erosion and conserve water, land managers can plough taking into account the shape or contour of the land rather than against it. Similarly, shelter belts – otherwise known as windbreaks – are areas of forest or hedge that are left untouched to protect farmland from the effects of water and wind erosion. In addition, by reforesting areas you can help return land to its natural state, making it more fertile and stable, thus reducing wind and water erosion and ultimately land degradation.

8. What is particularly concerning is that over-cultivation is not just an issue of the profitability of agricultural activities. Falling yields put food security at risk and very often, in poorer countries, it can lead to internal conflicts among people fighting over scarce resources. Luckily, there are many solutions we can implement to minimize the instances of over-cultivation: the activity of organizations such as the UN FAO, and work around the UN 2030 Sustainable Development Goals are critical to understanding how we can reform our agriculture and food systems to make them more sustainable. There is certainly time to make our agriculture more sustainable by 2030!

**Exercise 10. Answer the following questions.**

1. What have increases in agricultural productivity made over the last 5 decades?
2. What have today's intensive farming techniques come to require?
3. What effects can land over-cultivation lead to?
4. How can fertilizers and pesticides harm local water resources and wildlife?
5. What action could be taken to reverse the effects of over-cultivation?
6. How can one minimize soil erosion and conserve water?
7. Are there any solutions to minimize the instances of over-cultivation?

**Exercise 11. Match the synonyms.**

| | |
|---|---|
| 1) productivity | a) contrary |
| 2) relationship | b) conditions |
| 3) opposite | c) efficiency |
| 4) circumstances | d) interrelation |
| 5) degradation | e) alternation |
| 6) response | f) defend |
| 7) rotation | g) deterioration |
| 8) protect | h) reaction |
| 9) critical | i) likewise |
| 10) similarly | j) crucial |

**Exercise 12. Translate the following words and word combinations into English.**

Сельскохозяйственная производительность, производить больше сельскохозяйственных культур, обеспечивать пищей, важно помнить, особенно в Европе, восстановление государства, интенсивные методы ведения сельского хозяйства, удобрения и пестициды, негативное влияние, момент чрезмерно интенсивной обработки земель, деградация и эрозия почвы, верхний слой почвы, первоначальная реакция, вносить удобрения, местные водные ресурсы, эродированная почва, серьезный ущерб, паровой период, возобновлять плодородие, принимать во внимание, лес или живая изгородь, естественное состояние, скудные ресурсы, деятельность организации, жизнеспособный, ООН.

**Exercise 13. Match the words with their definitions.**

| | |
|---|---|
| 1. food | a) a substance used for destroying insects. |
| 2. pesticide | b) it is what people and animals eat. |
| 3. desertification | c) a farming tool used to turn up the soil. |
| 4. plough | d) a process by which farmland turns into desert. |
| 5. nutrient | e) the natural home of an animal or a plant. |
| 6. habitat | f) a substance that helps plants to grow. |
| 7. erosion | g) the upper layer of earth in which plants grow. |
| 8. soil | h) he process of eroding or being eroded. |
| 9. yield | i) a piece uncultivated land. |
| 10. fallow | j) the full amount of an agricultural production. |

**Exercise 14. Agree or disagree with the following statements beginning with:**

**I agree with this statement because…**

**That's absolutely false because...**

1. Over the last 5 decades we have learnt to produce more crops on the same amount of land.

2. Today's intensive farming techniques require less and less resources to yield ever increasing produce.

3. Over-cultivation can lead the land to the point of desertification.

4. Over-cultivation never leads to soil degradation and erosion.

5. Fertilisers and pesticides harm local water resources and wildlife.

6. Crop rotation and fallow periods reduce soil erosion and degradation.

7. It is impossible to return land to its natural state by reforesting areas.

8. UN FAO and the similar organizations work hard to reform agriculture and food systems to make them more sustainable.

**Exercise 15. Translate the following words and word combinations into Russian.**

The same amount of land, increasing population, it is important to remember, many regions of the world, over-cultivation, access to food, priority for governments, ever increasing produce, no matter how much, in the form of water or fertilizer, extreme circumstance, permanent damage, a number of problems, natural vegetation, to make space for, blown away by wind, lack of natural nutrients, long-term, it is also important to note, marine habitat, proper action, shape or contour, similarly, protect farmland from water and wind erosion, in addition, fertile and stable, ultimately, profitability of agricultural activity, poor country, luckily, instances of over-cultivation, food system, to make our agriculture more sustainable.

**Exercise 16. Complete the sentences using suitable words from the text.**

1. There is certainly time to make our agriculture more … by 2030!

2. Falling yields put food … at risk and very often, in poorer countries.

3. Similarly, shelter belts – otherwise known as … .

4. By growing different crops each year, it is possible for soil … to be replenished.

5. This when the point of … has been reached.

6. … causes serious damage to freshwater and marine habitats.

7. It is also important to note that … soil also finds its way into rivers.

8. … is a real risk as over-cultivation creates a number of problems.

9. So, access to food was a priority for … as they were rebuilding their nations.

10. The problem with this is that this is not a linear … .

**Exercise 17. Find in *B* the English equivalents to the Russian words in *A*.**

| **A** | **B** |
|---|---|
| 1) сельхозугодья | a) farmland; b) farming; c) windbreak. |
| 2) особенно | a) increasing; b) particularly; c) certainly. |
| 3) борьба, | a) reducing; b) rebuilding; c) fighting. |
| 4) решение | a) solution; b) vegetation; c) rotation. |
| 5) выращивание | a) blowing; b) growing; c) replenishing. |
| 6) важный | a) unsustainable; b) permanent; c) important. |
| 7) деятельность | a) effects; b) countries; c) activities. |
| 8) известный | a) known; b) eroded; c) made. |
| 9) контур | a) space; b) contour; c) technique. |
| 10) ухудшаться | a) reform; b) yield; c) worsen. |

## UNIT 12

## Crop Production

### Словообразование

Приставка ***non-***, прибавляемая к существительным и прилагательным, образует слова с противоположным значением, например:

interference (вмешательство) – **non**-interference (невмешательство).

**Exercise 1. Form the new words using the prefix *non-*. Translate them into Russian.**

**Model**: activated – non-activated.

Addictive, adjacent, acceptance, commercial, essential, adjustable, adult.

Приставка ***ultra-***, прибавляемая к прилагательным и существительным, образует слова, значения которых указывают на чрезмерность, необычность или неприемлемость, например:

violet (фиолетовый) – **ultra**violet (ультрафиолетовый).

**Exercise 2. Form the new words using the prefix *ultra-*. Translate them into Russian.**

**Model**: modern – ultramodern.

Microscope, micrometer, classical, marine, short, conservative, weak.

## The Future Continuous Active

## (Будущее продолженное время в активном залоге)

Будущее продолженное время в активном залоге (The Future Continuous Active) является сложной видо-временной формой, которая образуется при помощи вспомогательных глаголов будущего времени **shall** и **will**, вспомогательного глагола **to be** в форме инфинитива и причастия настоящего времени (The Participle I) смыслового глагола.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **shall be working** | I **shall not be working** | **Shall** I **be working**? |
| We **shall be working** | We **shall not be working** | **Shall** we **be working**? |
| He **will be working** | He **will not be working** | **Will** he **be working**? |
| She **will be working** | She **will not be working** | **Will** she **be working**? |
| It **will be working** | It **will not be working** | **Will** it **be working**? |
| You **will be working** | You **will not be working** | **Will** you **be working**? |
| They **will be working** | They **will not be working** | **Will** they **be working** |

Будущее продолженное время в активном залоге (The Future Continuous Active) используем для того, чтобы выразить действие, которое будет происходить в определенный момент в будущем.

1. Этот момент может быть выражен точным указанием *времени* или *отрезка времени* в будущем, например:

I *shall be reading* a book *at 5 o'clock tomorrow*. – Я *буду читать* книгу *в пять часов завтра*.

Tom *will be working* in the field *from 8 to 12 tomorrow*. – Том *будет работать* в поле *с 8 до 12 завтра*.

2. Будущее продолженное время используется для выражения действий, которые произойдут в результате *естественного течения событий* независимо от воли или намерения любого, кого эти действия затрагивают:

In a few minutes we *will be landing* at the International Airport. – Через пять минут мы *будем приземляться* в международном аэропорту.

3. Будущее продолженное время используется для выражения *запланированных действий*.

I *shall be going* to the city centre later. Can I get you anything? – Позже я *пойду* в центр города. Тебе купить что-нибудь?

4. Будущее продолженное время используется для выражения *обычных* или *повторяющихся действий в определенный момент в будущем*, например:

I think that, in the future, more and more people *will be commuting* to work by plane. – Я думаю, что в будущем все больше и больше людей *будут добираться* на работу на самолетах.

Будущее продолженное время (Future Continuous) часто используется в предложениях вместе с такими обстоятельствами времени, как **at 5 o'clock tomorrow** – *в 5 часов завтра*, **from 5 to 6 o'clock tomorrow** – *завтра с 5 до 6 часов,* **at that moment** – *в тот момент,* **this time tomorrow (next week, next month)** – *в это время завтра (на следующей неделе, в будущем месяце)*, **at 9 o'clock on Monday** – *в 9 часов в понедельник*, **when he comes** – *когда он придет,* **while** – *в то время как,* **the whole day** – *весь день,* **at midnight** – *в полночь.*

**Exercise 3. Translate the following sentences into Russian.**

1. I shall be repairing my bike at 8 o'clock tomorrow. 2. Tom will be returning from school at that time. 3. My sister will be writing my homework when you come. 4. It will be snowing tomorrow morning. 5. Sandra will be washing up at noon. 6. This time next year my friends will be running their own shop. 7. I will be buttering the bread while you are slicing the cucumbers. 8. What time will be your parents arriving tomorrow? 9. They will be dancing and singing the whole evening tomorrow. 10. What will she be doing from morning till night the day after tomorrow?

**Exercise 4. Put the verbs in brackets in the Future Continuous.**

1. I (do) my homework at 6 o'clock tomorrow. 2. When I come home tomorrow, my family (have) supper. 3. When you come to my place tomorrow, I (to read) your book. 4. Don't come to my place tomorrow, please. I (write) a composition the whole evening. 5. What you (do) at 8 o'clock tomorrow? 6. You (watch) a new film the whole evening tomorrow? 7. Next week at this time she (work) on the project. 8. Are you very busy now? I (call) you later. 9. They (run) in the central park from 9 till 11 tomorrow.

## The Construction *To Be Going To*

## (Оборот to be going to)

Оборот **to be going to** образуется глаголом **to go** в форме Present Continuous (**am/is/are going** – *собираться сделать что-либо*) и инфинитивом смыслового глагола с частицей **to**.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **am going to** read | I **am not going to** read | **Am** I **going to** read? |
| He **is going to** read | He **is not going to** read | **Is** he **going to** read? |
| She **is going to** read | She **is not going to** read | **Is** she **going to** read? |
| It **is going to** read | It **is not going to** read | **Is** it **going to** read? |
| We **are going to** read | We **are not going to** read | **Are** we **going to** read? |
| You **are going to** read | You **are not going to** read | **Are** you **going to** read? |
| They **are going to** read | They **are not going to** read | **Are** they **going to** read? |

Оборот **to be going to** используется для:

1) выражения *намерения совершить действие или уверенности* в его совершении в будущем, например:

I *am going to send* him a telegram. – *Я собираюсь послать* ему телеграмму;

2) для выражения *большой вероятности* совершения действий в будущем, так как их признаки *очевидны* в настоящем, например:

Look at the clouds! It*'s going to rain*. – Посмотри на облака! *Пойдет* дождь.

**Exercise 5. Use construction** *to be going to.*

1. I … (move) to Liverpool. 2. Tom … (fly) to the Mars. 3. Victoria … (marry) at 27. 4. We … (have) five children. 5. My sons and daughters … (become) famous actors. 6. They … (travel) all over the world soon. 7. We … (eat) in cafes every day. 8. I … (open) a diving school in York. 9. She (phone) him tomorrow. 10. That tower (collapse) soon. 11. My friends (arrive) today. 12. We (pay) for her. 13. Mum (see) her dentist on Monday.

## The Estimative Quantifiers

## (Количественные местоимения)

| Неисчисляемые существительные | Исчисляемые существительные |
|---|---|
| a lot of – *много* | |
| much – *много* | many – *много* |
| a little – *немного* | a few – *несколько* |
| little – *мало* | few – *мало* |

К количественным местоимениям относятся ***much, many, little, few, a little, a few, a lot of***. Местоимения ***many, much, few, little*** употребля-

ются главным образом в вопросительных и отрицательных предложениях, например:

Have they *many* friends? – У тебя *много* друзей?

There isn't *much* tea in my cup. – В чашке есть *немного* чая.

В случае употребления ***many, much, few, little*** в утвердительных предложениях они чаще всего определяются словами **very** (очень), **too** (слишком), **so** (так), например:

There are *so many* people here. – Здесь так *много* людей.

There's *too much* coffee for him. – Для него *слишком много* кофе.

She has *very few* friends here. – У нее здесь *очень мало* друзей.

В утвердительных предложениях, как правило, вместо ***many*** и ***much*** употребляются ***a lot of (lots of)****:*

I have got *a lot of* questions. – У меня есть *много* вопросов.

They have *lots of* friends. – У них *много* друзей.

Употребление ***few, little, a few, a little*** характерно для официальной речи:

Are there *few* or *many* people at concert? – На концерте *мало* или *много* людей?

Give me *a little* time, please. – Дай мне *немного* времени, пожалуйста.

В разговорной речи чаще употребляются сочетания ***not much, not many, very few, very little***:

I have *not much* food at home. – У меня дома *немного* еды.

There are *not many* interesting newspapers at present. – В настоящее время *не много* интересных газет.

Сочетание **how many** – *сколько* – употребляется в вопросительных предложениях перед исчисляемыми существительными. Сочетание **how much** – *сколько* – употребляется перед неисчисляемыми именами существительными.

*How many* lessons have you got today? – *Сколько* уроков у тебя сегодня?

*How much* sugar is there in my tea? – *Сколько* сахара в моем чае?

**Exercise 6. Make the right choice.**

1) I don't have *many / much / a lot* of friends. 2) Please be quick. I have *little / a lot of / few* time. 3) There were *much / many / a lot of* sunny days but we did not spend *much / many / few / little* time on the beach. 4) I will come soon. There is *a little / a few / few* work to do. 5) There are *a few / a little / much* roses in the garden and the rest is tress. 6) There are *a lot of / little / much* windows in my room. 7) Mary has *little / a few / much* dolls

because she likes toy cars. 8) He doesn't read *many / much / a lot of* books. 9) You took *much / a little / few* photos on holiday. There is too … *much/ many / a few* salt in the soup. 10) There are … *much /a little /a few* skyscrapers in our city. 11) I've got … *much / a few / a little* albums of this singer. 12) There was very … *little/few/many/a lot of* rain last autumn.

**Exercise 7. Read and memorize the following words and word combinations.**

crop production [krɔp prə'dʌkʃən] – растениеводство
management ['mænɪʤmənt] – управление
refer [rɪ'fɜ:] – касаться
process ['prəuses] – прием, способ
consideration [kən¸sɪdə'reɪʃən] – рассмотрение
regarding [rɪ'gɑ:dɪŋ] – относительно
application [¸æplɪ'keɪʃən] – внесение
designated ['dezɪgneɪtɪd] – отведенный
specific [spə'sɪfɪk] – определенный
do well [du 'wel] – производить хороший урожай
prosper ['prɔspə] – производить высокий урожай
tilling [tɪlɪŋ] – обработка почвы, пахота, культивация
specifications [¸spesəfɪ'keɪʃənz] – технические условия
observation [¸ɔbzə'veɪʃən] – соблюдение
spacing ['speɪsɪŋ] – расстояние, интервал между растениями, ширина междурядий
nutrient boost ['nju:trɪənt bu:st] – дополнительное питательное вещество
pest management [pest 'mænɪʤmənt] – меры защиты растений от вредителей
target ['tɑ:gɪt] – предназначать, нацеливать
removal [rɪ'mu:vəl] – устранение, удаление
proliferate [prə'lɪfəreɪt] – распространяться, разрастаться
legitimate crop [lɪ'ʤɪtəmət krɔp] – легальная сельскохозяйственная культура
irrigation [¸ɪrɪ'geɪʃən] – полив, орошение
growth range [grəuθ reɪnʤ] – диапазон роста
available [ə'veɪləbl] – доступный, имеющийся в распоряжении
water supply ['wɔ:tə sə'plaɪ] – водоснабжение
assess [ə'ses] – оценивать (*определять качество чего-л.*)
commercially [kə'mɜ:ʃəlɪ] – в промышленном масштабе
viable ['vaɪəbl] – жизнеспособный

profitable ['prɔfɪtəbl] – рентабельный
alfalfa [æl'fælfə] – люцерна
dye [daɪ] – красящее вещество, краситель
national security ['næʃənəl sɪ'kjuərətɪ] – государственная безопасность
domestic [də'mestɪk] – внутренний, отечественный
subsidize ['sʌbsɪdaɪz] – субсидировать, дотировать,
crop farming [krɔp 'fɑːmɪŋ] – земледелие
incentive [ɪn'sentɪv] – стимул
encourage [ɪn'kʌrɪʤ] – поощрять, поддерживать
secure [sɪ'kjuə] – гарантировать, обеспечивать
food supply [fuːd sə'plaɪ] – снабжение продовольствием
reliance [rɪ'laɪəns] – зависимость (*от использования чего-л.*).

**Exercise 8. Try to guess the meanings of the following words without a dictionary.**

Production, management, process, effective, cultivation, selection, pesticide, reason, condition, type, role, dictate, geographical, specification, individual, aspect, analysis, practice, temperature, factor, commercial, combination, product, subsidize, import, productive.

**Exercise 9. Read and translate the following text.**

1. Crop production management refers to the various processes applied toward the effective cultivation and harvesting of crops. Such a management system usually includes considerations regarding the selection of the crop to plant, the preparation of the land where the crop will be planted, the application of fertilizers and pesticides, and other practices aimed at improving crop yields like irrigation.

2. One of the first considerations in crop production management is of the determination of the type of crop to be planted in the designated land. The reason why this is important is because different crops require specific growing conditions, meaning that crops that do well in certain types of soil will not prosper when they are cultivated in other types of soil. Also, the climate plays an important role in the growth of crops, dictating the type of crops that can be successfully cultivated in different geographical areas. After the crop has been selected and the land has been prepared by tilling, the crop will be planted according to the specifications for planting such a crop, including the observation of the proper spacing between individual plants.

3. In order for crops to grow very well, it may be necessary to apply some form of fertilizer as a nutrient boost. This aspect of crop production management is also one that requires a careful analysis of the type of crop

in relation to the kind of fertilizer that may be applied to that particular crop. The reason for this is because there are specific fertilizers for different crops, and there are specific types that may be used at various stages of plant growth. Apart from the application of fertilizers, pest management must be included in crop production management. This will require the application of pesticides that target the particular pest for that particular crop.

4. Effective crop production management also requires the constant removal of weeds from the land since they tend to proliferate very fast and compete with legitimate crop. Other considerations include the practice of irrigation as a means of providing moisture when this is an issue. The proper harvesting of such a crop and the storage of the same will also be a part of crop management.

5. The types of crops grown can depend on environmental conditions, market demands and preference. Some crops have a limited growth range dependent on temperatures, available water supply, pests, and other factors. Others may be cultivated in a wider range of conditions. Crop farmers test the soil and assess their land to determine what kinds of products they can grow, and narrow down that list to determine what would be commercially viable. If the market demand for cotton is high, for example, it might be a profitable crop to plant.

6. Plants grown for food, like rice, wheat, and vegetables, are one form of crop farming. It is also possible to cultivate plants such as alfalfa that will be used to feed animals. Some farms have a combination of crops and animals, using the crops they grow to feed their livestock. Other crops may be grown as sources of fuel, fiber, dyes, and other commercial products.

7. Some crops may be considered important for national security and stability because it's important to have a domestic source. Governments may subsidize crop farming and use other incentives to encourage farmers to stay productive. This can secure the food supply, increasing the chance that enough food will be available for everyone, and it can reduce reliance on imports.

**Exercise 10. Answer the following questions.**

1. What does the crop production management system usually include?
2. Why is it important to determine the type of crop to be planted?
3. Is the aspect of fertilizer application important in crop production management?
4. Pest management should be included in crop production management, should not it?

5. Is it necessary to carry out constant removal of weeds from land?
6. Why do crop farmers test their land?
7. What crops can be grown as various forms of crop farming?
8. What may governments do to encourage farmers to stay productive?

**Exercise 11. Translate the expressions into Russian paying attention to the prepositions.**

Harvesting *of* crops, demand *for* cotton, preparation *of* land, application of fertilizers, practices aimed *at* improving crops, important role *in* the growth *of* crops, land is prepared *by* tilling, specifications *for* a crop, spacing *between* individual plants, fertilizers *for* different crops, be used *at* various stages, included *in* crop production, pest *for* particular crop, compete *with* legitimate crop, depend *on* conditions, important *for* national security, available *for* everyone, reliance *on* imports.

**Exercise 12. Match the antonyms.**

| | |
|---|---|
| 1) effective | a) rejection |
| 2) selection | b) ineffective |
| 3) important | c) withering |
| 4) growth | d) inessential |
| 5) planting | e) careless |
| 6) careful | f) harvesting |
| 7) proliferate | g) aridity |
| 8) moisture | h) dwindle |
| 9) encourage | i) insufficient |
| 10) enough | j) dissuade |

**Exercise 13. Translate the following words and word combinations into English.**

Различные приемы, эффективное культивирование, применение пестицидов, подготовка почвы, внесение удобрений, повышение урожайности сельхозкультур, вид сельхозкультуры, определенные условия выращивания, различные географические территории, посеять в соответствии с техническими условиями, соблюдение точного интервала между растениями, вид удобрения, определенные удобрения для разных культур, помимо внесения удобрений, меры защиты растений от вредителей, метод орошения, своевременная уборка, рыночный спрос, зависеть от температуры, комбинация сельхозкультур и животных, источник топлива, обеспечить снабжение продовольствием.

**Exercise 14. Make up word combinations using the text and translate them.**

| | |
|---|---|
| 1) a means of | a) providing moisture |
| 2) practices | b) aimed at improving crop yields |
| 3) crops | c) that do well in certain types of soil |
| 4) to apply | d) some form of fertilizer |
| 5) market | e) demand for cotton |
| 6) to have | f) a domestic source |
| 7) reduce | g) reliance on imports |
| 8) role | h) in the growth of crops |
| 9) considerations | i) in crop production management |
| 10) food | j) will be available for everyone |

**Exercise 15. Find in the text the words that mean the following:**

1. The process or period of gathering in crops (*paragraph 1*).
2. The process of controlling things or people (*paragraph 1*).
3. To flourish physically; to grow strong and healthy (*paragraph 2*).
4. The detailed and very careful examination of the elements or structure of something (*paragraph 3*).
5. The action of making or manufacturing from components or raw materials (*paragraph 3*).
6. Tiny drops of water in the air, on a surface, or in the ground (*paragraph 4*).
7. The measure of how hot or cold is something (*paragraph 5*).
8. The plant or part of a plant used as food (*paragraph 6*).
9. To support an organization or activity financially (*paragraph 7*).
10. The commodity, article, or service brought in the country from abroad for sale (*paragraph 7*).

**Exercise 16. Translate the following words and word combinations into Russian.**

Security and stability, kinds of products, stages of plant growth, individual plants, specific conditions, commercial products, increase the chance, government, form of fertilizer, irrigation, fertilizers, pesticides, geographical area, determination of crop, production management, land prepared by tilling, growing conditions, crop management system, preparation of the land, certain types of soil, enough food, demands and preference, to test soil, to assess land, to feed animals, sources of fiber and dyes, application of nutrient boost, cultivated types of crops, combination, issue of providing moisture, specifications for planting, legitimate crop.

## UNIT 13

## Crop Diseases

### Словообразование

Приставка ***extra-***, прибавляемая к прилагательным, образует слова со значением, указывающим на необычность, чрезвычайность нахождения за пределами известного местоположения, например:

ordinary (обычный) – **extra**ordinary (выдающийся);

mural (внутристеночный) – **extra**mural (внестеночный).

**Exercise 1. Form the new words using the prefix *extra-*. Translate them into Russian.**

**Model**: atmospheric – extra-atmospheric.

Mundane, territorial, official, tropical, national, constitutional, spectral, solar, sensory, planetary, nuclear.

Приставка ***ex-***, прибавляемая к существительным, образует слова со значением «бывший», например:

minister (министр) – **ex-**minister (экс-министр).

**Exercise 2. Form the new words using the prefix *ex-*. Translate them into Russian.**

**Model**: husband – ex-husband.

Offender, champion, president, manager, director, wife, soldier, student, officer, chairman, serviceman.

### The Participle II

### (Причастие прошедшего времени)

В английском языке при образовании причастий прошедшего времени (The Participle II) глаголы делятся на две группы: правильные и неправильные.

Правильные глаголы образуют Participle II путем прибавления к форме инфинитива окончания **-ed**. При этом соблюдаются следующие правила орфографии:

а) глаголы, оканчивающиеся в инфинитиве на немое **-e**, теряют эту гласную при прибавлении окончания **-ed**: to live – liv**ed**;

б) глаголы, оканчивающие в инфинитиве на **-y** с предшествующей согласной, меняют **y** на **i**: to study – stud**ied**.

Если же перед **-y** стоит гласная, то **-y** сохраняется: to play – pla**yed**;

в) если односложный глагол в инфинитиве оканчивается на одну согласную, перед которой стоит одна гласная, то конечная согласная удваивается: to stop – sto**pped**;

г) двусложные и многосложные глаголы, оканчивающиеся на одну согласную, перед которой стоит одна гласная, удваивают конечную согласную только в том случае, если ударение падает на последний слог: to equip [ik'wip] – equi**pped**.

Если глагол оканчивается на **l,** то **l** удваивается независимо от того, падает ли ударение на последний слог или нет: to cancel – cance**ll**ed.

Все неправильные глаголы сведены в таблицу, в которой имеются три колонки: первая – инфинитив, вторая – прошедшее простое время, третья – причастие прошедшего времени (**The Participle II**), и все формы неправильных глаголов необходимо заучивать наизусть.

Третья форма неправильного глагола является формой **Participle II**:

to begin – began – ***begun***.

## The Present Perfect Active

## (Настоящее совершенное время в активном залоге)

Настоящее совершенное время в активном залоге (The Present Perfect Active) образуется с помощью вспомогательного глагола **to have** в Present Indefinite и причастия прошедшего времени (The Participle II) основного глагола.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **have worked** | I **have not worked** | **Have** I **worked**? |
| We **have worked** | We **have not worked** | **Have** we **worked**? |
| You **have worked** | You **have not worked** | **Have** you **worked**? |
| They **have worked** | They **have not work**ed | **Have** they **worked**? |
| He **has worked** | He **has not worked** | **Has** he **worked**? |
| She **has worked** | She **has not worked** | **Has** she **worked**? |
| It **has worked** | It **has not worked** | **Has** it **worked**? |

1. Настоящее совершенное время в активном залоге (The Present Perfect Active) употребляется для выражения действия, которое *состоялось до момента речи*, и имеется в виду результат этого действия, его важность на момент речи. Время действия преимущественно не указывается, так как в центре внимания находится результат действия, а не время, когда оно произошло, например:

I *have locked* the door. – *Я запер* дверь.

You *have read* more books than me. – Ты *прочел* книг больше, чем я.

2. Настоящее совершенное время употребляется также в предложении с обстоятельствами времени:

а) обозначающими период, который начался в прошлом и длился до момента речи: **up to now, to the present** – *к этому времени*, **lately** – *недавно, в последнее время*, **recently** – *недавно, в последнее время*, **so far** – *до сих пор*, **since** – *с тех пор*, **not yet** – *еще не*:

*Up to now* we *have read* three books. – *К этому времени* мы *прочитали* три книги.

*Have* you *been* to the theatre *recently*? – Ты *был* в театре *недавно?*

You *have not shown* me your room *yet*. – Ты *еще* не *показал* мне свою комнату.

I *have done* nothing *since* I left. – Я ничего не *сделал, с тех пор как* я уехал.

*Have* you *heard* from your friend *lately*? – Ты *получил* новости от своего друга *в последнее время*?

б) обозначающими период, который еще не закончился, например: **today** – *сегодня*, **this morning** – *сегодня утром*, **this winter** – *этой зимой*, **this week** (**month, year**) – *на этой неделе* (*в этом месяце, в этом году*):

My friends have not arrived *today*. – Мои друзья не приехали *сегодня*.

Have you breakfasted *this morning*? – Ты завтракал *сегодня утром*?

3. Настоящее совершенное время употребляется в предложениях с наречиями неопределенного времени и частотности: **ever** – *когда-либо*, **never** – *никогда*, **often** – *часто*, **seldom** – *редко*, **already** – *уже*, **just** – *только что*:

We have *just* arrived. – Мы *только что* приехали.

Have you *ever* thought about that? – Ты *когда-либо* думал об этом?

I have *often* heard about that. – *Я часто* слышал об этом.

4. Настоящее совершенное время употребляется для выражения действия или состояния, происходившего с какого-то момента в прошлом вплоть до момента речи. Период продолжительности действия в большинстве случаев обозначается:

а) словосочетанием с предлогом **for** (**for an hour** – *в продолжение часа*, **for ten years** – *на протяжении десяти лет*, **for a long time** – *долгое время:*

I have known Tim *for* 5 years. – Я знаю Тима *уже* пять лет;

б) начало действия обозначается структурой со словом **since** (**since five o'clock** – *с пяти часов*, **since Monday** – *с понедельника*, **since I saw him** – *с того момента, как я его видел*:

He has worked in a bank *since* winter. – Он работает в банке *с* зимы.

**Exercise 3. Put the infinitives in brackets in the Present Perfect Active.**

1. I (to be) to their concert twice. Their music is amazing. 2. I (not/to see) Jane since the day of her wedding. They (to come back) from their honey moon yet? 3. Where is your ID Card? – I (to lose) it. They are going to make me another one. 4. Oh, look! It's Sarah. I (not/to see) her for a long time. 5. Jane is on holiday. She (to go) to Ireland. 6. Are you going to the medical center? – I (already/to be) there today. 7. I am waiting for a very important letter. It (not/to arrive) yet? 8. My father (to start) a new job recently. He is very busy now. I (not/talk) to him for a long time already.

**Exercise 4. Complete the sentences using the Present Perfect or Past Indefinite.**

1. I (know) her for six years. 2. I (know) him when I was at high school. 3. He (live) in Paris from 1997 to 2000. 4. He (live) in New York since 2001. 5. Where's Pete? I (not see) him for ages. 6. I (not see) Pete last night. 7. We (be) at primary school from 1993 to 1998. 8. We (not be) in this class since September. 9. I (not watch) this video yet. 10. I (not watch) a video at the weekend. 11. I (never/be) to the USA. I (want) to go there last summer but I couldn't. 12. He (live) in this street all his life. 13. His father (come back) to London last Sunday. 14. Yan (write) a long letter to Nick two days ago. 15. This is the best horror film I (see) ever.

## The Modal Verb *Be To*

## (Модальный глагол *be to*)

В качестве модального глагола **to be** употребляется в сочетании с инфинитивом с частицей **to** для выражения *необходимости* совершить действие согласно предварительной *договоренности* или *заранее намеченному плану*.

| | | |
|---|---|---|
| I | am | to prepare the presentation. |
| He/She | is | to fix the TV set. |
| We | are | to control all the processes. |
| You | was | to improve the system of training. |
| They | were | to invite all the colleagues. |

Глагол **to be** в настоящем времени – **am**, **is**, **are** – на русский язык переводится *должен, должны* и выражает необходимость совершения действия в *настоящем* или *будущем*:

They *are to begin* this work at once. – Они *должны начать* эту работу немедленно.

Глагол **to be** в прошедшем времени – **was**, **were** – на русский язык переводится *должен был, должны были* и выражает действие, которое должно было совершиться в прошлом, но неизвестно, совершилось ли действие или не совершилось, это становится ясно из всего содержания речи:

I *was to send* the telegram, but I forgot. – *Я должен* был послать телеграмму, но я забыл.

**Was**, **were** в сочетании с инфинитивом в форме Perfect выражает действие, которое должно было совершиться в прошлом, но не совершилось:

I *was to have finished* my work yesterday. – Я должен был закончить свою работу вчера.

**Exercise 5. Translate the following sentences into Russian.**

1. You are to stay at the table until you finish your lunch. 2. The ship is to arrive at noon. 3. She is not to enter our house. 4. The government was to have reduced inflation. 5. The Prime-minister is to visit Canada. 6. You are to give up smoking. 7. We were to meet Mike near the market. 8. You are not to open the box until Christmas. 9. Who was to have done the shopping? 10. Sam is to phone after dinner.

**Exercise 6. Read and memorize the following words and word combinations.**

lose smth. to smth./smb. [luːz 'sʌmθɪŋ tu 'sʌmθɪŋ / 'sʌmbədɪ] – терять что-либо из-за чего-либо/кого-либо

strike [straɪk] – поражать

categorize ['kætəgəraɪz] – распределять по категориям

plant pathologist [plɑːnt pə'θɔlədʒɪst] – фитопатолог

infectious [ɪn'fekʃəs] – заразный

offending pathogen [ə'fendɪŋ 'pæθədʒən] – проблемный болезнетворный микроорганизм

fungal ['fʌŋg(ə)l] – грибковый

bacterial [bæk'tɪərɪəl] – бактериальный

soil deficiency [sɔɪl dɪ'fɪʃənsɪ] – нехватка питательных веществ для растений в почве

horticulturalist [hɔ̲ːtɪ'kʌltʃərəlɪst] – садовод

affect [ə'fekt] – поражать (*болезнью*)

abiotic [ˌeɪbaɪ'ɔtɪk] – абиотический, неживой

susceptible [sə'septəbl] – восприимчивый

pod [pɔd] – стручок

bulk [bʌlk] – большая часть

smut [smʌt] – головня, ржавчина (*болезни растений*)

rust [rʌst] – ржавчина (*желто-оранжевые пятна на листах и стеблях растений в местах, где развиваются споры паразитных грибов*)

mold [məuld] – плесень, плесенный грибок

blight [blaɪt] – болезнь растений, приводящая к прекращению роста и гибели части растений без загнивания (*возбудители – грибы, насекомые, бактерии, вирусы, неблагоприятные климатические условия*)

thrive [θraɪv] – бурно развиваться

pustule ['pʌstju:l] – пустула

soot [sut] – сажа, копоть

host [həust] – организм, используемый для развития в нем других эмбрионов, клеток

infiltrate ['ɪnfɪltreɪt] – проникать

toxin ['tɔksɪn] – токсин

chew through [ʧu: θru:] – прогрызть

wilt [wɪlt] – вилт (*болезнь волокнистых растений*)

plague [pleɪg] – вспышка массового размножения вредных животных

wheat streak mosaic virus [wi:t stri:k məu'zeɪk' vaɪərəs] – полосатая мозаика пшеницы

streak [stri:k] – стрик, полосатость (*вирусное заболевание растений*)

nematodes ['nɛmə¸təʊdz] – круглые черви, нематоды

protozoa [¸prəutə'zəuə] – простейшие

treatment ['tri:tmənt] – лечение

biotic [baɪ'ɔtɪk] – биотический

potato cyst nematode [pə'teɪtəu sɪst ˈnɛmətəʊd] – картофельная цистообразующая нематода

pine wilt [paɪn wɪlt] – вилта хвойных

soybean cyst nematode ['sɔɪbi:n sɪst ˈnɛmətəʊd] – соевая цистообразующая нематода

ascertain [¸æsə'teɪn] – выяснять, устанавливать

invade [ɪn'veɪd] – поражать (*о болезни*)

vascular system ['væskjələ 'sɪstəm] – сосудистая система (*растений*)

cyst [sɪst] – циста (*у растений*)

stunt [stʌnt] – останавливать рост
curbing [kɜːbɪŋ] – сокращение масштабов
curing ['kjuər] – лечение
agriculturist [ˌægrɪ'kʌlʧərɪst] – агроном, земледелец
antibacterial [ˌæntɪbæk'tɪərɪəl] – антибактериальный
advance [əd'vɑːn] – достижение
tenacious [tɪ'neɪʃəs] – устойчивый
propensity [prə'pensətɪ] – склонность
repellent [rɪ'pelənt] – репеллент.

**Exercise 7. Try to guess the meanings of the following words without a dictionary.**

Producer, group, characteristic, pathogen, temperature, type, result, organism, chemical, factor, virus, organ, toxin, attack, mosaic, business, fungicides, insecticides, pesticides, antibacterial, control, industry.

**Exercise 8. Read and translate the following text.**

1. Every year, agricultural producers lose vast quantities of crops to various crop diseases. To understand how and why certain diseases strike certain crops, plant pathologists have categorized all diseases into two general groups, infectious and non-infectious. Then diseases are described by the characteristic of the offending pathogen or environmental cause, such as fungal, bacterial, extreme temperatures or soil deficiency. Finally, horticulturalists further classify a disease by the part of the crop that is affected, such as leaf diseases, root diseases and more.

2. Non-infectious, or abiotic, diseases are those that are caused by unfavorable environmental circumstances and that do not result from living organisms. Generally, non-infectious diseases tend to weaken a plant, making the plant susceptible to the more serious infectious diseases. Examples of non-infectious diseases include extreme temperatures, excessive or lack of water, insects, poor soil nutrition content and toxic chemicals. These factors can weaken the entire plant or a certain part of the plant, making the plant susceptible to infectious stem diseases, seed diseases, pod diseases and more.

3. Infectious, or biotic diseases make up the bulk of variety of crop diseases. These are caused by living organisms that infect the crop. Fungi, such as smuts, rusts, molds and blights, are the most common cause for crop diseases. Most fungi require very moist conditions in which to thrive and reproduce. Some fungi develop pustules on the crops, while others produce a colony of powdery, discolored soot.

4. Bacteria and viruses, which are other infectious hosts, are tiny organisms that infiltrate the plant organs and reproduce. Some bacteria do not harm crops, but others can produce toxins or attack the plants' cells for food. Viruses are usually spread by insects when an insect chews through the plant's protective outer layer and infiltrates the inner cells. Bacterial blights and wilts often plague wheat and barley crops as well as vegetables, such as cucumbers and beans. Crop diseases caused by viruses can cause considerable damage, such as wheat streak mosaic virus and potato virus diseases than can eradicate an entire crop very quickly.

5. Nematodes and protozoa are also classified as infectious diseases. These tiny worm-like organisms reside in the soil, waiting for an opportunity to attack a crop weakened by non-infectious causes. They may carry viruses, causing further damage to crops and complicating disease treatment. Examples of these biotic diseases include the potato cyst nematode, pine wilt and soybean cyst nematode. As ascertained from their names, these crop diseases invade the sensitive root or vascular systems of the crops, cause cysts to stunt plant growth, and sharply decrease crop yields.

6. Curbing or curing crop diseases is big business. Scientists and agriculturalists have developed myriads of fungicides, insecticides, pesticides and antibacterial solutions for crop disease control. While advances have been made, pathogens have shown a tenacious propensity to adapt to repellants. As the agriculture industry learns more about the various types and causes of crop diseases it becomes better equipped to treat and prevent the many diseases that plague the world's crops.

**Exercise 9. Answer the following questions.**

1. What have plant pathologists done to understand how and why certain diseases strike certain crops?
2. How do horticulturalists further classify diseases?
3. What examples of non-infectious diseases do you know?
4. What is the most common cause for infectious crop diseases?
5. How are viruses usually spread?
6. Can crop diseases caused by viruses do considerable damage?
7. Nematodes and protozoa do a lot of harm to crops, don’t they?
8. What have scientists developed to control crop diseases?

**Exercise 10. Translate the expressions into Russian paying attention to the prepositions.**

Vast quantities of crops, categorize diseases *into* groups, susceptible *to* infectious diseases, lack *of* water, cause *for* crop diseases, part *of* the plant,

pustules *on* the crops, colony *of* discolored soot, plants' cells *for* food, chew *through* the plant's outer layer, diseases caused *by* viruses, reside *in* the soil, crop weakened *by* non-infectious causes, cause damage *to* crops, vascular systems *of* the crops, myriads *of* fungicides, solutions *for* crop disease control, adapt *to* repellants, learn *about* various types *of* crop diseases.

**Exercise 11. Match the beginning of each sentence with its end.**

1. Most fungi require very moist … .
2. Curbing or curing crop … .
3. Nematodes and protozoa are … .
4. Bacterial blights and wilts often plague wheat and … .
5. Most fungi require very moist … .
6. Infectious, or biotic, diseases make … .
7. Every year, agricultural producers … .

a) … diseases is big business.
b) … conditions in which to thrive and reproduce.
c) … barley crops as well as vegetables, such as cucumbers and beans.
d) … also classified as infectious diseases.
e) … lose vast quantities of crops to various crop diseases.
f) … conditions in which to thrive and reproduce.
g) … up the bulk of variety of crop diseases.

**Exercise 12. Agree or disagree with the following statements beginning with:**

**Of course, I agree with this statement because …**

**I disagree entirely because according to the text …**

1. Horticulturalists classify a disease by the part of the crop that is affected.
2. Non-infectious, or abiotic, diseases are those that result from living organisms.
3. Smuts, rusts, molds and blights require very moist conditions to reproduce.
4. Viruses are usually spread by insects.
5. Nematodes and protozoa are worm-like organisms that reside in the soil to make it more fertile.
6. Pathogens have shown a readiness to resist repellants.

**Exercise 13. Translate the following words and word combinations into Russian.**

Agricultural producers, various crop diseases, strike a crop, infectious and non-infectious, pathogen and environmental cause, fungal, bacterial, soil deficiency, leaf disease, root disease, biotic disease, living organism,

infect a crop, fungi, smuts, rusts, molds, blights, cause for a crop disease, require moist conditions, develop a pustule, powdery soot, nematode and protozoan, a tiny worm-like organism, attack a crop, non-infectious cause, cause further damage, complicate disease treatment, soybean cyst nematode, potato cyst nematode, pine wilt, a sensitive root system, vascular system, stunt plant growth, a horticulturalist, decrease crop yields.

**Exercise 14. Translate the words and word combination in brackets into English.**

1. (В конце концов), horticulturalists (затем классифицируют) a disease by the (часть культуры) that is affected, such as leaf diseases, root diseases (и так далее).

2. These factors (могут ослабить все растение) or a certain part of the plant, (делая растение восприимчивым к) infectious stem diseases, seed diseases, (болезням стручка и так далее).

3. Some (грибки порождают пустулы) on the crops, while others (производят колонию порошкообразной), discolored soot.

4. (Болезни культур) caused by viruses can (наносят значительный ущерб) cause considerable damage, such as wheat streak mosaic virus and (вирусные болезни картофеля) than can (уничтожить всю культуру) very quickly.

5. Examples of these (биотических болезней) include the potato cyst nematode, (вилта хвойных и соевая цистообразующая нематода).

6. (Ученые и агрономы) have developed (бессчетное количество фунгицидов, инсектицидов), pesticides and (антибактериальных растворов) for crop disease control.

**Exercise 15. Translate the following words and word combinations into English.**

Неинфекционные и абиотические болезни, неблагоприятные экологические условия, являться результатом деятельности живых организмов, стремиться ослабить растение, чрезвычайная температура, избыток или недостаток воды, низкое содержание питательных веществ в почве, токсичные химические вещества, бактерия и вирус, крошечный организм, заразный организм, проникать в орган растения, причинять вред растению, поражать клетки растения, распространяться посредством насекомого, защитный внешний слой, внутренние клетки, поражать пшеницу и овощи, огурцы и фасоль, лечение болезни растения, устойчивая склонность, приспосабливаться к репелленту.

## UNIT 14

## Weed Control

### Словообразование

Приставка ***pre-***, прибавляемая к глаголам, прилагательным, существительным, образует слова, означающие предшествование чему-нибудь, указывающие на то, что было *перед* или *до* определенных событий, например:

to compute (считать) – to **pre**compute (предварительно вычислять);

historic (исторический) – **pre**historic (доисторический);

payment (платёж) – **pre**payment (предоплата).

**Exercise 1. Form the new words using the prefix *pre-*. Translate them into Russian.**

**Model**: fabricate – prefabricate.

Condition, analysis, agricultural, classical, revolution, elections, aeration, adolescence, war, determine, define, decode, date, contract, concert.

Приставка ***post-***, прибавляемая к глаголам, прилагательным, существительным, образует слова, означающие что-то, что было *после*, следовало *за* чем-то, например:

date (дата) – **post**date (более поздняя дата);

classical (классический) – **post**-classical (постклассический);

election (выборы) – **post**-election (после выборов).

**Exercise 2. Form the new words using the prefix *post-*. Translate them into Russian.**

**Model**: war – **post**war (послевоенный)

Modern, modify, normalize, process, trigger, glacial, graduate, impressionism, revolutionary, position, entry, retirement, damage.

### The Past Perfect Active

### (Прошедшее совершенное время в активном залоге)

Прошедшее совершенное время в активном залоге (The Past Perfect Active) образуется с помощью вспомогательного глагола **to have** в Past Indefinite и причастия прошедшего времени (The Participle II) основного глагола.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **had worked** | I **had not worked** | **Had** I **worked**? |
| We **had worked** | We **had not worked** | **Had** we **worked**? |
| You **had worked** | You **had not worked** | **Had** you **worked**? |
| They **had worked** | They **had not work**ed | **Had** they **worked**? |
| He **had worked** | He **had not worked** | **Had** he **worked**? |
| She **had worked** | She **had not worked** | **Had** she **worked**? |
| It **had worked** | It **had not worked** | **Had** it **worked**? |

Прошедшее совершенное время в активном залоге (The Past Perfect Active) употребляется:

1. Для выражения действия, которое состоялось ранее другого действия в прошлом, выраженного глаголом в Past Indefinite:

I *told* you I *had met* her. – *Я сказал* тебе, что я ее *встретил*.

We *arrived* at the cinema at 8.00, but the film *had started* at 7.30. – Мы *приехали* в кинотеатр в 8.00, но фильм *начался* в 7.30;

2. Для выражения действий в сложноподчиненных предложениях с союзами **before** – *перед тем как*, **after** – *после того как*, **when** – *когда*, **as soon as** – *как только*, когда необходимо отметить предшествование одного прошедшего действия другому:

We got to the station at 8.00, *after* the train *had left*. – Мы добрались до вокзала в 8.00, *после того как* поезд *уехал*.

*When* I spoke to the woman, I realized I *had met* her somewhere before. – *Когда* я поговорил с женщиной, я понял, что я *встречал* ее где-то раньше.

*Before* I entered the Institute, I *had left* the school. – *Перед тем как* я поступил в институт, я *закончил* школу.

*As soon as* she *had arrived* in my new flat, she began to tidy it up. – Как только она приехала в мою новую квартиру, она начала приводить ее в порядок;

3. Для выражения прошедших действий, которые произошли к определенному моменту в прошлом, с помощью предлога **by**; **by 6 o'clock yesterday** – *вчера к 6 часам*, **by that time** – *к тому времени,* **by last week (month, year)** – *к прошлой неделе (месяцу, году),* **by last summer** – *к прошлому лету*:

а) момент может быть выражен временем:

By *last Monday* we *had finished* our project. – К *прошлому понедельнику* мы *закончили* наш проект;

б) момент может быть выражен другим действием:

By the moment *we arrived* to the seaside, our friends *had booked* the hotel. – К тому времени, когда мы приехали на море, наши друзья *забронировали* отель.

**Exercise 3. Translate the following sentences into Russian.**

1. Tom had returned from the cinema by five o'clock. 2. Ann told me that she had seen an interesting film. 3. When I came home, mother had already cooked dinner. 4. When father returned from work, we had already done our homework. 5. Kate gave me the book which she had bought the day before. 6. Where had you worked before you went to university? 7. He had known French before he visited France. 8. Suddenly he remembered that he had not rung her up in the morning.

**Exercise 4. Put the verbs in brackets in the Past Perfect.**

1. I (to have) breakfast before I went to school. 2. He went to meet his friends after he (to do) his homework. 3. By 8 o'clock the heavy rain (to stop). 4. Alice was late because she (to miss) the bus. 5. She went to the post-office after she (to write) the letter. 6. He (to work) at the factory before he entered the college. 7. He got a bad mark for his test because he (to make) a lot of mistakes in it. 8. I went to bed after I (to finish) reading the book. 9. The child (to fall) asleep before the parents came home. 10. They (to marry) before they bought this house.

**Exercise 5. Put the verbs in brackets in the Past Perfect or Past Indefinite.**

1. Simon (be) very glad to see that his brother (do) the homework. 2. By the time the film (end), she (fall asleep). 3. I really (feel) sick last night because I (eat) too much raw fish. 4. When Richard (arrive) at the station he (find) that his wife just (leave). 5. First he (make) a toast, then he (sit down) and (drink) a white coffee. 6. Kate (walk) home because she (miss) the last bus. 7. By the time we (get) to Brazil, we already (spend) all our money. 8. I (decide) to become a fireman by the time I (be) eight. 9. She (sign) the contract before we (come). 10. I (phone) Bob and (say) that I (find) my keys.

**Exercise 6. Find and correct the mistakes in using the Past Perfect or Past Indefinite.**

1. They were late but the lecture didn't start yet. 2. I had remembered that I left the iron switched on. 3. The floor was slippery because Tom spilt some juice on it. 4. Mary had given me the book I hadn't read before. 5. He returned home because he didn't lock the door. 6. Before the pupils had started the exam, they had switched their mobiles off. 7. Fred gave me the car back after he used it. 8. The concert had finished and we had gone to a nice restaurant. 9. I didn't recognize Henry because he lost much weight

and grew a moustache. 10. I visited so many beautiful places in China before I had come to the Great Wall.

**Exercise 7. Read and memorize the following words and word combinations.**

unwanted [ʌn'wəntɪd] – нежелательный
abundant [ə'bʌndənt] – обильный
precautionary [prɪ'kɔːʃənərɪ] – превентивный
at their source [ətðeə 'sɔːs] – в зародыше
weed free [wiːd'friː] – свободный от сорняков
weed control [wiːd kən'trəul] – борьба с сорняками
hostile environment ['hɔstaɪl ɪn'vaɪərənmənt] – неблагоприятная среда
weed mat [wiːd mæt] – коврик для борьбы с сорняками
beneath [bɪ'niːθ] – под
prevent [prɪ'vent] – препятствовать
reaching [riːʧɪŋ] – проникновение
germinating ['ʤɜːmɪneɪtɪŋ] – всхожий, зародышевый, прорастающий
greenhouse effect ['griːnhaus ɪ'fekt] – парниковый эффект
sheet [ʃiːt] – листовой материал
coverage ['kʌvərɪʤ] – охват покрытием
perennial [pə'renɪəl] – многолетнее растение
eradicating [ɪ'rædɪkeɪtɪŋ] – вырывание с корнем (*бурьяна, сорняков*)
persistent perennial [pə'sɪstənt pə'renɪəl] – злостный многолетний сорняк
manually ['mænjuəlɪ] – вручную
pull out [pul aut] – вытаскивать, извлекать
otherwise ['ʌðəwaɪz] – в противном случае
resprout [spraut] – сново прорастать
hoe off [həu ɔf] – выпалывать мотыгой (*сорняки*)
eventually [ɪ'venʧuəlɪ] – в конечном счете
weaken ['wiːkən] – ослаблять
persistence [pə'sɪstəns] – живучесть, выносливость
bindweed ['baɪndwiːd] – вьюнок
nettle ['netl] – крапива
tackle ['tækl] – устранять
cut back [kʌt bæk] – обрезать, укорачивать (*ветки, стебли, корни*)
tillage ['tɪlɪʤ] – обработка почвы
ploughing [plauɪŋ] – вспашка, пахота
inter cultural ploughing [ɪn'tɜːkʌlʧərəl plauɪŋ] – обработка почвы под промежуточные культуры

uproot [ʌp'ru:t] – искоренять

deep summer [di:p 'sʌmə] – середина (разгар) лета

at various points [ət 'veərɪəs pɔɪnt] – на различных этапах

summer ploughing ['sʌmə plauɪŋ] – летняя вспашка

thermal ['θɜ:məl] – термический

soil steam sterilization [sɔɪl sti:m ˌsterəlaɪ'zeɪʃən] – паровая стерилизация почвы

solarization [səuləraɪˈzeɪʃn] – воздействие солнечного излучения, соляризация

tolerance ['tɔlərəns] – устойчивость, стойкость (*по отношению к каким-либо воздействиям или явлениям*)

flame weeder [fleɪmˈwi:də] – огневой культиватор

sudden and severe heating ['sʌdən ənd sɪ'vɪə 'hi:tɪŋ] – внезапное и сильное нагревание

lethal ['li:θəl] – летальный

wilting [wɪltɪŋ] – увядание

denaturing [ˌdi:'neɪʧərɪŋ] – денатурирование

hot air weeder [hɔt eə ˈwi:də] – горячевоздушный культиватор

regiment ['reʤɪmənt] – форма

biological control agent [ˌbaɪəu'lɔʤɪkəl kən'trəul 'eɪʤənt] – агент биологического контроля

bioherbicide ['baɪəu 'hɜ:bɪsaɪd] – биогербицид

grazing animal ['greɪzɪŋ 'ænɪməl] – пастбищное животное

predator ['predətə] – хищник

post-dispersal [dɪ'spɜ:səl] – пострассеивание

ground beetle [graund 'bi:tl] – жужелица

regulation [ˌregjə'leɪʃən] – регулирование

vertebrate ['vɜ:tɪbreɪt] – позвоночное животное

seed bank ['si:dbæŋk] – семенной банк

destructuring [dɪ'strʌkʧərɪŋ] – деструктурирование, разрушение

selective herbicide [sɪ'lektɪv 'hɜ:bɪsaɪd] – гербицид избирательного действия

sprayer ['spreɪə] – опрыскиватель

helicopter ['helɪkɔptə] – вертолет.

**Exercise 8. Try to guess the meanings of the following words without a dictionary.**

Typically, production, control, material, plastic, effective, season, mechanical, process, sterilization, centimeter, biological, bioherbicide, natural, regulation, bank, method, chemical, organic, systematic.

**Exercise 9. Read and translate the following text.**

1. Weeds are the unwanted plants that grow in our garden or lawn. Weeds typically have an abundant seed production and can spread at a high rate. Worldwide, there are approximately 8,000 species of weeds. Luckily, by taking precautionary measures and killing weeds at their source, you can keep your garden and lawn weed free.

2. *Covering*. In domestic gardens, methods of weed control include covering an area of ground with a material that creates a hostile environment for weed growth, known as a weed mat. Several layers of wet newspaper prevent light from reaching plants beneath, which kills them. After several weeks, all germinating weed seeds are dead. In the case of black plastic, the greenhouse effect kills the plants. Although the black plastic sheet is effective at preventing weeds that it covers, it is difficult to achieve complete coverage. Eradicating persistent perennials may require the sheets to be left in place for at least two seasons.

3. *Manual removal*. Many gardeners still remove weeds by manually pulling them out of the ground, making sure to include the roots that would otherwise allow them to resprout. Hoeing off weed leaves and stems as soon as they appear can eventually weaken and kill perennials. Although this will require persistence in the case of plants such as bindweed. Nettle infestations can be tackled by cutting back at least three times a year, repeated over a three-year period.

4. *Tillage*. Ploughing includes tilling of soil, intercultural ploughing and summer ploughing. Ploughing uproots weeds, causing them to die. In summer ploughing is done during deep summers. Summer ploughing also helps in killing pests. Mechanical tilling can remove weeds around crop plants at various points in the growing process.

5. *Thermal control of weeds*. Since the 19th century soil steam sterilization has been used to clean weeds completely from soil. Several research results confirm the high effectiveness of humid heat against weeds and their seeds. Soil solarization in some circumstances is very effective at eliminating weeds while maintaining grass. Planted grass tends to have a higher heat/humidity tolerance than unwanted weeds.

6. *Flame weeders* use a flame several centimeters away from the weeds to give them a sudden and severe heating. The goal of flame weeding is not necessarily burning the plant, but rather causing a lethal wilting by denaturing proteins in the weed. Similarly, hot air weeders can heat up the seeds to the point of destroying them.

7. *Biological methods.* A biological weed control regiment can consist

of biological control agents, bioherbicides, use of grazing animals, and protection of natural predators. Post-dispersal of weed seed predators like ground beetles and small vertebrates can substantially contribute to the weed regulation by removing weed seeds from the soil surface and thus reduce seed bank size. The above described methods of weed control avoid using chemicals. These methods may damage a fragile soil by destructuring it, hence are not always used. They are those preferred by the organic gardener or organic farmer.

8. However weed control can also be achieved by the use of herbicides. Selective herbicides kill certain targets while leaving the desired crop relatively unharmed. In agriculture large scale and systematic weeding is usually carried out by machines, such as liquid herbicide sprayers, or even by helicopter, to eliminate the massive amount of weeds present on farming lands.

**Exercise 10. Answer the following questions.**

1. How many species of weeds are there all over the world? 2. How is it possible to control weeds in domestic gardens? 3. Is black plastic sheet effective at preventing weeds? 4. Can hoeing off weed leaves and stems eventually weaken and kill perennials? 5. Which method can be applied to clean weeds completely from soil? 6. What is the goal of flame weeding? 7. What does a biological weed control regiment consist of? 8. Can weed control be achieved by the use of herbicides?

**Exercise 11. Say whether these statements are true or false or not mentioned in the text. Correct the false ones.**

1. You can keep your garden weed free by killing weeds at their source.
2. Nettle infestations can be tackled by cutting back just one time a year.
3. Several layers of wet newspaper kill weeds.
4. Insecticides are preferred by the organic farmers.
5. Mechanical methods of weed control can be effective during the growing process.
6. High effectiveness of humid heat against weeds and their seeds is not confirmed.
7. Fungicides are chemicals that can be used to kill fungus.
8. Chemicals may damage the soil by destructuring it, hence they are not always used.

**Exercise 12. Translate the expressions into Russian paying attention to the prepositions.**

Spread *at* a high rate, 8,000 species *of* weeds, kill weeds *at* their source, cover an area *of* ground *with* a material, environment *for* weed, prevent light *from* reaching plants, be effective *at* preventing weeds, be left *in* place *for at*

least two seasons, remove weeds *by* pulling them out, *over* a three-year period, help *in* killing pests, clean weeds *from* soil, cause a lethal wilting *by* denaturing proteins, methods *of* weed control, vertebrates contribute *to* the weed regulation, use *of* grazing animals, protection *of* natural predators.

**Exercise 13. Complete the sentences. Choose the suitable words from the box.**

| Hot air weeders, ploughing, herbicides, uproots, greenhouse, germinating, chemicals, persistence, bindweed. |
|---|

1. Ploughing … weeds, causing them to die. 2. Similarly, … can heat up the seeds to the point of destroying them. 3. In the case of black plastic, the … effect kills the plants. 4. The above described methods of weed control avoid using … . 5. Although this will require … in the case of plants such as … . 6. After several weeks, all … weed seeds are dead. 7. However, weed control can also be achieved by the use of … . 8. Summer … also helps in killing pests.

**Exercise 14. Translate the following words and word combinations into Russian.**

Unwanted plants, garden or lawn, abundant seed production, precautionary measures, methods of weed control, black plastic sheet, remove weeds manually, weaken and kill perennials, intercultural ploughing, summer ploughing, various points in the growing process, effectiveness of humid heat, higher heat tolerance, goal of flame weeding, heat up the seeds, biological weed control, biological control agents, bioherbicides, grazing animals, natural predator, ground beetle, small vertebrate, reduce seed bank size, chemicals, damage a fragile soil, organic gardener, use of herbicides, systematic weeding, massive amount of weeds, mechanical.

**Exercise 15. Choose the words that have the following definitions.**

1. A piece of ground adjoining a house, used for growing flowers, fruit, or vegetables.

a) plot; b) lawn; c) garden.

2. A living thing that grows in the earth and has a stem, leaves, and roots.

a) flower; b) plant; c) seed.

3. The part of a plant which attaches it to the ground, typically underground, and conveys water and nourishment to the rest of the plant.

a) root; b) stem; c) grass.

4. A plant that lives for several years and has flowers each year.

a) annual; b) biannual; c) perennial.

5. They prepare the earth and work on it in order to grow crops.
a) till; b) compact; c) research.
6. A class of nitrogenous organic compounds which have large molecules composed of one or more long chains of amino acids.
a) salt; b) alkali; c) protein.
7. An animal of a large group distinguished by the possession of a backbone or spinal column.
a) gasteropod; b) vertebrate; c) invertebrate.
8. A distinct compound or substance, especially one which has been artificially prepared or purified.
a) chemical; b) caterpillar; c) solution.
9. A chemical that is used to destroy plants, especially weeds.
a) fungicide; b) herbicide; c) insecticide.
10. A place, person, or thing from which something originates or can be obtained.
a) source; b) reserve; c) warehouse.

**Exercise 16. Translate the following words and word combinations into English.**

Распространяться быстрыми темпами, во всем мире, приблизительно, домашний сад, рост сорняков, несколько слоев газеты, после нескольких недель, в случае, однако, удаление вручную, удалять сорняки, листья, стволы, корни, крапива, вьюнок, обработка почвы, пашня, гербицид, жужелица, на протяжении трехлетнего периода, вырывать с корнем сорняки, уничтожать вредителей, механический, вокруг сельскохозяйственных растений, термическая борьба с сорняками, несколько результатов научных исследований, соляризация почвы, цель огневой борьбы с сорняками, подобным образом, нагревать сорняки, биологические методы, защита естественных хищников, в значительной степени, применение химических веществ, систематическая прополка, уничтожить огромное количество сорняков.

## UNIT 15

## Chemicals in Agriculture

### Словообразование

Суффикс ***-ful,*** прибавляемый к существительным, а иногда к глаголам, образует прилагательные, указывающее характеристику предмета или на наполненность емкостей:

help (помощь) – help**ful** (полезный);
to forget (забывать) – forget**ful** (забывчивый);

spoon (ложка) – spoon**ful** (полная ложка).

**Exercise 1. Form the new words using the prefix *-ful*. Translate them into Russian.**

**Model:** beauty – beautiful.

Master, duty, use, watch, thank, hope, doubt, fear, pain, basket, cup, table, pot, spade, glass, hand, room, boat.

Суффикс ***-ing,*** прибавляемый к существительным и глаголам, образует существительные, обозначающие процесс или материал:

floor (пол) – floor**ing** (половые доски);

to translate (переводить) – translat**ing** (перевод).

**Exercise 2. Form the new words using the prefix *-ing*. Translate them into Russian.**

**Model:** to open – opening.

To spell, to brush, to drum, to read, to learn, to jump, to draw, to walk, to hear, to cut, to land, to feed, carpet, roof, mat.

## The Future Perfect Active

## (Будущее совершенное время в активном залоге)

Будущее совершенное время в активном залоге (The Future Perfect Active) образуется при помощи вспомогательных глаголов будущего времени **shall/will**, вспомогательного глагола **to have** в Present Indefinite и причастия прошедшего времени (The Participle II) основного глагола.

| Утвердительная форма | Отрицательная форма | Вопросительная форма |
|---|---|---|
| I **shall have worked**<br>We **shall have worked**<br>You **will have worked**<br>They **will have worked**<br>He **will have worked**<br>She **will have worked**<br>It **will have worked** | I **shall not have worked**<br>We **shall not have worked**<br>You **will not have worked**<br>They **will not have worked**<br>He **will not have worked**<br>She **will not have worked**<br>It **will not have worked** | **Shall** I **have worked**<br>**Shall** we **have worked**<br>**Will** You **have worked**<br>**Will** they **have worked**<br>**Will** he **have worked**<br>**Will** she **have worked**<br>**Will** it **have worked** |

Будущее совершенное время в активном залоге (The Future Perfect Active) употребляется для выражения будущего действия, которое завершится до определенного момента в будущем времени. Этот момент может быть указан:

1. Такими обстоятельствами, которые указывают на время, к которому действие будет завершено, например: **by 2020** – *к 2020 году*, **by that time** – *к тому времени*, **by the end of the week** – *к концу недели*, **by Monday** – *к понедельнику*, **by then** – *к тому времени,* **by tomorrow** – *к*

*завтрашнему дню,* **until/till** – *перед/до* (употребляются исключительно в отрицаниях).

By the end of the week I *shall have given* up smoking. – К концу недели я *брошу* курить.

We *shall have left* this countryside by the end of the year. – *Я уеду* из этой деревни к концу года.

By Saturday she*'ll have finished* her project. – К субботе она *закончит* свой проект.

She *will not have spoken* to him until he calls. – Она *не будет разговаривать* с ним до тех пор, пока он не позвонит;

2. Другим будущим действием в придаточном предложении времени и условия, выраженным глаголом в Present Indefinite. Предполагается, что к началу этого действия действие в главном предложении, выраженное глаголом в Future Perfect, уже закончится. Как правило, с такими союзами, как **before** – *до того как*, **when** – *когда*, **by the time** – *к тому времени, когда:*

He*'ll have left* our town before I arrive at the station. – Он *уедет* из нашего города до того, как я приеду на вокзал.

We*'ll have repaired* this fridge when you return. – Мы *отремонтируем* этот холодильник, когда ты вернёшься.

By the time you *come* home, Tom *will have prepared* dinner. – К тому времени, когда ты придешь домой, Том *приготовит* обед.

**Exercise 3. Translate the following sentences.**

1. By the time I'm 25 years old I will have opened a Ballet School.
2. By the next year I'll have started learning French.
3. By 2050 I will have travelled the world.
4. By the time I get married I will have graduated from the university.
5. By the end of this year I will have learnt figure-skating.
6. By December I will have visited my aunt in Australia.
7. By the time I'm 40 years old I will have had three children.
8. By next summer I will have finished my book of poems.

**Exercise 4. Put the infinitives in brackets in the Future Perfect.**

1. I (be) a Londoner for five and a half years by next September. 2. By Tuesday Jill (finish) these novels by O'Henry. 3. Next year is Fred and Kate's 10th wedding anniversary. They (be) happily married for ten years. 4. Molly thinks the film (to start) by the time she gets to Fred's. 5. They (to finish) the plans by then. 6. Before his holiday Tom (to spend) all his money. 7. The train (to leave) by the time the couple get to the station. 8. I (cook) dinner by then. 9. I (finish) my chemistry homework before Jillian comes home. 10. Fernando (have) his operation by August and should be much fitter. 11. Before Lisa arrives, I (finish) dinner. 12. Johnny (translate) this document by 7pm o'clock this afternoon. 13. Helen (make) this awesome doll by her daughter's birthday. 14. Steven (not/learn) his

lesson by tomorrow. 15. The librarian (to register) all the books by the end of the week. 16. Our plant (to fulfill) its plan by the 5th of December. 17. By the end of the month the delegation (to come). 18. Do please hurry or they (to close) the door by the time we get there. 19. Our plant (to fulfil) its plan by the 5th of December.

## The Modal Verb May

## Модальный глагол may

Модальный глагол **may** (*мочь, иметь разрешение; возможно, может быть*) имеет основное значение вероятности или разрешения и используется в двух формах: **may** – для использования в настоящем времени и **might** – в прошедшем времени. Для выражения действия в будущем времени вместо глагола **may** используется эквивалент **shall/will be allowed to**.

| | | |
|---|---|---|
| I<br>He<br>She<br>We<br>You<br>They | may<br>may not<br>might<br>might not | use this equipment to improve working conditions.<br>convey these loads very fast.<br>connect two banks of the river.<br>forget to repair the mechanism.<br>inform all the people by the alarm system.<br>create new favourable opportunities. |

| | | |
|---|---|---|
| May<br>Might | I<br>he<br>she<br>we<br>you<br>they | take part in this celebration?<br>wash all the plates and cups?<br>keep this book for two weeks?<br>go to the nearest shop?<br>join that group of experts?<br>start the English lesson? |

| | | | | |
|---|---|---|---|---|
| I<br>He<br>She<br>We<br>You<br>They | shall<br>will | (not) | be allowed | to leave gates open wide.<br>to make the final decision.<br>to clean the whole classroom.<br>to build a new supermarket.<br>to repair those shoes.<br>to replace the broken TV. |

| | | | | |
|---|---|---|---|---|
| Shall<br><br>Will | I<br>We<br>He<br>She<br>You<br>They | be | allowed | to prepare the Christmas cake?<br>to bring a new piece of paper?<br>to adjust the computer?<br>to make a new plan?<br>to get the meal for our guests?<br>to switch on the light? |

Модальный глагол **may** чаще всего используется для выражения:

1. *Возможности, предположения*, например:

John *may be* at home, or perhaps at work. – Джон, *может быть*, дома или, возможно, на работе.

**Might** выражает большую степень неуверенности, например:

The weather *might be* better tomorrow. Погода *может быть* лучше завтра, *но вряд ли*;

2. *Разрешения*, например:

Johnny, you *may leave* the table when you have finished your dinner. – Ты *сможешь встать* из-за стола только тогда, когда закончишь обедать;

3. *Просьбы* для получения разрешения, например:

*May* I use your bathroom? – *Могу* я воспользоваться твоей ванной?

4. *Запрета*, например:

You *may not talk* loudly in libraries. – Нельзя громко разговаривать в библиотеках.

**Exercise 5. Translate the following sentences into Russian paying attention to the verb *may*.**

1. May I invite Nick to our house? 2. It stopped raining, and mother told us that we might go out. 3. They may travel by sea. It may be cheaper, but it takes a long time. 4. May I shut the door? 5. You may not go to the wood alone, you don't know the way. 6. Mum, may I have another sweet? 7. He who falls today, may rise tomorrow. 8. Fortune may very well smile upon you one day. 9. I told him that he might go home. 10. Don't throw it away, it may come in use, you never know. 11. It might rain, so don't forget your umbrella. 12. Don't drink this water! It might be poisonous. 13. You won't be allowed to talk during your exam tomorrow.

**Exercise 6. Read and memorize the following words and word combinations.**

study ['stʌdɪ] – изучение

beverage ['bevərɪʤ] – напиток

remediation [rɪˌmiːdɪ'eɪʃən] – исправление

emphasize ['emfəsaɪz] – придавать особое значение

investigate [ɪn'vestɪgeɪt] – исследовать

embrace [ɪm'breɪs] – включать

test-tube chemistry ['testˌtjuːb 'kemɪstrɪ] – химия лабораторной диагностики

fibre ['faɪbə] – волокно

applied science [əˈplaɪd ˈsaɪəns] – прикладная наука

yield [jiːld] – урожайность

chemurgy [ˈkɛməːdʒi] – хемургия, химическая технология (*химическое и промышленное использование органических сырьевых материалов*)

expand [ɪk'spænd] – расширить

reveal [rɪ'viːl] – обнаруживать

assistance [ə'sɪstəns] – поддержка, содействие

thread [θred] – нить

genetics [dʒɪ'netɪks] – генетика (*наука*)

physiology [ˌfɪzɪ'ɔlədʒɪ] – физиология

microbiology [ˌmaɪkrəubaɪ'ɔlədʒɪ] – микробиология

entomology [ˌentə'mɔlədʒɪ] – энтомология

impinge [ɪm'pɪndʒ] – сталкиваться

scores [skɔː] – множество

plant growth regulator [plɑːnt grəuθ 'regjəleɪtə] – регулятор роста растений

commercial [kə'mɜːʃəl] – промышленный

synthetic [sɪn'θetɪk] – синтетический

supplement ['sʌplɪmənt] – добавка

latter ['lætə] – последний

medicinal [mə'dɪsənəl] – медицинский, лекарственный

sustainability [səˌsteɪnə'bɪlətɪ] – устойчивость

operation [ˌɔpə'reɪʃən] – функционирование, работа

agrochemical [ˌægrəʊ'kɛmɪkəl] – агрохимический

violate ['vaɪəleɪt] – нарушать

viable ['vaɪəbl] – жизнеспособный

eutrophication [ˌjuːtrəfɪˈkeɪʃən] – эвтрофикация (*зарастание водоема водорослями*)

naive [naɪ'iːv] – наивный

via ['vaɪə] – посредством (*чего-л.*), с помощью (*чего-л.*)

Integrated Pest Management ['ɪntɪgreɪtɪd pest 'mænɪdʒmənt] – комплексная борьба с сельскохозяйственными вредителями

cost-effective [ˌkɔstɪ'fektɪv] – рентабельный

sustainable [sə'steɪnəbl] – устойчивый

environmentally friendly [ɪnˌvaɪərən'mentəlɪ 'frendlɪ] – безвредный для окружающей среды

**Exercise 7. Try to guess the meanings of the following words without a dictionary.**

Biochemistry, production, bacteria, chemical, composition, technology, utilization, material, reaction, product, progress, discipline, genetics, physiology, microbiology, entomology, commercial, medicinal, principle, modified, concentration, industrial, organization, natural, globally.

**Exercise 8. Read and translate the following text.**

1. Agricultural chemistry is the study of both chemistry and biochemistry which are important in agricultural production, the processing of raw products into foods and beverages, and in environmental monitoring and remediation. This research emphasizes the relationships between plants, animals and bacteria and their environment.

2. The science investigates chemical compositions and changes involved in the production, protection, and use of crops and livestock. As a basic science, it embraces, in addition to test-tube chemistry, all the life processes through which humans obtain food and fiber for themselves and feed for their animals. As an applied science or technology, it is directed toward control of those processes to increase yields, improve quality, and reduce costs. One important branch of it, chemurgy, is concerned chiefly with utilization of agricultural products as chemical raw materials.

3. The goals of agricultural chemistry are to expand understanding of the causes and effects of biochemical reactions related to plant and animal growth, to reveal opportunities for controlling those reactions, and to develop chemical products that will provide the desired assistance or control. Every scientific discipline that contributes to agricultural progress depends in some way on chemistry. Hence agricultural chemistry is not a distinct discipline, but a common thread that ties together genetics, physiology, microbiology, entomology, and numerous other sciences that impinge on agriculture.

4. Chemical materials developed to assist in the production of food, feed, and fiber include scores of herbicides, insecticides, fungicides, and other pesticides, plant growth regulators, fertilizers, and animal feed supplements. Chief among these groups from the commercial point of view are manufactured fertilizers, synthetic pesticides (including herbicides), and supplements for feeds. The latter include both nutritional supplements (for example, mineral nutrients) and medicinal compounds for the prevention or control of disease.

5. Agricultural chemistry often aims at preserving or increasing the fertility of soil, maintaining or improving the agricultural yield, and improving the quality of the crop.

6. When agriculture is considered with ecology, the sustainability of an operation is considered. Modern agrochemical industry has gained a reputation for maximizing profits while violating sustainable and ecologically viable agricultural principles. Eutrophication, the prevalence of genetically modified crops and the increasing concentration of chemicals in the food chain (e.g. persistent organic pollutants) are only a few consequences of naive industrial agriculture.

7. According to the Food and Agricultural Organization (2013), the most effective way of reducing the negative effects of harmful chemicals on the environment is to simply reduce the amount of chemicals used. This can be achieved via a series of best practice methods including Integrated Pest Management (IPM), which helps farmers produce crops in a cost-effective and sustainable manner. Such practice continues to grow globally as the concept of sustainable development becomes increasingly important to society and the natural world. Other alternatives are very modest and simply include organic farming, which eliminates the need for chemicals and grows yields in the most natural and environmentally friendly manner.

**Exercise 9. Answer the following questions.**

1. What is agricultural chemistry? 2. What does agricultural chemistry embrace as a basic science? 3. What is chemurgy as an important branch concerned with? 4. What are the goals of agricultural chemistry nowadays? 5. Chemical materials developed to assist in the production of food, feed, and fiber include scores of various products, don't they? 6. What is agricultural chemistry often aimed at? 7. What reputation has modern agrochemical industry gained so far? 8. How can mankind reduce the negative effects of harmful chemicals on the environment?

**Exercise 10. Translate the words and word combination in brackets into English.**

1. (Любая научная дисциплина) that contributes to (развитию сельского хозяйства) depends in some way (от химии).

2. Eutrophication, (преобладание генетически модифицированных сельхозкультур) and the increasing concentration of (химических препаратов в пищевой цепочке) are only a few consequences of (наивного агропромышленного комплекса).

3. The latter include both (пищевые добавки и лекарственные соединения) for the prevention or (борьбы с болезнью).

4. (Другие альтернативы) are very modest and simply (органическое сельское хозяйство), which eliminates (потребность в химических препаратах) and grows yields in (самым естественным) and environmentally friendly manner.

5. As an (прикладная наука) or technology, it is directed toward (контроль тех процессов) to increase yields, (улучшить качество и снизить издержки).

**Exercise 11. Translate the following words and word combinations into English.**

Продовольственная и сельскохозяйственная организация, агрохимия, переработка сырья, продукты питания и напитки, сельскохозяйственное производство, биохимия, отношение между растениями и

животными, животные и бактерии, задача агрохимии, причины и следствия, биохимические реакции, найти возможность, создавать химическую продукцию, отдельная дисциплина, генетика, физиология, микробиология, энтомология, сохранение и повышение плодородия почвы, повышение урожайности сельхозкультур, негативные последствия, лучший практический метод, концепция устойчивого развития.

**Exercise 12. Translate the following sentences into English.**

1. Комплексная борьба с сельскохозяйственными вредителями поможет уменьшить негативные последствия применения вредных химических веществ. 2. Современная агрохимическая промышленность нарушает экологически жизнеспособные сельскохозяйственные принципы. 3. Гербициды, инсектициды, фунгициды, регуляторы роста растений, удобрения и кормовые добавки для животных популярны с коммерческой точки зрения. 4. Химия как научная дисциплина очень важна для существенного развития сельского хозяйства в современном мире.

**Exercise 13. Translate the expressions into Russian paying attention to the prepositions.**

Use *of* crops, processing *of* raw products *into* foods, relationships *between* plants, obtain food *for* people, to direct *toward* control *of* processes, reaction related *to* plants, opportunities *for* controlling, to contribute *to* progress, to depend *on* chemistry, to impinge *on* agriculture, be chief *among* these groups *from* the commercial point *of* view, compounds *for* preventing disease, to aim *at* preserving soil fertility, concentration *of* chemicals, increasingly important *to* society.

**Exercise 14. Translate the following words and word combinations into Russian.**

Chemical composition, fertilizers, reduce costs, use of crops and livestock, improve quality, food and fiber, applied science, increase yield, utilization of agricultural product, herbicides, chemical raw material, desired assistance, chemical material, production of food, insecticide, fungicide, plant growth regulator, pesticide, animal feed supplement, agricultural yield, quality of the crop, ecology and sustainability, agrochemical industry, ecologically viable agricultural principle, persistent organic pollutant, the most effective way, amount of chemicals, cost-effective manner, concept of sustainable development, organic farming, scientific discipline.

**Exercise 15. Agree or disagree with the following statements beginning with:**

**Of course, I agree with this statement because …**

**I disagree entirely because according to the text …**

1. Agricultural chemistry is the study of biochemistry only.

2. Agricultural chemistry a basic science embraces test-tube chemistry, all the life processes through which humans obtain food and fiber.

3. Agricultural chemistry ties together numerous sciences that impinge on agriculture.

4. Only manufactured fertilizers and synthetic pesticides assist in the production of food, feed, and fiber.

5. Modern agrochemical industry violates sustainable and ecologically viable agricultural principles.

6. Pest Management (IPM) aims at helping farmers produce crops in a cost-effective and sustainable manner.

**Exercise 16. Find in B the English equivalents to the Russian words in A.**

| A | B |
|---|---|
| 1) общество | a) society; b) farming; c) nutrients. |
| 2) продолжать | a) achieve; b) continue c) include. |
| 3) работа | a) composition; b) fiber; c) operation. |
| 4) прибыль | a) profit; b) fertility; c) pollutant. |
| 5) искусственный | a) commercial; b) synthetic; c) applied. |
| 6) использование | a) technology; b) practice; c) utilization. |
| 7) удобрение | a) fertilizer; b) microbiology; c) herbicide. |
| 8) генетически | a) simply; b) friendly; c) genetically. |
| 9) наука | a) science; b) concept; c) assistance. |
| 10) урожай | a) processes; b) reaction; c) yield. |

## UNIT 16

## Fungicides in Agriculture

### Словообразование

Приставки ***in***-, ***il***-, ***im***-, ***ir***-, прибавляемые к прилагательным, образуют прилагательные с отрицательным значением:

visible (видимый) – **in**visible (невидимый);

logical (логический) – **il**logical (нелогичный);

moral (моральный) – **im**moral (аморальный);

resistible (отразимый) – **ir**resistible (неотразимый).

**Exercise 1. Form the adjectives using the negative prefixes**. **Translate them into Russian.**

**Model**: delicate – indelicate.

**in-** – comparable, frequent, accurate, artistic, attentive, capable;

**il-** – legible, literate, liberal, legal, logical, licit, liquid, legitimate;

**im-** – possible partial, patient, movable, modest, material, measurable;

**ir-** – responsible, resolute, regular, rational, relevant, receptive.

Приставка ***un-***, прибавляемая к глаголам, прилагательным и иногда к существительным, образует слова с отрицательным значением:

to fasten (прикреплять) – to **un**fasten (открeплять);

suitable (подходящий) – **un**suitable (неподходящий);

truth (правда) – **un**truth (неправда).

**Exercise 2. Form the new words using the prefix *un-*. Translate them into Russian.**

**Model:** to coil – to uncoil.

To saddle, to settle, to load, to dress, to bind, changed, explored, kind, clean, fair, just, true, certain, amusing, safe, reasonable, bearable, lawful.

## The Passive Voice

## (Пассивный залог)

Пассивный залог (The Passive Voice) употребляется, когда в центре внимания говорящего находится лицо или предмет, которые *подвергаются действию*, а не лицо или предмет, которые *совершают действие*.

В пассивном обороте лицо или предмет, которые подвергаются действию, являются подлежащими и стоят на первом месте.

| | Present | Past | Future |
|---|---|---|---|
| Indefinite | The film **is shown** every day.<br>**Is** the film **shown** every day?<br>The film **is not shown** every day. | The film **was shown** yesterday.<br>**Was** the film **shown** yesterday?<br>The film **was not shown** yesterday. | The film **will be shown** tomorrow.<br>**Will** the film **be shown** tomorrow?<br>The film **will not be shown** tomorrow. |
| Continuous | The film **is being shown** now.<br>**Is** the film **being shown** now?<br>The film **is not being shown** now. | The film **was being shown** at 5 yesterday.<br>**Was** the film **being shown** at 5 yesterday?<br>The film **was not being shown** at 5 yesterday. | |
| Perfect | The film **has** just **been shown**.<br>**Has** the film **been shown**?<br>The film **has not** been **shown** yet. | The film **had been shown** by 5 o'clock.<br>**Had** the film **been shown** by 5 o'clock?<br>The film **had not** been **shown** by 5 o'clock. | The film **will have been shown** by 5 o'clock.<br>**Will** the film **have been shown** by 5 o'clock?<br>The film **will** not **have been shown** by 5 o'clock. |

I. Форма пассивного залога образуется с помощью глагола **to be** в нужной форме (в зависимости от времени) и причастия прошедшего времени (**Participle II**) смыслового глагола. Построение предложения в пассивном залоге в разных временах происходит следующим образом:

1. ***Present Indefinite Passive*** (настоящее неопределенное время) в пассивном залоге образуется по формуле: **am/is/are + III форма глагола**:

These books *are used* for work. – Эти книги *используются* для работы.

The office *is cleaned* every day. – Офис *убирается* каждый день;

2. ***Present Continuous Passive*** (настоящее длительное время) в пассивном залоге образуется по формуле: **am/is/are being + III форма глагола**:

I feel that I *am being watched* now by somebody. – Я думаю, что *на меня кто-то смотрит*.

The road *is being repaired at present.* – Дорога *ремонтируется в данный момент*;

3. ***Present Perfect Passive*** (настоящее совершенное время) в пассивном залоге образуется по формуле: **have/has been + III форма глагола**:

This coffee *has* just *been made*, help yourself. – Кофе только что *был приготовлен*, угощайтесь.

The presents *have* already *been bought.* – Подарки уже *куплены*;

4. ***Past Indefinite Passive*** (прошедшее неопределенное время) в пассивном залоге образуется по формуле: **was/were + III форма глагола**:

This picture *was painted* in the 16th century. – Эта картина *была написана* в 16 веке.

These houses *were built* in 1954. – Эти дома *были построены* в 1954.

5. ***Past Continuous Passive*** (прошедшее длительное время) в пассивном залоге образуется по формуле: **was/were being + III форма глагола**:

At six o'clock a story *was being told*. – В шесть часов историю *рассказывали*.

They *were being watched* carefully. – *За* ними внимательно *наблюдали*;

6. ***Past Perfect Passive*** (прошедшее совершенное время) в пассивном залоге образуется по формуле: **had been + III форма глагола**:

All the windows *had been cleaned* before the storm. – Все окна *были вымыты* перед грозой.

The letter *had been written* by 5 o'clock yesterday. – Письмо *было написано* к 5 часам вчера;

7. ***Future Indefinite Passive*** (будущее неопределенное время) в пассивном залоге образуется по формуле: **shall/will be + III форма глагола**:

The car *will be repaired* tomorrow. – Автомобиль *будет отремонтирован* завтра.

The article *will be written* next week. – Статья *будет написана* на следующей неделе;

8. ***Future Perfect Passive*** (будущее совершенное время) в пассивном залоге образуется по формуле: **shall/will have been + III форма глагола**:

By this time tomorrow the deal *will have been signed*. – Завтра к этому времени договор *будет подписан*.

The article *will have been translated* by this time tomorrow. – Статья *будет переведена* к этому времени завтра.

II. На русский язык глаголы в **Passive Voice** могут переводиться следующими способами:

1. Сочетанием глагола ***быть*** (в прошедшем и будущем временах) с краткой формой причастия страдательного залога:

The article *was transplanted*. – Статья *была* переведена.

The article *will be translated*. – Статья *будет* переведена;

2. Глаголом с окончанием на **-ся, -сь**:

Technical articles *are translated* at every lesson. – Технические статьи *переводят**ся*** на каждом уроке;

3. Неопределенно-личной формой, т. е. без подлежащего:

Technical articles *are translated* at every lesson. – Технические статьи *переводят* на каждом уроке.

Глагол в форме ***Indefinite Passive*** может переводиться на русский язык глаголом совершенного и несовершенного вида, так как форма ***Indefinite*** не уточняет характера действия:

Houses *are built* very quickly now. – Дома *строятся (строят)* теперь очень быстро.

III. В английском языке в страдательном залоге показателем времени служит глагол **to be**, который изменяется в зависимости от лица и числа подлежащего. Смысловой глагол стоит всегда в форме **Participle II,** т. е. остается неизменным.

1. New films *are shown* here every week. – Новые фильмы *показывают* здесь каждую неделю.

2. A new film *was shown* here yesterday. – Новый фильм *был показан* здесь вчера.

3. A new film *will be shown* here tomorrow. – Новый фильм *будет показан* здесь завтра.

IV. Если указывается, кем или чем производится действие, то употребляется существительное или местоимение с предлогом **by**, если речь идет о дополнении в творительном падеже (отвечающем на вопрос кем? чем?) или с предлогом **with** для указания на материал или орудие, при помощи которого совершается действие:

The new engine was designed *by* our engineers. – Новый двигатель был сконструирован *нашими инженерами*.

The laboratory is equipped *with* automatic machinery. – Лаборатория оборудована *автоматическими механизмами*.

V. В английском предложении за сказуемым в страдательном залоге может следовать предлог; слово, с которым этот предлог соотносится, является подлежащим. Поэтому при переводе на русский язык этот предлог ставится *перед* подлежащим:

The engineer was sent *for*. – *За* инженером послали.

This article is much spoken *about*. – *Об* этой статье много говорят,

VI. Подлежащее английского предложения пассивной конструкции при переводе на русский язык может стоять не только в именительном падеже, но и в любом косвенном падеже в зависимости от контекста.

The *chief engineer* was sent abroad. – *Главного инженера* послали за границу.

The *chief engineer* was sent many telegrams. – *Главному инженеру* послали много телеграмм.

This information was referred *to*. – *На* эту информацию ссылались.

**Exercise 3. Translate the following sentences into Russian.**

1. A new house is being built here. 2. The proposal is being heatedly discussed for an hour. 3. This copy had not been read by Monday. 4. She was given a clock. 5. His name was not mentioned at the meeting. 6. The work has not been done yet. 7. The books will have been returned to the library by next Saturday. 8. You are not allowed to smoke here. 9. The girl wasn't allowed to go to the concert. 10. They were not invited to the party. 11. The letter has been sent off. 12. The tape-recorder is already repaired. 13. The letter must be answered at once.

**Exercise 4. Put the following sentences into the Present Indefinite Passive.**

1. Ice hockey (play) in Canada. 2. The earned money (keep) in the safe. 3. Chicken sandwiches (make) for children. 4. The washing-machine (use) every day. 5. All his holidays (spend) in the countryside.

**Exercise 5. Put the following sentences into the Past Indefinite Passive.**

1. The monuments (ruin) in 1943. 2. A big bunch of flowers (send) for her birthday. 3. The novel "War and peace" (write) by Leo Tolstoy. 4. The famous painting "Sunflowers" (paint) by Van Gogh. 5. The coats (leave) in the wardrobe.

**Exercise 6. Put the following sentences into the Present Perfect Passive.**

1. He (arrest) after a fight in a nightclub. 2. My son (award) the Medal of courage. 3. Your tea and biscuits (serve). 4. Thousands of new cars (manufacture) this year. 5. Our flight (delay).

**Exercise 7. Use the following sentences in the Passive Voice according to the model given.**

**Model**: Shakespeare *wrote* "Romeo and Juliet". – "Romeo and Juliet" *was written* by Shakespeare.

1. Popov invented radio in Russia. 2. Every four years people elect a new president in the USA. 3. The police caught a bank robber an hour ago. 4. Sorry, we don't allow dogs in our safari park. 5. The postman will leave my letter by the door. 6. My mum has made a delicious cherry pie for dinner. 7. George didn't repair my clock. 8. Wait a little, my neighbor is telling an interesting story. 9. My son can write some more articles about football.

**Exercise 8. Put the following sentences in the Passive Voice.**

1. Nobody has used this room for ages. 2. We will give you the keys tomorrow. 3. Someone is interviewing Dr. Johnson at the moment. 4. By the time I arrived, someone had already opened all your letters. 5. We talk about the problems at dinner. 6. Mary had not switched the light off by the time we came. 7. The students will have translated article into English before the teacher returns. 8. Tom has told his wife everything.

**Exercise 9. Put the following sentences in the Passive Voice paying attention to the preposition.**

**Model**: We often speak *about* her. – She is often spoken *about*.

1. We thought about our friend all the time. 2. The doctor will operate on him in a week. 3. The teacher sent for the pupil's parents. 4. They have looked for the newspaper everywhere. 5. Nobody is sleeping in the bed. 6. The neighbour has asked for the telegram. 7. Everybody listened to the lecturer with great attention. 8. The senior students laughed at the freshman. 9. The group spoke to the headmistress yesterday. 10. The young mothers will look after their babies with great care. 11. They have sent for Jim.

**Exercise 10. Translate the following sentences.**

1. You are to stay at the table until you finish your lunch. 2. The ship is to dock at noon. 3. She is not to enter our house. 4. The government was to have reduced inflation. 5. The Prime-minister is to visit Canada. 6. You are to give up smoking. 7. We were to meet Mike near the market. 8. You are not to open the box until Christmas. 9. Who was to have done the shopping? 10. Sam is to phone after dinner.

**Exercise 11. Read and memorize the following words and word combinations.**

fungicide ['fʌŋgɪsaɪd] – фунгицид
ready-mixture ['redɪ 'mɪkstʃə] – готовая смесь
solo product ['səuləu 'prədʌkt] – однокомпонентный препарат
strength [streŋθ] – достоинство, сильная сторона
weakness ['wi:knəs] – слабое место, недостаток
active substance ['æktɪv 'sʌbstəns] – действующее вещество
inappropriate [ˌɪnə'prəuprɪət] – несоответствующий, ненадлежащий
encourage [ɪn'kʌrɪdʒ] – способствовать
resistance [rɪ'zɪstəns] – устойчивость
currently ['kʌr(ə)ntlɪ] – теперь, в настоящее время
present [prɪ'zent] – представлять
inhibit [ɪn'hɪbɪt] – подавлять, сдерживать
eradicate [ɪ'rædɪkeɪt] – уничтожать
fungal ['fʌŋgəl] – грибковый
severe [sɪ'vɪə] – серьезный
in terms of [ɪn 'tɜ:mz ɔv] – на основе
activity [æk'tɪvətɪ] – активность
mode of action [məud əv 'ækʃən] – механизм действия
disrupt [dɪs'rʌpt] – нарушать
metabolism [mə'tæbəlɪzəm] – метаболизм
kill off [kɪl ɔf] – уничтожать одно(го) за другим
inactivate [ɪnˈæktɪveɪt] – блокировать активность (*или снизить эффективность действия*)
enzyme ['enzaɪm] – фермент, энзим
fungicidal [ˈfʌndʒɪsaɪdl] – фунгицидный, относящийся к фунгициду
formula ['fɔ:mjələ] – рецептура, формула
additive ['ædətɪv] – добавка
emulsifying agent [ɪˈmʌlsɪfaɪɪŋ 'eɪdʒənt] – эмульгирующее вещество
spray solution [spreɪ sə'lu:ʃən] – раствор для опрыскивания
retention [rɪ'tenʃən] – удерживание, фиксация

uptake ['ʌpteɪk] – поглощение
efficacy ['efɪkəsɪ] – эффективность, действенность
non-systemic [nɔn sɪ'stemɪk] – несистемный
systemic [sɪ'stemɪk] – системный
activity [æk'tɪvətɪ] – действие
in contrast [ɪn 'kɔntrɑːst] – в то же время
succeed in [sək'siːd ɪn] – удаваться
transport ['trænspɔːt] – перемещение, движение
shoot [ʃuːt] – побег, росток
uninhibited [ˌʌnɪn'hɪbɪtɪd] – несдерживаемый
feature ['fiːʧə] – особенность, признак
undergo [ˌʌndə'gəu] – испытывать, подвергаться
false economy [fɔːls iːˈkɔnəmɪ] – ложная экономия
check [ʧek] – сдерживать, препятствовать
fail [feɪl] – не удаваться.

**Exercise 12. Try to guess the meanings of the following words without a dictionary.**

Fungicide, mixture, substance, active, product, individual, combination, season, chemical, metabolism, metabolic, contribution, systemic, structure, contrast, transport, class, genetic, minimal, recommended, programme, risk.

**Exercise 13. Read and translate the following text.**

1. Today's fungicides are available to the farmer either as ready-mixtures of different active substances, or as solo products. Without knowledge of the strengths and weaknesses of individual active substances, it can be difficult to choose the right product: inappropriate use can encourage the development of resistance. The choice of product or combination of active substances depends on which pathogens currently present the greatest threat, and, just as importantly, which are expected to become a threat later in the season.

2. Fungicides either inhibit or eradicate fungal diseases that might otherwise cause severe losses in yield and quality. They differ in terms of chemical properties, activity against pathogens and specific mode of action. Fungicides disrupt the metabolism of fungal pathogens, inhibiting their development or killing them off. They most commonly inhibit or inactivate an enzyme involved in the pathogen's metabolic processes, for example in the production of energy during respiration.

3. Besides the necessary active substances, fungicidal products also contain formulas and additives (e.g. emulsifying agents) that serve a number of purposes: to ensure even distribution of the active substance in the spray

solution; to strengthen the retention of the active substance on the plant surface; and to improve uptake into the plant's tissues. These properties make a significant contribution to the efficacy of the fungicide.

4. Fungicides can be categorized as non-systemic or systemic. Non-systemic active substances do not penetrate into plant tissues, and are therefore unable to reach fungal structures within the plant. Therefore, these active substances can only be applied to obtain protective activity. In contrast, fungicides with systemic properties can be applied after the pathogen has succeeded in penetrating into the plant's tissues, as the internal transport of the active substance allows it to reach the fungal structures in order to kill them off.

5. Substances with fully systemic activity are usually distributed within the plant's tissues in the direction of the growing shoots: this does not apply to locally-systemic substances. The user must therefore take a number of drawbacks into account: only the initial developmental stages of the pathogen are affected. As soon as the fungus succeeds in penetrating into the plant, it can continue to develop uninhibited.

6. The repeated use of fungicides from the same class of active substance encourages the development of resistance, which can quickly become a fixed genetic feature, spreading rapidly within the fungal population. Eventually, the resistant variant of the pathogen predominates, and all fungicides with the same mode-of-action are useless against it.

7. Here, the pathogen undergoes changes to several genes, so its sensitivity to the active substance decreases in stages. The result is a decline in the efficacy of control and/or a shortening of the original duration of action. Here, a single genetic change is sufficient to reduce sensitivity to the active substance to such an extent that only a minimal level of activity remains, or no activity at all, even if the fungicide is applied at the recommended rate.

8. In order to prevent the development of resistance to fungicides, spraying programmes should include active substances with different modes-of action. The applications and treatments with reduced application rates should also be avoided – these not only increase the risk of resistance development, they also represent a false economy if they fail to check the progress of the disease.

**Exercise 14. Answer the following questions?**

1. What does the choice of fungicide or combination of its active substances depend on?

2. Do fungicides differ as for their methods of activity?

3. Why do fungicidal products contain formulates and additives?

4. Can non-systemic fungicides reach fungal structures within the plant?

5. How can fungicides with systemic properties be applied?

6. How are substances with systemic activity usually distributed within the plant's tissues?

7. What does the repeated use of fungicides from the same class encourage?

8. A single genetic change is sufficient to reduce sensitivity to the active substance, isn't it?

9. What should be done to prevent the development of resistance to fungicides?

**Exercise 15. Read and translate the given words and state their parts of speech.**

Eventually, locally, only, development, economy, application, categorized, applied, repeated, to prevent, substance, significant, weakness, killing, shortening, within, false, this, same, programme, therefore, protective,

**Exercise 16. Find the Russian equivalents for the following English words and word combinations.**

| | |
|---|---|
| 1) active substance | a) развитие устойчивости |
| 2) development of resistance | b) действующее вещество |
| 3) fungal disease | c) метаболический процесс |
| 4) metabolic process | d) грибковое заболевание |
| 5) formulas and additives | e) ткани растения |
| 6) plant's tissues | f) рецептуры и добавки |
| 7) growing shoot | g) механизм действия |
| 8) mode-of-action | h) растущий побег |
| 9) recommended rate | i) развитие заболевания |
| 10) progress of the disease | j) рекомендуемая норма |

**Exercise 17. Translate the following words and word combinations into Russian.**

Different active substances, mixtures, inappropriate use, solo products, strength and weakness, later in the season, right product, encourage resistance, combination of substances, pathogen, to present threat, fungicidal products, a number of purposes, to strengthen the retention, plant surface, significant contribution, systemic activity, locally-systemic substance, a drawback, initial stage, several genes, original duration, genetic change, to reduce sensitivity, to develop uninhibited, efficacy of fungicide.

**Exercise 18. Find in B the English equivalents to the Russian words in A.**

| A | B |
|---|---|
| 1) достигать | a) cause; b) inhibit; c) reach. |
| 2) производство | a) production; b) tissue; c) plant. |
| 3) сокращение | a) killing; b) spraying; c) shortening. |
| 4) направление | a) solution; b) direction; c) action. |
| 5) обеспечить | a) ensure; b) improve; c) include. |
| 6) внутренний | a) level; b) unable; c) internal. |
| 7) увеличивать | a) increase; b) prevent; c) check. |
| 8) бесполезный | a) loss; b) process; c) useless. |
| 9) вещество | a) treatments; b) substance; c) change. |
| 10) угроза | a) disease; b) threat; c) feature. |

**Exercise 19. Translate the following words and word combinations into English.**

Существующие фунгициды, готовая смесь, однокомпонентный препарат, активное вещество, подходящий препарат, развитие устойчивости, величайшая угроза, истреблять болезни, причинять серьезные убытки, на основе химических свойств, нарушать метаболизм, грибковый патоген, блокировать активность фермента, несистемный, системный, ткань растений, достигать грибковые структуры, защитное действие, системные свойства, проникать в ткань растений, многократное использование, постоянная генетическая особенность, грибковая популяция, применение и обработка, ряд недостатков.

**Exercise 20. Put each word in the correct blank.**

1. **plant** / **uninhibited** / **fungus**

As soon as the … succeeds in penetrating into the … , it can continue to develop … .

2. **fungal** / **penetrate** / **non-systemic**

… active substances do not … into plant tissues, and are therefore unable to reach … structures within the plant.

3. **pathogens / chemical** / **action**

They differ in terms of … properties, activity against … and specific mode of … .

4. **products** / **ready-mixtures** / **fungicides**

Today's … are available to the farmer either as … of different active substances, or as solo … .

5. **diseases / inhibit** / **yield**

Fungicides either … or eradicate fungal … that might otherwise cause severe losses in … and quality.

6. **programmes / substances / development**

In order to prevent the … of resistance to fungicides, spraying … should include active … with different modes-of action.

**Exercise 21. Match the words with their definitions.**

| | |
|---|---|
| 1. pathogen | a) a chemical that destroys fungus. |
| 2. metabolism | b) lack of sensitivity to a drug, insecticide, fungicide. |
| 3. fungicide | c) any organism which can cause disease in a person, animal, or plant. |
| 4. resistance | d) the chemical processes that occur within a living organism in order to maintain life. |
| 5. shoot | e) a substance added to something in small quantities to improve or preserve it. |
| 6. additive | f) a young branch or sucker springing from the main stock of a tree or other plant. |
| 7. treatment | g) an illness which affects people, animals, or plants. |
| 8. enzyme | h) a unit of heredity which is transferred from a parent to offspring. |
| 9. disease | i) the use of a chemical, physical, or biological agent to preserve or give particular properties to something. |
| 10. gene | j) a substance produced by a living organism which acts as a catalyst to bring about a specific biochemical reaction. |

## UNIT 17

## Insecticides in Agriculture

### Словообразование

Суффиксы ***-able(-ible)***, прибавляемые к глаголам, а иногда к существительным, образуют прилагательные со значением возможности совершения действия, обозначенного глаголом:

to eat (есть) – eat**able** (съедобный);

to resist (противостоять) – resist**ible** (отразимый).

**Exercise 1. Form the new words using the suffix *-able(-ible)*. Translate them into Russian.**

**Model:** prevent – preventable; exhaust – exhaustible.

**-able** – change, know, agree, service, check, choose, buy, pay, notice.

**-ible** – reduce, convince, convert, respond, extend, divide, expend.

Суффикс ***-ize,*** прибавляемый к прилагательным и к существительным, образует глаголы:

material (материал) – to material**ize** (осуществлять);

summary (краткая сводка) – to summar**ize** (суммировать).

**Exercise 2. Form the new words using the suffix *-ize*. Translate them into Russian.**

**Model:** mineral – to mineralize.

Hospital, special, local, general, standard, natural, real, legal, colony.

## The Sequence of Tenses

## (Согласование времен)

В русском языке глагол-сказуемое придаточного дополнительного предложения может употребляться в любом времени (*настоящем, прошедшем* или *будущем*) в зависимости от содержания. В английском языке это возможно тогда, когда глагол-сказуемое главного предложения стоит в *настоящем* или *будущем времени*, следовательно, глагол-сказуемое придаточного предложения может стоять в любом, требуемом по смыслу времени, например:

I *think* that it *will rain*. – Я *думаю*, что *пойдет* дождь.

He *understands* that he *has made* a mistake. – Он *понимает*, что *совершил* ошибку.

Mother *will tell* me what I *will have* to do. – Мать *скажет* мне, что мне *придется* сделать.

Tom *says* that he *was* busy yesterday. – Том *говорит*, что *был* занят вчера.

Если глагол-сказуемое главного предложения стоит в *прошедшем времени*, то *действует* правило согласования времен, которое состоит в том, что сказуемое дополнительного придаточного предложения тоже *должно* стоять в одном из прошедших времен. Данные правила также соблюдаются при переводе прямой речи в косвенную речь:

He *says*, "I *am busy* today".

He *said* that he *was busy* that day.

## The Sequence of Tenses in the Sentence

## (Согласование времен в предложении)

| Прямая речь | | Косвенная речь |
|---|---|---|
| Present Indefinite | → | Past Indefinite |
| Past Indefinite | → | Past Perfect |
| Future Indefinite | → | Future Indefinite-in-the-Past |
| Present Continuous | → | Past Continuous |
| Past Continuous | → | Past Perfect Continuous |
| Future Continuous | → | Future Continuous-in-the-Past |
| Present Perfect | → | Past Perfect |
| Past Perfect | → | Past Perfect |
| Future Perfect | → | Future Perfect-in-the-Past |

1. **Present Indefinite** в придаточном предложении при согласовании времен переходит в **Past Indefinite**:

Nick *says* that he *goes* to the cinema. – Ник *говорит*, он *ходит* в кино.

Nick *said* that he *went* to the cinema. – Ник *сказал*, он *ходил* в кино.

2. **Past Indefinite** в придаточном предложении при согласовании времен переходит в **Past Perfect**:

Dick *says* that he *saw* that film. – Дик *говорит*, что он *видел* этот фильм.

Dick *said* that he *had seen* this film. – Дик *сказал*, что он *видел* этот фильм.

3. **Future Indefinite** в придаточном предложении при согласовании времен переходит в **Future Indefinite-in-the-Past**. При этом вспомогательные глаголы будущего времени **shall/will** переходят в **should/would.** На русский язык эта форма переводится глаголом в будущем времени:

Sue *says* that she *will finish* that work. – Сью *говорит*, что она *закончит* эту работу.

Sue *said* that she *would finish* that work. – Сью *сказала*, что она *закончит* эту работу.

4. **Present Continuous** в придаточном предложении при согласовании времен переходит в **Past Continuous**:

Mary *says* that she *is reading* a book. – Мэри *говорит*, что она *читает* книгу.

Mary *said* that she *was reading* a book. – Мэри *сказала*, что она *читала* книгу.

5. **Future Continuous** в придаточном предложении при согласовании времен переходит в **Future Continuous-in-the-Past**:

John *says* that he *will be watching* TV. – Джон *говорит*, что он *будет смотреть* телевизор.

John *said* that he *would be watching* TV. – Джон *сказал*, что он *будет смотреть* телевизор.

6. **Present Perfect** в придаточном предложении при согласовании времен переходит в **Past Perfect**:

Victor *says* that he *did* his home task. – Виктор *говорит*, что он *выполнил* свое домашнее задание.

Victor *said* that he *had done* his home task. – Виктор *сказал*, что он *выполнил* свое домашнее задание.

7. **Past Perfect** в придаточном предложении при согласовании времен остается **Past Perfect**:

Nick *says* that he *had arrived* in time. – Ник *говорит*, что он *приехал* вовремя.

Nick *said* that he *had arrived* in time. – Ник *сказал*, что он *приехал* вовремя.

8. **Future Perfect** в придаточном предложении при согласовании времен переходит в **Future Perfect-in-the-Past**:

Sandra *says* that she *will have come* by 6 tomorrow. – Сандра *говорит*, что она *приедет* к 6 часам завтра.

Sandra *said* that she *would have come* by 6 the next day. – Сандра *сказала*, что она *приедет* к 6 часам следующего дня.

9. Предложения, выражающие общий вопрос в прямой речи, в косвенную речь вводятся с помощью союза **whether** или **if**:

He *asked* me: "*Are* you *translating* the article?" – Он спросил меня: «Ты переводишь статью?»

He *asked* me ***if* (*whether*)** I *was translating* the article. – Он спросил меня, перевожу ли я статью.

Глаголы **should, ought** и **must** употребляются в придаточном предложении независимо от того, в каком времени стоит глагол-сказуемое главного предложения:

He *says* (*said*) that I *ought to* send her a telegram. – Он говорит (сказал), что мне следует послать ей телеграмму.

I *tell* (*told*) him that he *should* consult a doctor. – Я говорю (сказал) ему, что ему следует обратиться к врачу.

He *tells* (*told*) us that we *must* not cross the street. – Он говорит (сказал), что нам нельзя переходить через дорогу.

**Exercise 3. Put the following sentences into the indirect speech according to the rules of the Sequence of Tenses.**

**Model**: He *said*, "I *work* in New York." –

He *said* that he *worked* in New York.

1. She said, "I speak French." 2. She said, "I am speaking French well." 3. She said, "I have spoken French." 4. She said, "I spoke French." 5. She said, "I am going to speak French." 6. She said, "I will speak French fluently." 7. She said, "I can speak French." 8. She said, "I may speak French here." 9. She said, "I have to speak French." 10. She said, "I must speak French." 11. She said, "I should speak French." 12. She said, "I ought to speak French."

**Exercise 4. Make the right choice.**

1. I knew that my sister … (have/has/had) a problem. 2. I know that my sister … (have/has/had) a problem. 3. I knew that my sister … (will have/would have/had) a problem soon. 4. He said he … (lived/has lived/had lived) in Moscow since 2005. 5. She asks me if the flight … (has been cancelled/had been cancelled/been cancelled). 6. She asked me if the flight … (has been cancelled/had been cancelled/was cancelled). 7. Nobody knew what … (will happen/would happen/happens) next. 8. Mike said that he … (hasn't met/didn't meet/hadn't met) Helen since they parted. 9. Kelly said that she … (didn't want/doesn't want/hadn't wanted) to wear her hat at school. 10. We didn't expect that he … (showed/will show/would show) us the film.

**Exercise 5. Read and memorize the following words and word combinations.**

insecticide [ɪn'sektɪsaɪd] – инсектицид
agent ['eɪʤənt] – вещество
stomach poison ['stʌmək 'pɔɪzən] – желудочный токсин
arsenic [ɑ:'senɪk] – мышьяковый
calcium ['kælsɪəm] – кальций
magnesium [mæg'ni:zɪəm] – магний
barium ['beərɪəm] – барий
lead arsenate [ledˈɑ:səneɪt] – арсенат свинца
calcium arsenite ['kælsɪəm 'ɑ:sɪˌnaɪt] – арсенит кальция
silicofluoride [ˌsiləkɔ'flɔ:raɪd] – силикофторид
fluoride ['flɔ:raɪd] – фторид
thiodiphenylamine [ˌθaɪədɪfɪ'nɪləmɪn] – тиодифениламин

eulans ['juələnz] – эвлан (*молезащитное средство*)
mitin [ˈmaɪtɪn] – митина
irgan [ˈɜ:gən] – ирган
moth [mɔθ] – моль
contact poison ['kɔntækt 'pɔɪzən] – яд контактного действия
penetrate ['penɪtreɪt] – проникать внутрь
chlorine ['klɔ:ri:n] – хлор
sulfur ['sʌlfə] – сера
pyrethrin [pʌɪˈri:θrɪn] – пиретрин
pyrethroid [pʌɪˈri:θrɔɪd] – пиретроид
systemic poison [sɪ'stemɪk 'pɔɪzən] – системный яд
parasitic [ˌpærə'sɪtɪk] – паразитический, паразитный
metilmerkaptofos [metɪlme'kæptəfɔs] – метилмеркаптофос
fosfamid [fɒsfəˈmɪd] – фосфамид
ectoparasite [ˌɛktəʊˈparəsʌɪt] – эктопаразит, наружный паразит
reservoir ['rezəvwɑ:] – источник
butadion [ˈbju:tedɪən] – бутадион
delousing [di:ˈlaʊsɪŋ] – дезинсекция
render ['rendə] – приводить в какое-л. состояние
insecticidal [ɪnˈsɛktɪsʌɪdəl] – инсектицидный
fumigant ['fju:mɪgənt] – фумигант (*газообразное вещество, применяемое для дезинфекции, дератизации и как пестицид*)
inhalation [ˌɪnhə'leɪʃən] – ингаляция, ингаляционный
tracheal [trəˈki:əl] – трахеальный
hexachlorobutadiene [ˌhɛksəˌklɔ:rəˈbju:tedɪən] – гексахлорбутадиен
dikhlorfos [dʌɪˈklɔ:fɒs] – дихлорфос
mill [mɪl] – молоть
silicate ['sɪlɪkeɪt] – силикат
respiratory [rɪ'spɪrətərɪ] – дыхательный, респираторный
arsenic ['ɑ:sənɪk] – мышьяк
fluorine ['flɔ:ri:n] – фтор
discontinue [ˌdɪskən'tɪnju:] – прекращать
carbamic acid [kɑ:'bæmɪk 'æsɪd] – карбаминовая кислота
dusting ['dʌstɪŋ] – опыливание
fumigation [ˌfju:mɪ'geɪʃən] – фумигация
impregnation [ˌɪmpreg'neɪʃən] – пропитка
preparation [ˌprepə'reɪʃən] – препарат
dust [dʌst] – пылевидный препарат, дуст
emulsion [ɪ'mʌlʃən] – эмульсия

suspension [sə'spenʃən] – суспензия

wettable powder [ˈwetəbl 'paudə] – смачивающийся порошок

strongly active ['strɔŋlɪ 'æktɪv] – сильнодействующий

LD (lethal dose ['liːθəl dəus]) – смертельная доза

persistence of insecticide [pə'sɪstəns əv ɪn'sektɪsaɪd] – стойкость пестицидов

water reservoir ['wɔːtə 'rezəvwɑː] – водохранилище

bumblebee ['bʌmblbiː] – шмель

warm-blooded [ˌwɔːm'blʌdɪd] – теплокровный.

**Exercise 6. Match the English names of chemicals in A with their Russian translations in B.**

**A.** Carbamic acid, silicate, fluorine, arsenic, pyrethrin, dikhlorfos, hexachlorobutadiene, butadion, fosfamid, metilmerkaptofos, pyrethroid, sulfur, chlorine, irgan, mitin, eulans, thiodiphenylamine, calcium fluoride, silicofluoride, calcium arsenite, lead arsenate, barium, magnesium.

**B**. Фтор, сера, мышьяк, метилмеркаптофос бутадион, фосфамид, гексахлорбутадиен, эвлан, митина, фторид, пиретроид, карбаминовая кислота, дихлорфос, арсенат свинца, тиодифениламин, силикофторид, пиретрин, арсенит кальция, магний, барий, хлор, силикат, ирган, кальций.

**Exercise 7. Read and translate the following text.**

1. Insecticides are chemical, biological, or other agents used to destroy insect pests. Depending on the way by which they penetrate the insect organism, they are divided into four groups.

2. *Stomach poisons*, which enter the organism through the mouth, include most inorganic arsenic compounds (calcium, magnesium, barium, and lead arsenates; calcium arsenite), silicofluorides and fluorides of metals, thiodiphenylamine, and a group of special preparations (Eulans, mitin, irgan, and others), which are used for the protection of wool and furs from destruction by moths.

3. *Contact poisons*, which penetrate through the skin, include the organic compounds of phosphorus, chlorine, nitrogen, and sulfur and the pyrethrins and pyrethroids.

4. *Systemic poisons*, which are absorbed by the roots and leaves of plants, migrate within the vascular system with the nutrients, making the plants poisonous to parasitic insects. Such poisons include metilmerkaptofos and fosfamid. Systemic (organic phosphorus) insecticides are also used to control ectoparasites of animals (the blood of the animal becomes poisonous to insects after the introduction of the preparation) and

to eliminate rats (leading to the death of the animal, which is the reservoir of the infection, and of the parasitic carriers). Butadion is used in exceptional cases for delousing humans. A single dose renders human blood insecticidal for a period of two weeks.

5. *Fumigants*, or inhalation insecticides, enter the organisms of insects in the vapor or gaseous state through the tracheal system during breathing. These materials include hexachlorobutadiene and dikhlorfos, as well as finely milled silicates and mineral oils, which disrupt the respiratory functions of insects.

6. Worldwide losses caused by insect pests are estimated at $30 billion in agriculture alone. For this reason, total insecticide production is increasing. At the same time, the world production of inorganic insecticides, such as arsenic and fluorine compounds, is decreasing because of their high toxicity; in several European countries their production has been completely discontinued. On the other hand, the overall production increase is due to the manufacture of new organic compounds. The worldwide line of available insecticides includes more than 200 names. Organic compounds of phosphorus, chlorine, and carbamic acid derivatives are the most commonly used materials.

7. Insecticides are applied by spraying, dusting, fumigation, and impregnation. There is a variety of physical forms of these preparations, such as dusts, emulsions or suspensions, and wettable powders.

8. Depending on the degree of toxicity to humans and warm-blooded animals, the insecticides are divided into four groups: strongly active (LD50 up to 50), highly toxic (50–200), moderately toxic (200–1,000), and low-toxicity (above 1,000). The persistence of insecticide activity on plants or in the bodies of animals varies widely, from one day to several years. The rules concerning the storage, application, and transportation of insecticides should be strictly observed in order to prevent harmful effects, such as contamination of water reservoirs and poisoning of bees, bumblebees, other pollinating insects and accumulation in animal and vegetable products and in feeds.

**Exercise 8. Answer the following questions.**

1. What are insecticides used for?
2. What are stomach poisons?
3. Do contact poisons penetrate the insect through the skin or the mouth?
4. How do systemic poisons make plants poisonous to parasitic insects?
5. Fumigants enter the organism of insect during breathing, don't they?
6. What do you know about total insecticide production worldwide?

7. How are insecticides applied?

8. What should be done to prevent harmful effects of insecticides use?

**Exercise 9. Translate the following words and word combinations into Russian.**

Biological agent, destroy pests, inorganic compound, penetrate the insect organism, arsenic compound, special preparation, wool and furs, destruction by moths, inhalation insecticide, vapor or gaseous insecticide, enter through the tracheal system, fumigation, disrupt the respiratory functions of insects, spraying, impregnation, a variety of physical forms, dust, emulsion, suspension, wettable powder, degree of toxicity to humans, warm-blooded animal, insecticide activity, pollinating insect, bodies of animals, bumblebee, application and transportation, dusting, to prevent harmful effects, poisoning of bees, accumulation in products, water reservoir.

**Exercise 10. Translate the words and word combination in brackets into English.**

1. (В зависимости от способа) by which they penetrate the (организм насекомого), they are divided (на четыре группы).

2. These materials (содержат гексахлорбутадиен и дихлорфос), as well as finely milled silicates and (минеральные масла), which (нарушают дыхательную функцию) of insects.

3. (Органические соединения) of phosphorus, chlorine, and (производные соединения карбаминовой кислоты) are the most commonly used (материалы).

4. There is (разнообразие физических форм) of these preparations, such as dusts, (эмульсии или суспензии), and wettable (порошок).

5. On the other hand, the (общий рост производства) is due to the manufacture of new (органических соединений).

6. (Однократная доза) renders (человеческую кровь) insecticidal (в течение двух недель).

**Exercise 11. Translate the following words and word combinations into English.**

Попадать в организм через рот, фосфор, мышьяковое соединение, проникать сквозь кожу, хлор, органические соединения серы, перемещаться в сосудистой системе, паразитические насекомые, системный инсектицид, введение препарата, источник инфекции, переносчик паразитических болезней, дезинсекция людей, ингаляционный инсектицид, трахеальная система, высокая токсичность, насекомое-вредитель, производство инсектицидов, неорганический инсектицид, ассортимент наличных инсектицидов, опрыскивание, опыливание, пропитка, сред-

нетоксичный, низкая токсичность, овощной продукт, хранение, применение, транспортировка.

**Exercise 12. Find in the text the words that mean the following:**

1. A small arthropod animal that has six legs and generally one or two pairs of wings (*paragraph 1*).

2. A mixture that has been prepared for scientific use or as medicine, or a cosmetic (*paragraph 2*).

3. A thin layer of tissue forming the natural outer covering of the body of a person or animal (*paragraph 3*).

4. A small animal or plant that lives on or inside a larger animal or plant, and gets its food from it (*paragraph 4*).

5. A substance that when introduced into or absorbed by a living organism causes illness or death (*paragraph 4*).

6. The state or quality of being poisonous (*paragraph 6*).

7. The act or process of contaminating or the state of being contaminated (*paragraph 8*).

**Exercise 13. Match the antonyms from A with those in B.**

**A**. Destruction, organic, loss, introduction, inhalation, divide, infection, protection, include, absorb, commonly, decrease, harmful.

**B**. Eject, attack, combine, exclude, restoration, decontamination, increase, inorganic, abolition, exhalation, infrequently, beneficial, gain.

**Exercise 14. Translate the expressions into Russian paying attention to the prepositions.**

Contamination *of* water reservoir, depend *on* the degree *of* toxicity, *on* the other hand, divide *into* four groups, case *for* delousing, protection *of* wool and furs *from* destruction *by* moths, insecticides are applied *by* spraying, poisonous *to* insects, because *of* their high toxicity, *at* the same time, enter the organism *through* the mouth, losses caused *by* insect pests, migrate *within* the vascular system *with* the nutrients, accumulation *in* feeds.

**Exercise 15. Translate the following sentences into Russian.**

1. Насекомые вредители наносят большой ущерб сельскохозяйственным производителям.

2. Инсектициды подразделяются на четыре группы: желудочные токсины, яды контактного действия, системные яды, фумиганты.

3. Желудочные токсины проникают в организм насекомого вредителя через рот.

4. Системные инсектициды делают растения ядовитыми для насекомых-вредителей.

5. Правила хранения, применения и транспортировки инсектицидов необходимо строго соблюдать.

6. Производство неорганических инсектицидов снижается, а органических увеличивается во всем мире.

## UNIT 18

## Herbicides in Agriculture

### Словообразование

Суффикс ***-ate***, прибавляемый к существительным и к прилагательным, образует глаголы:

active (активный) – to activ**ate** (активизировать);

oxygen (кислород) – to oxygen**ate** (насыщать кислородом).

**Exercise 1. Form the new words using the suffix -(*i*)*ate*. Translate them into Russian.**

**Model:** origin – to originate.

Hydrogen, differentia, valid, luxury, domestic, rustic, motive, alien.

Суффикс ***-en***, прибавляемый к прилагательным и к существительным, образует глаголы:

black (черный) – to black**en** (чернеть);

height (высота) – to height**en** (повышать).

**Exercise 2. Form the new words using the suffix *-en*. Translate them into Russian.**

**Model:** threat – to threaten.

Heart, red, tight, fresh, light, soft, fright, glad, sad, mad, strength, length.

### The Conditional Sentences

### (Условные предложения)

Условные предложения могут выражать реальные, маловероятные и нереальные условия. В зависимости от характера условия предложения принято подразделять на условные предложения *первого типа* (реальное условие), *второго типа* (нереальные или маловероятные) условия, относящиеся к настоящему или будущему времени), и *третьего типа* (нереальные условия, относящиеся к прошедшему времени).

1. Условие, содержащееся в условном придаточном предложении *первого типа*, рассматривается говорящим как реально предполагаемый факт, относящийся к *настоящему*, *прошедшему* или *будущему* времени. В этом случае сказуемые главного и придаточного предложений выражаются глаголами в формах изъявительного наклонения:

| | |
|---|---|
| тип I | a) If + Present Indefinite, … Future Indefinite.<br>b) If + Past Indefinite, … Past Indefinite.<br>c) If + Present Indefinite, … Present Indefinite. |

a) If the weather *is* good, we *shall go* skiing. – Если погода *будет* хорошей, мы *пойдем* кататься на лыжах;

b) If the weather *was* good, we *went* skiing. – Если погода *была* хорошей, мы *ходили* кататься на лыжах;

c) If the weather *is* good, we *go* skiing. – Если погода *хорошая*, мы *ходим* кататься на лыжах.

2. Условие, содержащееся в условном придаточном предложении *второго типа*, рассматривается говорящим как маловероятное и относится к *настоящему* или *будущему* времени. Глагол **to be** в придаточной части употребляется в форме **were** во всех лицах Данное предложение имеет следующую структуру:

| | |
|---|---|
| тип II | If + Past Indefinite, … should/would + Infinitive Indefinite. |

If the plane *landed*, they *would let* us *know* about it. – Если *бы* самолет приземлился, они *бы* нам сообщили об этом.

If he *were* here, I *should speak* to him. – Если *бы* он *был* здесь, я *бы* с ним *поговорил*.

3. Условие, содержащееся в условном придаточном предложении *третьего типа*, рассматривается говорящим как *неосуществимое*, так как относится к прошлому.

| | |
|---|---|
| тип III | If + past perfect; … should/would have + Participle II |

На русский язык глагол-сказуемое придаточного предложения переводится глаголом в сослагательном наклонении с частицей **бы** (в русском языке не отличается от условного придаточного предложения второго типа).

If Tom *had taken* a taxi, he *would have come* in time. – Если *бы* Том взял такси, он *приехал бы* вовремя.

## The Inversion in the Conditional Sentences

## (Инверсия в условных предложениях)

В условных придаточных предложениях второго и третьего типа союзы **if**, **provided** могут быть опущены, в этом случае в придаточном предложении вспомогательный глагол (***should, had, were*** и др.) ставится перед подлежащим:

*Should* the drought *continue*, a lot of people *will leave* the village. – Если засуха *продолжится*, многие люди *покинут* деревню.

*Had* the engine *been repaired* yesterday, we *should have left* the port. – Если *бы* двигатель *был отремонтирован* вчера, мы *бы покинули* порт.

*Were* there any letters from him, his sister *would telephone* me. – Если *бы* от него *были* письма, его сестра *позвонила бы* мне.

## The Conjunctions of the Conditional Sentences

## (Условные союзы в английском языке)

**if** – *если*

I will stay *if* she comes. – *Я останусь, если она придет.*

**unless** – *если не*

I won't stay *unless* she comes. – *Я не останусь, если она не придет.*

**provided** (**providing**) – *при условии*

I will stay *providing* she comes. – *Я останусь при условии, если только она придет.*

**Exercise 3. Translate the sentences into Russian.**

a) 1. If I am not too busy, I shall go to the concert. 2. They will all be surprised if I make such a mistake. 3. If he doesn't come in time, shall we have to wait for him? 4. If no one comes to help, we shall do the work ourselves. 5. If you put on your glasses, you will see better.

b) 1. If I had time, I would help you. 2. I should live better if I earned more money. 3. If I knew the answer, I should tell you. 4. He wouldn't come unless you invited him. 5. We shouldn't remember it if it weren't so strange.

c) 1. If I hadn't overslept, I wouldn't have been late in the office. 2. If she had been more responsible, she would have been promoted three years ago. 3. If you had read this book, you wouldn't have done errors.

4. She wouldn't have prepared this pie if she hadn't got so much commendation. 5. If I hadn't loved you, I wouldn't have married you.

**Exercise 4. Put the infinitives in brackets in the correct form paying attention to the type of the conditionals.**

type I

1. If it … (cost) too much I … (not take) it. 2. She … (be) angry if you … (lose) this photo. 3. If you … (not eat up) the bread we … (feed) the birds in the garden. 4. If I (know), I (tell) you. 5. If she (want) to talk, she (ring up).

type II

1. If I … (have) free time now I … (watch) my favourite film. 2. If I … (be) you I … (not eat) fast food. 3. His job … (be) so hard if he … (not have) a secretary. 4. She (feel) lonely if Peter (go) away. 5. We (be) pleased to see you if you (arrive).

type III

1. If you … (not smoke) so much you … (not be) in hospital now. 2. If we … (meet) him yesterday we … (call) you. 3. If Tom (have) enough time last week, he (prepare) for his exam. 4. You (do) much better in the exam if you (take) private lessons. 5. If the weather (be) nice we (go) horse-riding.

**Exercise 5. Put the infinitives in brackets in the correct form.**

1. If the flight is delayed our guests … (be) late. 2. We would have gone to the beach if the rain … (stop). 3. They will miss the train if they … (not run.) 4. If you had given her the letter she … (tear) it to pieces. 5. If Jack moves too slowly he … (not win) the game. 6. If I lost my job I … (move) to the country. 7. She would invite our kids if they … (behave) themselves. 8. If Tom were more careful he … (not break) things. 9. If she had had a car she … (drive) there. 10. You wouldn't have got wet if you … (put on) your mackintosh.

**Exercise 6. Read and memorize the following words and word combinations.**

herbicide ['hɜ:bɪsaɪd] – гербицид

get rid of [get rɪd ɔv] – избавляться

brush [brʌʃ] – густой кустарник

growth [grəuθ] – растительность, поросль

design [dɪ'zaɪn] – предназначать(ся)

kill [kɪl] – разрушать

contact herbicide ['kɔntækt 'hɜ:bɪsaɪd] – гербицид контактного действия

systemic herbicide [sɪ'stemɪk 'hɜ:bɪsaɪd] – гербицид системного действия

broadleaf ['brɔ:dˌli:f] – широколиственное растение

above ground part [ə'bʌv graund pɑ:t] – надземная часть

leafy ['li:fɪ] – лиственный

bulb [bʌlb] – луковица

tuber ['tju:bə] – клубень

rhizome ['raɪzəum] – корневище

wipe out [waɪp aut] – уничтожать

transport [træn'spɔ:t] – перемещать

internally [ɪn'tɜ:n(ə)lɪ] – внутри

sap [sæp] – сок (*растений*), живица

knock-down ['nɔkdaun] – сокрушительный

benefit ['benɪfɪt] – преимущество

hormone ['hɔ:məun] – гормон

pre-plant [pri:ˈplɑ:nt] – предпосевной

pre-emergence [pri:ɪˈmə:dʒəns] – предвсходовый

post-emergence [pəustɪˈmə:dʒəns] – послевсходный

incorporate [ɪn'kɔ:pəreɪt] – заделывать

dissipation [ˌdɪsɪ'peɪʃən] – рассеивание

photodecomposition [fəutəudi:kɒmpəˈzɪʃn] – фоторазложение

volatility [ˌvɔlə'tɪlətɪ] – летучесть

seedling ['si:dlɪŋ] – росток

emerge [ɪ'mɜ:ʤ] – прорастать

treatment ['tri:tmənt] – обработка

foliar absorbed ['fəulɪə əb'zɔ:bd] – впитывается листвой

root absorbed [ru:t əb'zɔ:bd] – впитывается корнем

wash off [wɔʃ ɔf] – смывать

water-based spray ['wɔ:tə beɪst spreɪ] – жидкость для распыления на водной основе

towed [təud] – прицепной

self-propelled [ˌselfprə'peld] – самоходный

sprayer ['spreɪə] – опрыскиватель

boom [bu:m] – штанга

spray nozzle [spreɪ 'nɔzl] – форсунка-распылитель

spaced [speɪst] – расположенный

apart [ə'pɑ:t] – на расстоянии

aerially ['eərɪəlɪ] – по воздуху

**Exercise 7. Try to guess the meanings of the following words without a dictionary.**

Herbicide, method, type, contact herbicide, systemic herbicide, specific, chemical, popular, to combine, to start, effect, portion, energy, to absorb, to transport, metabolism, hormone, zone, problem, ineffective, airplane.

**Exercise 8. Read and translate the following text.**

1. Herbicides are used to get rid of unwanted plant life, like weeds, brush, unproductive bushes or trees, and other growth that takes nutrients away from crops. All types of herbicides are designed to kill plant tissue. However, they accomplish it by two basic methods. They are known as *contact herbicides* and *systemic herbicides*.

2. *Contact herbicides.* Contact is a word that means the specific type of herbicide that will kill the parts of the plant the chemical contacts. For broadleaf weeds this means it will kill the above ground leafy part of the plants. It will not directly kill the below ground plants parts, such as roots, bulbs, tubers, or rhizomes. Contact herbicides are popular because they work quickly by killing the tissue in as fast as one day.

3. Some herbicides will combine contact with systemic chemicals for a faster effect. For some plants, killing the above ground portions will not be enough to wipe out the plant completely. Most plants will regrow plant tissue and the herbicide will need to be reapplied. However, each time the plant has to use energy to start growth again will weaken the plant and eventually kill it.

4. *Systemic herbicides*. The word "systemic" means the plant absorbs through the leaves or stems and transports the herbicides internally throughout the plant. The chemical travels with the sap so it usually doesn't have the quick "knockdown" effect. The greatest benefit of a systemic type of herbicide is that it will kill the entire plant, roots and all. The speed of killing is also dependent on the "mode of action" of the chemical.

5. The herbicide mode of action is a term describing what the chemical does inside the plant. There is a mode of action for every type of chemical. The mode of action is the way the chemical controls or kills the weeds. One chemical may prevent the metabolism of sugars in plants, while another may inhibit the development of an essential hormone. In addition, there are different types of herbicides as for the time of their application: pre-plant, pre-emergence and post-emergence herbicides.

6. *Pre-plant herbicides* are nonselective herbicides incorporated into soil before planting. The objective for incorporation is to prevent dissipation through photodecomposition and/or volatility. The herbicides kill weeds as they grow through the herbicide treated zone. Volatile herbicides have to be incorporated into the soil before planting the pasture.

7. *Pre-emergence herbicides* are applied before the weed seedlings emerge through the soil surface. Herbicides do not prevent weeds from

germinating but they kill weeds as they grow through the herbicide treated zone by affecting the cell division in the emerging seedling. Weeds that have already emerged before application are not affected by pre-emergence herbicides as their primary growing point escapes the treatment.

8. *Post-emergence herbicides* are applied after weed seedlings have emerged through the soil surface. They can be foliar or root absorbed, selective or nonselective, contact or systemic. Application of these herbicides is avoided during rain because the problem of being washed off to the soil makes it ineffective.

9. Most herbicides are applied as water-based sprays using towed or self-propelled sprayers equipped with long booms, of 60 to 120 feet (18 to 37 m) with spray nozzles spaced every 20–30 inches (510–760 mm) apart. On large areas, herbicides may also at times be applied aerially using helicopters or airplanes.

**Exercise 9. Answer the following questions.**

1. What are herbicides used for?
2. Will contact herbicides kill the below ground plant parts?
3. What does the word "systemic" mean?
4. What is the usual mode of action of herbicides?
5. How do the pre-plant herbicides eliminate weeds?
6. Are the weeds that have emerged before pre-emergence herbicides application affected?
7. What kinds of post-emergence herbicides can be produced?
8. How are most herbicides applied?

**Exercise 10. Complete the sentences choosing the right answers.**

1. Herbicides are used to get rid of unwanted:
a) animal life;
b) plant life;
c) personal life.
2. Contact herbicide is the chemical that kills the parts of the plant it:
a) is incorporated into soil before planting;
b) absorbs;
c) contacts.
3. Some herbicides will combine contact with systemic chemicals for:
a) a slower effect;
b) a faster effect;
c) a sudden application.
4. The greatest benefit of a systemic type of herbicide is that it kills:
a) the entire plant, roots and all;
b) the roots and flowers only;
c) the leaves and stems only.

5. The herbicide mode of action is a term describing what:
a) the chemical does around the plant;
b) the chemical does inside the plant;
c) the chemical does outside the plant.
6. The objective for incorporation is to prevent dissipation:
a) through photodecomposition only;
b) through photocomposition and constancy;
c) through photodecomposition and/or volatility.
7. Application of these herbicides is avoided during rain because:
a) the problem of bad visibility makes its application ineffective;
b) the problem of being washed off to the soil makes it ineffective;
c) the appearance of thunderstorm makes it ineffective.
8. Most herbicides are applied as water-based sprays using
a) self-propelled sprayers.
b) helicopters or airplanes.
c) towed or self-propelled sprayers, helicopters or airplanes.

**Exercise 11. Translate the following words and word combinations into Russian.**

Unwanted plant life, unproductive bush, take nutrients away from crops, kill plant tissue, basic method, contact and systemic chemicals, wipe out the weed, regrow plant tissue, energy to start growth, herbicide mode of action, control or kill the weed, inhibit the development, essential hormone, time of application, prevent dissipation, herbicide treated zone, volatile herbicide, plant the pasture, emerge through the soil surface, affect cell division, primary growing point, self-propelled sprayers, long booms, applied aerially, spray nozzle, ineffective application, post-emergence herbicide.

**Exercise 12. Translate the words and word combination in brackets into English.**

1. (Все виды гербицидов) are designed to kill (растительную ткань).
2. Contact (гербициды популярны) because (они действуют быстро) by killing the tissue (в течение одного дня).
3. However, (каждый раз) each time the plant has to (использовать энергию, чтобы начать рост) again will weaken the plant (и в конце концов уничтожит его).
4. (Скорость уничтожения) is also dependent on («механизма действия» химического вещества).
5. In addition, (существуют виды гербицидов) as for the time of (их применения): pre-plant, pre-emergence and (послевсходные гербициды).
6. (Испаряющиеся гербициды) have to be (заделаны в почву) before (засева пастбища).

7. (На больших территориях), herbicides may (также иногда) be applied aerially using (вертолеты и самолеты).

**Exercise 13. Match the words with their definitions.**

| | |
|---|---|
| 1. herbicide | a) a piece of equipment used for spraying liquid somewhere. |
| 2. sprayer | b) a substance that is toxic to plants, used to destroy unwanted vegetation. |
| 3. hormone | c) a wild plant growing where it is not wanted and in competition with cultivated plants. |
| 4. sap | d) land covered with grass and other low plants suitable for grazing animals, especially cattle or sheep. |
| 5. weed | e) a chemical occurring naturally in your body, that makes an organ of your body do something. |
| 6. pasture | f) the fluid which circulates in the vascular system of a plant, consisting chiefly of water with dissolved sugars and mineral salts. |
| 7. growth | g) a material consisting of cells that are similar to each other in appearance and that have the same function. |
| 8. airplane | h) a continuously growing horizontal underground stem that puts out lateral shoots and adventitious roots at intervals. |
| 9. tissue | i) something that has grown or is growing |
| 10. rhizome | j) a vehicle with wings and one or more engines that enable it to fly through the air. |

**Exercise 14. Find in B the English equivalents to the Russian words in A.**

| A | B |
|---|---|
| 1) лиственный | a) sprayer; b) boom; c) foliar. |
| 2) заделка | a) ground; b) incorporation; c) spray. |
| 3) нежелательный | a) unwanted; b) greatest; c) addition. |
| 4) выполнять | a) escape; b) prevent; c) accomplish. |
| 5) особый | a) systemic; b) specific; c) primary. |
| 6) непосредственно | a) indirectly; b) popular; c) directly. |
| 7) часть | a) mode; b) portion; c) action. |
| 8) предотвращать | a) prevent; b) absorb; c) emerge. |
| 9) развитие | a) application; b) development; c) treatment. |
| 10) поверхность | a) seedling; b) ground; c) surface. |
| 11) важнейший | a) nonselective; b) essential; c) popular. |

**Exercise 15. Translate the following words and word combinations into English.**

Непроизводственные кустарники, специальный вид гербицида, части растения, корень, луковица, клубень, корневище, широколиственный сорняк, надземная лиственная часть, подземная часть растения, гербицид системного действия, гербицид контактного действия, перемещать гербицид внутри всего растения, предвсходовый гербицид, сокрушительное действие, скорость уничтожения, распространение посредством фоторазложения, ростки сорняков, применение гербицидов, самоходный опрыскиватель, штанга, распылитель, вертолет, прицепной опрыскиватель, поверхность почвы, предпосевной гербицид.

## UNIT 19

## Soil Amendments

### Словообразование

Суффикс ***-ics***, прибавляемый к существительным, образует слова, обозначающие название наук:

linguist (лингвист) – linguist**ics** (лингвистика).

**Exercise 1. Translate the following nouns into Russian.**

Strategics, aeronautics, ballistics, diplomatics, physics, dynamics, mathematics, pedagogics, dialectics, kinematics, automatics, mechanics.

Суффикс ***-dom***, прибавляемый к существительным и к прилагательным, образует существительные, указывающие на состояние или собирательность:

bore (скучный человек) – bore**dom** (скука);

bachelor (холостяк) – bachelordom (холостячество).

**Exercise 2. Form the new words using the suffix -ate. Translate them into Russian.**

**Model:** free – freedom.

Earl, duke, official, queen, king, czar, serf.

### The Infinitive

### (Инфинитив)

В английском языке инфинитив (Infinitive) – это неличная форма глагола, которая обозначает действие, но не указывает на лицо и чис-

ло. В русском языке английский инфинитив соответствует неопределенной форме глагола, которая отвечает на вопросы «что делать? что сделать?», например: *жить* – **to live**. Формальным признаком инфинитива является частица **to**: **to write** – *писать*.

Если перед глаголом стоит частица **to**, то это инфинитив. Отрицательная форма образуется с помощью частицы **not**, которая ставится перед инфинитивом: **not to use** – *не использовать*.

It is difficult *not to use*. – Трудно *не использовать*.

## The Forms of the Infinitive

## (Формы инфинитива)

В английском языке инфинитив имеет 5 форм. Чтобы хорошо понять значения форм инфинитива, необходимо иметь представление о *залоге* и *временах* глагола.

| **Infinitive** | **Active** | **Passive** |
|---|---|---|
| Indefinite | to help | to be helped |
| Continuous | to be helping | – |
| Perfect | to have helped | to have been helped |

1. Форма *Indefinite Infinitive Active/Passive* выражает действие, одновременное с действием сказуемого:

I was glad **to see** her. – Я был рад *увидеть* ее (*Indefinite Infinitive Active*).

The child didn't like **to be washed**. – Ребенок не любил, когда его *мыли* (*Indefinite Infinitive Passive*).

2. Форма Continuous Infinitive подчеркивает продолжительность действия, происходящего одновременно с действием глагола-сказуемого. Эта форма употребляется только в активном залоге.

He seems **to be writing** something. – Кажется, он что-то *пишет* сейчас (*Continuous Infinitive Active*).

3. Инфинитив в форме *Perfect Infinitive Active / Passive* обозначает действие, которое предшествует действию глагола-сказуемого. На русский язык перфектный инфинитив часто переводится придаточным предложением со сказуемым, выраженным глаголом в прошедшем времени:

I was very glad **to have met** you. – Я был очень рад, что *встретил* вас (*Perfect Infinitive Active*).

The child was happy **to have been brought** to the circus. – Ребенок был счастлив, что его *привели* в цирк (*Perfect Infinitive Passive*).

### The Meaning of the Forms of the Infinitive

### (Значение форм инфинитива)

| | |
|---|---|
| Indefinite Active | Mary is glad **to help** her friend.<br>Мери (*всегда*) рада помочь своей подруге. |
| Indefinite Passive | Mary is (*always*) glad **to be helped**.<br>Мери (*всегда*) рада, когда ей помогают. |
| Continuous Active | Mary is glad **to be helping** her friend *now*.<br>Мери рада, помогает своей подруге *сейчас*. |
| Perfect Active | Mary is glad **to have helped** her friend.<br>Мери рада, что помогла своей подруге. |
| Perfect Passive | Mary is glad **to have been helped**.<br>Мери рада, что ей помогли. |

**Exercise 3. Translate the following sentences paying attention to the forms of the infinitives.**

1. The assistant came to instruct the students. 2. The assistant came to be instructed by the professor. 3. The young doctors were happy to have been sent to the international conference. 4. The students wanted to know English well. 5. The doctors were glad to have cured the child. 6. I am sure to have met him before. 7. I remember to have been met early. 8. Mike is happy to work and study here. 9. Henry promised to show her the town. 10. Victor remembered to have been told the news. 11. The weather seems to be improving. 12. I want to inform you of her arrival. 13. I want to be informed of her arrival. 14. I was sure to have met him before.

### The Functions of the Infinitive

### (Функции инфинитива)

1) *Подлежащее*:

*To skate* is pleasant. – *Кататься* на коньках приятно.

Когда инфинитив имеет при себе пояснительные слова, он обычно стоит после сказуемого. В этом случае перед сказуемым стоит местоимение **it**:

*It* is a pleasure *to walk* in the garden. – Приятно *гулять* в саду;

2) *Именная часть составного именного сказуемого*:

Our plan is *to go* to the Crimea for the summer. – Наш план состоит в том, чтобы поехать в Крым на лето;

3) *Часть составного глагольного сказуемого*:

a) в сочетании с модальными глаголами:

He *can speak* English. – Он *говорит* по-английски;

b) в сочетании со многими другими глаголами, которые без инфинитива не передают полного смысла. К числу таких глаголов относятся: **to begin** – *начинать*, **to continue** – *продолжать*, **to like** – *любить*, **to want** – *хотеть*, **to intend** – *намереваться*, **to try** – *стараться*, **to hope** – *надеяться*, **to promise** – *обещать*, **to decide** – решать и др.:

I *hope to see* him soon. – Я *надеюсь увидеть* его скоро;

c) в сочетании с *прилагательными* с глаголом-связкой:

I am *happy to hear* it. – Я *счастлив слышать* это;

4) *Прямое дополнение*:

I told him *to go* there. – Я сказал ему *идти* туда;

5) *Определение*:

a) после *существительных*

I have no *desire to go* there. – У меня нет *желания идти* туда;

b) Инфинитив в функции определения часто встречается также после слов **the first, the second, the third, the last** и т. д.

He will be *the first to come* to the meeting. – Он *первым придет* на собрание;

c) инфинитив в функции определения употребляется также для указания назначения предмета:

He brought me *a book to read*. – Он купил мне *книгу для чтения*;

6) Инфинитив употребляется в функции *обстоятельства*:

a) для выражения *цели*:

I went there *to watch* the sunrise. – Я пошел туда, чтобы *посмотреть* на восход;

b) для выражения *следствия* (со словами **too**, **enough**):

It is *too* cold *to bathe* today. – Сегодня *слишком* холодно, чтобы *купаться*.

Tom is old *enough to merry*. – Том *достаточно* взрослый, чтобы *жениться*;

c) для выражения *цели* с союзами **in order to**, **so as**:

I stayed there *in order* (*so as*) *to see* what would happen. – *Я* остался там, *чтобы видеть*, что произойдет.

**Exercise 4. Translate the following sentences into Russian and state the Infinitive functions.**

1. She forgot to lock the door. 2. He refused to help them. 3. She seemed to like her job. 4. I want to go home. 5. He asked her to speak slowly. 6. Sue helped me to wash the windows. 7. She reminded him to buy cheese. 8. She is afraid to go there alone. 9. We are ready to start. 10. You were lucky to find that book. 11. She was reluctant to go. 12. He is eager to be invited to the show. 13. Can you give me a book to read? 14. I have a lot of work to do today. 15. Give him something to eat. 16. I have no intention to work there anymore. 17. To find him was difficult. 18. To know the rules is necessary. 19. To ask him for help was a mistake. 20. It is necessary to know the rules. 21. It was difficult to find him. 22. It was important for Victor to be present at the meeting. 23. It is difficult for him to live alone. 24. He went to London in order to study English. 25. She came here to study. 26. She is old enough to understand it. 27. He did it to help her. 28. Press Enter to start the installation. 29. I was too tired to notice it.

**Exercise 5. Read and memorize the following words and word combinations.**

soil amendment [sɔɪl ə'mendmənt] – почвоулучшитель

content ['kɔntent] – содержание

capable ['keɪpəbl] – способный

hold [həuld] – удерживать

in varying degrees [ɪn 'veərɪ dɪ'griːz] – в той или иной степени

nitrogen ['naɪtrədʒən] – азот

sweeten ['swiːtən] – подслащивать

pH [piːeɪtʃ] – водородный показатель

moisture-holding ability ['mɔɪstʃə 'həuldɪŋ ə'bɪlətɪ] – влагоудерживающая способность

break up heavy clay soil [breɪk ʌp 'hevɪ kleɪ sɔɪl] – дробить, фрезовать тяжелую глинистую почву

safe [seɪf] – безопасный

correction [kə'rekʃən] – исправление, корректирование

deficiency [dɪ'fɪʃənsɪ] – недостаток питательных веществ

maintain [meɪn'teɪn] – поддерживать, сохранять

man-made [ˌmæn'meɪd] – искусственный

benefit ['benɪfɪt] – польза

detriment ['detrɪmənt] – вред

straw [strɔː] – солома

biosolids ['baɪəʊˌsɒlɪdz] – твердые вещества биологического происхождения (*органический материал, получаемый в результате обработки сточных вод*)

pest infestation [pestˌɪnfes'teɪʃən] – поражение сельскохозяйственных культур вредителями

tire pieces ['taɪə piːsɪz] – куски шин

pea gravel [piː'grævəl] – мелкий гравий; очищенный от песка гравий размером от 1/4 до 3/4 дюйма

deplete [dɪ'pliːt] – истощать

occur [ə'kɜː] – иметь место, иметься

salinity [sə'lɪnətɪ] – осолоненность (*почвы*)

peat [piːt] – торф

moisture retention ['mɔɪstʧə rɪ'tenʃən] – влагозадержание

aeration [eə'reɪʃ(ə)n] – аэрация, насыщение кислородом

fungi ['fʌŋgaɪ] или ['fʌnʤaɪ] – грибки

grass clipping [grɑːs 'klɪpɪŋ] – свежескошенная трава

compost ['kɔmpɔst] – компост

wood chips [wud ʧɪp] – древесная стружка, древесная щепа

long-lasting [lɔŋ'lɑːstɪŋ] – продолжительный, длительный

porosity [pɔː'rɔsətɪ] – пористость, пористая структура

perlite [ˈpəːlʌɪt] – перлит (*материал вулканического происхождения*)

vermiculite [vɜː'mɪkjʊˌlaɪt] – вермикулит

potting soil ['pɔtɪŋ sɔɪl] – почвенная горшечная смесь

boost [buːst] – увеличивать

oxygenation [ˌɔksɪdʒənˈeɪʃən] – насыщение кислородом

loosen ['luːsən] – рыхлить, разрыхлять

break down [breɪk daun] – разлагать(ся)

secondary nutrients ['sekəndərɪ 'njuːtrɪənt] – второстепенные питательные вещества

trace nutrients [treɪs 'njuːtrɪənts] – микроэлементы

environmentally friendly [ɪnvaɪərənˈmentəlɪ 'frendlɪ] – безвредный для окружающей среды

mix into [mɪkst 'ɪntuː] – смешать

scattering ['skætərɪŋ] – разбрасывание

conducive [kən'djuːsɪv] – благоприятный, способствующий

impair [ɪm'peə] – ухудшать, портить

mulching ['mʌlʧɪŋ] – мульчирование (*покрытие почвы перегноем, соломой для защиты от испарения, замерзания*)

evaporation [ɪˌvæpə'reɪʃən] – испарение.

**Exercise 6. Read and translate the following words into Russian paying attention to the suffixes. State their parts of speech.**

Amendment, moisture, maintaining, determining, ability, salinity, correction, germination, oxygenation, typically, generally, environmentally, organic, specific, helpful, mixed, made, grown, conducive, growth, effectiveness, sandy, slower, quickest, drainage, physical, microbial.

**Exercise 7. Read and translate the following text.**

1. Most soil amendments are added to improve the structure of the soil, to increase the organic content so that the soil is more capable of holding nutrients and moisture. When these organic materials are added to the soil, they also act in varying degrees as fertilizers, providing a mix of nutrients to plant roots. By first determining the needs of your soil, you can best determine what you should add. Need nitrogen? Want to sweeten the pH of your soil? Want to increase moisture-holding ability or break up heavy clay soils? Would you like to increase microbial activity or the general organic content of your soil? The answer to these questions is the understanding that the soil amendments are important, safe and natural corrections for soil's deficiencies and tools for maintaining its health.

2. Soil amendments are typically divided into two categories or types: inorganic or man-made and organic or made with naturally occurring products. Each type has its specific uses and benefits as well as its detriments. Organic soil amendments are generally made from straw, leaves and biosolids. Compost and peat and are used to fertilize and prevent pest infestation. Amendments that are man-made or inorganic include tire pieces, pea gravel, and sand that can over time deplete the soil's naturally occurring nutrients.

3. The appropriate type of soil amendment depends on the particular needs, texture, and salinity of the soil and the types of crops and flowers that will be grown. For example, sandy soil often benefits from the addition of an amendment like peat that will increase moisture retention. Clay soil may require an amendment that will improve aeration and therefore should not be mixed with sand.

4. Soil amendments made from organic materials can work as organic fertilizers as they improve the soil's properties. A constant and stable supply of nutrients will encourage healthy plant growth. Helpful fungi, bacteria, and worms rely on organic matter in the soil for energy and will break down organic soil amendments. Some of the organic soil amendments that decompose the quickest are manure and grass clippings. These amendments will begin to decompose within a few days and can improve soil fast.

Composts, peat, and wood chips decompose far more slowly and are useful when the goal is to achieve soil improvement that is long-lasting.

5. Small particles of rubber tires are a common non-organic soil amendment that help improve the porosity of soil. Both perlite and vermiculite are usually mixed with potting soil to boost oxygenation. Pea gravel can loosen clay soil so that water and air can reach plant roots. Sand can also improve drainage.

6. Inorganic soil amendments can quickly improve the physical properties of soil such as drainage and porosity but will add few nutrients other than macronutrients like nitrogen, phosphorus, and potassium. Organic soil amendments may break down at a slower pace but can provide many secondary and trace nutrients and minerals while feeding helpful soil organisms. Soil amendments made from organic materials are often more environmentally friendly than non-organic products.

7. The appropriate amount of a soil amendment should be well mixed into the ground in order to improve the soil's physical properties and create an environment conducive to root growth. The effectiveness of soil amendments that are lightly covered with soil is impaired. Scattering an amendment on the surface is actually mulching and will slow evaporation and weed germination as well as help keep soil temperature constant.

**Exercise 8. Answer the following questions.**

1. Why do they apply soil amendments to better farmlands?
2. What understanding will there appear as soon as you answer the questions in the first paragraph?
3. How many categories are soil amendments typically divided into?
4. What does the appropriate type of soil amendment usually depend on?
5. Are fungi, bacteria and worms beneficial for soil?
6. How can soil amendments produced from organic materials improve the soil's properties?
7. How do non-organic soil amendment help improve soil?
8. What soil amendments are often more environmentally friendly?
9. Why should a soil amendment be mixed well into the ground?

**Exercise 9. Translate the words and word combination in brackets into English.**

1. Would you like (увеличить микробную активность) or the general (содержание органических веществ) of your soil?
2. (Компост и торф) and are used (удобрять и предотвратить поражение сельскохозяйственных культур вредителями).
3. For example, (песчаная почва) often benefits from the (добавка) of an amendment like peat that will (увеличит влагозадержание).

4. Some of the (органических почвоулучшителей) that decompose the quickest are (навоз и свежескошенная трава).

5. (И перлит и вермикулит) are usually mixed with potting soil (чтобы увеличить насыщение кислородом).

6. Organic soil amendments (может разлагаться более медленным темпом) but can provide many (второстепенные питательные вещества и микроэлементы) and minerals while feeding (полезные почвенные организмы).

**Exercise 10. Translate the expressions into Russian paying attention to the prepositions.**

The structure *of* the soil, materials added *to* the soil, to act *in* varying degrees, to provide a mix *of* nutrients *to* plant roots, the answer *to* this question, corrections *for* soil's deficiencies, to divide *into* two types, amendments are made *from* straw, appropriate type *of* soil amendment, to depend *on* a particular need, to benefit *from* the addition *of* an amendment, to mix *with* sand, to decompose *within* a day, environment conducive *to* root growth, to cover *with* soil, to scatter an amendment *on* the surface.

**Exercise 11. Translate the following words and word combinations into English.**

Улучшить структуру почвы, удерживать питательные вещества и влагу, смесь питательных веществ для корней растений, определить потребности почвы, почвоулучшители важны и безопасны, органический почвоулучшитель, искусственный почвоулучшитель, куски шин, мелкий гравий, песок, истощать питательные вещества почвы, текстура и осолоненность, виды сельхозкультур и цветов, улучшить аэрацию, улучшить свойства почвы, постоянный и устойчивый запас питательных веществ, здоровый рост растений, щепа разлагается гораздо медленнее, улучшить пористость почвы, питательный макроэлемент, азот, фосфор, калий, микроэлемент.

**Exercise 12. Insert the necessary words given below the line.**

1. Some of the organic soil amendments that … are manure and grass clippings. 2. The effectiveness of … that are lightly covered with soil is impaired. 3. Pea gravel can loosen clay soil so that … can reach plant roots. 4. Each type has its specific uses and benefits as well as … . 5. By first … of your soil, you can best determine what you should add. 6. These amendments will begin to decompose … and can improve soil fast. 7. Organic soil amendments are generally made from straw, … .

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1) Within a few days; 2) its detriments; 3) leaves and biosolids; 4) determining the needs; 5) water and air; 6) soil amendments; 7) decompose the quickest.

**Exercise 13. Find in *B* the English equivalents to the Russian words in *A*.**

| A | B |
|---|---|
| 1) определять | a) providing; b) improve; c) determine. |
| 2) удобрение | a) worm; b) detriment; c) fertilizer. |
| 3) предотвращать | a) prevent; b) require; c) boost. |
| 4) подходящий | a) constant; b) appropriate; c) nutrient. |
| 5) засоленность | a) salinity; b) activity; c) porosity. |
| 6) фактически | a) naturally; b) quickly; c) actually. |
| 7) рост | a) health; b) growth; c) example. |
| 8) прорастание | a) germination; b) temperature; c) evaporation. |
| 9) навоз | a) manure; b) amendment; c) ground. |
| 10) общий | a) natural; b) helpful; c) general. |

**Exercise 14. Translate the following words and word combinations into Russian.**

Achieve soil improvement, moisture-holding ability, heavy clay soils, appropriate amount, straw, leaves, biosolids, loosen clay soil, nutrients and minerals, heavy clay soil, non-organic product, tire pieces, pea gravel, nutrients and moisture, natural correction, two categories, man-made and organic products, pest infestation, porosity of soil, organic soil amendment, slow evaporation and weed germination, environment conducive to root growth, soil's physical property, small particles of rubber, wood chips, begin to decompose within a day, common non-organic soil amendment, helpful fungi, bacteria, worms, break down organic soil amendment, deficiencies and tools, I want to sweeten the pH of my soil!

## UNIT 20

## Inorganic Fertilizers

## The Complex Subject

## (Субъектный инфинитивный оборот)

Субъектный инфинитивный оборот (The Complex Subject), или сложное подлежащее, состоит из *существительного или личного местоимения* в именительном падеже и *инфинитива*, обозначающего действие. Эта конструкция разделена на две части *глаголом-сказуемым*

в личной форме, который используется в *страдательном залоге*. На русский язык данный оборот переводится сложноподчиненным предложением с вводными словами (*известно, что; по-видимому* и др.).

| Существительное или личное местоимение | + | глагол-сказуемое | + | инфинитив |
|---|---|---|---|---|
| Tom | | is said | | to be ill. |
| Mike | | is seen | | to enter the house. |
| He | | turned out | | to be a tourist |

В *страдательном* залоге данный оборот употребляется:

1. С глаголами *сообщения*:

to announce – объявлять
to describe – описывать
to report – сообщать
to say – говорить
to state – заявлять.

*They* are reported *to arrive* in two days. – *Сообщают, что* они прибудут через два дня;

2. С глаголами *мышления* (*мнение, предположение, надежда*):

to believe – полагать
to consider – считать
to expect – ожидать
to know – знать
to suppose – предполагать
to think – думать
to understand – понимать.

*Dick* is known *to be* a good writer. – *Известно, что* он хороший писатель;

3. С глаголами *чувственного восприятия*:

to see – видеть
to hear – слышать
to feel – чувствовать
to notice – замечать
to observe – замечать
to watch – наблюдать.

*Birds* were heard *to sing* in the garden. – *Было слышно, как* поют птички в саду;

4. С глаголом-сказуемым в *действительном* залоге:

to seem – казаться

to prove – оказаться

to turn out – оказаться

to happen – случаться

to chance – случаться

to appear – казаться.

*She* happened *to be* there when the police arrived. – *Она* случайно *оказалась* там, когда прибыла полиция;

5. С глаголом-сказуемым, выраженным прилагательным с глаголом-связкой:

to be likely – вероятно

to be unlikely – маловероятно

to be sure – обязательно/непременно

to be certain – наверняка.

*He* is likely *to come*. – *Вероятно,* он *придет*.

**Exercise 1. Translate the following sentences paying attention to the Complex Subject.**

**A)** 1. They are expected to come to our city tomorrow. 2. He seems to know very little about research work. 3. The doctor was expected to come in the evening. 4. They are said to know English very well. 5. She is believed to be working in Germany now. 6. You are supposed to graduate in four years. 7. The delegation is reported to have left for England. 8. The sawmill is known to produce good quality products. 9. They are known to have been good friends for many years. 10. This department store is considered to be the most popular store in the town. 11. This text happened to be very difficult for translation. 12. He was seen to leave Moscow on Friday afternoon.

**B)** 13. Ted was known to be a clever and hard-working student. 14. The number of the unemployed is reported to have increased. 15. This device appeared to be very effective. 16. The new type of fuel was thought to be very expensive. 17. He appeared to be a good friend to all of us. 18. The equipment seemed to be in a very good condition. 19. The office turned out to be quite close. 20. They were sure to come to an agreement. 21. He is said to be very ill. 22. All our efforts proved to be useless. 23. He is likely to arrive in the evening.

**Exercise 2. Change the complex sentences for the simple ones using the Complex Subject according to the model.**

**Model**: It is said that he is an Olympic champion. –
He is said to be an Olympic champion.

1. It is said that she is a good doctor. 2. It is known that they are good friends. 3. It is reported that the expedition will arrive in two days. 4. It is known that this library has a big collection of manuscripts. 5. It is expected that our pupils will have new computers this year. 6. It was heard that the film was a great success. 7. It was seen that the car stopped near the house. 8. It was expected that the document would be signed next week. 9. It is believed that our team will be the winner. 10. It is an-nounced that the new law will be published in some newspapers. 11. People consider the climate there to be very good. 12. It is said that the book is very popular with young people. 13. It seems that the students know the subject well. 14. It so happened that I was present at the opening session.

## The Complex Object

## (Объектный инфинитивный оборот)

Объектный инфинитивный оборот (The Complex Object), или сложное дополнение, состоит из *существительного* или *личного местоимения* в объектном падеже (me, him, her, us, you, them) и *инфинитива* и употребляется лишь после глаголов, выражающих желание, восприятие, предположение, приказание, просьбу.

| 1 | | 2 | | 3 | | 4 |
|---|---|---|---|---|---|---|
| Подлежащее | + | Сказуемое | + | оборот «сложное дополнение» | + | второстепенные члены предложения |
| She | | wanted | | them to read | | that book |

Данный оборот с инфинитивом с частицей **to** употребляется:

1. После глаголов, выражающих *желание, чувства, намерение*:

to desire – желать
to hate – ненавидеть
to like – любить, нравиться
to dislike – не нравиться
to love – любить
to prefer – предпочитать
to want – хотеть
to wish – желать
would/should like – желать.

I should like *us to be invited* to the conference. – Я хотел бы, *чтобы нас пригласили* на конференцию;

2. После глаголов, выражающих *умственную деятельность*. В этой роли над всеми этими глаголами витает общее значение – *полагать, предполагать, считать.*

to believe – полагать
to consider – считать
to declare – заявлять
to expect – ожидать
to find – обнаруживать
to know – знать
to remember – помнить
to suppose – полагать
to think – думать
to understand – понимать.

We know *him to be* a good artist. – Мы знаем, *что он* хороший художник;

3. После глаголов, выражающих *побуждение* (*приказ, просьбу, разрешение, предупреждение*):

to advise – советовать
to allow – позволять
to ask – просить
to command – приказывать
to force – принуждать
to order – приказывать
to permit – разрешать
to recommend – рекомендовать
to request – просить
to tell – велеть
to warn – предупреждать.

I ask *you not to be late* this time. – Я прошу *вас не опаздывать* на этот раз.

Объектный инфинитивный оборот с инфинитивом без частицы **to** употребляется:

4. После глаголов: **to make** – *заставлять*, **to let** – *позволять*.

They made *her come*. – Они заставили *ее прийти*.

Let *me know* when you are ready. – Дай *мне знать*, когда будешь готов;

5) После глаголов, выражающих *восприятие* при помощи органов чувств. Как правило, переводятся глаголами совершенного вида:

to feel – чувствовать

to hear – слышать
to notice – замечать
to observe – наблюдать
to see – видеть
to watch – наблюдать.
I never saw *him cry*. – *Я* никогда не видел, *чтобы он плакал*.

**Exercise 3. Translate the following sentences paying attention to the Complex Object.**

**A)** 1. He wanted us to visit the art exhibition. 2. I expect you to tell me everything. 3. I suppose her to be about 50. 4. The teacher does not consider him to be a good student. 5. The engineer expected the work to be done in time. 6. We expect you to show good results. 7. The discovery showed the atomic nucleus to be a vast source of energy. 8. We know him to have graduated from the Institute two years ago. 9. Everybody knows him to be writing a new book. 10. We know cybernetics to be an important branch of modern technology. 11. We thought him to have taken part in their experiment. 12. Did you want the plan to be improved?

**B)** 1. We saw them play football. 2. I felt my hands tremble. 3. I heard him speak at the meeting. 4. They didn't see him enter the room. 5. We saw an old woman fall in the street. 6. Did you see the stranger go out? 7. We noticed the boy hide something in his pocket. 8. The policeman saw the woman pick up something from the floor. 9. The football fans saw the player take the ball and score the first goal. 10. The young mother watched her son play on the sand near the river. 11. The teacher let us use dictionaries at the test. 12. Let us go and have a cup of tea. 13. Mother made me clean my room.

**Exercise 4. Read and memorize the following words and word combinations.**

fertilizer ['fɜːtɪlaɪzə] – удобрение
ancient ['eɪnʃənt] – древний
technology [tek'nɔlədʒɪ] – технология
nitrogen ['naɪtrədʒən] – азот
phosphorous ['fɔsfərəs] – фосфористый
potassium [pə'tæsɪəm] – калий
trace element [treɪs 'elɪmənt] – микроэлемент
quality ['kwɔlətɪ] – качество
quantity ['kwɔntətɪ] – количество
significantly [sɪg'nɪfɪkəntlɪ] – значительно
long-term [ˌlɔŋ'tɜːm] – долгосрочный, продолжительный

environmentalist [ɪnˌvaɪərən'mentəlɪst] – специалист в области охраны окружающей среды
overall ['əuvərɔ:l] – в общем
nourish ['nʌrɪʃ] – питать
bloom [blu:m] – цвет
fertilization [ˌfɜ:tɪlaɪ'zeɪʃən] – удобрение почвы, внесение удобрений
broadcast spreader ['brɔ:dkɑ:st 'spredə] – разбросная сеялка
tool [tu:l] – агрегат
burn [bɜ:n] – сжигать
refrain [rɪ'freɪn] – воздерживаться от (*чего-л.*)
be made up [bi: meɪd ʌp] – иметь в своем составе, состоять
occur [ə'kɜ:] – происходить
harvest ['hɑ:vɪst] – собирать урожай
dwindle ['dwɪndl] – сокращаться, истощаться
tailor ['teɪlə] – специально приспосабливать
suit [sju:t] – соответствовать
nucleic acid [nju:k'leɪɪk æsɪd] – нуклеиновая кислота
hormone ['hɔ:məun] – гормон
deficient [dɪ'fɪʃnt] – недостаточный
yellowing ['jeləuɪŋ] – пожелтение
phospholipid [ˌfɒsfə'lɪpɪd] – фосфолипид
be indicative of smth. – служить признаком (*чего-л.*)
calcium ['kælsɪəm] – кальций
potassium [pə'tæsɪəm] – калий
magnesium [mæg'ni:zɪəm] – магний
iron ['aɪən] – железо
chlorine ['klɔ:ri:n] – хлор
copper ['kɔpə] – медь
manganese ['mæŋgəni:z] – марганец
zinc [zɪŋk] – цинк
molybdenum [mə'lɪbdənəm] – молибден
boron ['bɔ:rən] – бор
cofactor ['kəuˌfæktə] – совместно действующий фактор, кофактор
enzymatic [enzaɪˈmætɪk] – ферментативный; ферментный, энзиматический
mine [maɪn] – добывать из рудника
sodium nitrate ['səudɪəm 'naɪtreɪt] – нитрат натрия, натриевая селитра
seaweed ['si:wi:d] – морская водоросль
bone [bəun] – кость

guano ['gwɑːnəu] – гуано
potash ['pɔtæʃ] – поташ, углекислый калий
phosphate rock ['fɔsfeɪt rɔk] – фосфатная порода
ammonia [ə'məunɪə] – аммиак
urea [juə'riːə] – мочевина
nitric acid ['naɪtrɪk 'æsɪd] – азотная кислота
ammonium phosphate [ə'məunɪəm 'fɔsfeɪt] – фосфат аммония
slurry ['slʌrɪ] – суспензия.

**Exercise 5. Read and translate the following text.**

1. Fertilizer is a substance added to soil to improve plants' growth and yield. The chemical needs of growing plants were discovered by ancient farmers yet, so fertilizer application technology has developed significantly since then. Modern synthetic fertilizers are composed mainly of nitrogen, phosphorous, and potassium compounds. They also contain trace elements that improve the growth of plants. The use of synthetic fertilizers has significantly improved the quality and quantity of the food available today, although their long-term use is debated by environmentalists.

2. Overall, the nutrients of fertilizers help nourish a plant's roots, stems, shoots, leaves, and blooms. Depending on the crop, these fertilizers must be applied at least twice within a given growing season for effective plant growth. Fertilization performed with broadcast spreaders or other tools ensures that plants get equal amounts of nutrients from the inorganic fertilizer. Adding too much of the inorganic fertilizer also burns or kills the plants and their roots. It is important to add the exact amount to the soil and refrain from applying the fertilizer to any part of plants.

3. Like all living organisms, plants are made up of cells. Within these cells occur numerous metabolic chemical reactions that are responsible for growth and reproduction. Since plants do not eat food like animals, they depend on nutrients in the soil to provide the basic chemicals for these metabolic reactions. The supply of these components in soil is limited, however, and as plants are harvested, it dwindles, causing a reduction in the quality and yield of plants. Fertilizers replace the chemical components that are taken from the soil by growing plants. However, they are also designed to improve the growing potential of soil, and fertilizers can create a better growing environment than natural soil. They can also be tailored to suit the type of crop that is being grown.

4. The primary components in fertilizers are nutrients which are vital for plant growth. Plants use nitrogen in the synthesis of proteins, nucleic acids, and hormones. When plants are nitrogen deficient, they are marked by

reduced growth and yellowing of leaves. Plants also need phosphorus, a component of nucleic acids, phospholipids, and several proteins. It is also necessary to provide the energy to drive metabolic chemical reactions. Without enough phosphorus, plant growth is reduced. Potassium is another major substance that plants get from the soil. It is used in protein synthesis and other key plant processes. Yellowing, spots of dead tissue, and weak stems and roots are all indicative of plants that lack enough potassium.

5. Calcium, magnesium, and sulfur are also important materials in plant growth. They are only included in fertilizers in small amounts, however, since most soils naturally contain enough of these components. Other materials are needed in relatively small amounts for plant growth. These micronutrients include iron, chlorine, copper, manganese, zinc, molybdenum, and boron, which primarily function as cofactors in enzymatic reactions. While they may be present in small amounts, these compounds are no less important to growth, and without them plants can die.

6. Many different substances are used to provide the essential nutrients needed for an effective fertilizer. These compounds can be mined from naturally occurring sources. Examples include sodium nitrate, seaweed, bones, guano, potash, and phosphate rock. Compounds can also be chemically synthesized from basic raw materials. These would include such things as ammonia, urea, nitric acid, and ammonium phosphate. Since these compounds exist in a number of physical states, fertilizers can be sold as solids, liquids, or slurries.

**Exercise 6. Answer the following questions.**

1. What are modern synthetic fertilizers mainly composed of?
2. How often should fertilizers be applied within a growing season?
3. Why do plants depend on nutrients in the soil?
4. What happens to plants if they are nitrogen deficient?
5. Is phosphorus significant for proper plant growth?
6. What signs show the potassium deficit in plants?
7. What micronutrients are necessary for plant growth?
8. How are different compounds for producing fertilizers provided?

**Exercise 7. Translate the following words and word combinations into Russian.**

Improve plants' growth, chemical needs of growing plant, fertilizer application technology, synthetic fertilizer, potassium compounds, trace element, quality and quantity of food, environmentalist, metabolic chemical reaction, growth and reproduction, basic chemicals, growing potential of

soil, growing environment, small amount, ammonium phosphate, effective fertilizer, nucleic acid and hormones, nourish plant's blooms, fertilization, broadcast spreader, inorganic fertilizer, primary component, synthesis of protein, yellowing of leaves, major substance, spots of dead tissue.

**Exercise 8. Agree or disagree with the following statements beginning with:**

**Of course, it is true because according to the text …**

**It is false because according to the text …**

1. Synthetic fertilizers have not improved the quality and quantity of the food available today.
2. Adding too much of the inorganic fertilizer also damages the plants.
3. Plants eat food like animals; they don't depend on nutrients in the soil.
4. Potassium is a highly important substance for plans' development.
5. Calcium, magnesium, and sulfur are included in fertilizers in large amounts.
6. Synthetic fertilizers can be available in three forms at present.

**Exercise 9. Translate the words and word combination in brackets into Russian.**

1. Modern (искусственные удобрения) are composed mainly of (азотистых, фосфористых и калийных) compounds.
2. It is important (вносить точное количество в почву) and refrain from applying the fertilizer (к любой части растений).
3. Fertilizers (восстанавливают химические соединения) that (поглощаются из почвы) by growing plants.
4. Plants also (нуждаются в фосфоре), a component of (нуклеиновых кислот), phospholipids, and several (белков).
5. While they (могут присутствовать в небольших количествах), these compounds are (не менее важными для роста), and without them plants (могут погибнуть).

**Exercise 10. Translate the following words and word combinations into English.**

Фосфористые соединения, следовой элемент, качество и количество, долгосрочное применение, питательные вещества удобрений, побеги растения, кислоты и гормоны, применять по меньшей мере дважды, эффективный рост растения, удобрение почвы, разбросная сеялка, равное количество питательных веществ, неорганическое удобрение, состоять из клеток, рост и воспроизведение, метаболическая меакция, химический компонент, синтез белка, пожелтение листьев, пятно мертвой ткани, железо, хлор, медь, марганец, цинк, мо-

либден, бор, эффективное удобрение, основные сырьевые материалы, физическое состояние, потенциал производительности почвы, среда выращивания, кальций, магний, сера, фосфолипиды.

**Exercise 11. Put each word in the correct blank.**

1) ***growth*** / ***trace***

They also contain ____ elements that improve the ____ of plants.

2) ***amounts*** / ***materials***

Other ___ are needed in relatively small ___ for plant growth.

3) ***crop*** / ***tailored***

They can also be ____ to suit the type of ____ that is being grown.

4) ***substance*** / ***potassium***

____ is another major ___ that plants get from the soil.

5) ***chemically*** / ***raw***

Compounds can also be ___ synthesized from basic ___ materials.

**Exercise 12. Make up word combinations using the text and translate them.**

| | |
|---|---|
| 1) synthetic | a) reactions |
| 2) growing | b) fertilizers |
| 3) amounts | c) organisms |
| 4) living | d) of nutrients |
| 5) growing | e) components |
| 6) primary | f) potential of soil |
| 7) synthesis | g) rock |
| 8) key | h) plant processes |
| 9) enzymatic | i) season |
| 10) phosphate | j) of proteins |

**Exercise 13. Find in B the English equivalents to the Russian words in A.**

| **A** | **B** |
|---|---|
| 1) улучшать | a) occur; b) include; c) improve. |
| 2) искусственный | a) effective; b) synthetic; c) essential. |
| 3) питать | a) nourish; b) eat; c) apply. |
| 4) истощаться | a) burn; b) contain; c) dwindle. |
| 5) многочисленный | a) numerous; b) metabolic; c) important. |
| 6) первоначально | a) primarily; b) relatively; c) quantity. |
| 7) указывающий | a) potential; b) indicative; c) reducing. |
| 8) недостающий | a) chemical; b) primary; c) deficient. |
| 9) количество | a) amount; b) soil; c) spot. |
| 10) исполнять | a) harvest; b) exist; c) perform. |

## UNIT 21

## Potassium Fertilizers

## The Gerund

## (Герундий)

Герундий – это неличная форма глагола, которая выражает название действия и сочетает в себе признаки глагола и существительного. Герундий образуется путем прибавления к основе глагола в неопределенной форме окончания -ing:

to read – ***reading***.

Так как формы, аналогичной герундию, в русском языке нет, то переводить герундий можно по-разному:

1. *Reading* helps you learn English. – *Чтение* помогает вам изучать английский язык.

2. She enjoys *driving* a car. – Ей доставляет удовольствие *водить* машину.

3. He entered the room without *saying* "hello". – Он вошел в комнату, не *сказав* «привет».

4. Do you remember *taking* your final exam? – Вы помните, *как вы сдавали* выпускной экзамен?

5. Thank you for *coming*. – Спасибо, что *пришли*.

## The Forms of the Gerund

## (Формы герундия)

| | Active | Passive |
|---|---|---|
| Indefinite (Simple) | writing | being written |
| Perfect | having written | having been written |

Простая форма герундия (Indefinite or Simple Gerund) обозначает действие, которое происходит одновременно с действием глагола-сказуемого:

He likes *telling* fairy tales. – Он любит *рассказывать* сказки.

He likes *being told* fairy tales. – Он любит, *чтобы ему рассказывали* сказки.

Перфектная форма герундия (Perfect Gerund) обозначает действие, которое предшествует действию глагола-сказуемого:

He is proud of *having spoken* to this famous person. – Он гордится, что *поговорил* с этим знаменитым человеком.

He is proud of *having been spoken* to. – Он гордится, что *с ним поговорили*.

## The Functions of the Gerund

### Функции герундия в предложении

Ввиду того что герундий является чем-то средним между английским глаголом и существительным, он может принимать на себя различные функции в предложениях. Он может быть дополнением, обстоятельством, подлежащим, определением:

1. Функция *подлежащего*:

*Running* is very useful. – *Бег* очень полезен.

Герундий, выполняющий функцию подлежащего, может стоять после сказуемого. В этом случае перед сказуемым стоит формальное подлежащее **it**:

**It is (of) no use**, **it is useless**, **it is no good** – бесполезно, **it is worth while** – стоит (потраченного времени).

It's no use *talking* about it. – Бесполезно *говорить* об этом;

2. Функция *предложного дополнения*:

He is fond of *swimming*. – Он обожает *купание.*

В функции *предложного дополнения* употребляется после глаголов с предлогами, чаще **of**, **for**, **in** и др. Например:

to agree on/to – соглашаться с
to complain of – жаловаться на
to consist in – заключаться в
to count on/upon – рассчитывать на
to depend on – зависеть от
to feel like – хотеть, собираться
to hear of – слышать о
to insist on – настаивать на
to keep from – удерживать(ся) от
to look forward to – предвкушать
to object to – возражать против
to persist in – упорно продолжать
to result in – иметь результатом

to succeed in – удаваться
to suspect of – подозревать в
to thank for – благодарить за
to think of – думать о;

3. Функция *прямого дополнения*:

He avoided *looking* at us. – Он избегал *смотреть* на нас.

В данной функции герундий употребляется в качестве *прямого дополнения* после ряда глаголов:

to admit – допускать, признавать
to avoid – избегать
to delay – откладывать
to deny – отрицать, отвергать
to dislike – не нравиться
to enjoy – наслаждаться, нравиться
to escape – убегать
to excuse – извинять(ся)
to finish – закончить
to forgive – прощать, извинять
to imagine – воображать
to mention – упоминать
to mind – возражать (в вопросах и отрицаниях)
to postpone – откладывать
to risk – рисковать
to stop – прекращать
to suggest – предлагать.

С глаголом **to go** герундий используется в некоторых характерных сочетаниях:

to go fishing – ходить на рыбалку
to go dancing – заниматься танцами
to go shopping – ходить за покупками
to go skating – кататься на коньках
to go parachuting – заниматься парашютным спортом
to go swimming – заниматься плаванием
to go climbing – заниматься альпинизмом
to go sailing – заниматься парусным спортом
to go walking – ходить на прогулку;

4. Функция *обстоятельства времени* после союзов **after, before, on**:

After *coming* home he drank a cup of tea. – По *возвращении* домой он выпил чашку чая;

5. Функция *обстоятельства образа действия* с предлогом **by**:

By *doing* that you'll save a lot of time. – *Поступая так*, ты сэкономишь массу времени;

6. Функция *сопутствующих обстоятельств* с предлогами **without**, **besides, instead of**:

Mr Brown went out without *saying* a word. – М-р Браун вышел, *не сказав* ни слова.

Instead of *stopping* the rain increased. – Вместо того чтобы *прекратиться*, дождь усилился;

7. Функция *обстоятельства цели* с составными предлогами **for the purpose of**, **with the object of**, **with a view to**:

Tom came to Moscow with the object of *buying* a car. – Том приехал в Москву *для того, чтобы купить* автомобиль;

8. Функция *части составного именного сказуемого*:

My mother's hobby is *making* cakes. – Хобби моей матери – *делать* торты;

9. Функция *определения*:

I like her manner of *speaking*. – Мне нравится её манера *говорения*.

В роли определения герундий обычно стоит после поясняемого существительного с различными предлогами, чаще с **of**, **for**, **in**, **at**, **about** и **to**:

apology for – извинение
art of – искусство
astonishment at – удивление
chance of – шанс, возможность
disappointment at – разочарование
experience in – опыт
fear of – страх
habit of – привычка
hope of – надежда на
idea of – идея, мысль о
interest in – заинтересованность в
plan for – план
pleasure of – удовольствие
possibility of – возможность
preparation for – приготовление
reason for – причина, основание для
right of – право на
skill in – мастерство
surprise at – удивление
thought of – мысль о
way of – способ, путь.

**Exercise 1. Translate into Russian the following sentences.**

**A**. 1. She has always dreamt of living in a small house by the sea. 2. She disliked living in her old house. 3. She was thinking of buying a new one at the seaside. 4. Now, she enjoys living in a beautiful new house. 5. She misses seeing the neighbours of course. 6. Usually she enjoyed talking to them and didn't mind helping them. 7. She likes cooking and is very good at it. 8. But she doesn't like washing and ironing. 9. She hates getting up early, but she has to. 10. She doesn't mind working a lot, you know.

**B**. 1. She enjoys driving an expensive car. 2. She has always dreamt of travelling round the world. 3. But she hates flying and she's never been overseas. 4. She has risen to be head of the company in spite of being a woman in a man's world. 5. She loves meeting people because she can't bear being alone at all. 6. She loves talking to the press and appearing on TV shows. 7. She enjoys being photographed because she thinks she's beautiful. 8. She hates being laughed at. 9. She likes being stared at because she thinks she's attractive. 10. But she hates being ignored.

**Exercise 2. Transform the following sentences using the Gerund.**

**Model**: There is little hope that we will arrive in time. – There is little hope of (our) *arriving* in time.

**A.** 1. I insist that we start right away.2. I have no doubts that he will keep his promise. 3. I have no doubts that he has kept his promise. 4. I was surprised that he noticed the difference. 5. She is afraid that they will lose him. 6. I was ashamed that I couldn't avoid the accident. 7. Do you mind if I smoke?

**B.** 1. The boss wants you to resign. – The boss insists… . 2. She's afraid that she has drunk too much. 3. We don't want him to be promoted. – We object… . 4. He says he said nothing. He denies… . 5. Everybody must attend the meeting. You can't avoid… . 6. The old man sailed out to sea again and again. – The old man kept on… . 7. I bought a house. I didn't rent an apartment. – Instead of… . 8. Excuse me if I was rude. 9. There is no chance that he will return before midnight. 10. He went home. He hadn't finished the work.

**Exercise 3. Put the infinitives in brackets in the Gerund Active or Passive**.

1. Why do you avoid (to speak) to me? 2. She tried to avoid (to speak) to. 3. The doctor insisted on (to send) the sick man to hospital. 4. The child insisted on (to send) home at once. 5. Do you mind him (to examine) by a heart specialist? 6. He showed no sign of (to recognize) me. 7. She showed no sign of (to surprise). 8. He had a strange habit of (to interfere) in other people's business. 9. I was angry at (to interrupt) every other moment.

10. He was always ready for (to help) people. 11. He was very glad of (to help) in his difficulty. 12. On (to allow) to leave the room the children immediately ran out into the yard and began (to play). 13. In (to make) this experiment they came across some very interesting phenomena. 14. The results of the experiment must be checked and re-checked before (to publish).

**Exercise 4. Read and memorize the following words and word combinations.**

potassium [pə'tæsɪəm] – калий

phosphorus ['fɔsfərəs] – фосфор

potash ['pɔtæʃ] – поташ, углекислый калий

mined [maɪnd] – добытый при производстве горных работ

potassium chloride [pə'tæsɪəm 'klɔːraɪd] – хлористый калий

potassium sulfate [pə'tæsɪəm 'sʌlfeɪt] – сернокислый калий

potassium nitrate [pə'tæsɪəm 'naɪtreɪt] – калийная селитра

potassium-magnesium salt [pə'tæsɪəm mæg'niːzɪəm sɔːlt] – калийно-магниевая соль

kick [kɪk] – толчок

yellowing ['jeləuɪŋ] – пожелтение

underlying [ˌʌndə'laɪɪŋ] – скрытый

speckled ['spekld] – пятнистый

put down ['pʌtɪŋ daun] – стимулировать рост

benefit ['benɪfɪt] – преимущество

support [sə'pɔːt] – питательная среда

cation-anion balance ['kætaɪən ˈanʌɪən 'bæləns] – соотношение катионов и анионов

ion ['aɪən] – ион

energize ['enəʤaɪz] – придавать энергию

settle ['setl] – располагаться

in tandem [ɪn 'tændəm] – синхронно

blend [blend] – смесь

blooming ['bluːmɪŋ] – цветение

fruiting [fruːtɪŋ] – плодоношение

enhance [ɪn'hɑːns ] – улучшать

stalk [stɔːk] – цветоножка

insect infestation ['ɪnsekt, ɪnfes'teɪʃən] – поражение насекомыми-вредителями

lessen ['lesən] – уменьшать(ся)

severity [sɪ'verətɪ] – серьезность, критичность

dosing [dəusɪŋ] – внесение

root [ruːt] – укореняться
greensand ['griːnˌsænd] – зеленый песок
kelp meal [kelp miːl] – мука из водорослей
alkaline ['ælkəlaɪn] – щелочной
langbeinite ['læŋbaɪnaɪt] – лангбейнит
magnesium salt [mæg'niːzɪəm sɔːlt] – магнезиальная соль.

**Exercise 5. Try to guess the meanings of the following words without a dictionary.**

Potash, million, negative, product, tandem, stress, imbalance, problem, metabolism, positive, system, fruit, dose, organic, mineral, temperature.

**Exercise 6. Read and translate the following text.**

1. Potassium is the third major plant and crop nutrient after nitrogen and phosphorus. Potash is the common name for various mined and manufactured salts that contain potassium. Today, potash is produced worldwide at amounts exceeding 30 million tons per year. Potassium chloride (KCl) accounts for most of the (K) used in world agriculture (about 90 %). Other widely used (K) products include potassium sulfate, potassium nitrate, and potassium-magnesium salts.

2. Plants that look tired or unhealthy may need a potassium kick. Yellowing leaves may indicate an underlying root problem, speckled foliage can indicate a pest problem and young plants need help putting down new roots – all issues that potassium can aid. With all of its benefits, potassium is one of the most useful nutrients to include in your garden's fertilizer.

3. *Plant Metabolism.* In N-P-K fertilizers, potassium (K) is the nutrient responsible for plants' metabolism. This makes it helpful in any garden, and it acts as support for the nutrients of nitrogen (N) and phosphorus (P). Specifically, potassium aids plants in retaining water, regulates plants' internal cation-anion balance – meaning the positive and negative ions are in balance. Potassium contributes to protein synthesis to energize plants for healthy growth.

4. *Root Development.* Potassium is also necessary for root development in plants, which is why it's especially helpful for young plants putting down new root systems as they settle into their new homes. However, phosphorus also aids root growth. If your plants need help growing a stronger root system, you should apply both phosphorus and potassium to the soil and let them work in tandem. The example of an appropriate fertilizer for root growth is a 3-20-20 blend, which contains 3 percent nitrogen, 20 percent phosphorus and 20 percent potassium. Just be prepared for phosphorus's other effects too, such as increased blooming and fruiting in plants.

5. *Disease Resistance.* Potassium also enhances plants' defense systems, making them less vulnerable to disease. Specifically, potassium thickens cell walls and strengthens stems, stalks and roots to make plants more resistant to disease and better able to tolerate stress. In plants that already have diseases or insect infestations, potassium can lessen the severity of the problems. However, dosing a garden with potassium while neglecting other nutrients can cause a nutritional imbalance in your plants, which is unhealthy. When you apply high doses of potassium, you should also apply nitrogen, which supports green growth.

6. *Types of Potassium Fertilizer.* Before you load your soil with potassium to enjoy its benefits, be sure you have an appropriate blend for your plants. Fertilizers that are solely potassium sometimes go by the name potash. In an N-P-K fertilizer, look for blends that have zeros in the places of N and P, leaving you with just potassium. However, it's often wise to include nitrogen for green growth and phosphorus for blooming and rooting along with potassium in the garden. If you have an organic garden, excellent sources of potassium include wood ash, greensand and kelp meal. Keep in mind, though, that wood ash can make soil more alkaline.

7. Another potassium fertilizer is potassium sulfate, which is frequently used for crops where additional chloride from more common KCl fertilizer is undesirable. Potassium sulfate can be extracted from the mineral langbeinite. It can also be synthetized by treating potassium chloride with sulfuric acid at high temperature. By adding magnesium salts to potassium sulfate, a granular potassium-magnesium compound fertilizer can also be produced.

**Exercise 7. Answer the following questions.**

1. How much potash is produced worldwide nowadays?
2. What issues can potassium solve to aid the plant’s healthy growth?
3. How does potassium aids plants specifically?
4. What is the example of an appropriate fertilizer for root growth?
5. How does potassium specifically enhances plants' defense systems?
6. What other excellent sources of potassium do you know?
7. How can potassium sulfate be produced?

**Exercise 8. Translate the following words and word combinations into English.**

Основное питательное вещество растений сельхозкультур, азот, калий, хлористый калий, поташ, сернокислый калий, произведенная соль, калийно-магниевая соль, метаболизм растений, содержать калий, калийная селитра, внутреннее соотношение катионов, питательная среда для фосфора, фосфор, положительный ион, система защиты

растения, уязвимый для болезни, укреплять корни и стебли, выдерживать стресс, дисбаланс питательных веществ, способствовать росту зеленой массы, дополнительный хлорид, минеральный лангбейнит, при высокой температуре, соль магния, удобрение.

**Exercise 9. Translate the words and word combination in brackets into English.**

1. (Вместе со всеми своими преимуществами), potassium is (один) one of the most useful nutrients (чтобы включить в удобрение для вашего сада).

2. (Просто будь готов) for phosphorus's other effects too, such as (повышенный объем цветения и плодоношения).

3. (В N-P-K удобрении), look for blends that (имеют значение ноль) in the places of N and P, (оставляя вам всего лишь калий).

4. In (растениях которые уже заболели) or insect infestations, (калий может уменьшить) the severity of the problems.

5. This (делает его полезным) in any garden, and (он выступает в качестве питательной среды) for the nutrients of (N) азота и (P) фосфора).

**Exercise 10. Translate the following sentences into English.**

1. Внесение калийных удобрений улучшает почвенные условия выращивания сельскохозяйственных культур.

2. Калийные удобрения создают благоприятную питательную среду для фосфора и азота в почве.

3. Калий вместе с азотом и фосфором положительно влияет на рост и развитие всего растения.

4. Калий утолщает стенки клеток, укрепляет стебли и корни, что делает растения более устойчивыми к болезням.

5. Посредством смешивания магнезиальной соли и сернокислого калия производится гранулированное калийно-магниевое удобрение.

**Exercise 11. Translate the following words and word combinations into Russian.**

Look tired or unhealthy, most useful nutrient, potassium kick, yellowing leaf, underlying root problem, speckled foliage, pest problem, young plant, root development, new root system, aid root growth, stronger root system, apply both phosphorus and potassium the soil, contain 3 percent nitrogen and 20 percent phosphorus and 20 percent potassium, blooming and fruiting, include nitrogen for green growth and phosphorus for blooming and rooting, excellent source of potassium, wood ash, greensand and kelp meal, alkaline soil, organic garden, cation-anion balance.

**Exercise 12. Complete the sentences using suitable words or word combinations from the box.**

| Synthetized, contributes, greensand, apply nitrogen, healthy, potassium, phosphorus, manufactured salts, sulfuric. |
|---|

1. Potash is the common name for various mined and … … that contain potassium.
2. When you apply high doses of potassium, you should also … …, which supports green growth.
3. However, … also aids root growth.
4. It can also be … by treating potassium chloride with … acid at high temperature.
5. If you have an organic garden, excellent sources of … include wood ash, … and kelp meal.
6. Potassium … to protein synthesis to energize plants for … growth.

## UNIT 22

## Phosphorus Fertilizers

### The Participle I

### (Причастие настоящего времени)

Причастие настоящего времени (The Participle I) образуется путем прибавления окончания ***-ing*** к глаголу в форме инфинитива без частицы **to** (см. правила орфографии в уроке 10).

### The Forms of the Participles

### (Формы причастий)

| | **Active** | **Passive** |
|---|---|---|
| Participle I Indefinite | reading | being read |

### The Functions of the Participle

### (Функции причастий)

В предложении причастие настоящего времени (The Participle I) может быть:

1. *Определением*. В этой функции *Participle I Indefinite Activ*e соответствует русскому причастию на *-щий*, *-вший*. В данной функции причастие может находиться как *слева* от определяемого слова, так и *справа* от него:

A *smiling* girl. – *Улыбающаяся* девочка.

The men *building* our house with me are my friends. – Люди, *строящие* наш дом вместе со мной, – мои друзья.

В то же время как *Participle I Indefinite Passive* соответствует русскому причастию на *-мый*, и *-щийся*. Данная форма причастия находится только *справа* от определяемго слова:

The house *being built* in our street is a new building of school. – Дом, *строящийся* на нашей улице, – это новое здание школы;

2. Обстоятельством *времени* с союзами **when** – *когда* и **while** – *в то время как, пока,* которые на русский язык обычно не переводятся. В функции обстоятельства времени *Participle I Indefinite Active* на русский язык переводится деепричастием на *-я* и *-а*.

When *taking* the decision I made a mistake. – *Принимая* это решение, я сделал ошибку.

While *unloading* the ship, we found a few broken cases. – *Разгружая* судно, мы обнаружили несколько поломанных ящиков.

*Participle I Indefinite Passive* соответствует в русском языке страдательному деепричастию:

*Being asked* (= *When he was asked…*) whether he intended to return soon, he answered that he would be away for about three months. – *Будучи спрошен* (= *Когда его спросили…*), намерен ли он скоро возвратиться, он ответил, что будет отсутствовать около трех месяцев;

3. Обстоятельством *причины*. В данной функции *Participle I Indefinite Active* соответствует русскому деепричастию на *-я* и *-а:*

a) I turned back, not *knowing* where to go. – Я повернул назад, не *зная*, куда идти.

В функции обстоятельства *Participle I Indefinite Passive* соответствует в русском языке страдательному деепричастию:

b) *Being packed* in strong cases (= *As the goods were packed in strong cases…*), the goods arrived in good condition. – *Будучи упакованными* в крепкие ящики (= *Так как товары были упакованы в крепкие ящики…*), товары прибыли в хорошем состоянии;

4. Обстоятельством *образа действия* или *сопутствующих обстоятельств* (*действий*). В данной функции *Participle I Indefinite Active* соответствует русскому деепричастию на *-я* и *-а*:

a) He sat in the armchair *reading* a newspaper. – Он сидел в кресле, *читая* газету.

## The Forms of the Perfect Participles

## (Формы перфектных причастий)

| | **Active** | **Passive** |
|---|---|---|
| Perfect Participle I | having written | having been written |

## The Functions of the Perfect Participles

## (Функции перфектных причастий)

В предложении перфектное причастие (The Perfect Participle I) может быть:

1) обстоятельством *причины* в форме *Perfect Participle I Active*. Такие предложения на русский язык переводятся придаточным обстоятельственным предложением:

*Having lost* the key (= *As they had lost the key…*), they couldn't get in. – *Потеряв ключ* (= *Так как они потеряли ключ…*), они не могли войти в комнату.

Форма *Perfect Participle I Passive* переводится придаточным предложением со словами *так как*:

*Having been forbidden* to go out, I stayed at home. – Я остался дома, *так как* мне *запретили* выходить;

2) обстоятельством *времени* в форме *Perfect Participle I Active*, когда хотят подчеркнуть, что действие, выраженное причастием, предшествовало действию сказуемого предложения. На русский язык такая форма причастия переводится деепричастием совершенного вида с окончаниями *-в* и *-я*:

*Having finished* school he went to Oxford. – *Окончив* школу, он поступил в Оксфорд.

Форма *Perfect Participle I Passive* переводится придаточным предложением со словами *после того как*:

*Having been given* the toy (= *After (When) the child was given the toy…*), the child stopped crying. – *После того как (когда) ребенку дали игрушку*, он перестал плакать.

**Exercise 1. Translate the following sentences paying attention to the Participle I.**

1. The girl standing at the window is my sister. 2. Having been sent to the wrong address, the letter didn't rich him. 3. He sat in the arm-chair thinking. 4. She came up to us breathing heavily. 5. The hall was full of

laughing people. 6. The singing girl was about fourteen. 7. Having read the book, I gave it to Pete. 8. The large building being built in our street is a new school. 9. Having finished the experiment, the students left the laboratory. 10. Being busy, he postponed his trip. 11. Having been written long ago, the manuscript was impossible to read. 12. Having been built of concrete, the house was always cold in winter. 13. Driving a car a man tries to keep steady speed. 14. Having stated the laws of gravity, Newton was able to explain the structure of the Universe. 15. Being more efficient than human beings, computers are used extensively. 16. Having graduated from Cambridge, Newton worked there as a tutor. 17. Having been published in 1687, Newton's laws of motion are still the basis for research.

**Exercise 2. Put the infinitives given in brackets into the Passive or Active forms of the Participle I.**

1. (To impress) by the film, they kept silent. 2. (To lose) the book, the student couldn't remember the topic. 3. He spent the whole day (to read) a book. 4. (To travel) around America for a month, she returned to England. 5. He watched Mike (to go) out of the door and (to cross) the street. 6. The question (to discuss) now is very important. 7. (To pack) in the beautiful box the flowers looked very lovely. 8. (To descent) the mountains, they heard a man calling for help. 9. (To reject) by everybody he became a monk. 10. (To show) the wrong direction, the travelers soon lost their way.

**Exercise 3. Make the right choice.**

1. (Having written / writing) the dictation, she made many mistakes. 2. (Having written / writing) the letter, she posted it. 3. (Building / having built) a new house, builders used all modern methods of construction. 4. (Building / having built) the house, they arranged a great party for the relatives and friends. 5. (While living / having lived) in St. Petersburg for ten years I visited all its museums. 6. (While living / having lived) in St. Petersburg for ten years, I moved to Minsk. 7. (When solving / having solved) new problems, scientists do a lot of research.

**Exercise 4. Read and memorize the following words and word combinations.**

contain [kən'teɪn] – иметь в своем составе
phosphorus ['fɔsfərəs] – фосфор
replenishing [rɪ'plenɪʃɪŋ] – пополнение, восполнение
commercial [kə'mɜːʃəlɪ] – в промышленном масштабе
phosphate rock ['fɔsfeɪt rɔk] – фосфатная порода
apatite ['æpətaɪt] – апатит
bone meal ['bəun ˌmiːl] – костная мука (*удобрение или корм*)
manure [mə'njuə] – навоз, компост, удобрение

basic slag ['beɪsɪk ˌslæg] – основной шлак (*удобрение*)

Thomas slag ['tɔməs ˌslæg] – томас-шлак, томасовский шлак (*удобрение*)

solubility [ˌsɔlju'bɪlətɪ] – растворимость

ordinary superphosphate ['ɔ:dənərɪ ˌsju:pə'fɔsfeɪt] – обыкновенный суперфосфат

double superphosphate ['dʌbl ˌsju:pə'fɔsfeɪt] – двойной суперфосфат

ammoniated superphosphate [ə'məʊnɪˌeɪtɪd ˌsju:pə'fɔsfeɪt] – аммонизированный суперфосфат

monobasic calcium phosphate [ˌmɔnə'beɪsɪk 'kælsɪəm 'fɔsfeɪt] – монокальцийфосфат

granulated ['grænjəleɪtɪd] – гранулированный

base fertilizer [beɪs 'fɜ:tɪlaɪzə] – основное удобрение

starter fertilizer ['stɑ:tə 'fɜ:tɪlaɪzə] – рядковое удобрение

citrate-soluble ['sɪtreɪt 'sɔljəbl] – цитратораствоpимый

ammonium citrate [ə'məunɪəm 'sɪtreɪt] – цитрат аммония

citric acid ['sɪtrɪk 'æsɪd] – лимонная кислота

dicalcium phosphate [dɪ'kælsɪəm 'fɔsfeɪt] – дикальция фосфат, преципитат

defluorinated phosphate [dɪ'flʊərɪˌneɪtɪd 'fɔsfeɪt] – обесфторенный фосфат

fused magnesium phosphate [fju:z mæg'ni:zɪəm 'fɔsfeɪt] – плавленый фосфат магния

sparingly soluble ['speərɪŋlɪ 'sɔljəbl] – умеренно растворимый

ground [graund] – измельченный

phosphate rock ['fɔsfeɪt rɔk] – фосфоритная руда

bone meal ['bəunˌmi:l] – костная мука (*удобрение или корм*)

tricalcium phosphate [trʌɪ'kælsɪəm 'fɔsfeɪt] – трикальцийфосфат

nonhygroscopic [nɔnˌhaɪgrəu'skɔpɪk] – негигроскопичный

cake [keɪk] – затвердевать

underline [ˌʌndə'laɪn] – подчеркивать, акцентировать

fertilizer spreader ['fɜ:tɪlaɪzə 'spredə] – туковая разбросная сеялка

boost [bu:st] – ускорять, повышать

fail [feɪl] – не суметь, не мочь

photosynthesis [ˌfəutə'sɪnθəsɪs] – фотосинтез

**Exercise 5. Read and translate the following text.**

1. Mineral and organic substances that contain phosphorus are used for improving the nutrition of plants. Phosphorus fertilizers are the only means for replenishing phosphorus in soil. They are produced commercially from phosphate rock and apatites. Phosphorus fertilizers include such organic

substances as bone meal and manure and such phosphorus-rich industrial wastes as basic slag and Thomas slag.

2. Phosphorus fertilizers are divided into three groups on the basis of solubility. In the water-soluble group (ordinary, double, and ammoniated superphosphates), phosphorus is present as monobasic calcium phosphate. The water-soluble fertilizers are produced for the most part in granulated form; they are used for application as base and starter fertilizers.

3. The second group comprises citrate-soluble (soluble in an alkaline solution of ammonium citrate) and citric-soluble (soluble in citric acid) fertilizers. It includes dicalcium phosphate, defluorinated phosphate, and fused magnesium phosphate. Citrate-soluble and citric-soluble fertilizers are base fertilizers applied during autumn plowing and spring cultivation.

4. The third group comprises the sparingly soluble fertilizers, that is, ground phosphate rock and bone meal, with phosphorus present as tricalcium phosphate. These fertilizers are applied in large amounts to acid soils, where the sparingly soluble phosphates are converted into a form usable by plants. All phosphorus fertilizers are nonhygroscopic; they do not cake, and they are readily broadcast by fertilizer spreaders.

5. Phosphorus is responsible for a number of functions in plants which underlines its importance to the plants. The growth of plants is boosted by phosphorous whose lack leads to weak plants that fail to produce as expected.

It should be noted that phosphorus stimulates root development necessary for the plant to get nutrients from the soil. The roots are also necessary for the support of the plant. When the roots are well developed, they are able to penetrate the ground and gather all the nutrients required by the plant for development.

6. It was scientifically found out that phosphorus stimulates the development of the plant. Plants require nutrition for their development. The nutrition is processed in the leaves and then stored or transferred to other parts of the plants. Phosphorus is required for photosynthesis and also in the storage and transportation of the nutrients throughout the plant.

7. Plants are expected to produce fruit after a given time if all the circumstances are right. Phosphorous is responsible for crop maturity at the right time. The plants that lack phosphorous take time to mature and when they do, the fruits or seeds they bear are few and poor in quality. Legumes help in fixing nitrogen in the soil through their roots. This function cannot be carried out well without phosphorous which encourages the development of the roots.

8. The substances required for the formation and development of genes cannot perform well without the availability of phosphorous. The transfer of

the genes from one generation to the next is only possible when phosphorous is available. The plants that have access to enough phosphorous have the ability to resist diseases because all their parts are well developed and grow quickly. Plants grown using hydroponics are supplied with enough phosphorous to ensure they grow well.

**Exercise 6. Answer the following questions.**

1. What do phosphorus fertilizers usually include?
2. What form are water-soluble fertilizers produced in?
3. When are citrate-soluble and citric-soluble fertilizers applied?
4. What kind of soils is tricalcium phosphate applied to?
5. What are roots able to carry out when they are well developed?
6. Does phosphorus stimulate the development of plants?
7. What happens to the plants that lack phosphorous?
8. When is the transfer of the genes from one generation to the next in plants possible?

**Exercise 7. Translate the following words and word combinations into Russian.**

Phosphorus fertilizer, mineral and organic substances, dicalcium phosphate, nutrition of plants, phosphate rock, apatite, bone meal, manure, fused magnesium phosphate, citrate-soluble, defluorinated phosphate, base fertilizers, autumn plowing, a number of functions, weak plants, root development, get nutrients from the soil, penetrate the ground, crop maturity, help in fixing nitrogen, basic slag, resist disease, required for photosynthesis, broadcast by fertilizer spreader, have access, water-soluble fertilizer, granulated form, tricalcium phosphate, formation and development, during spring cultivation, spring cultivation, nonhygroscopic, phosphorus.

**Exercise 8. Agree or disagree with the following statements beginning with:**

**Of course, it is true because according to the text …**

**It is false because according to the text …**

1. Phosphorus fertilizers include only such phosphorus-rich industrial wastes as basic slag and Thomas slag.
2. Citrate-soluble and citric-soluble fertilizers are applied in autumn and spring.
3. All phosphorus fertilizers are difficult to broadcast by fertilizer spreaders.
4. The lack of phosphorus leads to weak plants that fail to produce as expected.
5. Phosphorus is required only for transportation of the nutrients throughout the plant.
6. Phosphorous is necessary for transferring the genes from one generation to the next.

**Exercise 9. Translate the words and word combination in brackets into Russian.**

1. The (водорастворимые удобрения) are produced (по большей части) in granulated form; (они используются для внесения в качестве) base and starter fertilizers.

2. These fertilizers (вносятся в больших количествах) to acid soils, where the sparingly soluble phosphates (преобразуются в форму, полезную для растений).

3. The (корни) are also necessary for (поддержки растения).

4. The (растения, нуждаются в фосфоре) take time to mature and when they do, the (плоды или семена) they bear are (мало и низкого качества).

5. Plants (выращиваемые с применением гидропоники) are supplied with enough phosphorous (чтобы обеспечить им хороший рост).

**Exercise 10. Translate the following words and word combinations into English.**

Фосфорные удобрения, разделить на три группы, на основе растворимости, водорастворимая группа, аммонизированный суперфосфат, двойной суперфосфат, гранулированная форма, монокальцийфосфат, весенняя обработка, измельченная фосфоритная руда, трикальцийфосфат, умеренно растворимый фосфат, негигроскопичный, хранить или перемещать в другие части растения, фосфор необходим для фотосинтеза, формирование и развитие гена, от одного поколения к следующему, иметь доступ к, сопротивляться болезни, достаточное количество фосфора, рост растений, костная мука и навоз, фиксировать азот.

**Exercise 11. Translate the following sentences into English.**

1. Фосфорные удобрения вносятся в почву для восполнения питательных веществ для растений.

2. Все удобрения, которые растворяются в воде, производятся в гранулированной форме.

3. Все фосфорные удобрения не затвердевают и легко вносятся в почву туковой разбросной сеялкой.

4. Корни, которые хорошо развиты, легко проникают в почву и собирают все необходимые питательные вещества.

5. Фосфор – это такое вещество, которое необходимо для фотосинтеза в растениях.

6. Формирование и развитие генов в растениях может происходить благодаря наличию фосфора в растениях.

**Exercise 12. Find in the text the words that mean the following:**

1. A poisonous yellowish-white chemical element. It glows slightly, and burns when air touches it (*paragraph 1*).

2. Animal faeces spread on the ground in order to make plants grow healthy and strong (*paragraph 1*).

3. The action of cultivating land, or the state of being cultivated (*paragraph 3*).

4. A flattened structure of a plant, typically green and blade-like, that is attached to a stem directly or via a stalk (*paragraph 6*).

5. A colourless with no smell gas. It forms about 78 % of the earth's atmosphere (*paragraph 7*).

6. The process of growing plants in sand, gravel, or liquid, with added nutrients but without soil (*paragraph 8*).

**Exercise 13. Make up word combinations using the text and translate them.**

| | |
|---|---|
| 1) synthetic | a) reactions |
| 2) growing | b) fertilizers |
| 3) amounts | c) organisms |
| 4) living | d) of nutrients |
| 5) growing | e) components |
| 6) primary | f) potential of soil |
| 7) synthesis | g) rock |
| 8) key | h) plant processes |
| 9) enzymatic | i) season |
| 10) phosphate | j) of proteins |

**Exercise 14. Find in B the English equivalents to the Russian words in A.**

| **A** | **B** |
|---|---|
| 1) улучшать | a) occur; b) include; c) improve. |
| 2) искусственный | a) effective; b) synthetic; c) essential. |
| 3) питать | a) nourish; b) eat; c) apply. |
| 4) истощаться | a) burn; b) contain; c) dwindle. |
| 5) многочисленный | a) numerous; b) metabolic; c) important. |
| 6) первоначально | a) primarily; b) relatively; c) quantity. |
| 7) указывающий | a) potential; b) indicative; c) reducing. |
| 8) недостающий | a) chemical; b) primary; c) deficient. |
| 9) количество | a) amount; b) soil; c) spot. |
| 10) исполнять | a) harvest; b) exist; c) perform. |

## UNIT 23

## Nitrogen Fertilizers

### The Participle II

### (Причастие прошедшего времени)

По способу образования причастия прошедшего времени (The Participle II) глаголы делятся на две группы: *правильные* и *неправильные*. Правильные глаголы образуют Participle II путем прибавления к форме инфинитива окончания ***-ed***, например: to open + **ed** = open**ed** (см. правила орфографии в уроке 13). У неправильных глаголов третья форма является формой причастия прошедшего времени: to begin – began – **begun**.

Причастие прошедшего времени (The Participle II) соответствует русскому страдательному причастию настоящего времени, оканчивающемуся на ***-мый,*** и прошедшего времени, оканчивающемуся на ***-нный***, ***-тый***, а также действительным причастиям со страдательным значением, оканчивающимся на ***-щийся*** и ***-вшийся***.

### The Functions of the Participle II

### (Функции причастия прошедшего времени)

В предложении причастие прошедшего времени (The Participle II) может быть:

1. *Определением*. В этой функции причастие прошедшего времени (Participle II) употребляется либо перед определяемым словом (слева от него), либо после (справа). На русский язык переводится причастием страдательного залога на *-мый, -щийся, -нный, -тый, -вшийся:*

*Forgotten* letter was on the table. – *Забытое* письмо было на столе.

The movie *watched* by Kate yesterday was interesting. – Фильм, *просмотренный* Кейт вчера, был интересным;

2. Обстоятельством *причины*. В этой функции причастие прошедшего времени (The Participle II) соответствует в русском языке причастиям на *-мый, -щийся, -нный, -тый, -вшийся* или придаточным предложениям причины:

*Squeezed* by the ice (= *As the steamer was squeezed* by the ice) the steamer could not continue her way. – *Сжатый* льдом (= *Так как пароход был сжат* льдом), пароход не мог продолжать свой путь;

3. Обстоятельства *времени*, где перед причастием прошедшего времени (The Participle II) употребляется союз **when**:

When *given* the book, read the article about animals. – Когда вам *дадут* книгу, прочтите статью о животных;

4. Обстоятельством *условия*, где перед причастием прошедшего времени (The Participle II) употребляется союз **if**:

If *asked*, he will tell them everything. – Если его *спросят*, он им все расскажет;

5. Обстоятельством *уступки*, где перед причастием прошедшего времени (The Participle II) употребляется союз **though**:

Though *expected* on Saturday, he arrived on Monday. – Хотя его *ожидали* в субботу, он приехал в понедельник;

6. Обстоятельством *сравнения*, где перед причастием прошедшего времени (The Participle II) употребляется союз **as if (as though):**

He suddenly sptopped as if (as though) *struck* by the news. – Он вдруг остановился, как будто *пораженный* новостью

**Exercise 1. Translate the following sentences paying attention to the Participle II.**

1. When told how much the trip would cost, they decided to stay at home. 2. For a moment the group stood as if turned to stone. 3. Though surprised by Tom's arrival, Miss Marple didn't show it. 4. If left to myself, I should use this chance by all means. 5. If distilled, water will become quite tasteless. 6. Though highly respected, she felt a stranger among all these people. 7. Dick bowed low when presented to Donald. 8. If given a chance, she will become a brilliant actress. 9. Though designed for beginners, this textbook may be used for intermediate students as well. 10. The letter was illegible as if written in a hurry. 11. The method followed by our scientists was not simple. 12. If asked he will explain you everything. 13. This is the book so much spoken about. 14. When completed in 1897, Jefferson's building was the largest library in the world.

**Exercise 2. State the function of the ending -ed. Translate the sentences.**

1. The first television set produced quite a sensation in 1939. The first television set produced in 1939 was a tiny nine-by-twelve inches box.

2. Newton's great work published in 1687 is called "Principia". Newton published his great work "Principia" in 1687.

3. The Russian Chemical Society organized more than a century ago is named after Mendeleev. The Russian Chemical Society organized an international conference devoted to the latest achievements in organic chemistry.

4. The energy possessed by the body due to its position is called the potential energy. The new material possessed good properties.

5. The equipment required to carry out laboratory experiments was very complex. The equipment required further improvement.

6. The car model developed a speed of 50 miles an hour. The car model developed by our student design bureau will be shown on TV.

**Exercise 3. Read and memorize the following words and word combinations.**

thrive [θraɪv] – буйно, пышно расти

commercial fertilizer [kə'mɜːʃəl 'fɜːtɪlaɪzə] – промышленное удобрение (*получаемое заводским путем*)

depleted [dɪ'pliːtɪd] – истощенный

inject [ɪn'ʤekt] – впрыскивать

nitrogen fertilizer [ˈnaɪtrəʤən ˈfɜːtɪlaɪzə] – азотное удобрение

pellet ['pelɪt] – гранула

apply [ə'plaɪ] – вносить

gaseous ['gæsɪəs] – газообразный

hydrogen ['haɪdrəʤən] – водород

ammonia [ə'məunɪə] – аммиак

nitrous ['naɪtrəs] – азотистый

household garden ['haushəuld 'gɑːdən] – домашний сад

commercial crop [kəˈmɜːʃəl krɔp] – товарная культура

store [stɔː] – запас

make up the deficiency [meɪkʌp ðə dɪ'fɪʃənsɪ] – восполнять недостаток

carbamide ['kɑːbəˌmaɪd] – карбамид, мочевина

ammonium nitrate [əˈməʊnjəm ˈnaɪtreɪt] – аммиачная селитра, нитрат аммония

granule ['grænjuːl] – гранула

odour ['əudə] – запах

gluten ['gluːtən] – клейковина

saltpeter [ˌsɔːlt'piːtə] – селитра, нитрат калия

terms and rates of application [tɜːmz ənd reɪts ɔv ˌæplɪ'keɪʃən] – сроки и нормы применения

fertilizing ['fɜːtɪlaɪzɪŋ] – внесение удобрений

pouring ['pɔːrɪŋ] – внесение, вливание

claimed [kleɪmd] – востребованный

urea [juə'riːə] – мочевина

soluble ['sɔljəbl] – растворимый

hygroscopic [ˌhaɪgrəu'skɔpɪk] – гигроскопический (*легко поглощающий влагу*)

leaching [ˈliːʧɪŋ] – выщелачивание, вымывание
top dressing [tɔp ˈdresɪŋ] – подкормка
liming ['laɪmɪŋ] – известкование, удобрение известью
ammonia water [əˈməʊnjə ˈwɔːtə] – аммиачная вода
sod-podzol [sɔd 'pɒdzɒl] – дерново-подзолистый

**Exercise 4. Try to guess the meanings of the following words without a dictionary.**

Atmosphere, million, reaction, atmospheric, commercial, form, machine, process, chemical, flora, natural, season, control, mineral, effective, protein, mechanical, substance, granule, result, cultivation, maximum, culture.

**Exercise 5. Read and translate the following text.**

1. Nitrogen is an essential nutrient needed by all plants to thrive. Although nitrogen exists in abundance in the earth's atmosphere, relatively few plants are able to convert atmospheric nitrogen to a form they are able to use. Typically, commercial fertilizers contain nitrogen as a supplement for depleted soil. Nitrogen fertilizer is available in different forms: liquid, which must be injected into the ground, or dry pellets, which can be applied to the surface of the soil by hand or by machine.

2. Nitrogen fertilizer is produced using the Haber process, a chemical reaction first developed by German chemist Fritz Haber in 1909. Gaseous hydrogen and nitrogen react to create ammonia, which is essential for the production of fertilizers. The ammonia is then further processed to produce nitrous compounds the plants are able to absorb. About 100 million tons of nitrogen fertilizers are produced using this process each year.

3. Fertilizers are used to maintain the correct level of nitrogen in the soil, ensuring strong, green plants with a healthy growth rate. Nitrogen fertilizers can be used on a wide range of flora, from the household garden to commercial crops. They are currently used in one-third of the world's total crop production, including species such as maize, barley and soybean.

4. Where soil has become depleted of its natural nitrogen stores, fertilizers are able to make up the deficiency. This is especially important where crops are planted in the same soil each season and additional nutrients are needed for each new crop. The use of nitrogen fertilizers helps to keep nutrient levels at an optimum level, protect against disease and control weeds, resulting in healthier crops and consistent quality and quantity of yields.

5. The most common mineral fertilizer from nitrogen is carbamide, which is better known as ammonium nitrate. It is the most effective fertilizer, which contains at least a third of nitrogen. In appearance, ammonium nitrate is a readily soluble white granule in water without significant odour

and small size. The use of ammonium nitrate for fertilizing allows the rapid development of green mass, increase gluten and increase the percentage of proteins in cereals.

6. Popularity among farmers has received saltpeter due to the high nitrogen content. This fertilizer allows to significantly increase the yield with the observance of the terms and rates of application. The effectiveness of fertilizing can be increased by mechanically mixing nitrogen fertilizers with potassium and phosphorus immediately before pouring into the soil.

7. The next claimed substance is urea, which is a nitrogen fertilizer produced in the form of small granules that are odorless and color easily soluble in water. Unlike ammonium nitrate, urea is less hygroscopic. It contains almost 50 percent of nitrogen, while fertilizer has increased resistance to leaching. Thanks to these properties, it is possible to achieve high results even when fertilizers are applied to heavily moistened sod-podzol soils.

8. Carbamide should be introduced as a presowing top dressing during the spring cultivation, and also as a root feeding during the growing season. The maximum effect can be achieved by combining urea together with liming, and also adding potassium and phosphoric fertilizers.

9. Another type included in the group "nitrogen fertilizers" is ammonia water, low price and ease of use which allowed it to spread widely in agriculture. Ammonia water is injected into the soil before sowing in spring as the main fertilizer, and then at the initial stage of the development of culture, when the need for nitrogen is particularly high. To preserve the ammonia contained in the solution, the fertilizer is applied to the ground by at least 10 centimeters deep.

**Exercise 6. Answer the following questions.**

1. What forms is nitrogen fertilizer available in?
2. How is nitrogen fertilizer produced?
3. Is the current amount of nitrogen fertilizers use in the world large?
4. How does the use of nitrogen fertilizers help to keep soil productive?
5. What is the effect of ammonium nitrate application?
6. How can one increase the effectiveness of fertilizing?
7. What fertilizer makes it possible to achieve high results even when applied to heavily moistened sod-podzol soils?
8. How is ammonia water applied?

**Exercise 7. Translate the following words and word combinations into Russian.**

Essential nutrient, earth's atmosphere, convert atmospheric nitrogen, nitrogen fertilizer, dry pellet, surface of soil, level of nitrogen, green plant, wide range of flora, commercial crop, world's crop production, carbamide,

ammonium nitrate, readily soluble granule, green mass, gluten, proteins in cereal, hygroscopic urea, resistance to leaching, heavily moistened soil, ammonia water, development of culture, high nitrogen content, effectiveness of fertilizing, protect against disease, control weeds, quality and quantity of yield, healthy growth rate, natural nitrogen store, react to create ammonia, additional nutrient, nitrous compound, production of fertilizers.

**Exercise 8. Choose the words that have the following definitions.**

1. A colourless gas that has no smell and forms about 78 % of the earth's atmosphere, and is found in all living things.

a) nitrogen; b) atmosphere; c) ammonia.

2. A person who does research connected with chemistry or who studies chemistry.

a) agronomist; b) farmer; c) chemist.

3. A piece of ground adjoining a house, used for growing flowers, fruit, or vegetables

a) park; b) garden; c) farm.

4. A disorder which affects people, animals, or plants, caused by bacteria or infection.

a) deficiency; b) production; c) disease.

5. A substance found in food and drink such as meat, eggs, and milk.

a) protein; b) ammonium; c) saltpeter.

6. The degree to which something is successful in producing a desired result.

a) development; b) appearance; c) effectiveness.

7. The power to remain unharmed or unaffected by germs or diseases.

a) percentage; b) resistance; c) cultivation.

**Exercise 9. Translate the words and word combination in brackets into Russian.**

1. Although (азот существует в изобилии) in the earth's atmosphere, (сравнительно мало растений) are able to convert (атмосферный азот) to a form they are able (усваивать).

2. (Газообразный водород) and nitrogen (вступают в реакцию) to create ammonia, which is (существенным для производства удобрений).

3. They (применяются в настоящее время) in one-third of the world's total crop production, (в том числе таких видов, как) maize, (ячмень и (соя).

4. This is (особенно важно) where (культуры высеваются в ту же самую почву) each season and additional nutrients are needed (для каждой новой культуры).

5. It contains (примерно 50 процентов азота), while fertilizer has increased (устойчивость к выщелачиванию).

**Exercise 10. Translate the following words and word combinations into English.**

Азотное удобрение, процесс Габера, химическая реакция, аммиак, азот, атмосфера, домашний сад, азотистые соединения, один миллион тон, надлежащий уровень азота, промышленное удобрение, распространенное минеральное удобрение, нитрат аммония, белая гранула, выразительный запах, развитие зеленой массы, белок в злаковой культуре, востребованное вещество, легко растворимый в воде, благодаря этим свойствам, очень увлажненная почва, аммиачная вода, одна треть производства сельхозкультур в мире, защитить от болезни, самое эффективное удобрение, по меньшей мере, на глубину на 10 сантиметров, низкая цена и простота применения, менее гигроскопический.

**Exercise 11. Match the beginning of each sentence with its end.**

1. The ammonia is then further processed …
2. Nitrogen is an essential nutrient …
3. It is the most effective fertilizer, which …
4. Unlike ammonium nitrate, …
5. About 100 million tons of nitrogen fertilizers …
6. Popularity among farmers has received …

a) … needed by all plants to thrive.
b) … to produce nitrous compounds the plants are able to absorb.
c) … urea is less hygroscopic.
d) … contains at least a third of nitrogen.
e) … saltpeter due to the high nitro-gen content.
f) … are produced using this process each year.

**Exercise 12. Translate the expressions into Russian paying attention to the prepositions.**

Nutrient needed *by* all plants, a supplement *for* depleted soil, available *in* different forms, liquid injected *into* ground, applied *to* the surface *of* soil *by* hand or *by* machine, a chemical developed *by* German chemist, used on a wide range *of* flora, nutrients needed *for* new crop, *at* least a third *of* nitrogen, immediately *before* pouring into the soil, resistance *to* leaching, achieved *by* combining urea together *with* liming, spread widely *in* agriculture, *without* significant odour, *from* household garden *to* commercial crops.

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