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КУРС АНГЛИЙСКОГО ЯЗЫКА  
ДЛЯ СПЕЦИАЛЬНОСТЕЙ  
АГРОНОМИЧЕСКОГО ПРОФИЛЯ

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Учебное пособие разработано в соответствии с программой по иностранным языкам для неязыковых вузов. В пособии представлен грамматический материал и задания, способствующие закреплению таких тем, как страдательный залог, неличные формы глагола, согласование времен, а также тексты по специальности для перевода и развития навыков устной речи.

Предназначено для студентов-бакалавров агрономических специальностей.

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**ПРЕДИСЛОВИЕ**

Учебное пособие предназначено для аудиторной и самостоятельной работы студентов-бакалавров агрономического факультета, обучающихся по специальности «Агрономия», владеющих английским языком в объеме средней школы и продолжающих изучение языка в вузе.

Целью пособия является развитие речевой профессиональной деятельности на английском языке, а именно, научить обучающихся читать, понимать без словаря тексты на английском языке по специальности, привить навыки перевода текстов со словарем, не испытывая трудностей при встрече со сложными грамматическими явлениями (страдательным залогом, неличными формами глаголов, модальными конструкциями и т. д.), и подготовить к устному сообщению по изученной теме.

Учебное пособие состоит из 12 уроков, в каждом из которых имеется грамматический материал с упражнениями для закрепления, основной текст с лексическими упражнениями, словарь-минимум, текст для дополнительной работы по указанной теме. Лексические и речевые упражнения ориентированы на подготовку кратких сообщений по темам, их обсуждение, переводы.

**Unit 1**

Grammar Revision: **Modal verbs**

Text A: **Nature and Importance of Plants**

Text B: **Life is impossible without plants**

**Модальные глаголы (Modal verbs)**

Глаголы*can (could), may (might), must, ought, need*относятся к группе так называемых модальных глаголов ([Modal Verbs](http://study-english.info/modal.php)). [Модальные глаголы](http://study-english.info/modal.php) не употребляются самостоятельно, а только в сочетании с инфинитивом смыслового глагола. Они обозначают возможность, способность, вероятность, необходимость совершения действия, выраженного смысловым глаголом. [Модальные глаголы](http://study-english.info/modal.php) в сочетании с инфинитивом смыслового глагола употребляются в предложении в роли составного глагольного сказуемого: *Не can do it himself. Он может это сделать сам. They may come tonight. Они, может быть, придут сегодня вечером.*

[Модальные глаголы](http://study-english.info/modal.php) не выражают конкретных процессов (действий), а показывают лишь отношение говорящего к действию, оценку действия, т. е. возможность, необходимость, предположительность, долженствование, разрешение и т. д. [Модальные глаголы](http://study-english.info/modal.php) являются *недостаточными глаголами (Defective Verbs)*, так как они не имеют всех форм, какие есть у других глаголов. Глаголы*сап*и *may* имеют формы настоящего и прошедшего времени*: can – could, may – might*, глаголы*must, ought*и*need* – только форму настоящего времени.

[Модальные глаголы](http://study-english.info/modal.php) имеют ряд формальных отличительных особенностей.

Сочетание [модального глагола](http://study-english.info/modal.php) с неперфектным инфинитивом относит действие к настоящему или будущему времени либо свидетельствует о его одновременности с моментом речи, и, напротив, сочетание с перфектным инфинитивом либо относит действие к прошлому, либо выражает предшествование действия относительно момента речи: *I could do it. Я мог бы сделать это* (в настоящем или будущем*). I could have done it. Я мог бы сделать это* (но уже не сделал).

Отрицательная форма образуется при помощи частицы*not***,** которая ставится непосредственно после модального глагола, в результате чего значение меняется на противоположное*: must должен – must not не должен*. В настоящем времени*can* пишется слитно с *not: He cannot do it. You may not take it. He must not go there.* В разговорной речи в отрицательной форме обычно употребляются следующие сокращения:

*cannot – can't, could not – couldn't, may not – mayn't, might not –mightn't, must not – mustn't, ought not – oughtn't, need not – needn’t.*

В вопросительных предложениях [модальный глагол](http://study-english.info/modal.php) стоит на первом месте либо сразу после вспомогательного слова: *Who can do it? Кто может сделать это?*

Основные значения модальных глаголов *–* необходимость (долженствование), возможность и предположение. Некоторые глаголы имеют формы прошедшего времени: *can – could, may – might* (иногда называют и *will – would, shall – should*), тем не менее, все эти формы могут иметь самостоятельные, присущие только им оттенки значения.

Вместо недостающих неличных и аналитических форм [модальных глаголов](http://study-english.info/modal.php) используют их эквиваленты: *to have, to be (=must), to be able (=can), to be allowed, to be permitted (=may).*

**Отличительные свойства модальных глаголов**

1.Не имеют окончания *-s* в 3-м лице единственного числа настоящего времени.*He can do it. He may take it. He must go there. He ought to help him. Need he do it?*

2.Не имеют неличных форм (инфинитива, герундия и причастия).

3.Не употребляются как отдельный член предложения *–* простое глагольное сказуемое, но только в сочетании с еще одним, не модальным, глаголом в форме инфинитива без частицы *to* (кроме *ought*и иногда *need*), образуя составное глагольное сказуемое. *I must go there. Я должен пойти туда. You needn't do it. Вам не нужно делать этого.* Но: *You ought to help him. Вам следовало бы помочь ему.*

4.Вопросительная и отрицательная формы модальных глаголов образуются без вспомогательного глагола: в вопросительных предложениях модальный глагол ставится перед подлежащим, в отрицательных – после него ставится отрицание *not. Can you do it? May I take it? Must he go there? Ought he to help him? Need he do it? He ought not to help him. He need not do it.*

5. Не имеют формы прошедшего времени (кроме *can – could, may – might*) и аналитических форм (будущего времени, продолженного вида, перфектных форм и форм страдательного залога). В случае необходимости вместо отсутствующих форм используются эквивалентымодальных глаголов.

**1. Use the modal verbs must (должен), can (могу, умею), may (можно, разрешено), should (следует /совет/), ought to (следует /упрек/) to complete the sentences. There may be more than one possible answer.**

1. It’s too far to walk from here to the station.. You ... take a taxi. 2. Sarah got the job because she ... speak five languages. 3. The windows are dirty. I ... clean them. 4. You ... use a dictionary. 5. I like this hotel room. You ... see the lake from the window. 6. It’s a good film. You ... see it. 7. He ... take my book. 8. We ... go to the bank today. We have no money. 9. When you are driving, you…wear a seat belt. 10. We…see the lake from our window. 11. If you have time, you ... visit the museum. It’s very interesting. 12. I ... come and see you tomorrow. 13. She ... use this "computer program. 14. Your salary is very low. You ... look for another job. 15. Mary is a very interesting person. You ... meet her. 16. Take an umbrella with you when you go out. It ... rain later. 17. Sandra ... drive but she hasn’t got a car. 18. Tomorrow the game is very important for us. We ... win. 19. Students ... bring textbooks into the examination room. 20. It’s late and you’re very tired. You ... go to bed.

**2. Translate the sentences paying attention to modal verbs and their equivalents.**

1. Man can use plants for food. 2. We must know how a plant grows. 3. The farmers can grow a new corn variety on their farm. 4. All parts of a plant must be developed well. 5. They had to resow this crop because of bad weather. 6. The farmers are to increase wheat yield. 7. Some plants are so small that they can be distinguished only under microscope. 8. There are very large trees growing in California that may be 350 feet high with a diameter of 20 feet at the base. 9. Plants may be used for many different purposes. 10. Farm crops may be classified according to their use.

**3. Translate the sentences into Russian. Name the sentences with the verbs «to be» and «to have» as modals.**

1. Farmers will have to cultivate this soil when it is dry.

2. The farm is to increase yield of corn. 3. They had to grow some new grain crops this year. 4. The plants have very many uses.

5. These crops are very important for men. 6. Crop plants are to be classified on the basis of their use. 7. The farmer will have to plant corn later this year.

**Text A**

**Vocabulary list**

importance – важность, значение

to be dependent (upon) – зависеть от

size – размер, величина

either … or – или … или

directly (indirectly) – прямо, косвенно

to exist – существовать

species – вид

to expect – ожидать

to vary (in) – изменяться, различаться

variable – изменчивый

to require – требовать(ся)

requirement – требование, потребность

usefulness – польза

as to – что касается

for instance – например

as well as – также как и

low – низкий, нижний

to distinguish – различать

according to – согласно, в соответствии

similar – подобный

similarity – сходство, подобие

source – источник

in turn– в свою очередь

value – ценность

valuable – ценный

**1. Translate the following word combinations into Russian:**

either directly or indirectly, plant kingdom, variable forms, usefulness to man, to be made up of only one cell, with the aid of a microscope, for instance, redwood trees, the lowest forms of plant life, according to similarity of parts, valuable food products.

**2. Read and translate the text.**

**Nature and Importance of Plants**

Man has always lived with plants but most of us probably do not realize how important plants are in our daily life and that we are still as dependent upon plants as primitive man was thousands of years ago. All our food and clothing are produced either directly or indirectly by plants.

There exist more than 250000 species of plants on the Earth. When grouped together they are known as plant kingdom. As may be expected in so large a number many variable forms exist. Plants vary in size, structure, form, reproduction, in their requirements and their usefulness to man. As to the size, some plants such as bacteria are made up of only one cell and are so small that they can be distinguished only with the aid of a microscope. Others are very large, as for instance, redwood trees growing in California that may be 350 feet high with a diameter of 20 feet at the base. Fungi as well as algae are the lowest forms of plant life. Because of the large number of widely differing forms of plants, it has been necessary to place them into groups according to similarity of parts. The plant forms best known to most people are those that are useful to man.

Many of the farm crops are fed by animals which in turn produce valuable food products used by man. Certainly there may be plants the value of which has not been yet discovered. We do not yet know all the uses of plants, but as scientists continue their work many new uses will be found. As farm crops may be used for so many different purposes they were also classified agronomically according to their use rather than according to similarity of parts.

**3. Find in the text the English equivalents of Russian word combinations:**

зависеть от растений, прямо или косвенно, царство растений, при помощи микроскопа, первобытный человек, согласно сходству частей, продукты питания, использование растений, различные цели.

**4. Fill in the blanks with the appropriate words from the text.**

1. All our … and … are produced either directly or indirectly by plants. 2. Plants vary in size, …, form, … and their usefulness to man. 3. The lowest forms of life are … and … . 4. Plants must be placed into groups according to ... of parts. 5. There are plants the … of which has not been yet discovered. 6. Plants are also classified agronomically according to their … . 7. There … very many … of plants.

**5. Agree or disagree with the following statements (True or False).**

1. Our food and clothing are produced directly or indirectly by plants. 2. Bacteria are made up of many cells and can be distinguished without a microscope. 3. Fungi as well as algae are the highest forms of plant life. 4. We do not yet know all the uses of plants. 5. Farm crops may be used for so many different purposes that’s why they were classified agronomically. 6. The scientists continue their work and we can expect new uses of plants to be found.

**6. Find in the text answers to the following questions.**

1. Are we still dependent upon plants as primitive man was thousands of years ago? 2. What is our food and clothing produced by? 3. How many plant species are there on the earth? 4. What do plants vary in? 5. What can you say about plant size? 6. What are the lowest forms of plant life? 7. What are plants used for? 8. How are field crops classified agronomically? 9. Why aren't farm crops classified according to similarity of parts?

**7. Find key sentences in each paragraph of the text and use them for retelling the text.**

**8. Give the short summary of text A**

**Text B**

**1. Skim text B and say what the text is about.**

**Life is impossible without plants**

From earliest times plants play an important part in everyday life of man. Plants provide us with food, clothing and many other necessary things. The cultivation of plants is connected with man’s progress. Man’s food and clothing are produced directly or indirectly by plants.

Without plant life neither animals nor men will be able to live. There exist very many species of plants. Some of them are grown and cultivated by farmers and are called farm crops. Some plants are used directly by man, some are consumed by animals.

The scientists continue their work and we can expect new uses of plants to be found and the value of other plants to be discovered. Great progress has been made in breeding suitable plants and animals that grow best in the given environment. Life is impossible without plants.

We breathe with oxygen which comes from plants, we eat the food which also comes from plants. Man began to change plants about 10000 years ago, when he began to grow the first food plants. Plants use sunlight and make their food; they give off oxygen into the air during this process. Many elements make up a plant’s environment. Sunlight, temperature, rain and snow affect the growth of plants.

**2. Answer the following questions.**

1. What do plants provide man with? 2. What plants are called farm crops? 3. What can we expect from scientists? 4. Is life possible without plants? 5. When did man begin to change plants? 6. What do plants give off into air?

**3. Find in the text the paragraph describing the role of plants in our daily life.**

**4. What are the factors affecting the growth of plants?**

**5. Enumerate the main items covered in text В.**

**Unit 2**

Grammar Revision: **Comparatives and Superlatives**

Text A: **Crop Plants and Environment**

Text B: **Plants and Nature**

**Степени сравнения прилагательных и наречий**

**(Comparatives and Superlatives)**

Все английские прилагательные (кроме относительных) имеют сравнительную и превосходную степени сравнения. Особая категория английских наречий может также иметь степени сравнения.

Таблица 1 – Образование степеней сравнения в английском языке

|  |  |  |  |
| --- | --- | --- | --- |
| Прилагательные, наречия | Положительная  Степень | Сравнительная  cтепень  (Comparatives) | Превосходная  cтепень  (Superlatives) |
| 1 | 2 | 3 | 4 |
| Односложные,  двусложные\* | *hot*  *easy (adj)*  *polite*  *soon (adv)* | *hotter*  *easier*  *politer*  *sooner* | *(the) hottest*  *(the) easiest*  *(the) politest*  *(the) soonest* |
| Многосложные | *correctly (adv)*  *beautiful (adj)* | *more correctly*  *more beautiful* | *(the) most correctly*  *(the) most beautiful* |

Продолжение таблицы 1

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| Смешанные  случаи | *old (adj)*  *often (adv),*  *slowly*  *quickly* | *older/elder*  *oftener/more often*  *slower/more slowly*  *quicker/more quickly* | *oldest/eldest*  *oftenest/most often*  *slowest/most slowly*  *quickest/most quickly* |
| Случаи, которые следует запомнить | *well (adv)/good (adj)*  *badly/bad*  *much*  *little*  *far*  *near* | *better*  *worse*  *more*  *less*  *farther/further*  *nearer* | *best*  *worst*  *most*  *least*  *farthest/furthest*  *nearest* |
| \*Двусложные прилагательные с ударением на втором слоге и прилагательные, заканчивающиеся на *-e, -er, -y, -ow*. | | | |

Таблица 2 *–*Особенности употребления прилагательных в сравнительной и превосходной степени

|  |  |  |
| --- | --- | --- |
| Прилагательное | Особенность | Пример |
| 1 | 2 | 3 |
| Most | Имеет и другие значения:  *крайне/весьма*  Может использоваться с артиклем a/an  *большинство/большая часть* | *This is a most interesting film.*  *They are most eresting people.*  *Most of my friends live in Moscow* |
| Farther,  farthest | Используется, когда речь идёт о расстоянии: *дальше, самый дальний* | *You must go a little farther* |

Продолжение таблицы 2

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| Further,  furthest | Выражает значения: *дальнейший, последующий, добавочный* | *further information*  *дополнительная информация*  *further discussion*  *дальнейшее обсуждение* |
| Elder,  eldest | Употребляется для обозначения возрастных отношений в семье | *my elder brother* |
| Nearer,  nearest | *Ближе, ближайший* (о расстоянии) | *Where is the nearest post office?* |
| Next | *Следующий* (о порядке следования) | *They live in the next house* |
| Later,  latest | *Позже, последний* (о времени) | *I’ll call you back later* |
| Last | *Последний* (о порядке следования) | *It’s his last book* |

Для сравнения качества предметов используют также следующие формулы:

1. *than – чем: Moscow is larger than St.-Petersburg.*
2. *as … as – так(ой)же … как: He is as young as my brother.*
3. *not so … as – не так(ой)… как: This train goes not so quickly as that one.*
4. *the more … the better – чем … тем: The more you work the better you know the language.*
5. *much, far – намного,гораздо: The husband was much older than the wife.*
6. *a bit, a little – немного: Could you speak a bit louder?*

**1. Open the brackets using Comparatives.**

1. I don’t get what you mean. Could you please talk (slowly)? 2.You should have thought about buying the dress (early). It is two days left before the prom and we will not be able to find something special. 3. Arabella laughs (loud) than before. Is everything (good) now? 4. Her mother knows the history (accurately) than her teacher. 5. All of a sudden John turned out to run (fast). 6. The situation on the labor market is getting (bad). It is getting (hard) to find an appropriate job. 7. The group of old friend arrived to the station (late) than everyone else. 8. I used to go to the swimming pool (often) than I do right now. 9. This test was very difficult. I know you can do much (good). 10. They moved (far) than they’d planned.

**2. Open the brackets using Comparatives or Superlatives.**

1. The Trans-Siberian railway is (long) in the world. 2. The 22nd of December is the (short) day of the year. 3. Iron is (useful) of all metals. 4. The Volga is (wide) and (deep) than the Neva River. 5. Elbrus is the (high) peak in the Caucasian Mountains. 6. His theory is (practical) than yours. 7. Moscow is the (large) city in Russia. 8. Yesterday was the (cold) day we have had this winter.

**3. Fill in the gaps with *as … as* or *so … as*.**

1 The temperature today is … high … it was yesterday. 2. He is not … old … he looks. 3. He is … strong … his brother. 4. This street is … wide … the next one. 5. The luggage is not … heavy … I expected. 6. His TV set is not … powerful … mine. 7. She is … tall … her mother. 8. In Novgorod it is not … hot … in Rostov.

**Text A**

**Vocabulary list**

under conditions – при условиях, в условиях

to do well (do best) – растут хорошо (лучше всего)

a frost-free period – безморозный период

moderate – умеренный

cotton – хлопок

sorghum – сорго, просо

soybean – соя

favorable (unfavorable) – благоприятный, неблагоприятный

rye – рожь

humidity – влажность

long-day plants – растения длинного дня

short-day plants – растения короткого дня

to belong to – принадлежать к

millet – просо

sunflower – подсолнечник

buckwheat – гречиха

respiration – дыхание

carbon dioxide – углекислый газ

**1. Translate the following word combinations into Russia:**

crops well adapted to the region, to produce high yields, to grow under cool or moderate conditions, to differ in the length of the growing season, a frost-free period, average annual rainfall, favorable environmental conditions, short-day plants, a very essential factor, a factor influencing the growth, to be affected by the length of the day, small grains.

**2. Read and translate the text.**

**Crop Plants and Environment**

The conditions in which an organism lives are known as environment. All plants require favorable environmental conditions for their better growth and development. Crops that are not well adapted to the region where they are cultivated will not produce high yields. In crop selection climate is the most important environmental factor. The crops which grow best under relatively cool or moderate conditions include wheat, oats, barley, rye, potatoes, sugar beets, red clover, and many grasses.

Corn, cotton, sorghum, rice, soybeans do best and differ in the length of the growing season required for the optimum development. A frost-free period less than 125 days is unfavorable for most crops. Another factor influencing the growth of plants is humidity that is why the average annual rainfall is a very essential characteristic of an area. Light is necessary for photosynthesis – the process by which plant food is manufactured. Life processes of many plants are influenced by the relative length of day and night. Long-day plants require long days for their better growth, while short-day plants produce flowers and fruit when the days are short. Most small grains belong to the group of long-day crops, among short-day crops are corn, sorghum, rice, millet and soybeans. There are also crops which are not affected by the length of day, these are cotton, sunflower and buckwheat.

Air is an important environmental factor too. It supplies carbon dioxide for plant growth and oxygen for respiration as well as for chemical and biological processes in the soil.

**3. Find in the text the following word combinations:**

окружающая среда, расти лучше всего при прохладных условиях, продолжительность вегетационного периода, среднегодовые осадки, растения длинного дня, растения короткого дня, образовывать цветки и плоды, кислород для дыхания, относительная продолжительность дня и ночи.

**4. Fill in the blanks with appropriate words from the text.**

1. Environmental … are very important factors for good plant growth. 2. Soil humidity is influenced by the average annual … . 3. Most small grains belong to … crops. 4. Such crops as … and … do not require high temperature for their growth. 5. Plants obtain … and … from the air. 6. The growth of cotton is not … by the length of the day. 7. Cotton grows best under … climatic conditions. 8. Crops should be well … to environmental conditions.

**5. Agree or disagree with the following statements (True or False).**

1. All plants require favorable environmental conditions for their better growth and development. 2. A frost-free growing period more than 150 days is unfavorable for most crops. 3. Light is not necessary for the process of photosynthesis. 4. Relative length of day and night influences life processes of many plants. 5. Most small grains belong to long-day crops. 6. Cotton, sunflower and buckwheat are not affected by the length of day. 7. Air supplies carbon dioxide for plant growth and oxygen for respiration as well as for chemical and biological processes in the soil. 8. Environment is the condition in which an organism lives.

**6. Translate the following sentences from Russian into English using the words from the vocabulary list.**

1. Растения хорошо развиваются в благоприятных условиях. 2. На рост растений влияют условия окружающей среды.

3. Климат – важнейший фактор окружающей среды. 4. Растения не могут хорошо расти в неблагоприятных условиях.

5. С/х культуры хорошо растут, если они приспособились к окружающей среде. 6. Свекла, картофель, овес, ячмень, рожь и пшеница растут лучше в прохладном климате. 7. Кукуруза, рис, соя и хлопок требуют более теплых условий. 8. Свет влияет на важные процессы в жизни растений.

**7. Lay out the questions in such an order, that they were a plan for text A and answer them.**

1. Why is air necessary for plants?

2. What is environment?

3. Which environmental factors are important for plant growth?

4. Do all crops require much light for their growth?

5. What crops develop well under cool climatic conditions?

**Text B**

**1. Get acquainted with text B and determine the main idea of the text.**

**Plants and Nature**

Nature has always served to man. But with the development of civilization man's interference in nature began to increase. The pollution of air and the world's ocean, destruction of the ozone layer is the result of man's careless interaction with nature.

Environmental protection is a problem of global concern. Plant formations and their environment are natural resources which man always used and uses now.

Animals and man will not live without plants because the cycle of nature links them. Plants also play a very important part in conservation and protection of soil, water and animals. Crop plants have not always been productive and useful as they are today. Long ago they were growing wild. As civilization progressed, man began studying plants more carefully. He discovered many of the new functions of plants, their structure and requirements for growth.

Soon plant science appeared and great progress in the improvement and growing of plants followed. Compared to the long history of plants on the Earth the plant breeders have improved plants for only short time, but in this short period they have contributed much to agriculture.

By selecting the best types, man is able to bring about improvements in a few years that would require thousands of years if left to nature.

**2. Answer the following questions.**

1. What is the result of man's careless interaction with nature? 2. What is the problem of global concern? 3. What are natural resources which man always used and uses now? 4. What do plants play a very important part in? 5. Have crop plants always been as productive as they are today? 6. What did man discover? 7. Due to what is man able to bring about improvements in a few years?

**3. Find in the text the English equivalents of the Russian word combinations.**

вмешательство человека в природу, взаимодействие с природой, защита окружающей среды, растительные сообщества, природные ресурсы, дикий, сохранение и защита, функции растений, селекционер

**4. Find in each paragraph the key sentences and make up the plan of retelling the text.**

**5. Give the short summary of text B.**

**Unit 3**

Grammar revision: **Participle I–II**

Text A: **Plant, its Parts and their Functions**

Text B: **Plant**

**Причастия настоящего и прошедшего времени**

**(Present Participle,** **Past Participle)**

В английском языке причастие (the Participle) — это одна из неличных [форм глагола](http://englishgu.ru/finite-and-non-finite-forms-verb/), наряду с инфинитивом (the Infinitive) и [герундием](http://englishgu.ru/gerundij/) (the Gerund). В английском языке причастие одновременно выполняет функции таких частей речи, как прилагательного, глагола и наречия. В нашем родном языке функции Participle I выполняет деепричастие и отвечает на вопрос: «Что делая?». Английскому языку не известно деепричастие, поэтому английское причастие совмещает в себе русское причастие и деепричастие. Например:

Причастие: *Мальчик, листающий журнал…****–***

*The boy flipping magazine…*

Деепричастие: *Просматривая книгу, мальчик нашел много интересных фактов.* ***–*** *Looking through the book, the boy found a lot of interesting facts****.***

В английском языке известно 2 вида причастия: причастие настоящего времени (Participle I или Present Participle) и причастие прошедшего времени (Participle II или Past Participle).

Причастие настоящего времени образуется путем добавления к основе глагола (инфинитиву, но без частицы *to*) окончания -*ing*. Например: *to work – работать, working – работая*. Чтобы выразить отрицание, перед причастием ставится частица *not*. Например: *not paying attention – не обращая внимание*.

Причастие настоящего времени в английском языке имеет 4 формы:

Simple Active (простое длящееся, действительный залог): *surprising – удивляющий, удивляя;*

Simple Passive (простое длящееся, страдательный залог): *being surprised – удивляемый, будучи удивленным;*

Perfect Active (завершенное, действительный залог): *having surprised – удививший, удивив*;

Perfect Passive (завершенное, страдательный залог): *having been surprised – был удивлен, будучи удивленным.*

Для образования причастия прошедшего времени необходимо:

1) у правильных глаголов (Regular Verbs) к основной инфинитивной форме без частицы *to* добавить окончание -*ed. improved – улучшенный;*

2) у неправильных глаголов (Irregular Verbs) причастие прошедшего времени соответствует 3 форме неправильного глагола. *taken – взятый*.

Причастие II в английском языке выполняет в предложении функции определения к существительному (*cooked*

*dinner – приготовленный ужин* либо обстоятельства: *when asked he did not answer – когда его спрашивали, он не отвечал*.

1. **Translate the following word combinations paying attention to Participle I*–*II:**

сrops adapted to the conditions of the region, collective farms growing wheat, some crops grown by our farm, soil supplied with nitrogen, one of the cereal crops raised, wheat varieties best known to people, crop producing high yields

**2. Choose the appropriate form of Participles and translate the sentences.**

1. In our region there are some farms (grown, growing) wheat. 2. These are the crops (grown, growing) by our farm at present. 3. Small grains are the crops (harvesting, harvested) with combines. 4. This crop will grow well on the soil (supplying, supplied) with nitrogen. 5. The environmental conditions (required, requiring) by crops for their best development should be favorable. 6. Crops such as wheat, oats, rye and barley are the ones (required, requiring) relatively cool conditions for their growth. 7. Humidity is one of the most important factors (influenced, influencing) the crops growth. 8. Plants (producing, produced) flowers and fruit when days are short are known as short – day plants. 9. The crops (including, included) in the grass family are all cereals and most of forage grasses.

**3. Identify the type of Participle, define its function. Translate the sentences into Russian.**

1. The roots growing in the soil have two main functions.

2. The food used in growth by green plants is manufactured in the leaves. 3. Plant nutrients absorbed by the roots are transferred to the other parts of the growing plant. 4. The food used in growth by green plants is manufactured in the leaves. 5. Varying greatly with the species leaves have different shape. 6. When grown, the farm crops remove nutrients from the soil. 7. Supplying man with food and clothing plants are very important in everyday life. 8. Improving the quality of crop plant breeders increase yields.

**Text A**

**Vocabulary list**

reproductive part – органы размножения

vascular tubes – сосудистые канальцы

extent – степень, мера

to a considerable extent – в значительной степени (мере)

clover – клевер

embryo – зародыш

root – корень

stem – стебель

leaf (leaves) – лист, листья

to anchor – закреплять, удерживать

to manufacture – производить, образовывать

vein – жилка

shape – форма

compound – сложный

poplar tree **–** тополь

seed – семя

flower – цветок

raw materials – сырьё

**1. Translate the following word combinations into Russian:**

food supply, new uses of plants, principal parts of the plant, root system, a considerable extent, the shape of leaves, reproductive part, the process of photosynthesis, typical leaf, species of plants, to produce seeds, raw materials, to absorb plant nutrients, to function properly.

**2. Read and translate the text.**

**Plant, its Parts and their Functions**

Plants are highly important sources of food for man. They supply us with food clothing and many other things as well. Plants are grown and used for many purposes and as scientists continue their work new uses of plants will be found.

The principle parts of the plant are: 1) the root system, 2) the stems and leaves, 3) the reproductive part made up of flowers, fruits and seeds.

The roots grow downward into the soil and have two main functions – to absorb plant nutrients and water from the soil and to anchor the plant. As to stem and leaves, they are usually above the ground. The food used in growth by green plants is manufactured in the leaves from the raw materials taken from the soil and air. This process is known as photosynthesis. To support the leaves and to connect them with the roots are the main functions of the stem.

Each flowering plant has leaves. A typical leaf consists of a green, broad, thin portion, which contains a system of vascular tubes called veins. The latter serve as channels for the distribution of water and dissolved substances and for removing a part of the food which is manufactured in the leaves for the use by the plant.

The shape and the position of the leaves vary to a considerable extent with the species. Leaves may be born on a leaf stem, or attached directly to the plant. They may be compound as with clover and potatoes, or simple as in the case of the poplar tree.

A flower is the part of the plant where seeds are produced. Thus, to produce seeds the plant must have flowers. A seed consists of an embryo and one or more seed coats.

All parts of the plant must be developed well and proportionally enough to function properly. If conditions for plant growth are bad, the plant will be too weak to develop its parts well.

**3. Fill in the blanks with appropriate words from the text.**

1. Plants are important … of food for man. 2. The principle parts of the plant are …, … and … . 3. A typical leaf consists of … 4. A flower is the … of the plant where … are produced. 5. The food used in growth by green plants is … in the … from the raw materials taken from the soil and air. 6. To … the leaves and to … them with the roots are the main functions of the … . 7. Leaves may be compound as with … or simple as in the case of … tree.

8. A seed consists of an … and one or more seed … .

**4. Agree or disagree with the following statements (True or False).**

1. Stems and leaves are usually under the ground. 2. Seed is the part of the plant where flowers are produced. 3. Plants are very important sources of food for man. 4. Plants supply us with food, clothing and many other things as well. 5. To absorb plant nutrients and water from the soil and to produce seeds are the main functions of the root. 6. Each flowering plant has leaves. 7. The plant will be too weak to develop its parts well, if conditions for plant growth are bad.

**5. Translate the following sentences into English using the vocabulary list.**

1. Кислород необходим для прорастания семян. 2. Используемый метод дает хорошие результаты. 3. Растения могут различаться по форме и величине. 4. Некоторые растения не имеют ни листьев, ни цветов. 5. Корни этого растения могут быть очень длинными. 6. Растения снабжают нас пищей и одеждой. 7. Цветок – это часть растения, где образуются семена. 8. Семя состоит из зародыша и одной или двух семенных оболочек. 9. Корни имеют две основные функции **–** поглощать питательные вещества и воду из почвы и удерживать растение. 10. Растения выращивают и используют для многих целей.

**6. Answer the following questions.**

* 1. What sources of food are most important for man? 2. Is the root system as important as stems and leaves? 3. What are the main functions of roots? 4. Where is the food necessary for the growth of the plant manufactured? 5. What do leaf veins serve as? 6. How do the shape and the position of leaves vary? 7. What is the main function of leaves? 8. What is the function of flowers?

9. Where are seeds produced? 10. What does a seed consist of?

**7. Make up the plan of text A and retell it.**

**Text B**

**1. Get acquainted with text B and find in the text answers to the following questions.**

1. What organism do plants include? 2. How many plant species has botany identified? 3. Where do green plants obtain their energy from? 4. Describe the process of photosynthesis. 5. What is chlorophyll? 6. What do the majority of plants require to grow successfully? 7. What is the growth of plants determined by?

**2. Skim the text and determine what the text is about.**

**Plant**

Plants are living organisms belonging to the kingdom Plantae. They include such organisms as trees, herbs, bushes, grasses, vines, ferns, mosses and algae. The scientific study of plants, known as botany, has identified about 350 000 species of plants. Green plants obtain most of their energy from sunlight via a process called photosynthesis.

About 350 000 species of plants, defined as seed plants, bryophytes, ferns exist currently. Some 287 655 species had been identified, of which 258 650 are flowering plant, 16 000 bryophytes, 11 000 ferns and 8 000 green algae.

Most of the solid material in plant is taken from the atmosphere. Through a process known as photosynthesis, most plants use the energy of sunlight to convert carbon dioxide from the atmosphere, plus water into simple sugars. Parasitic plants, on the other hand, use the resources of its host to grow. Chlorophyll, a green-colored, magnesium-containing pigment is essential to this process; it is generally present in plant leaves, and often in other plant parts as well. For the majority of plants to grow successfully they also require oxygen in the atmosphere and around their roots for respiration.

The genotype of a plant affects its growth. Growth is also determined by environmental factors, such as temperature, available light, and available nutrients in the soil.

Human cultivation of plants of agriculture is the bases of human civilization. Much of human nutrition depends on land plants either directly or indirectly.

**Notes:**

**lifespan** – продолжительность жизни

**bryophytes** – бриофиты

**ferns** – папоротники

**mosses** – мхи

**host** – растение-хозяин

**3. In what paragraph of the text can you find the information about the environmental factors determining plant growth?**

**4. Find in the text the English equivalent to the sentence: «Green plants obtain most of their energy from sunlight via a process called photosynthesis».**

**5. Summarize all the problems covered in text В in 5–6 sentences.** .

**Unit 4**

Grammar Revision: **Passive Voice**

Text A: **Flower**

Text B: **Functions of Flowers**

**Страдательный залог (Passive Voice)**

Форма залога показывает, является ли подлежащее в предложении (лицо или предмет) производителем или объектом действия, выраженного сказуемым.

Пассивный залог (Passive Voice) показывает, что лицо или предмет, выраженное подлежащим, испытывает действие на себе:

The big cake was baked by Sam. Большой пирог был испечен Сэмом.

Пассивный залог употребляется, когда исполнитель действия очевиден или несуществен, или когда действие или его результат более интересны, чем исполнитель.

**Образование пассивного залога**

Для того, чтобы получить форму глагола в пассивном залоге, необходим вспомогательный [глагол to be](https://www.native-english.ru/grammar/verb-to-be) в соответствующем времени, лице и числе и [причастие прошедшего времени](https://www.native-english.ru/grammar/participle) (Participle II) значимого глагола:

*This building will be demolished next month. – Это здание будет снесено в следующем месяце.*

*My dog has been stolen. – Мою собаку украли*.

В отрицательных предложениях частица *not* ставится после вспомогательного глагола, а если их несколько, то после первого из них:

*He has not been seen anywhere. – Его нигде не видели.*

В вопросительных предложениях вспомогательный глагол (или первый из них) выносится на место перед подлежащим:

*Was your wallet stolen?* *– Ваш бумажник был украден?*

Таблица 3 ***–*** Временные формы глагола в страдательном залоге (Passive Form) To be + Participle II

|  |  |  |  |
| --- | --- | --- | --- |
| Инфинитив | Simple  (to be asked) | Continuous | Perfect  (to have been asked) |
| Время |
| Present | *Am /asked*  *Is /asked*  *Are /asked* | *Am /being asked*  *Is /being asked*  *Are /being asked* | *Have/been asked*  *Has/been asked* |
| Past | *Was /asked*  *Were /asked* | *Was /being asked*  *Were /being asked* | *Had been asked* |
| Future | *Shall (I, we)/ be asked*  *Will /be asked* | – | *Shall /have been asked*  *Will /have been asked* |

Пассивный залог не может быть использован во временах группы Perfect Continuous и времени [Future Continuous](https://www.native-english.ru/grammar/future-continuous).

**Употребление и перевод глаголов в пассивном залоге**

Значение и употребление времен глагола в пассивном залоге такое же, как и времен глагола в активном залоге.

В английском языке в пассивном залоге употребляются переходные глаголы, а также некоторые непереходные глаголы. Примеры предложений с переходными глаголами в пассивном залоге:

*By the middle of the nineteenth century about sixty different elements had been discovered.* ***–*** *К середине XIX столетия был обнаружено около 60 различных элементов.*

*The delegates will be met at the station.* ***–*** *Делегатов встретят на вокзале.*

*While a current is flowing through a wire, the latter is being heated.* ***–*** *Когда ток проходит по проволоке, последняя нагревается*.

Как видно из приведенных примеров, глагол в пассивном залоге в английском языке можно переводить на русский язык несколькими способами:

­а) глаголом, оканчивающимся на -ся, -сь;

б) сочетанием глагола быть с краткой формой причастия пассивного залога (в русском языке в этом сочетании глагол быть в настоящем времени не употребляется);

в) глаголом в активном залоге в 3-м лице множественного числа в составе неопределенно-личного предложения.

Дополнение в предложении с глаголом-сказуемым в пассивном залоге употребляется с предлогом *by* или *with*. Это дополнение соответствует русскому дополнению в творительном падеже без предлога.

Дополнение с предлогом *by* выражает действующее лицо или действующую силу:

*The fish was caught by the seagull.* ***–****Рыба была поймана чайкой.*

Дополнение с предлогом *with* выражает орудие действия:

*Shafts are turned with cutters.* ***–*** *Валы обтачиваются резцами.*

**1. Translate the following sentences into Russian paying attention to Passive Constructions.**

1. We were given this valuable advice by the experimenter himself. 2. Plants bearing seeds are spoken of as seed plants.

3. The delegation was shown various species of useful plants.

4. The end of the root is referred to as the root cap. 5. The endosperm should be looked upon as a food supply stored in the seed for some future use. 6. All the plants that were dealt with in this experiment are cross pollinated. 7. At first wild plants were cared for by man in a very primitive way. 8. All the roots and root branches of a plant are referred to as the root system. 9. The quality of the stored seeds is highly influenced by the storage condition. 10. This method of cultivation in not paid much attention to.

**2. Put the following sentences in Perfect Passive.**

**Example**: We have found a new variety of wheat.

A new wheat variety has been found by us.

1. This scientist has developed a new drought resistant variety. 2. We have grown perfect crops of wheat on heavy loams and clays. 3. Our experimental station has developed a new frost resistant variety of wheat. 4. This winter wheat variety has produced a high yield. 5. The farmers of China have grown wheat at least 3000 years ago.6. Roots are known to be classified into several types. 7. This scientist is said to have developed a new drought resistant variety of wheat. 8. The seeds of wheat are known to be planted much deeper than that of clover. 9. Wheat is said to have been grown in China 3000 years ago. 10. Wheat is believed to have been grown in Asia and Northern part of Africa from time immemorial. 11. No part of the world is considered too hot for the production of wheat.

**3. Fill in the gaps with *by* or *with*.**

1. The hall was decorated … pink balloons. 2. The roof of the church will be repaired … local people. 3. This material has been already published … Cambridge University Press. 4. The house was built … money that he had borrowed from the bank. 5. When the accident happened, the car was brought … police.

**Text A**

**Vocabulary list**

to precede – предшествовать

to assure – обеспечить, гарантировать

yield of seeds – урожай семян

sepal – чашелистик

petal – лепесток

stamen – тычинка

pistil – пестик

floral parts – части цветка

complete flower – полный цветок

incomplete flower – неполный цветок

to lack – отсутствовать, недоставать

to involve (in) – вовлекать, участвовать

to comprise – составлять

leaflike – листоподобный, похожий на лист

are alike in that – похожи в том, что

unlike – в отличие

corolla – венчик, корона

pollen – пыльца

pollination – опыление

essential – важный, существенный

fertilization – оплодотворение

style – столбик

stigma – рыльце

ovary – завязь

egg-cell – яйцеклетка

self-pollinated – самоопыляемый

proximity – близость

cross-pollinated – перекрестноопыляемый

**1. Translate the following word combinations into Russian:**

to produce flowers, seed production, in addition, reproduction process, a complete flower, an incomplete flower, common cereals, a swollen base, self-pollinated flowers, pollen grains, reproductive organs, to be necessary for fertilization, close proximity of stamens and stigma.

**2. Read and translate the text.**

**Flower**

All seed plants are alike in that they all produce flowers. The flower is the part of the plant which is formed for seed production. A seed is always preceded by a flower. The seeds are the means by which most plants reproduce and in addition they are sources of food for man and feed for livestock. Consequently, it is highly important that the flower develop and function properly so as to assure a good yield of seeds. If you want to understand how plants produce seeds, it is necessary that you be familiar with the parts of the flower and the role of each in the reproduction process.

**Parts of flower** A complete flower is made up of four principal parts, namely a) sepals, b) petals, c) stamens and d) a pistil. The number and position of the floral parts vary in different species and it frequently happens that one or more of them is missing, in which case the flower is said to be incomplete.

The flowers of the small grain lack both petals and sepals, and thus they are incomplete.

Neither sepals nor petals are directly involvedin seed production. The former comprise the outermost part of the flower, protecting and supporting the other parts. They are usually green and leaf-like. Sometimes, however, they are brightly colored rather than green but it is not true for common cereals. The petals are located immediately to the inside of the sepals and unlike the latter they are generally bright-colored but it is not true for grasses, including the common cereals. When taken together the petals are referred to as the corolla. The two remaining parts of the flower, namely, the stamens and the pistil, form the reproductive organs of the flower and are both absolutely essential for reproduction and seed production. It is in the stamens that the pollen grains which are necessary for fertilization are produced. The pistil should be looked for in the center of the flower. It consists of the style bearing on its top the stigma and a swollen base which is referred to as ovary. Within the ovary there are the egg-cells.

**Pollination and Fertilization** For fertilization to occur the egg-cells must be fertilized by the pollen grains. The transfer of pollen from the stamens to the stigma of the pistil is spoken of as pollination. In self-pollinated flowers pollination results from close proximity of stamens and stigma. In some cases pollination occurs before the flower opens, as in most of the cereals and in some grasses; as a more general rule, however, flowers are pollinated from the flowers of other plants of the same species. Such plants are spoken of as cross-pollinated. Pollination is effected in some plants by wind while others have insect pollination. After the pollen has been transferred to the stigma some further processes take place which result in the fertilization of the egg-cells. The latter then develop into seeds.

**Notes:**

**In addition** – кроме того, к тому же, вдобавок

**so as** (to + Inf.) – для того, чтобы

**(to) be involved** – участвовать в, быть связанным с

**… but it is not true for common cereals** – но этого не бывает у обычных злаковых

**(to) be referred to as** – называться; упоминаться как

**(to) result from –** происходить от; получаться из

**(to) result in –**  приводить к; давать в результате

**3. Find in the text the following word combinations:**

производить семена, процесс размножения, части полного цветка, самая наружная часть цветка, листоподобный, ярко окрашенные лепестки, перекрестноопыляющееся растение, растения, опыляемые насекомыми.

**4. Fill in the blanks with appropriate words and word combinations from the text.**

1. A seed is always preceded by a … . 2. A complete flower is made up of four … parts: …, …, … and … . 3. The flowers of … lack both … and … . 4. Taken together the … are referred to as the … . 5. Commonly flowers are … from the flowers of other plants of the same … . 6. The … are located immediately to the inside of the … .

**5. Agree or disagree with the following statements (True or False).**

1. The transfer of pollen from the stamens to the stigma of the pistil is pollination. 2. Within the ovary there are the egg-cells.

3. The pistil is in the center of the flower. 4. The petals taken together are referred to as the corolla. 5. The stamens and the pistil form the reproductive organs of the flower. 6. Sepals comprise the outermost part of the flower. 7. The flowers of the small grain have both petals and stamens. 8. A complete flower is made up of 5 principal parts. 9. The number and position of the floral parts vary in different species. 10. A flower is preceded by a seed.

11. The flower is the part of the plant which is formed for leaf production.

**6. Say it in English using words from the vocabulary list.**

1. Цветок – самая заметная часть растения. 2. Цветы различаются по цвету, размеру и форме. 3. Все растения, образующие семена, имеют цветки. 4. Некоторые цветки очень простые, они имеют только основные части. 5. Цветы необходимы, чтобы образовывать семена. 6. Основные части цветка это: лепестки, чашелистики, тычинки и пестик. 7. Чашелистики покрывают цветковую почку и защищают ее от насекомых. 8. Термин чашечка включает все чашелистики цветка. 9. Лепестки часто бывают ярко окрашены, чтобы привлекать насекомых. 10. Тычинки являются мужским органом цветка, а пестик – женским.

**7. Answer the following questions.**

1. What is a flower? 2. What is a seed usually preceded by?

3. By what means do most plants reproduce? 4. What is a complete flower made up of? 5. What flower is incomplete? 6. What parts do the flowers of the small grains lack? 7. Are sepals and petals involved in seed production? 8. Where are petals located? 9. What is the corolla? 10. What are the reproductive organs of the flower? 11. Where are the pollen grains produced? 12. What does the pistil consist of? 13. Where are egg-cells produced? 14. What process is known as pollination? 15. What plants are spoken of as cross-pollinated?

**8. Choose 8–10 key sentences from text A and retell it using them.**

**Text B**

**1. Get acquainted with text B and find in the text answers to the following questions:**

1. What is the biological function of the flower? 2. What do seeds serve for? 3. How are the groupings of flowers called? 4. What are the means of pollen transfer from one flower to another? 5. In what way have modern flowers been influenced by humans? 6. How do people beautify their life? 7. What do flowers provide man with? 8. What flower vegetables do you know? 9. Name some edible flowers.

**Functions of Flowers**

A flower, also known as a bloom or blossom, is reproductive structure found in flowering plants. The biological function of a flower is to mediate the union of male cells with female cells in order to produce seeds. The process begins with pollination, is followed by fertilization, leading to the formation and dispersal of the seeds. For the higher plants, seeds are the next generation, and serve as the primary means by which individuals of a species are dispersed across the landscape.

The grouping of flowers on a plant is called the inflorescence. In addition to serving as the reproductive organs of flowering plants, flowers have long been admired and used by humans, mainly to beautify their environments but also as the source of the food. Each flower has a specific design which best encourages the transfer of its pollen. Some flowers attract and use insects, birds to transfer pollen from one flower to the next.

Flowers also attract pollinators by scent and color. Some species of orchids, for example, produce flowers resembling female bees in color, shape, and scent. Flowers are also specialized in shape and have an arrangement of the stamens that ensures that the pollen grains are transferred to the bodies of the pollinator when it lands in search of its attractant (such as nectar, pollen, or a matte). Flower evolution continues to the present day; modern flowers have been so much influenced by humans that many of them cannot be pollinated in nature.

The transition to flowering is one of the major phase changes that a plant makes during its life circle. Flower formation is initiated at the ends of stems and involves a number of different physiological and morphological changes. The first step is the transformation of the vegetative stem primordial into floral primordial. People grow flowers around their homes, dedicate entire parts of their living space to flower gardens, pick wildflowers or buy flowers from florists.

Flowers provide less food than other major plants parts (seeds, fruits, roots, stems and leaves) but they provide several important foods and spices. Flower vegetables include broccoli, cauliflower, and artichoke. The most expensive spice, saffron, consists of dried stigmas of a crocus. Other flower spices are clovers and capers. Hundreds of flesh flowers are dipped in bread crumbs and fried. Edible flowers include nasturtium, chrysanthemum, carnation, cornflower, canna and sunflower. Flowers can also be made into herbal teas; they are infused into tea both for their fragrance and medical properties.

**Notes:**

**inflorescence** – соцветие

**saffron** – шафран

**capers** – каперсы

**2. Skim the text again and:**

a) find the sentence in the text, which enumerates the functions of the flower;

b) describe the process of pollination;

c) say, what attracts pollinators to the flower;

d) say, who takes part in the process of pollination;

e) say, how is flower produced.

**3. Make up the plan of text B and retell it.**

**Unit 5**

Grammar Revision: **Infinitive (Part I)**

Text A: **Seed**

Text B: **Seedbed Preparation**

**Инфинитив (Infinitive)**

Инфинитив (the Infinitive) – это неличная форма глагола, которая называет действие. Инфинитив является основной (или I) формой глагола и представляет глагол в словаре. Признаком инфинитива является частица *to: to help – помогать, to read  – читать*. Инфинитив употребляется без частицы *to* в следующих случаях:

*You had better go now.* ***–*** *Лучше уйди / иди сейчас.*

*I must see you at once.* ***–*** *Мне надо сейчас же встретиться с тобой.*

Таблица 4 ***–*** Формы инфинитива

|  |  |  |
| --- | --- | --- |
| Forms | Active | Passive |
| Indefinite | *to write* | *to be written* |
| Continuous | *to be writing* | *–* |
| Perfect | *to have written* | *to have been written* |
| Perfect Continuous | *to have been writing* | – |

Инфинитив в форме действительного залога обозначает действие, произведённое лицом, выраженным в предложении подлежащим, а в страдательном залоге – действие, направленное на это лицо.

*I like to help.* ***–*** *Я люблю помогать.*

*I like to be helped.* ***–*** *Я люблю, когда мне помогают.*

Инфинитив в Indefinite Active обозначает действие, не уточняя характер его протекания. Инфинитив в Continuous Active подчеркивает длительность действия.

*She likes to write letters.* ***–****Она могла писать письмо.*

*She must be still writing.****–*** *Она, должно быть, все еще пишет.*

Неперфектный инфинитив выражает действие, одновременное с действием глагола-сказуемого (или следующее за ним).

Перфектный инфинитив выражает действие, предшествующее действию, выраженному глаголом-сказуемым.

*I am glad to study at the University.* ***–*** *Я рад, что учусь в университете.*

*I am glad to have studied at the University.****–*** *Я рад, что учился в университете.*

**1. Read and translate the following sentences paying attention to the different forms of Infinitive and their meaning.**

1. I’d like to go home early today. 2. It’s nice to be sitting here. 3. I’m glad to have left school. 4. He doesn’t like to be interrupted while he’s working. 5. I remember to have been asked this question. 6. I’d like to have been sitting there when she walked in. 7. She asked me not to forget to post the letter. 8. I was sorry not to have phoned you. 9. We must make careful plans. 10. I would rather go by myself.

1. **Translate the following sentences. Pay attention to difference in the translation of attributes, expressed by Participle constructions and the Infinitive.**

1. The soil to be used as a seedbed should be warm, moist mellow. 2. The soil cultivated when it is too wet will not provide conditions for normal plant growth. 3. Seed planted deep enough will have a sufficient supply of moisture and nutrients. 4. Developing a new variety to be cultivated in a given area one should know its soil and climatic requirements. 5. We were given the seed to be used for sowing. 6. The seedbed prepared in spring is to provide the proper environment for seed germination. 7. Fertilizers to be applied must be of highest quality. 8. The yield of root crops produced last year was rather low. 9. The yields to be obtained on our farm greatly depend on soil conditions. 10. The increase in corn yield to be produced greatly depends on the amount and quality of fertilizers added to the soil.

**Text A**

**Vocabulary list**

reproductive part – репродуктивная часть

embryonic plant – зародышевое растение

generation – поколение

seed coat – семенная кожура

germ – зародыш

dormant state – состояние покоя

food supply – запас питательных веществ

endosperm – эндосперм

seed leaves – семенные листочки

to germinate – прорастать

viability – жизнеспособность

viable – жизнеспособный

storage conditions – условия хранения

to mature – созревать

to swell – набухать

clover – клевер

pressure – давление

to cause – заставлять, вызывать

stands – всходы

germination – прорастание

cereal – злак

**1. Translate the following word combinations into Russian:**

embryonic plant, new generation, plant in a dormant state, dry seeds, to germinate properly, high viability, food supply, the amount of required heat, reproductive part, storage conditions, air-dried seeds, seed coat, the kinds of seeds, moisture content, to retain vitality.

**2. Read and translate text A.**

**Seed**

Ordinarily the plant is divided as follows: the root system, stems and leaves and, the reproductive part made up of flowers, fruits and seeds.

**Seed** A seed must be looked upon as an embryonic plant of the new generation with enough stored food to start it off in life and seed coats for protection. Thus a seed consists of: a) the embryonic plant in a dormant state known also as the embryonic or germ; b) the food supply stored either inside the embryo or, as with the cereals, around it on the outside, in which case it is called the endosperm, c) one or more seed coats surrounding and protecting the other parts.

Some seeds as those of the legumes do not contain an endosperm, the entire supply of food in them being stored inside the embryo in its seed leaves or cotyledons. Thus, in the seed the plant stores up food to be used at some future time. It is on this stored food that the young plant feeds until it is sufficiently developed to provide food for it.

**Germination** The dry seeds being placed under favorable conditions; the young dormant plant begins to grow. This change from a dormant state to one of activity is known as germination. For seeds to germinate well they should be well developed and have high viability. The length of time during which the seed remains viable depends on the species and the storage conditions as well, the maximum period for most species varying from 2 to 10 years. The main factor affecting the viability of seeds is their moisture content. For seeds to retain their vitality well they should be thoroughly air-dried as soon as mature and kept in dry place.

For germination to occur three conditions are necessary: sufficient heat, moisture and air should be present. Unless all three of these conditions are met, the seed will not germinate properly. The amount of required heat will vary with the kinds of seeds. Some seeds, as those of clover and oats, will grow at rather low temperature while the requirement of corn seeds is higher.

**3. Find in the text the following word combinations:**

запасать питательные вещества, благоприятные условия, зародышевое растение, хранить в сухом месте, семенная кожура, высокая жизнеспособность, хорошо прорастать, растение в состоянии покоя, содержание влаги.

**4. Fill in the blanks with appropriate words from the text.**

1. A seed consists of … . 2. The food supply is stored either … or … . 3. The seed coat encloses and … . 4. The portion of the food supply that is outside of the embryo is referred to as … .

5. The seeds of the legumes do not … . 6. The supply of food in legumes is stored inside the embryo in … . 7. The change from the dormant condition to one of activity is … . 8. For germination to occur the following conditions are necessary … . 9. Unless all three conditions are met, the seeds … . 10. The most favorable temperature for germination varies … .

**5. Agree or disagree with the statements. (True or False)**

1. The seed consists of two main parts. 2. The portion of the food supply that is outside the embryo is referred to as the endosperm. 3. The seeds of the legumes contain an endosperm.

4. When the seed is sown or planted under improper conditions in the field, the process of germination starts immediately. 5. Oats, for example, will germinate at much higher temperature than corn. 6. Based on their method of emergence from the soil, plants are classified as having a) active hypocotyls or b) inactive hypocotyls. 7. The seeds are the means by which most plans reproduce.

1. **Distribute the given sentences in the same sequence as in the text.**
2. To most people, especially the farmers, the life cycle of a plant begins with the seed.
3. The root is a part of the plant that grows downward into the soil.
4. Thus, a seed can be divided into three main parts.
5. Plants reproduce a) by producing seed; b) vegetatively; c) or both by producing seed and vegetatively.
6. When conditions become favorable, the young dormant plant begins to grow.
7. Roots grow downward into the soil from the lower parts of the plant, while the upper part of the plant penetrates through the soil and emerges from the surface.
8. The most favorable temperature for germination varies with the crop.

**7. Choose the sentences from the text describing the process of seed germination.**

**8. Find in text A answers to the following questions:**

1. What factors are necessary for germination? 2. What happens if the soil is high in organic matter and conditions are favorable for decay? 3. What conditions are necessary for germination? 4. What is necessary in order to understand how plants produce seeds?
2. **Find key sentences in each paragraph of text A and make up the plan of retelling it.**

**Text B**

**1. Skim text B and find in it answers to the following questions.**

1. Why is good seedbed necessary? 2. Is moisture required by germinating seeds? 3. What is cultivation done for? 4. Why is it recommended to cultivate the soil early in the season? 5. What should be done to conserve moisture? 6. Is a good seedbed the only factor providing proper germination of seed?

**Seedbed Preparation**

Good stands start with good seed. However, even the best seed will not produce optimum yields unless other factors are favorable. A good seedbed that supplies the proper environment for germination is of the greatest importance in ensuring an optimum stand of the crops to be grown. Such seedbed is to ensure adequate moisture for germination at the due seeding depth. The soil particles must be in contact with the seed they surround to allow maximum water absorption for rapid germination.

Before planting, a grower has to perform cultivation and at the same time preserve soil structure and minimize water loss due to evaporation from the soil surface. If the soil were too finely pulverized, crusting would occur. To maintain good structure the soil should not be cultivated when it is wet. The first tillage operation following the preceding harvest is to destroy crop residues and to incorporate them into the soil to be used for seeding. In some regions this is done in the fall, while in areas with short growing season this operation is delayed until early spring. Early cultivation allows more time for organic matter to decompose. Final seedbed preparation is complete in spring or late summer for crops to be sown in the fall. The first step is to cultivate with discs or harrows, or both. The surface soil is to be worked finely enough to minimize evaporation and to insure fine and mellow seedbed. It has to be cultivated deeply to kill early growing weeds. After cultivation, fields are sometimes rolled to ensure a firm seedbed. This is quite common in preparing the seed for most forage grasses. For crops that require irrigation, beds should be formed before rolling. To conserve moisture, final seedbed preparation should be followed by immediate planting.

However, even the best seedbed will not ensure a good stand unless there is enough oxygen and proper temperature for seed germination.

**2. Translate the sentences into English using the text.**

1. Хорошая пашня также важна для получения высоких урожаев, как и хорошие семена. 2. Семена нужно сажать на соответствующую глубину. 3. Первые операции по обработке почвы производятся либо осенью, либо ранней весной. 4. Хорошо подготовленная пашня имеет очень большое значение для получения хороших всходов. 5. Иногда культивация должна быть достаточно глубокой, чтобы уничтожить сорняки. 6. Если мало кислорода и температура воздуха слишком низкая, семена не будут нормально прорастать даже на хорошей пашне.

**3. Write an annotation on the theme: «Seedbed preparation».**

**Unit 6**

Grammar Revision: **Infinitive (Part II)**

Text A: **Soil**

Text B: **Soil Water**

**Инфинитив (Infinitive)**

**В функции подлежащего**

Если предложение начинается с инфинитива, за которым следует глагол-сказуемое, то этот инфинитив является подлежащим, и переводится на русский язык глаголом в неопределенной форме или существительным.

**В функции обстоятельств цели и следствия**

Инфинитив (или инфинитивная группа, т. е. инфинитив с уточняющими его словами), находясь в начале предложения, может выполнять и другую функцию: он может быть не подлежащим, а обстоятельством цели. Такой инфинитив часто вводится союзом *in order (чтобы, для того чтобы).*

Однако союз *in order* часто опускается, и тогда предложение начинается с инфинитива (или инфинитивной группы). При переводе на русский язык перед таким инфинитивом следует добавить союз *чтобы*.

Итак, инфинитив в начале предложения переводится на русский язык либо неопределенной формой глагола (если это инфинитив в функции подлежащего), либо неопределенной формой глагола с союзом *чтобы* (если это инфинитив в функции обстоятельства цели).

Сравните:

1*. То create jobs for young people means to lower juvenile delinquency.*

2. *To create jobs for young people the government allocated additional means.*

Следовательно, обнаружив в начале предложения инфинитив, надо сначала попытаться перевести его, не добавляя союза *чтобы* (в первом примере: «*Создавать рабочие места для молодежи означает снижать уровень преступности среди молодежи»*). Если это не удается (во втором примере), значит, следует добавить союз *чтобы*: *«Чтобы создать рабочие места для молодежи, правительство выделило дополнительные средства».*

Инфинитив в функции обстоятельства цели может находиться не только в начале предложения, но и после дополнения или обстоятельства, причем союз *in order* и в этом случае часто опускается.

Инфинитив в предложении выполняет также функцию обстоятельства следствия и переводится неопределенной формой русского глагола с союзом *чтобы* (*для того чтобы*) после слов *enough (достаточно*) и *too (слишком).* Например:

*The average wage in this industry is high enough to attract workers from other industries.*

*The wage in this enterprise is too low to attract qualified workers.*

*Средняя заработная плата в этой отрасли достаточно высока для того, чтобы привлечь рабочих из других отраслей.*

*Заработная плата на этом предприятии слишком низкая, чтобы привлечь квалифицированных рабочих*.

**Инфинитивный оборот «for +существительное /**

**местоимение + инфинитив*»***

Оборот «*for* + существительное (личное местоимение в объектном падеже) + инфинитив» является в предложении подлежащим, если употребляется после слов *it is necessary / important / possible* и т.п. или обстоятельством следствия после слов *too (слишком), enough* (достаточно) или обстоятельством цели. Во всех случаях инфинитивный оборот соответствует русскому придаточному предложению с союзом *чтобы*, а инфинитив в таком придаточном предложении переводится сказуемым. Например:

*It is necessary for society to allocate resources sparingly.*

*The production costs in the enterprise are too high for it to work profitably.*

**В функции определения**

Инфинитив или инфинитивная группа, следующие за существительным, могут являться определением к этому существительному.

Инфинитив в функции определения может переводиться на русский язык различными способами:

1. Инфинитив переводится неопределенной формой русского глагола.

2. Инфинитиву соответствует в русском языке определительное придаточное предложение, начинающееся словами *который будет* или *который должен*. Сказуемое такого придаточного предложения обозначает действие, которое должно произойти в будущем. Инфинитив, переводимый придаточным предложением, чаще всего имеет пассивную форму (*to be used, to be produced* и т. п.).

*The Gross National Product per head is an important characteristic to be considered in determining living standards.* ***–****Валовой национальный продукт на душу населения – это важная характеристика, которая должна приниматься во внимание при определении уровня жизни.*

Инфинитиву соответствует в русском языке определительное придаточное предложение, начинающееся словами который может. Сказуемое такого придаточного предложения обозначает действие, которое можно произвести с определяемым существительным. Инфинитив имеет, как правило, пассивную форму.

1. **Translate the sentences with the Infinitive as a subject.**

1. To study botany is necessary for future agronomists. 2. To plow, sow and cultivate the soil is very important for obtaining good yield. 3. To apply organic matter to the soil means to improve soil productivity. 4. To classify farm crops agronomically according to their use is very important. 5. To develop new variety of this crop was very difficult. 6. To increase the yield of the crop was the main problem of plant breeders. 7. To find new uses of plants is very important for scientists. 8. To study the structure of the plant is the first task of any agriculturist.

1. **Translate the sentences paying attention to the functions of the Infinitive.**
2. To develop good tubers potatoes need sandy or sandy loam soil. 2. Fine soils can store enough moisture for crops to grow normally. 3. To produce high yields crop plants require an adequate supply of plant nutrients and water. 4. Crops also require minerals in order to grow well. 5. The climate of this area is too cold to cultivate corn. 6. To apply fertilizers is the most usual practice in cultivating most crops. 7. For soil to produce good crops, it should be not too acid or too alkaline. 8. In order to improve the structure of this soil we must supply it with organic matter. 9. To get good results the plant grower must know the properties of the soil cultivated. 10. To prepare the proper seedbed is very important for obtaining good results. 11. The soils in our region are too heavy to provide normal development of tubers. 12. Legumes can be grown to improve soil fertility. 13. For soil moisture to be high enough irrigation is often necessary.

**Text A**

**Vocabulary list**

heavy soil – тяжелая почва

light soil – легкая почва

clay loam – глинистая почва

sandy soil – песчаная почва

acid soil – кислая почва

alkaline soil – щелочная почва

fine soil – мелкоструктурная почва

particle – частица

organic matter – органическое вещество

prepare – готовить

quantity – количество

loam soil – суглинистая почва

volume – объем

to arrange – располагаться, устраивать(ся)

erosion – эрозия

constituent – составная часть

coarse – грубый крупнозернистый

moist – влажный

oxidation – окисление

hydrogen – водород

abundant – обильный, изобильный

water-holding capacity – влагоемкость

provided – при условии

rich in – с высоким содержанием

to meet the needs – удовлетворять потребности

**1. Read and translate the text.**

**Soil**

Being less important than climate soil properties are essential in determining which crop to grow.

Texture of a soil refers to the size of its particles. Soils range from pure sands to pure clays. The principle textural classes are sand, sandy loam, clay loam and loam. A soil with a large proportion of clay particles is usually called a heavy soil, and the one with a large proportion of sand – a light soil, two types differing greatly in the easy cultivation. Soil structure refers to the manner in which the particles are arranged. An aggregated or compound structure favours good seedbed preparation, easy cultivation and protection from the wind and water erosion. Aggregated structure normally is found in soils rich in organic matter.

Among soil constituents water is the most important one. The finer the soil particles, the more water the soil holds. Extremely coarse sandy soils are unable to store moisture in sufficient amounts for crops to grow well.

Air which makes up from 20 to 25 per cent by volume of an ordinary moist soil, supplies oxygen necessary for root growth and for oxidation of organic matter and other soil constituents.

To grow well crop plants need an adequate supply of plant nutrients during the growing.

About 25 or 30 chemical elements are found in plants, carbon, oxygen and hydrogen being most abundant. The essential mineral elements that are present in plants are most frequently deficient in soils are nitrogen, phosphorus and potassium. But in order to grow normally crops also absorb considerable quantities of other minerals, such as calcium, magnesium and sulfur.

Good soils contain adequate amounts of available nutrients to meet the needs of a crop plant for normal growth. They are too acid or too alkaline to produce good growth. In general, fertile soils with a good water-holding capacity are favorable for the growth of the most important crop plants. Some soils may have an especially wide range of crop adaptation.

However, to apply additional fertilizer is usually a good practice even on the best soil, provided growing conditions are favorable.

**2. Fill in the blanks with appropriate words from the text.**

1. … of a soil refers to the size of its … . 2. A soil with a large proportion of … particles is called a … soil. 3. Extremely … … soils are unable to store moisture in sufficient amounts for … to grow well. 4. To grow well crop plants need an adequate supply of … … during the growing period. 5. Fertile soils with a good … … … are favorable for the growth of crops. 6. To … additional … is usually a good practice even on the best soil. 7. … … are essential in determining which crop to grow.

**3. Agree or disagree with the following statements. (True or False)**

1. The principal textural classes of soil are sand, clay loam and loam. 2. A soil with a large proportion of clay particles is called a light soil, and the one with a large proportion of sand – a heavy soil. 3. Aggregated structure normally is found in soil rich in organic matter. 4. The finer the soil particles, the less water the soil holds. 5. Air usually makes up from 40 to 60 per cent by volume of an ordinary moist soil. 6. About 25 to 30 chemical elements are found in plants, nitrogen, phosphorus and potassium being most abundant. 7. In order to grow well crops also don’t absorb considerable quantities of calcium, magnesium and sulphur.

**4. Translate the sentences from Russian into English.**

1. Есть тяжелые и легкие почвы. 2. Основные типы почв – песчаные, суглинистые и глинистые. 3. Почвы имеют различную структуру. 4. Воздух снабжает растения кислородом.

5. Чтобы хорошо расти, растениям требуются питательные вещества. 6. Текстура почвы определяется размером почвенных частиц. 7. По текстуре почвы классифицируются на тяжелые (с большим количеством глинистых частиц) и легкие (с большим количеством песка). 8. Почвенная структура зависит от расположения почвенных частиц. 9. Плодородные почвы содержат достаточное количество питательных веществ, которые поглощаются растениями через корни. 10. Полезно применять удобрения даже на плодородных почвах.

**5. Answer the following questions.**

1. What classes of soils do you know? 2. What is soil structure? 3. What do plants absorb from the soil? 4. What do plants obtain from the air? 5. What are the most important mineral elements required for plant growth? 6. Why can plants grow well on fertile soils? 7. Should fertilizers be applied to fertile soils?
2. **Find key sentences in each paragraph of the text and make up the plan of retelling.**
3. **Give the short summary of text A using the plan of retelling.**

**Text B**

**1. Skim text B and answer the following questions. Use dictionary if necessary.**

1. What is one of the most important factors affecting crop production? 2. What is soil water needed for? 3. Is the moisture content of the soil always optimum for the highest crop production? 4. What is a very essential factor in cultivation? 5. What makes soil difficult to cultivate?

**Soil Water**

Soil water is one of the most important factors affecting crop production. The success of a cropping system may sometimes depend on adequate irrigation and drainage program.

Water must be available in the soil to compensate its losses through some natural processes during the growing season. Soil water is needed as it conducts nutrients for growing crops. It also has a great effect on aeration and temperature conditions in the soil. The soil must be able to provide water for maximum yield to be obtained.

However, the moisture content of a soil is not always optimum for the highest crop production. Usually there is either a deficiency or too big amount of it, and crop production is reduced.

Some soils contain too much water at all times, and to be used for agriculture they require special drainage. There are soils which are always deficient in moisture because of inadequate rainfall, and will produce poor crops unless they are irrigated. Most agricultural soils have enough water to meet plant requirement during a considerable part of the year.

Soil water is also a very essential factor in cultivation. It often determines the time and the depth of sowing. Insufficient amount of moisture makes the soil too hard and very difficult to cultivate.

**2. Enumerate in English all types of soils known to you.**

**3. Find in the text the sentence describing the role of water in supplying plants with nutrients.**

**4. Write out key sentences from text B and use them for retelling it.**

**Unit 7**

Grammar Revision: **Conditional Clauses**

Text A: **Classification of Field Crops**

Text B: **Botanical classification**

**Условные придаточные предложения**

**(Conditional Clauses)**

Условные предложения могут выражать реальные, маловероятные (условные предложения I типа) и нереальные условия (условные предложения II типа).

**Условные предложения I типа**

Условие, содержащееся в условном придаточном предложении, рассматривается говорящим как реально предполагаемый факт, относящийся к настоящему, прошедшему или будущему временам. Сказуемые главного и придаточного предложений выражаются глаголами в формах изъявительного наклонения.

*If the weather is nice, we go for a walk.****–*** *Если погода хорошая, мы ходим на прогулку.*

*If the weather was nice, we went for a walk.****–*** *Если погода была хорошая, мы ходили на прогулку.*

*If the weather is nice, we'll go for a walk.* ***–*** *Если погода будет хорошая, мы пойдём на прогулку.*

**Условные предложения II типа**

Условие, содержащееся в условном придаточном предложении, рассматривается говорящим как маловероятное. Для выражения малой вероятности осуществления действия в настоящем или будущем временах сказуемое главного предложения употребляется в форме сослагательного наклонения *should / would + Indefinite Infinitive*без*to*, а сказуемое придаточного предложения ***–*** в форме сослагательного наклонения, аналогичной *Past Indefinite* или *were* для всех лиц от глагола *to be*.

*If he were free, he would do it.* ***–*** *Если бы он был свободен, он бы это сделал.*

*If we paid more attention to grammar, we should know the language better.* ***–*** *Если бы мы уделяли грамматике больше внимания, мы бы знали язык лучше.*

**Условные предложения III типа**

Условие, содержащееся в условном придаточном предложении, рассматривается говорящим как неосуществимое, так как относится к *прошлому* времени. Сказуемое главного предложения употребляется в форме сослагательного наклонения *should / would + Perfect Infinitive*, а сказуемое придаточного предложения в форме сослагательного наклонения, аналогичной *Past Perfect*.

*I should not have been late yesterday, if my watch had been write.****–*** *Я бы не опоздал вчера, если бы мои часы шли правильно.*

**Союзы условных придаточных предложений**

*if – если; in case – в случае, если; suppose (that) – предположим, что; on condition (that) – при условии, что; provided (that) – при условии, что; unless – если … не; but for – если бы не.*

**1. Complete the sentences.**

1. If people (not to drink), they (to die). 2. If you (to eat) bad food, your health (to become) worse. 3. If you (not to feel) well, you (to go) to the doctor. 4. If babies (to be) hungry, they (to cry). 5. If I (to be) thirsty, I always drink fresh water. 6. If Tom (to have) a birthday party, he usually (to invite) a lot of friends. 7. If Mary (to do) her homework well, her teacher always (to praise) her. 8. If I (to have) a headache, my mother usually (to give) me  some medicine. 9. If I (to cough), I (to drink) hot milk with honey. 10. If you (to fly) by a budget airline, you (to have) to pay for your drinks and food. 11. If we (to be) late for school, our teacher (to get) angry.

**2. Translate the following sentences into Russian.**

1. I’ll ask Tom if I see him today. 2. We would go to the party if we had time tomorrow. 3. She would pass her exam next month if she worked harder. 4. She would be happy if she met him at the party next Sunday. 5. We’ll go nowhere tomorrow if it rains. 6. If she knew his phone number, she would call him next week. 7. If  J. London had not learned life from his own experience, he could not have written his great works. 8. Had the science of radio not been developed so rapidly, we should not have got such remarkable  changes in the technique today. 9. Had he been a young man, he would have taken part in the expedition. 10. If you had applied this method, you would have got better results.

**3. Fill in the gaps with the suitable verb form.**

1. The trains all (stop) … if it snowed heavily.   
2. If you (go out) … in cold weather without a coat, you would catch a cold. 3. If I saw a cheap second- hand car, I (buy) … it.

4. If you ate well and exercised regularly, you (live) … 100 years. 5. You would have had stomach ache if you (eat) … too much of that cake. 6. If it (rain) … this afternoon, I (take)… my umbrella. 7. If you did not drive carefully, you (have) … an accident. 8. If you (study) … for a higher qualification, you (get) … a better job next year. 9. If you sent the letter by first class mail, it (get) … there the following day. 10. If the weather is fine, we (go) for a picnic.

**Text A**

**Vocabulary list**

ability – способность

growth habit – специфика (особенность) роста

annual – однолетний

barley – ячмень

bean – боб

biennial – двухлетний

to define – определять

edible – съедобный

fiber – волокно

flax – лен

grass – трава, злаковое растение

hemp – конопля

like – подобный

manure – удобрение (органическое)

to mention – упоминать

nitrogen – азот

object – цель

perennial – многолетний

to raise – выращивать

root crop – корнеплод

rope – веревка, канат

tuber – клубень

root crop – корнеплод

oats – овес

forage crop – кормовая культура

cotton – хлопок

rye – рожь

1. **Translate the following word combinations into Russian:**

the aim of classification, according to growth habit, cereals raised by man, to improve soil fertility, grain crop, the main object, to fix free nitrogen, field peas, a thickened underground stem, root crop, a specific purpose, forage crops, green manure crops.

**2. Read and translate the text using a dictionary.**

**Classification of Field Crops**

The aim of classification of field crops is to group them either according to their growth habit or according to their use.

On the first principle the crops are classified as annuals, biennials and perennials.

If you took a text-book of agronomy, you would find there the following classification of crops based on their use.

**Cereal or Grain Crops**

If an agronomist were asked to define a cereal, he would say that it is the grass grown for its edible grain. Corn, barley, oats, rice, and rye to be mentioned as the main cereals raised by man.

**Large-Seeded Legumes**

The principle legumes grown for seeds are field peas, field beans and soybeans. Sometimes the main object in growing legumes is to improve soil fertility for they are able to fix free nitrogen out of the air through the bacteria living on their roots.

**Root Crops**

Unlike cereals, root crops as beets, for instance, are grown because of the food value on their roots. If they had not such an ability, they could not live and produce seeds the second year.

**Forage Crops**

If you look for a definition of a forage crops, you will find that it is a crop grown because of its stems and leaves that are to be used in to fix free nitrogen. Forage crops include all grasses cut for hay, legumes cut for forage, sorghum and corn fodder.

**Tubers**

A tuber is a thickened underground stem. The most important tuber cultivated throughout the world is potato. We should make a great mistake if we called it a root crop, because its habit of life is quite unlike that of the root crop.

**Fiber Crops**

Several plants are grown because of their fiber which is used in making textile, ropes and similar materials. The principle fiber crops are cotton, flax and hemp.

**Crops for Special Farm Uses**

A special purpose crop may be any of the other types grown for a specific purpose. For instance, crops, like legumes, are grown to be plowed under for soil improvement and are called green manure crops.

**3. Fill in the blanks with the appropriate words from the text.**

1. The main … raised by man are corn, barley, oats, rice, wheat and rye. 2. Unlike cereals … … as beets are grown because of the food value of their root. 3. … … include all grasses cut for hay, legumes, sorghum and corn. 4. The most important … cultivated throughout the world is potato. 5. The principle … crops are cotton, flax and hemp. 6. … … cannot produce seed the first year. 7. Cereal is a grass grown for its … grain.

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

1. Temperature is one of the most important environmental factors affecting crop growing. 2. Botanical classification is one based on the similarity of plant parts. 3. One can group plants according to the duration of their growth. 4. Perennial crops are the ones that grow for more than two years. 5. One should know the crops belonging to grass family. 6. They use traditional cultural practices in corn production but we use improved ones and obtain better results. 7. Most of our field crops belong to one of the two botanical families: the grasses and the legumes. 8. Annual crops are those that complete their life cycle in one season.

**5. Find in the text the English sentences equivalent to the Russian sentences.**

1**.** Цель классификации полевых культур – сгруппировать их либо согласно специфике их роста, либо согласно их использованию. 2. Согласно специфике их роста полевые культуры классифицируются как однолетние, двулетние и многолетние. 3. Образ жизни картофеля совершенно отличается от корнеплода. 4. Согласно применению полевые культуры классифицируются как злаки, бобовые, корнеплоды, кормовые культуры, волокнистые культуры и клубни. 5. Корнеплоды выращивают из-за пищевой ценности их корней. 6. Злаки включают кукурузу, пшеницу, овес, ячмень и рис. 7. Наиболее важным клубнем, возделываемым во всем мире, является картофель.

**6. Answer the questions, make up the plan of text A and retell it.**

1. What is the aim of classification of field crops? 2. According to what principles are crops classified? 3. How are field crops classified according to their growth habit? 4. How are field crops classified according to their use? 5. What are the main cereals raised by man? 6. What are legumes grown for? 7. What is the difference between root crops and tubers? 8. What are the fiber crops used for? 9. What is a forage crop?

**Text B**

**1. Get acquainted with text B and answer the questions.**

1. How may crops be classified? 2. What is the second principle of grouping crops? 3. What are annual crops? 4. What plants are biennials? 5. How many seasons do perennials grow? 6. What are the most important and most often used classifications of plants? 7. What is botanical classification? 8. What two botanical families do you know? 9. What crops belong to the grass family? 10. Why are forage grasses important? What are they used for?

**Botanical classification**

Crops are variously grouped and classified. They may be classified as cultivated or row crops, such as corn, soybeans, and cotton; noncultivated crops, such as wheat and barley; and hay pasture crops, such as clover, alfalfa and many other small-seeded legumes and grasses.

Crops are also grouped according to the duration of their growth. Annual crops are those that complete their life cycle in one season. Biennials start their growth in one season but produce seed and die at the end of the second season. Perennials grow for more than two seasons, producing seeds each year. The most important and most often used classifications are botanical classification and agronomic classification.

Botanical classification is based upon similarity of plant parts. Most of our field crops belong to one of the two botanical families: the grasses and the legumes. The main food plants are known to belong to the grass family, including all cereal crops and about three fourths of the cultivated forage crops. Cereals are the world’s leading food and feed crops. They are grain-bearing grasses such as wheat, corn, rye, barley, oats etc. Forage grasses are the ones that are highly essential for the economic production of livestock products. Almost all grasses have hollow stems made up of nodes and internodes. The roots are fibrous. Grasses may be either annuals or perennials.

The legume family includes such large seeded legumes as field peas, field beans, soybeans and such nutritious forage crops as alfalfa and clovers. The plants of this family are the only ones growing in a symbiotic relationship with rhizobia bacteria. Multiplying in the nodules on the roots of the legume crops bacteria are able to fix free atmospheric nitrogen in their bodies and in the plant residues.

Plowing under these plants residues, one can increase soil fertility. Being high in protein content the legume crops are valued as food for man and farm animals. Legumes may be annual, biennials and perennials. The fruit is a pod containing from one to several seeds. Legumes have tap roots.

There are some other botanical families that include crop plants widely used by man. Such crops are potatoes, sugar beets, cotton, flax, buckwheat and others.

**2. Read the text again and say what the text is about.**

**3. Give heading to the 2nd paragraph of the text.**

**4. Translate the sentences into English.**

1. Двулетние культуры не производят семена в первый год. 2. Выращивая бобовые, мы можем повысить плодородие почвы. 3. Азот фиксируется бобовыми культурами. 4. Культуры классифицируются как однолетние, двулетние и многолетние. 5. Сходство частей растений используется как основа для ботанической классификации. 6. Азот фиксируется бактериями, живущими на корнях бобовых. 7. Злаковые растения отличаются от бобовых типом корней

**5. Say it in English:**

– name some annual plants and their life cycles;

– characterize biennial crops;

– describe perennial crops;

– name some crops belonging to cereals and give their botanical characters;

– name some pulse crops;

– what are legumes grown for?

– name the crops used by man for food**.**

1. **Give the short summary of text B.**

**Unit 8**

Grammar Revision: **Complex Object**

Text A: **Corn**

Text B: **Corn Requirements**

**Сложное дополнение (Complex Object)**

В английским языке существуют так называемые синтаксические комплексы, т. е. сочетания двух или нескольких слов, представляющие собой единое синтаксическое целое (один член предложения).

Наиболее распространенным синтаксическим комплексом является сложное дополнение (the Complex Object).  
Каждый синтаксический комплекс состоит из именной части (существительного или местоимения) и глагольной части (инфинитива, герундия или причастия) и может быть развернут в целое придаточное предложение, где именная часть комплекса будет подлежащим, а глагольная 3.Азот фиксируется бобовыми культурами – сказуемым.

Сложное дополнение может состоять из прямого дополнения и инфинитива:

*I want you to visit me in the evening.* ***–*** *Я хочу, чтобы вы навестили меня вечером.*

*Peter wants me to write the letter.* ***–*** *Петя хочет, чтобы я написал это письмо.*

После глаголов *see, hear, watch, make, feel, let* в сложном дополнении инфинитив употребляется без частицы *to*:  
*I saw him come into the house.****–*** *Я видел, что он вошел в дом.   
He heard me open the door.* ***–*** *Он слышал, что я открыла дверь.*

Сложное дополнение может также состоять из прямого дополнения и причастия:

*I heard her singing an English song.****–*** *Я слышал, как она пела английскую песню.*

*He watched them playing in the garden.****–*** *Он наблюдал за тем, как они играли в саду.*

Разница между ними заключается в следующем:  
Сложное дополнение с инфинитивом обозначает однократное действие:

*I heard her say these words.****–*** *Я слышал, что она сказала эти слова.*

*We saw her run into the house.* ***–*** *Мы видели, что она вбежала в дом.*

Сложное дополнение с причастием настоящего времени подчеркивает процесс протекания действия:

*I saw her crossing the street.****–*** *Я видел, как она переходила улицу.*

*I watched the children playing with a ball.* ***–*** *Я наблюдал за тем, как дети играли в мяч.*

Сложное дополнение не имеет точного соответствия в русском языке и переводится на русский язык дополнительным придаточным предложением с союзами что, чтобы (если в сложное дополнение входит инфинитив) и как (если в сложное дополнение входит причастие настоящего времени).

**1. Make up sentences using the Complex Object with Participle.**

**E.g.** Не was reading in the garden. She saw him.

She saw him reading in the garden.

1. We noticed a man. The man was cleaning his shoes. 2. He saw two girls. They were dancing on the stage. 3. She watched the children. They were running and playing in the garden. 4. I saw her. She was arranging her hair. 5. We saw our neighbour. Неwas listening to the latest news on the radio. 6. The cat was rubbing against my legs. I felt it. 7. They were fishing. We saw it. 8. The pupils were writing a paper. The teacher watched them. 9. A caterpillar was crawling on my arm. I felt it.

**2. Make up sentences using the Complex Object with Infinitive.**

**E.g.**Не dropped his bag. I saw it.

I saw him drop his bag.

1. The boy noticed a bird. It flew on to the bush near the window. 2. Jane saw her neighbour. He opened the door of his flat and went in. 3. I saw him. He pointed to a picture on the wall. 4. I heard him. He shut the door of the study. 5. We saw that the children climbed to the tops of the trees. 6. I no­ticed that Henry went up and spoke to the stranger.7. He slipped and fell. I saw it. 8. I heard that she suddenly cried out loudly. 9. She bent and picked up something from the floor. The policeman saw it. 10. I saw that he opened the door and left the room.

**3. Read and translate the following sentences paying special attention to the use of the Objective Constructions.**

1. Не felt her arm slipping through his. 2. She felt her hands tremble. 3. Now and then he could hear a car passing. 4. He felt his heart beat with joy. 5. He felt his heart beating with joy. 6. She could hear her father walking up and down the picture gallery. 7. We saw him cross the street looking to the left and to the right. 8. I felt the wind blow­ing through a crack in the wall. 9. We stood on deck and watched the sun going down. 10. I heard him playing the piano in the house. 11. It is nice to see people enjoying themselves. 12. We watched the planes circling above us. 13. Nobody noticed himcome in and sit down.

**Text A**

**Vocabulary list**

abundance – обилие, изобилие

character – особенность, свойство

to do well – расти (развиваться) хорошо

to drain – осушать, дренировать

essential – существенный, важный

fibrous – мочковатый, волокнистый

generous – обильный

growing period – вегетационный период

height – высота

hollow – полый

to introduce – вводить, ввозить

node – узел

internode – междоузлие

length – длина

variety – сорт

fertility – плодородие

loam – суглинок

to mature – созревать

be a native of – быть родом из

to penetrate – проникать

pith – мякоть, сердцевина

rainfall – осадки

to retain – удерживать, сдерживать

to spread – распространять

spongy – губчатый, пористый

temperate – умеренный

timothy – тимофеевка

1. **Translate the following word combinations from English into Russian:**

tropical plant, well distributed rainfall, temperate zone, leading countries, to reach the best development, total yield, different varieties, to be used for silage, to retain moisture, fibrous roots, to penetrate the soil, hard fibrous coat, a soft spongy pith, hollow stem, a growing season, securing good results, silage cereals, soil fertility, early maturing hybrids, well-drained loam soils.

**2. Read and translate the text using the dictionary.**

**Corn**

Corn is known to belong to the tropical plants. However, it has been found that it is well adapted to the Temperate Zone where it reaches its best development.

The leading countries in the production of this crop are the United States, Russia, Argentina and Egypt.

Corn is thought to be a native of America. It is said that it was introduced into Europe by Columbus. Botanically corn is a grass, that is, it belongs to the same family of plants as timothy and wheat. Its roots are fibrous and spread several feet in the ground in all directions.

The stem, like that of all the grasses, is made up of nodes and internodes, varying greatly in length in different varieties.

The corn stem is known to have a hard fibrous coat and a soft spongy pith, differing from the hollow stem of most grasses.

The height of the plant varies from 5 to 20 feet. The usual height is considered to be from 5 to 10 feet.

**Climatic Requirements** Corn requires a generous, well distributed rainfall, a frost-free growing period of sufficient length and an abundance of warm weather.

A good distribution of rainfall is essential during the critical months of July and August. During this period of rapid growth corn is found to require a large amount of water.

A growing season from 80 to 160 days is necessary to mature the various corn varieties. Production of corn in the northern regions has been increased as a result of the development of very early maturing hybrids. Most of the earlier maturing varieties grown in these areas are used for silage.

**Soil** Corn is known to produce a larger total yield than that of the other cereals. It does best in warm, rich, moist, well-drained loam soils. It would also grow, if the land were light and poor, but it makes really good growth only on deep rich soils.

Everybody knows soil fertility to be more important with corn than in the growing of many other cereals. The soil must be compact enough to retain moisture, yet should be fine and mellow enough so that the roots may easily penetrate it.

**Planting** The time of planting varies with the location as well as the condition of the soil. To choose a proper time for planting corn is very important for securing good results.

It is useless to plant corn until the soil becomes warm enough; the farmer cannot expect corn to do well if it is planted in cold wet ground. Seed that would normally germinate would be lost if it were planted under improper conditions. The most convenient time to start planting corn in the northern parts of the USA is thought to be that of planting potatoes.

The depth of planting is known to vary with the condition of the soil. The seed must be planted deep enough to get sufficient moisture for its germination, but it is not necessary to plant it deeper.

**3. Fill in the blanks with the appropriate words from the text.**

1. Corn is well adapted to the … … where it reaches its best development. 2. Corn … to a tropical plant. 3. Corn was … into Europe by Columbus. 4. The corn stem has a hard … coat and a soft … pith. 5. Most of the early … varieties are used for … .

6. The seed must be planted deep enough to get sufficient … for its … . 7. Soil … is more important for corn than for other … .

8. Great … in the size of corn plant and the time of its … is mainly due to the … in which the crop is grown. 9. The depth of corn seeding … … 1 to 3 inches depending on the soil temperature.

**4. Agree or disagree with the following statements (True or False).**

1. The main aim of cultivating corn is to conserve moisture in the soil and to aerate it. 2. Cold weather is known to be favorable for the production of corn. 3. Water requirements of corn are the highest at the beginning of the growing season. 4. Corn is grown primarily for the production of corn. 5. Corn reaches its best development in the temperate zone. 6. The usual height of the plant is 20 feet. 7. Corn does best on cold, poor and light soils. 8. Soil fertility is not very important for corn. 9. It is not very important to choose proper time for planting corn for obtaining good results. 10. The most convenient time to start planting corn is that of planting potato.

**5. Translate the following sentences from English into Russian.**

1. If planted too deeply, the seedlings of this crop will have some difficulty in reaching the surface of the soil. 2. When present in great amount in the soil, nitrogen is known to cause lodging of most cereals. 3. When young, weeds are easily controlled by proper cultivation. 4. Being of the same variety, the seeds may differ greatly in size and quality. 5. This plant is said to be affected by cold weather until well-rooted. 6. Though not sufficiently fertile for growing wheat, this soil can be used successfully for growing rye. 7. Unless planted deep enough, the corn seeds will not have sufficient moisture for rapid germination. 8. Though not so important as climatic conditions, soil properties must be also taken into consideration when choosing the crop to be grown.

**6. Translate the following sentences into English using vocabulary list.**

1. Кукуруза используется на корм скоту. 2. Сорта кукурузы сильно различаются по форме, размеру и урожайности.

3. Кукуруза требует высокой температуры, обилие солнечного света и много влаги. 4. Кукуруза выращивается для многих целей. 5. Лучше всего кукуруза растёт на плодородных суглинках. 6. Прохладная погода приводит к низким урожаям этой культуры. 7. Почвенные и климатические условия определяют глубину посева. Обычная глубина – 2–3 дюйма. 8. Каковы главные цели выращивания кукурузы? 9. В течение периода быстрого роста кукуруза требует большого количества воды. 10. Производство кукурузы в северных регионах увеличилось в результате выведения скороспелых гибридов.

**7. Answer the following questions.**

1. What plants does corn belong to? 2. What are the leading countries in the production of corn? 3. Where is corn a native of? 4. Who introduced corn into Europe? 5. What is corn botanically? 6. What plant family does corn belong to? 7. What are corn roots? 8. Describe corn stems. 9. What are climatic requirements of corn? 10. How many days does the growing season of corn last?

11. What corn varieties are grown in the northern regions?

12. What soils does corn grow best on?

**8. Find key sentences in each paragraph. Make up the plan of retelling.**

**9. Give the short summary of text A.**

**Text B**

**1. Skim text B and find in it answers to the following questions.**

1. What is the origin of corn? 2. What family of plants does corn belong to? 3. Is corn a warm weather plant? 4. Does it require much water? 5. On what soils does corn do best? 6. What does corn planting depth vary with? 7. What is corn grown for?

**Corn Requirements**

Corn is believed to have been a highly developed cultivated crop in the New World long before its discovery. The origin of corn is unknown since the plant has been found only under cultivation. Now corn is more widely distributed over the world than any other cereal crop. Corn is a member of the grass family. It is an extremely variable plant and there exist a large number of varieties that differ widely in size and shape. Corn is a warm-weather plant that requires high temperatures day and night during the growing season. It has been found to be highly susceptible to frost injury at the time of its growth. Actually corn requires a relatively small amount of water for each pound of dry matter produced, its high water requirement being due to the potential high acre production. When growing rapidly in July and August, corn needs much water because of the high rate of evaporation from the soil and transpiration from the leaves.

Corn makes its best growth if planted in a fertile, well-drained, loam soil. Besides, soils of high inorganic matter are ideal for this crop, for they have a high water-holding capacity. In addition to fertile soil and adequate moisture an abundance of sunshine is necessary for the plants to manufacture large quantities of food to be stored in the grain. Cool, cloudy weather results in heavy vegetative growth and low yields of grain. The object is to plant corn at the depth that will provide optimum soil temperature and water and result in rapid germination. Corn planting depth varies widely with the soil conditions and climate. As corn should be planted deep enough to place the seed in contact with warm moist soil, the usual depth is 2 to 3 inches in rows from 30 to 40 inches apart. The soil being rather cold, the depth of 1 to 1 ½ inches may be advisable. Corn is cultivated primarily to control weeds and to a less extent to conserve moisture and aerate the soil. Corn is grown principally for grain, fodder, silage, pasturing. Nearly 90% of the corn grain is used directly as livestock feed. When cut for silage or harvested for fodder, corn does not usually leave the farm on which it is produced. Corn has numerous industrial uses. Its stems and leaves seem to have been used for making paper from the ancient times.

**Notes:**

**the New World** – Новый Свет

**from the ancient times** – с давних времен

**water-holding capacity** – способность удерживать влагу, влагоемкость

**inch** – дюйм

**fodder** – зеленый корм

**2. Find in the text and read the sentence about the aim of corn cultivation.**

**3. Agree or disagree with the following statements (True or False).**

1. There is a great number of corn varieties differing in certain characteristics. 2. Corn is grown primarily for the production of grain. 3. Corn is usually planted to the depth of 1 to 1½ inches if the soil is rather cold. 4. Corn does not need much moisture, as a relatively small amount of water is required to produce one pound of dry matter of this plant. 5. For feeding livestock corn is usually produced on the same farm.

**4. Choose 5–7 key sentences from text B and use them as plan for retelling.**

**Unit 9**

Grammar Revision: **Sequence of Tenses**

Text A: **Wheat**

Text B: **The most Important Grain Crop**

**Согласование времен (Sequence of Tenses)**

В английском языке употребление [времени](http://www.homeenglish.ru/angliyskie_vremena.htm) глагола-сказуемого в придаточном предложении зависит от времени глагола-сказуемого в главном предложении. Это называется правилом согласования времен.

Правило согласования времен заключается в следующем:

Если в главном предложении глагол-сказуемое стоит в одной из форм настоящего или будущего времени, то глагол-сказуемое в придаточном предложении может стоять в любой временной форме, которая требуется по смыслу:

*Не says that he was busy yesterday.* *– Он говорит, что был занят вчера.*

*Не says that he will be busy tomorrow.* *– Он говорит, что будет занят завтра.*

*Не says that he is busy. – Он говорит, что занят.*

Если в главном предложении глагол-сказуемое стоит в одной из форм прошедшего времени, то в придаточном предложении глагол-сказуемое нужно употреблять также в одной из форм прошедшего, а именно:

1. Если действие придаточного предложения происходит одновременно с действием главного предложения, то в придаточном предложении употребляется глагол в одной из форм Past Simple or Past Continuous:

*Не told me that he studied here.* *– Он сказал мне, что учится здесь.*

*She said she was preparing for a report. – Она сказала, что готовится к докладу.*

2. Если действие придаточного предложения предшествует действию главного предложения, то в придаточном предложении употребляется глагол в одной из форм Past Perfect:

*The rector said that the Moscow Higher Women's Courses had been reorganised into the Second Moscow State University.* *–  
Ректор сказал, что Московские высшие женские курсы были преобразованы во Второй Московский Государственный Университет.*

3. Если действие придаточного предложения относится к будущему времени, а в главном действие относится к прошедшему, то глагол-сказуемое должен стоять в Future-in-the-Past.

Форма Future-in-the-Past образуется от соответствующей формы Future Simple, но вместо вспомогательного глагола *will* употребляется *would:*

*I thought I would know the way this time, but I was wrong.* *–  
Я думал, что на этот раз я узнаю дорогу, но я ошибся.*

В следующих случаях правило согласования времен не соблюдается, т.е. независимо от временной формы глагола-сказуемого в главном предложении в придаточном предложении глагол-сказуемое употребляется в любой временной форме, которая требуется по смыслу:

1. Если в состав сказуемого в придаточном предложении входит один из следующих модальных глаголов: *must, ought, should:*

*I knew that he must come to the Academy by 3 o'clock.* *–  
Я знал, что он должен прийти в академию к 3 часам.*

2. Если в придаточном предложении сообщается об общеизвестном факте или неопровержимой истине:

*The teacher told the pupils that Novosibirsk stands on the both banks of the river Ob. – Учитель рассказал ученикам, что Новосибирск расположен на обоих берегах реки Обь.*

3. В придаточных определительных предложениях и в предложениях, вводимых союзными словами *as* как, в качестве, *than* чем:

*It was not so cold yesterday as it is today. – Вчера не было так холодно, как сегодня.*

4. Если действие придаточного предложения предшествует действию главного предложения, и время действия придаточного предложения указано точно:

*I knew that she left Moscow in 1945. – Я знала, что она уехала из Москвы в 1945 году.*

Но:

*I knew that she had left Moscow some years ago.* *– Я знала, что она уехала из Москвы несколько лет назад.*

**1. Open the brackets and put the verbs into the correct forms.**

1. I knew they (to wait) for me at the metro sta­tion and I decided to hurry. 2. I didn’t know that you already (to wind) up the clock. 3. I was afraid that the little girl (not to be) able to unlock the front door and (to go) upstairs to help her. 4. He says that he (to know) the laws of the country. 5. Sarie understood why Lanny (not to come) the previous evening. 6. She asked me whether I (to remember) the legend about a faithful lion. 7*.* He understood that the soldiers (to arrest) him. 8. He could not understand why people (not to want) to take water from that well. 9. I suppose they (to send) a dog after the burglar immediately. 10. He said he (to leave) tomorrow morning. 11. She says she already (to find) the book. 12. He stopped and listened: the clock (to strike) five. 13. She said she (can) not tell me the right time, her watch (to be) wrong. 14. I asked my neighbour if he ever (to travel) by air before. 15. The policeman asked George where he (to run) so early. 16. The delegates were told that the guide just (to go) out and (to be) back in ten minutes.

**2. Correct the mistakes.**

1.Mike told the policeman that he lost his identity card. 2. Jane said to Dick that Julia doesn’t live next to her. 3. She told the detective that she sees the thief in the house. 4. He said that he ate nothing since morning. 5. My girlfriend told me that she was ready in a few minutes. 6. Tom’s boss said to him that he hasn’t done the work properly. 7. Anna said that she doesn’t want to wear her old dress. 8. Her brother told her that they will have plenty of time to do their work.

**Text A**

**Vocabulary list**

grass family – семейство злаков

valuable – ценный

humid – влажный

area – площадь, область

arid – сухой, засушливый

to prevail – преобладать

favor – способствовать, благоприятствовать

destructive – губительный, разрушительный

annual – годовой, однолетний

rainfall – осадки

inch – дюйм

moderate – умеренный

spring wheat – яровая пшеница

winter wheat – озимая пшеница

to sow – сеять

to mature – созревать

joint – узел, сочленение

jointed – узловатый

hollow – полый

node – узел

internode – междоузлие

fibrous – мочковатый

beard – ость

beardless – безостый

winter hardiness – зимостойкость

preceding crop – предшествующая культура

stubble – стерня

**1. Translate the following word combinations into Russian:**

throughout the world, from time immemorial, a true annual, destructive diseases, a wide range, the early stages of growth, on the other hand, seedbed preparation, winter wheat varieties, annual rainfall, to be of prime importance, fibrous root system, hollow stem, as a rule.

**2. Read and translate the text.**

**Wheat**

Wheat is cultivated throughout the world. It is known to have been grown extensively in Asia, in Europe and in the Northern part of Africa from time immemorial. The farmers of China are believed to have grown this crop at least 3000 years ago.

Wheat belongs to the grass family Graminea. It is one of the most valuable plants.

We know wheat to have been adapted to a very wide range of both soil and climatic conditions. Only barley, potatoes and a few other crops are known to be grown under colder conditions than wheat.

On the other hand, no part of the earth is too hot for the production of wheat if the climate is not too humid. Wheat cannot be grown successfully in areas where both warm and humid conditions prevail, because such conditions favor the rapid development of destructive diseases.

There are both humid and arid limits for growing wheat. In the USA most of the crop is grown in regions where the annual rainfall is less than 30 inches, that is, in places where moderate rainfall conditions prevail.

**Botanical characters** The wheat plant is a true annual. There are spring wheat varieties sown early in spring and harvested in the late summer. There are also winter wheat varieties sown in the fall and maturing early the following summer. Both varieties are widely grown throughout the world.

The root system of wheat is like that of corn and oats, that is a fibrous one. The numerous fibrous roots grow from the lower joints of the stem and are usually found in the surface soil.

Like most of the grasses, the stems of wheat are jointed and hollow. During the early stages of growth they are very short, though they very early develop the entire number of nodes and internodes.

**Preparation of the land** Sufficient moisture should be present to ensure prompt germination and a good growth of the young plants. The time and method of seedbed preparation is determined largely by the prevailing climatic conditions as well as by crop that wheat follows in the rotation.

Plowing is usually the first step to make in seedbed preparation especially when wheat follows small grains in the rotation.

As a rule, winter wheat is seeded on land that is plowed in the summer or early fall preceding planting. Numerous experiments have shown the value of early preparation in areas of limited rainfall where water conservation is of prime importance. The sooner the field is plowed under after harvesting the preceding crop the better, since it ensures a better preservation of soil moisture and decomposition of stubble is thus encouraged.

**3. Find in the text the following word combinations:**

оба сорта, мочковатая корневая система, сорта озимой пшеницы, годовое количество осадков, сохранение воды, приспособиться к широкому диапазону почвенно-климатических условий, широко возделывается, принадлежать к семейству злаковых, ценное растение.

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**4. Fill in the blanks with the words from the text.**

1. Wheat belongs to the … … Graminea. 2. We know that wheat is adapted to a very wide range of both … and … conditions. 3. No part of the earth is too hot for the production of wheat if the climate is not too … . 4. The wheat plant is a true … . 5. The root system of wheat is like that of corn and oats that is a … one. 6. Like most of the grasses, the stems of wheat are … and … .

7. At the early stages of growth the stems of wheat develop a number of … and … .

**5. Translate the sentences into Russian.**

1. Wheat, rice, maize, barley, oats, sorghum and millet are the most important sources of food for man and domestic animals.

2. We know that the great number of plant varieties have been adapted to a very wide range of both soil and climatic conditions. 3. The climate of Norway is much colder than that of Egypt.

5. This soil contains less humus than that one. 6. Rye is a hardier plant than wheat and can grow on poorer soils and in colder climates. 7. The oat plant is more resistant than wheat. 8. Winter wheat is seeded on land that is plowed in summer or early fall preceding planting.

**6. Find in the text answers to the following questions.**

1. In what areas can’t wheat be grown successfully? 2. Where is wheat grown in the USA? 3. What kind of plant is wheat?

4. What is the root system of wheat? 5. What stems has wheat?

6. What is the time and method of seedbed preparation determined by? 7. What is usually the first step in seedbed preparation?

**7. Find key sentences in each paragraph of text A and give the short summary of it.**

**Text B**

**1. Skim text B and say what information was unknown for you?**

**The most Important Grain Crop**

Neither the geographical, the historical, nor the biological origin of wheat is known. The evidence as exists seem to point to Mesopotamia as the original home of wheat, although there is a belief that the plant once grew wild in the Euphrates and the Tirgis valleys and spread from these regions to the rest of the world.

The most ancient languages mention wheat or corn, and the fact that it has been found in the prehistoric habitations of man notably in the earliest Swiss lake dwellings is proof of its antiquity. We also have evidence that wheat was cultivated in China 3,000 years B.C., and that it was the chief crop in ancient Egypt and Palestine.

Wheat is the most important grain crop in the world. Most of the wheat that is grown is made into flour. The flour is used for making products such as white bread, macaroni.

A small amount of wheat is also used in the manufacture of alcohol. Wheat is an excellent feed for livestock, but because of its importance as a human food, only a small part of it is used for this purpose. By-products of wheat are higher in content of protein than wheat itself and serve a valuable protein supplement in many livestock rations.

Wheat can be grown under a wide range of soil conditions, but it is best adapted to fertile, well-drained clay loam soils.

Wheat can withstand the cold of northern areas quite well, and yet it grows successfully in hot climates, if the humidity is not too high. When wheat is grown in the condition of high temperatures and high humidity during the summer months the plants grow tall and often lodge, which makes harvesting more difficult and it is often hard to reduce the moisture content of the grain. The quality of wheat is determined largely by the prevailing climatic conditions and to a lesser extent by the type of soil. Wheat grows best if it is sown in a well-prepared seedbed. Early plowing or seedbed preparation often results in increased yields of winter wheat.

**Importance of selecting the proper variety** Choosing the best variety to be grown in a given area is not a simple thing. There is a large number of varieties grown throughout the world. Some of them have white grain, others have red grain. Some have beards, while others are beardless. The varieties are known to differ largely in height, winter hardiness, time of ripening and quality of grain.

It is often difficult to select the variety best adapted to any given region. That is why the Agricultural Experiment Stations in many countries are constantly conducting tests in order to determine the varieties to be best suited for various soil and climatic conditions. Before farmers choose a variety to be grown, they usually consult their local experimental stations for information on recommended varieties. The better is a given variety adapted to local conditions, the higher will be its yield.

**Notes:**

**flour** – мука

**by-products** – побочный продукт, отходы

**supplement** – добавка

**2. Look through the text once again and define whether the following questions are discussed in it:**

1. botanical characters of wheat;
2. soil and climatic conditions of wheat cultivation;
3. dates of sowing;
4. preparation of the soil;
5. the work of the Agricultural Experimental Station.

**3. Find information in the text and answer the following questions.**

1. What conditions favor the extensive wheat growth and cause lodging?

2. What can you say about waste products of wheat and their application?

3. Under what conditions can wheat grow in hot climate?

4. What factors define the quality of wheat?

**4. Enumerate in English the main problems mentioned in text B.**

**Unit 10**

Grammar Revision: **Nominative Absolute Participial**

**Construction**

Text A: **Crop Breeding and Improvement**

Text B: **Methods of Plant Improvement**

**Абсолютная именительная причастная конструкция (Nominative Absolute Participial Construction)**

В английском языке существуют так называемые абсолютные причастные конструкции или самостоятельные причастные обороты. Они обозначают действия, которые относятся к объекту (лицу или предмету), выраженному существительным в общем падеже или именительном (для личных местоимений) – эти существительные и местоимения являются как бы собственными подлежащими для абсолютных причастных оборотов + у предложения имеется свое подлежащее. Это те же самые причастные обороты, но в предложении они располагаются непосредственно после объекта. На русский язык данные конструкции переводятся через придаточные или самостоятельные предложения. Самостоятельные причастные обороты выполняют в предложении функцию сложного обстоятельства.

1) обстоятельство времени;

*The rain having stopped, we got out of our tents.* *– Дождь прекратился, и мы вышли из своих палаток.  
После того, как дождь прекратился, мы вышли из своих палаток.*

В функции обстоятельство времени форма Past Participle используется больше для того, чтобы показать последовательность действий, а не подчеркнуть время их совершения.

2) обстоятельство причины;

*Her father smoking heavily, it was difficult to breathe in the house. – Его отец много курил, в доме было трудно дышать. Так как его отец много курил, то в доме было трудно дышать.*

3) сопутствующие обстоятельства.

В этой функции причастный оборот всегда находится в конце предложения. Помимо Participle I здесь также употребляется Participle II.

*A man with a bag fell over the stone, the potatoes**rolling down the road. – Мужчина с сумкой споткнулся о камень; картофелины (по)катились по дороге.*

**1. Translate the following sentences into Russian.**

1. Volcanoes are individualistic, each one having its own behavior not shared by others. 2. Destructive volcanic eruptions frequently follow earthquakes, the volcanoes belching forth great masses of molten rock. 3. Air contains traces of ozone and other gases, the greater part of the ozone occurring in a layer from 24 to 40 kilometres above the earth's surface. 4. Canada was one of the earliest of the nations of the world to produce a national atlas, the first edition being produced in 1906. 5. In the past years the earth has been getting warmer, the Northern Hemi­sphere's temperature having risen about 1°F. 6. Britain being entirely bounded by water, the climate is mild, humid and changeable.

**2. Define the sentences with Nominative Absolute Participial Construction and translate them.**

1. Plant breeding being the science of changing the heredity of plants, the scientists widely use it in improving crop plants. 2. Many plant sciences are used by plant breeders in selecting new varieties of crops, genetics and cytogenetics being the most important. 3. Many varieties of corn producing good yields of high quality forage and grain are cultivated throughout our country. 4. Such plant has two parts, the roots and the above ground portion, the latter consisting of leaves and stems. 5. The stem of corn varies greatly in length in different varieties, the usual length being 5 to 10 feet. 6. Planting machines being used, a smaller amount of seed is required. 7. Winter wheat having been sown in August, its roots can develop well before winter. 8. The soil containing much plant food, the crops will produce high yields. 9. There are many root crops grown by man the most important being sugar beets, carrots and radishes.

**Text A**

**Vocabulary List**

breeding *–* разведение

breeder *–* селекционер

heredity *–* наследственность

to improve *–* улучшать

improvement – улучшение

related – связанный

to eliminate *–* уничтожать

milling quality – мукомольные качества

lodging – полегание

drought resistance – устойчивость к засухе

commonly *–* обычно

inherited characters – наследуемые признаки

to precede *–* предшествовать

to follow *–* следовать

strain *–* вид

to conduct – проводить

early maturing *–* скороспелый

crossing *–* скрещивание

inherited *–* наследуемый

investigator *–* исследователь

field-plot tests – испытание на делянках в поле

**1. Translate the following word combinations:**

plant breeding, heredity of plants, inherited characters, scientific knowledge, scheme of selection, early maturity, drought resistant, winter hardiness, disease resistance, later-maturing varieties, heat resistant varieties, resistance to lodging, crossing two or more varieties, successful achievements.

**2. Read and translate the text.**

**Crop Breeding and Improvement**

Plant breeding is the science of changing and improving the heredity of plants. In the past the breeders had no scientific knowledge which is available now. The selection of superior types was the most important method of improving crop plants. Variations between plants of the same species were used as the basis for developing new improved varieties.

Now with increased knowledge of genetics and related plant sciences plant breeders are able to influence such plant characteristics as yield, early maturity, drought resistance, winter hardiness, disease resistance, insect resistance and quality.

Plant breeding depends on many sciences, genetics and cytogenetics, being the two most important. Other sciences needed by the breeders are plant physiology, plant pathology, entomology, plant biochemistry, agronomy, botany, statistics, and computer science. The most successful achievements in plant breeding are due to the combined work of many specialists.

Each crop variety possessing certain desirable and undesirable characteristics, the aim of the plant breeder is the development of a superior variety, by eliminating the undesirable qualities and combining the desirable ones in the same variety.

The characteristics desired vary with the crop and the conditions of growing. With wheat, for example, winter hardiness, protein content, milling quality and resistance to lodging are important. In some areas, early-maturing, cold-resistant varieties are needed, while in the others later-maturing heat resistant varieties will do best, yield and resistance to major diseases and insects being important in all cases.

Three general methods of crop improvement are commonly used. These are introduction, selection and hybridization, the last one being the method of crossing two or more varieties that differ in some inherited characters. These methods are not wholly distinct because hybridization almost always must be preceded or followed or both preceded and followed by some scheme of selection.

Progress in crop breeding can be measured only by experimental tests except when breeding is done for disease resistance, better color or some other character that can be readily seen. Even then the investigator must know how the new strain compares in yield with the variety replaced. That is why field-plot test should be conducted.

**3. Find in the text the following word combinations:**

наследственность растений, желаемые характеристики, устойчивость к засухе, зимостойкость, условия роста, устойчивость к полеганию, устранять нежелательные качества, совместная работа многих специалистов, скрещивание двух или более сортов, наследственные признаки.

**4. Fill in the blanks with words from the text.**

1. Improving … of crop plants is the aim of the science known as plant breeding. 2. Early … is a highly important plant characteristic in areas where the growing period is short. 3. Winter cereals should withstand fall and spring frosts, that is, they should process … … . 4. The most … breeding work has been done in improving corn. 5. The aim of … or the crossing of two or more varieties is obtaining a hybrid … better inherited characteristics. 6. Very often high yields of good – quality grain can be produced due to … of superior varieties from other regions or other countries. 7. Rye being a … … plant, any class of soil may be used in growing this crop.

**5. Translate the following sentences into English.**

1. Наследственность растений можно изменить и улучшить селекцией. 2. Раньше улучшение растений и выведение новых сортов производилось путем отбора лучших типов. 3. Сейчас многие признаки растений, такие как урожайность, зимостойкость, засухоустойчивость и другие, успешно улучшаются нашими селекционерами. 4. Для выведения новых сортов нужно использовать достижения многих наук. 5. Новый улучшенный сорт можно вывести скрещиванием двух или более сортов, соединяя желательные признаки в одном сорте. 6. Знание генетики необходимо для выведения новых сортов. 7. Цель селекционера – выведение лучшего сорта, путем соединения желательных качеств в одном сорте.

**6. Find in the text answers to the following questions.**

1. What is plant breeding? 2. What was the most important method of improving crop plants in the past? 3. What was the basis of developing new improved varieties? 4. What sciences does plant breeding depend on? 5. What is the aim of a plant breeder?

6. What are desired characteristics with wheat? 7. What three general methods of crop improvement are most commonly used?

8. What is hybridization? 9. How can progress in crop breeding be measured?

**7. Enumerate the plant characteristics which can be varied by selection.**

**8. Find key sentences in text A and use them for retelling.**

**Text B**

**1. Skim text B and find in the text answers to the following questions. Use dictionary if necessary.**

* 1. What is plant improvement based on? 2. What are three main ways of the improvement of plants? 3. How many introductions of wheat have been made in the United States? 4. What is selection? 5. What does the method of selection consist of?

**Methods of Plant Improvement**

Plant improvement is based on the principles or laws of heredity which are included in the science known as genetics. Many of the principles and techniques used in plant breeding are complex and to understand them fully intensive study and training are required. Thus only the general methods of crop improvement will be presented and discussed here. In general the improvement of plants is brought about in three broadly different ways. They are introduction, selection, and hybridization. Each has been used successfully to provide us with improved varieties.

**Introduction** Many of the important crop plants grown in the USA have been not native to the United States. Actually many thousands of plants have been introduced from other parts of the world, but only a few of the best are grown commercially. Over 8,000 introductions of wheat alone have been made into the United States. These and many others have been valuable not only from the standpoint of providing the farmers with new varieties that could be grown commercially, but, in addition, they have been a source of breeding material for use in the development of new, improved varieties.

**Selection** Selection is a simple, but important method of improving plants. As the name suggests this method consists of selecting the outstanding types and discarding those that are undesirable, because of certain characteristics being possessed by them.

For example, in small grains, plants resistant to lodging may be selected; and with alfalfa those capable of surviving in severe winters are to be retained. After a period of testing, during which plants are selected for certain desired traits or characteristics, a superior strain may be developed. Improvement by selection cannot be accomplished, however, unless the variety from which the selections are being made possesses some plants containing the characteristics desired.

Moreover, improvement by this method is not possible unless the qualities of the superior types of plants can be readily detected.

As a result it is necessary that keen observation based on experience and scientific knowledge should be made in selecting the most desirable plants.

**2. Find the paragraph in the text describing the methods of plant improvement.**

**3. Find key sentences in text B and use them for annotation.**

**Unit 11**

Grammar Revision: **Complex Subject**

Text A: **Crop Rotation**

Text B: **Beneficial Effects of Proper Rotation**

**Сложное подлежащее (Complex Subject)**

Конструкция «сложное подлежащее» (The Complex Subject) в [английском](http://euroeducation.com.ua/obuchenie-online/274.html) языке состоит:

– из именной части, выраженной существительным или местоимением в именительном (общем) падеже, которая выступает подлежащим;

– глагольной части, которая выражается инфинитивом с частицей *to* или [причастием](http://euroeducation.com.ua/article/36-english/119-communion-present-participle-past-participle-perfect-participle.html), которая выступает сказуемым.

1. Сказуемое, которое выражено словами: *to happen, to seem, to turn out, to prove, to appear*:

*She seemed to be nice. – Она казалась славным человеком.*

Глагол *to be* можно опускать*: She seems nice*.

*He seemed to know me. – Казалось, она меня знает.*

Следует обратить внимание, что после глаголов *to appear, to seem* употребляются разные формы инфинитива:

*He seems/seemed to know English. – Кажется/казалось, он знает*[*английский язык*](http://euroeducation.com.ua/article/36-english/362-kursy-anglijskogo-kiev-nositel-anglijskogo-jazyka.html)*.*

*He seems to be translating something. – Кажется, он что-то переводит.*

*He seems/seemed to have read his English Book. – Кажется/казалось, он прочитал свою английскую книгу.*

Глаголы *to turn out, to prove* употребляются в сочетании с *to be*, но глагол *to be* может опускаться. Употребление глагола *to prove* характерно для официальной речи, а *to turn out* – для неофициальной:

*He turned out to be a nice chap. – Он оказался неплохим малым.*

 В [отрицательных предложениях](http://euroeducation.com.ua/article/36-english/158-negative-form-of-the-question-negative-question.html) частичка *not* употребляется вместе с глаголами: *to happen, to seem, to turn out, to prove, to appear:*

*He doesn’t seem to be happy in Kiev. – Он не кажется счастливым*[*в Киеве*](http://euroeducation.com.ua/article/40-razlichnaya-topics/432-podgotovka-k-toefl-v-kieve-struktura-jekzamena-toefl.html)*.*

Иногда частица *not* может стоять рядом с инфинитивом:

*He seems not to know how to translate this sentence.* *– Он, кажется, не знает, как перевест это  предложение*

2. К следующей группе относятся сказуемые, которые выраженные словами: *to report, to say, to state, to announce, to suppose, to think, to expect, to understand, to consider* и другими глаголами в [страдательном залоге](http://euroeducation.com.ua/article/36-english/68-passive-voice.html):

*He is said to be in Kiev now. – Говорят, что он сейчас*[*в Киеве*](http://euroeducation.com.ua/article/36-english/341-kursy-anglijskogo-v-kieve-uchebniki-dlja-podgotovki-k-ielts.html)*.*

Следует заметить, что после этих глаголов употребляются все формы инфинитива:

*He is known to have been studying English for 5 years. – Известно, что он* [*изучает английский язык*](http://euroeducation.com.ua/article/40-razlichnaya-topics/461-individualnye-kursy-anglijskogo-v-kieve.html)*5 лет.*

The Indefinite Infinitive после глагола *to expect* выражает будущее время:

*She is expected to be here on time. – Ожидается, что она приедет вовремя.*

Примечание:

Глагол *to suppose* переводится как *«полагается», «быть обязанным»*:

*He is supposed to stay here. – Он должен остаться здесь.*

3. К третьей группе относятся сказуемые, выраженные [прилагательными](http://euroeducation.com.ua/article/36-english/288-polozhenie-prilagatelnogo-v-predlozhenii.html): *(most) likely, unlikely, sure*:

*She is likely to show up. – Вероятно, она появится*

*It's unlikely that she will attend. – Вряд ли она придёт.*

*He is sure to come back. – Он точно вернется.*

Примечание:

Отрицание после этих прилагательных образуют с помощью частицы *not* (перед *likely*, но после *sure*), а инфинитив после этих прилагательных всегда стоит в форме Indefinite:

*He is not likely to remember what have happened. – Не похоже, чтобы он помнил, что случилось.*

**1. Translate the sentences with the construction «Complex Subject» into Russian.**

1. Proper crop rotation is sure to help in maintaining soil fertility and producing higher yields. 2. Crop rotation alone is unlikely to increase fertility of this soil. 3. Such rotation does not seem to be suitable for the temperate zone. 4. The alteration of grasses and legumes is likely to increase the organic matter content of the soil. 5. Continuous growth of the same crop is certain to cause the loss of this crop seems to be the result of growing it after a legume crop.

**2. Find «Complex Subject» in the following sentences. Translate the sentences into Russian.**

1. Too much nitrogen in the soil is known to cause lodging of the crop. 2. Top dressing is considered to be the best way of applying fertilizers to this crop. 3. Such fertilizer mixture is believed to be of great use on this soil. 4. This variety was supposed to be more frost-resistant that the one we were growing before. 5. Phosphatic fertilizers are expected to produce rather high increase in yield on this soil. 6. Soils of this area are said to be highly deficient in organic matter. 7. Legumes are known to be grown both for human food and for soil improvement. 10. The method of harvesting used depends on many factors, proper maturity being one of the most important.

**Text A**

**Vocabulary list**

crop rotation – севооборот

loss – потеря

tilth – состояние почвы

maintenance – сохранение, поддержание

alteration – чередование

barnyard manure – навоз, органическое удобрение

to follow – следовать

penetration – проникновение

residents – остатки

dry land condition – почва без орошения, богарные условия

residual – остаточный

sequence – последовательность

addition – добавление

to contribute – способствовать

shallow rooted – поверхностно-укореняемый

deep rooted – глубоко-укореняемый

**1. Translate the following word combinations into Russian:**

soil productivity, non-leguminous crops, crop rotation, preceding crop, dry land, barnyard manure, fixation of nitrogen, increased yields of crops, deep-rooted legumes, an important influence, shallow-rooted, small grains, organic matter, better root penetration.

**2. Read and translate the text.**

**Crop rotation**

Crop rotation is known to be a system of growing different kinds of crops one after another on the same land. A rotation may be considered good or bad depending on its effect on soil productivity. It should also be measured by its economic returns.

Continuous growth of the same crop has been found to result in the loss of organic matter from the soil, which is sure to have a bad effect on its tilth. The growth of grass pasture and deep-rooted legume crops in rotation is likely to correct this situation through maintenance of organic matter. As to nitrogen for non-leguminous crops, it may be provided by legumes included in the rotation. However, it should be mentioned that rotations are unlikely to supply other plant nutrients in which the soil may be deficient.

Legumes are more efficient in fixation of nitrogen on soils with low rather than high nitrogen content. For this reason, a legume is considered to be a better nitrogen fixer when two or more crops come between applications of barnyard manure. Naturally, legume crops are usually grown previous to crops that require large amounts of nitrogen. Thus, increased yields of crops that follow alfalfa seem to result from the addition of nitrogen to the soil contributed by alfalfa crop. The preceding crop has an important influence on crop yields. So in case when deep-rooted legumes are followed by corn, the latter may yield more as a result of better root penetration as well as due to nitrogen residents.

Crops sequences are very important under dryland conditions because of the difference in residual soil moisture left by various preceding crops. Thus, small grains yield more after corn than after small grains or sorghum.

Though the proper rotation is of great importance in farming, this practice alone is unlikely to produce maximum yields. For the highest yields to be obtained both crop rotation and fertilization are to be used.

**3. Fill in the blanks with words and word combinations from the text.**

1. Continuous growth of the same … results in the … from the … . 2. Crop rotation alone is unlikely to produce maximum … . 3. The … crop has an important influence on crop … . 4. Crop … are very important under … conditions. 5. Proper crop rotation is one of the factors of good farm … . 6. … are more efficient in fixation of … on soil with low than with high … content.

**4. Agree or disagree with the following statements (True or False).**

1. Continuous growth of the same crop has been found to result in the loss of organic matter from the soil. 2. Nitrogen in the soil may be provided by legumes included in the rotation. 3. Legume is not considered to be a better nitrogen fixer. 4. Increased yields of crops that follow alfalfa are not the result of nitrogen addition. 5. Proper crop rotation is one of the essential factors of good farm management. 6. The tilth is not improved if grasses and legumes are included in the rotation. 7. The growing of legumes in the rotation does not help to increase the nitrogen content of the soil.

**5. Say it in English:**

a) give the definition of crop rotation;

b) what results in loss of organic matter from the soil;

c) what crops enrich soil with nitrogen.

**6. Translate the sentences into English using new words from the vocabulary list:**

1. Севооборот – это чередование различных культур на одной и той же земле. 2. Цель севооборота – повысить почвенное плодородие. 3. Бобовые часто включают в севооборот, так как они, как известно, могут повысить содержание азота в почве. 4. Правильная система севооборота улучшает плодородие почвы. 5. Длительное выращивание одной и той же культуры на одной и той же земле приводит к снижению плодородия. 6. Урожай кукурузы обычно выше, если она следует за бобовыми в севообороте. 7. Чередование культур должно сочетаться с правильной системой применения удобрений.

**7. Answer the questions to text A.**

1. What is crop rotation? 2. What is crop rotation used for?

3. Why are legumes included in the rotation? 4. What examples of crop rotation can you give? 5. Can the proper rotation alone provide the highest yield?

**8. Find the paragraph in text A giving the information about the influence of legumes on the crop following it in rotation.**

**9. Find key sentences in each paragraph and retell text A.**

**Text B**

**1. Get acquainted with text B. Use dictionary if necessary.**

**Beneficial Effects of Proper Rotation**

Proper crop rotation is one of the essential factors of good farm management. Continuous growing of a crop is likely to produce good effect for a few years, but well – planned rotations are best over a long period of time because they conserve and improve the soil.

The physical condition of the soil is known to be unfavorably affected by growing cultivated crops for many years. However, if grasses and legumes are included in the rotation, the tilth is considerably improved. Legumes are also valuable because they add organic matter to the soil. Besides, they are able to fix nitrogen from the air and convert it into a form that can be used by all growing crops.

Various crops differ in the kind and amount of nutrients they take from the soil that is why crop rotation helps to maintain the proper nutritional balance in the soil. Most weeds and pests are believed to be controlled by crop rotation. Diseases and insect usually attack certain crops, and they cannot develop during the periods when resistant crops are grown.

With crop rotation labour is distributed more uniformly, as peak work periods on farms growing different crops come not at the same time. Many grain growers have suffered losses because temporary labour was not available at harvest time. Finally, the risk of poor production is usually greater with one crop than when several crops are grown.

**The advantages of crop rotation** Many advantages may be given for the use of a properly planned crop rotation scheme. Among these are the following. Different crops require different amounts of plant nutrients. A diversity of crops is of value in the maintenance of fertility, since the drain is not so great on any nutrients.

The use of a cultivated crop in the rotation aids in weed, insect, and disease control. Without a rotation, weedy plants, insects and diseases tend to become more numerous, since there is less check to their continued increase in population. The growing of legumes in the rotation helps to increase the nitrogen content of the soil, as properly inoculated legumes take nitrogen from the air.

Rotations that include sod crops aid in the control of erosion. The sod greatly slows the movement of water and may be interspersed with cultivated areas to prevent erosion. Crop residues may be returned to the soil to aid in the maintenance of organic matter. It is desirable that straw produced on the farm be returned in the manures. Stubble and other crop residues may be plowed under to advantage on most farms.

**2. In which paragraphs of the text there is information:**

a) about the aim of using tilled crops in crop rotation;

b) why many grain manufactures suffer losses during harvesting;

c) about the role of stubble and plant residues.

**3. Comment on the role of legumes in crop rotation.**

**4. Say what new information you have learnt about crop rotation.**

**Unit 12**

Grammar Revision: **Gerund**

Text A: **Fertilizers and their Application**

Text B: **Crop Requirements**

**Герундий (Gerund)**

Герундий – неличная форма глагола, имеет свойства как глагола, так и существительного. Подобной формы в русском языке нет. Герундий может переводиться на русский язык существительным, глаголом в личной форме или неопределенной формой глагола, деепричастием.

Герундий образуется от основы глагола с помощью суффикса -*ing: to translate – translating, to read – reading*.

Таблица 5 – Формы герундия

|  |  |  |
| --- | --- | --- |
|  | Active | Passive |
| Indefinite | *writing* | *being written* |
| Perfect | *having written* | *having been written* |

Формы герундия совпадают с формами Participle I и Perfect Participle. Однако, это разные формы глагола, отличающиеся и по значению и по синтаксическим функциям.

Формы Indefinite Gerund обозначают действия, одновременные с действием, выраженным глаголом-сказуемым.

*He likes inviting friends to his place.* *– Он любит приглашать друзей к себе.*

*He likes being invited to his friends.* *– Он любит, когда его приглашают к себе его друзья.*

Перфектные формы герундия (Perfect Gerund) обозначают действия, предшествующие действию, выраженному глаголом-сказуемым.

*He is proud of having invited this man to his place. – Он гордится тем, что пригласил этого человека к себе.  
He was proud of having been invited to the party. – Он гордился тем, что его пригласили на вечер.*

**Функции герундия в предложении**

1. Подлежащее: *Obtaining oil is no simple matter.* *– Добыча нефти – не легкое дело.*

2. Часть сказуемого: *Large ice masses stopped advancing.* *– Крупные массы льда прекратили движение.*

3. Дополнение: *These minerals are worth extracting.* *– Эти минералы стоит добывать.*

4. Определение: *Improved methods of observing atmosphere are developed. – Разрабатываются усовершенствованные методы наблюдения за атмосферой.*

5. Обстоятельство: *After watching the movement of clouds we determined wind direction.* *– Наблюдая за движением облаков мы определили направление ветра.*

**1. Comment on the forms and functions of the Gerund.**

1. Glaciers are capable of carrying great loads of rock debris. 2. Plants and animals derive energy by using atmospheric oxygen to convert carbon in their foods to carbon dioxide. 3. Grain size usually gives an indication of the rate of cooling. 4. Today standards of living in Northern Europe are among the highest in the world. 5. Over one half of the people who live in Southern Asia are involved in farming. 6. The polar regions are too cold for farming. 7. However, extracting oil in cold conditions would present extra problems. 8. Many small fishing ports had to stop fishing. 9. To bring oil from northern Alaska involved building through protected areas and national parks. 10. Industry does not just mean making things. 11. Farming has used more machinery and needed a smaller labour force.

**2. Analyze the following ing-forms. State whether they are participles or gerunds. Translate the sentences into Russian.**

1. Applying fertilizers, we may essentially increase the yield. 2. Farmers applying fertilizers to this crop usually obtain good results. 3. Farmers applying proper fertilizers, the yields are usually much higher. 4. Having applied the soil with organic matter, the collective farm obtained a good yield of small grains. 5. Being adapted to potato growing, these sandy loams will produce tubers of the highest quality. 6. Among the factors influencing crop production climate is the most important one. 7. Preparing the seedbed is one of the important operations in crop growing. 8. Planting the seed, we use farm machines in order to make the work easier.

**Text A**

**Vocabulary list**

to remove – выносить

commercial – торговый, коммерческий

fertile – плодородный

fertility – плодородие

to fertilize – удобрять, вносить удобрение

fertilizer – удобрение

to apply – вносить, применять

soluble – растворимый

injury – повреждение

top dressing – поверхностное внесение, подкормка

side dressing – боковая подкормка (междурядная)

to follow – следовать

liquid – жидкий

granulated – гранулированный

leaching – выщелачивание

conversion – превращение

unavailable – недоступный

to cause – вызывать

evenly – равномерный

lime – известь

soil acidity – кислотность почвы

to be subject – быть подверженным, подвергаться

to ensure – гарантировать, обеспечивать

injury – повреждение

row crops – пропашные культуры

companion crop – сопутствующая культура

**1. Translate the following word combinations into Russian:**

salt injury, to become deficient, commercial fertilizer, to improve soil fertility, soluble fertilizers, to apply fertilizers, soil surface, broadcast application, to be subject to leaching, top dressing, side dressing, poor seed development, lime, soil acidity, at any stage of the growth.

**2. Read the text and translate it into Russian.**

**Fertilizers and their Application**

As crops are known to remove nutrients from the soil, the latter may become deficient in some elements. Application of commercial fertilizer is to improve soil fertility and to ensure better quality of the crops to be grown.

Fertilizers are usually classified according to the food element which forms their main constituent. So, they may be grouped as nitrogenous fertilizers and so on.

To be effective, fertilizers should be applied where and when the plant needs them. Single yearly applications were found to be insufficient for some crops, being unnecessary for others. Young growing plants should not be given concentrated, highly soluble fertilizers because of salt injury. To make repeated applications throughout the season is of great use in case of perennials or long-season annuals. There are various methods of fertilization. Broadcast application means spreading the material uniformly over soil surface, usually before the crop is planted. Sometimes the fertilizer is placed directly over the growing crop, which is known as top dressing. When plants are subject to injury fertilizers can be put alongside the plants as a side-dressing, the latter being often made along with cultivation.

Sometimes a mixed fertilizer containing two or more fertilizer elements is to be applied, the time of placement being highly essential. Mixtures with low amount of nitrogen are usually applied to the soil before or during planting, followed by a top dressing or side-dressing with a liquid or granulated nitrogen fertilizer. Winter cereals usually receive a top dressing in the spring. Row crops, such as corn, receive a side dressing after the plants made some growth. With many crops nitrogen is applied several times during the growing season because it is known to be subject to leaching and conversion to unavailable forms. But one should not forget that too much nitrogen tends to cause lodging, late maturity, poor seed development in some crops, and greater fertilizers are considered to be most effective when they are applied before the crop is sown, so that they can be worked into the soil and be evenly distributed by plowing. Lime used to correct soil acidity can be applied at any time of the year and to a crop at any stage of the growth.

**3. Fill in the blanks using appropriate words from the text.**

1. … fertilizers are of great use for plants but they should not be applied at a very high rate. 2. The method of spreading fertilizers uniformly over the soil surface is called … . 3. Sometimes nitrogen is applied several times during the growing season … … leaching. 4. Broadcasting, top dressing and side-dressing are known as different methods of … . 5. As growing crops remove plant nutrients from the soil … … requires fertilization. 6. Fertilizers are classified … … their main food element. 7. Lime may be applied to correct … .

**4. Agree or disagree with the following statements (True or False).**

1. Only nitrogenous, phosphoric, and potassium fertilizers should be applied for soil fertility improvement. 2. Too much nitrogen in the soil may increase plant susceptibility to certain disease. 3. Too little phosphorous in the soil may cause lodging of the crop. 4. Mixed fertilizers should contain not more than two fertilizer elements. 5. Perennial crops often receive fertilizers several times during the season. 6. Corn is usually given top dressing in early spring. 7. Soil acidity can be corrected by lime used at any time of the year.

**5. Translate the sentences from Russian into English using the active vocabulary.**

1. Внесение удобрений, как известно, улучшает плодородие почвы. 2. Удобрение нужно вносить тогда, когда растения в них нуждаются. 3. Иногда удобрения приходится вносить несколько раз в течение вегетационного периода. 4. Существуют различные методы внесения удобрений, главные из них внесение вразброс, поверхностная подкормка и междурядная подкормка. 5. Часто нужно вносить смесь удобрений, содержащую несколько питательных элементов. 6. Слишком большое количество удобрений может оказать вредное действие на почву. 7. Известь, используемая для исправления кислотности почвы, можно вносить в любое время года.

**6. Name all known to you methods of fertilizer application.**

**7. Find key sentences in each paragraph of the text and use them for retelling.**

**8. Give the short summary of text A.**

**Text B**

**1. Get acquainted with text B and answer the following questions:**

1. Can grain crops fix nitrogen? 2. What elements are most extensively used in the production of grains? 3. What elements are required in relatively small amounts? 4. What part of the plant is very rich in phosphorus? 5. Where is calcium found? 6. What is calcium essential for? 7. What element is necessary to the metabolism of crops?

**Crop Requirements**

The grain crops in general are rather heavy uses of the mineral elements. Unlike the legumes they cannot fix the nitrogen and for their best development use large quantities of nutrients. The elements most extensively used in the production of the grains are nitrogen, phosphorus, calcium and potassium. Magnesium is of considerable importance, but relatively small amounts are required. With the exception of soybeans, the grain crops as a whole are not high in their content of nitrogen, yet when considered on an acre basis the requirements are great. The seed is very rich in phosphorus, and we might therefore expect grain crops to respond to phosphorus-bearing fertilizers. Considerable calcium is found in the leaves of the grain plant and it is believed to be essential to root development. Potassium is known to be very necessary to the metabolism of crops. The grain crops on the whole remove large quantities of plant nutrients from the soil.

The grain crops take large quantities of nitrogen, phosphorus and potassium from the soil. Lesser amounts of calcium and magnesium are required. Even a crop like alfalfa requires considerable plant food, while buckwheat requires much calcium for its straw.

In general, corn removes relatively more from the soil than the other grain crops. It is evident that corn requires a soil of high fertility. As a rule, corn is given the choice place in the rotation in order to provide it with the best possible opportunity to produce well. Flax, wheat and barley are generally given more favourable places in the rotation than rye, oats or buckwheat. Of the latter three crops rye is often grown on the poorer soils because of its ability to yield well rather adverse conditions. Buckwheat is a more specialized crop and usually is given a better spot than rye or oats. As indicated earlier, the oat crop is frequently grown primarily because if fits into many types of rotation and serves well as a companion crop for small seeded legumes and grasses.

**2. Find in the last paragraph the sentences about the elements that are most extensively used in the production of grains.**

**3. Skim the text again and say:**

1) which elements cereal crops consume in greater amounts and which in less amounts;

2) which of the crops remove more nutrients from the soil;

3) which of the crops produce good yield even under unfavorable conditions;

4) what crop may be a companion crop and may be included into many types of crop rotations.

**4. Work in pairs, ask each other 3 questions on the text and answer them.**

**ЗАКЛЮЧЕНИЕ**

Учебное пособие «Курс английского языка для специальностей агрономического профиля» содержит конспект грамматического материала, представляющего особые трудности для студентов, изучающих английский язык в неязыковом вузе, а также набор практических заданий, способствующих усвоению этого материала. Текстовая часть пособия ориентирована на развитие навыков говорения, чтения и перевода оригинальной литературы по специальности. При отборе текстового материала в качестве основного критерия служила аутентичность текстов и их информативная ценность. Тексты пособия не адаптированы, взяты из современных источников и отражают богатство и разнообразие современного английского языка.

В целом пособие позволит систематизировать знания об отдельных грамматических явлениях английского языка и сформировать навыки получения и обмена информацией в профессиональной сфере.

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У ч е б н о е и з д а н и е

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**для специальностей**

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