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ДЕРЖАВНИЙ ВИЩИЙ НАВЧАЛЬНИЙ ЗАКЛАД
«ДЕРЖАВНИЙ АГРОЕКОЛОГІЧНИЙ УНІВЕРСИТЕТ»

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Навчальний посібник розрахований на вивчення англійської мови і має професійно-орієнтований характер. Завдання навчального видання визначається комунікативними та пізнавальними потребами майбутніх фахівців у галузі агрономії. Мета посібника — підготувати студентів до самостійного читання спеціальної літератури англійською мовою, а також удосконалити навички мовлення в ситуаціях професійного спілкування напряму підготовки «Агрономія» за фаховим спрямуванням «Бакалавр».

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ЗМІСТ

Lesson 23

Lesson 24

Lesson 25

ПЕРЕДМОВА

Навчальний посібник розрахований для спеціального етапу вивчення іноземної мови в агрономів-бакалаврів. Посібник розрахований на 50 годин занять.

Мета навчального посібника — закласти основи навичок читання і перекладу текстів середньої складності з механізації, тваринництва і агрономії, а також розвинути навички усного мовлення. Тексти посібника запозичені з оригінальних вітчизняних та закордонних джерел і зазнали методичної обробки із врахуванням програмних вимог.

Структура посібника. Посібник ділиться на чотири частини. Перша частина являє собою вступний курс, присвячений походженню сільського господарства і його розвитку в сучасних умовах. У вступному курсі наведений лексичний матеріал з основних галузей сільського господарства і розвитку аграрної освіти. Другий і третій розділи охоплюють лексичний матеріал з головних питань зоотехнії та механізації сільського господарства. Четвертий розділ посібника містить лексичний матеріал з агрономії. До цього розділу входять заняття, які включають лексичний матеріал з обробітку ґрунту, внесення мінеральних і органічних добрив, типів ґрунтів і селекції сільськогосподарських культур. До розділу включений також лексичний матеріал, присвячений основним сільськогосподарським культурам і методам їх захисту. Останнє заняття містить лексичний матеріал за темою «Моя майбутня професія».

Структура заняття. Всі заняття мають аналогічну структуру. Кожне заняття розглядає певну граматичну тему. Поряд з лексичним матеріалом і текстами структура кожного заняття включає граматичні вправи, а також підстановочні лексичні вправи, головною метою яких є засвоєння певного додаткового лексичного матеріалу. Кожне заняття включає в себе заключну лексичну вправу на переклад.

В кінці посібника розміщено довідниковий матеріал, до якого входить граматичний коментар, в якому висвітлено граматичну тему, включену до заняття. До граматичного матеріалу також належить список нестандартних англійських дієслів, використаних в текстах і лексико-граматичних вправах. Довідниковий матеріал включає в себе список найуживаніших скорочень мір ваги, площі, відстані і їх повне написання. З метою розширення загального кругозору студентів довідниковий матеріал включає в себе таблицю переводу англо-американських одиниць вимірювання в метричну систему. До посібника запропоновано англо-український словник сільськогосподарських термінів, які зустрічаються в текстах, але відсутні в загальних словниках.

РОЗДІЛ І

ВСТУПНА ЧАСТИНА

LESSON 1

AGRICULTURE ITS ORIGIN AND DEVELOPMENT

I. VOCABULARY

agriculture — сільське господарство
to supply — забезпечувати
equipment — обладнання
to fertilize — удобрювати
fertilizer — добриво
resource — ресурси
to cultivate — вирощувати
cultivation — вирощування
branch — галузь
breeding — розведення
grain crops — зернові культури
wheat — пшениця
rye — жито
oats –овес
barley — ячмінь
sugar beets — цукрові буряки
flax — льон
hops — хміль
hemp — конопля
sunflower — соняшник
to plough — орати
plough — плуг
to harrow — боронувати
harrow — борона
to mow — косити
to thresh — молотити
spring crops — ярі культури
winter crops — озимі культури
technical crops –технічні культури
to sow — сіяти

II. TEXT

THE DEVELOPMENT OF AGRICULTURE IN UKRAINE

The agriculture is one of the most important branches of the national economy. The majority of the rural population works in agriculture. The development of agriculture depends upon the industrial level of the country. The industry supplies the agricultural equipment, chemical fertilizers and other necessary materials.

Agriculture uses the achievements of several sciences, especially those of botany, zoology and chemistry. Those achievements depend

also upon the human talent and various circumstances which influence on the agricultural production. That's why the agriculture has a character of some art. It has become a branch of the national economy which needs some resources, for instance, the chemical fertilizers and agricultural machines. It also needs some natural fertilizers and natural resources which are given us by nature. The plant cultivation and the animal breeding are the main branches of agriculture. Wheat, rye, oats and barley belong to the cereals. They are main resources of the nourishment. The grain crops cultivation consists of plowing, sowing and harvesting. Agriculture supplies the technical crops: sugar beets, flax, hops, hemp and sunflower. The field work starts in spring and is over in autumn. In spring one ploughs, harrows, fertilizes and sows summer crops. In summer and autumn one mows and threshes grain crops, picks up fruits and vegetables. Agriculture is a single branch of the national economy which depends upon the climatic conditions.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What does the industry supply?
2. What do the achievements of agriculture depend upon?
3. What are the main branches of agriculture?
4. What are the main resources of the nourishment?
5. What grain crops do you know?
6. What technical crops do you know?
7. When does the field work start? When is it over?
8. What does one do in spring?
9. What does the grain crops cultivation consist of?
10. What does one do in summer and autumn?

GRAMMAR

THE ARTICLE

IV. FILL IN THE BLANKS WITH THE APPROPRIATE ARTICLES:

1. We have grown … good crop of … wheat. 2. In summer and autumn one mows and threshes … grain crops. 3. … sugar beets, … flax, … hops, and … hemp belong to … technical crops. 4. … agronomy deals with … cultivation of … fields for … regular production of

… crops: … food crops, … feed crops and … technical crops. 5. … cultivation of field's means … preparation of … ground for planting … crops. 6. … soil needs … natural and … chemical fertilizers. 7. … majority of … rural population works in … agriculture.

V. READ ALOUD THE FOLLOWING INTERNATIONAL WORDS AND TRY TO TRANSLATE THEM INTO UKRAINIAN:

primitive agriculture; the primitive man; the land cultivation; plant resources; to exploit plant resources; complex forms of agriculture; a complex of agricultural problems.

VI. a) REMEMBER THE NAMES OF THE SIMPLEST AGRICULTURAL IMPLEMENTS. MAKE UP YOUR SENTENCES WITH THEM:

stick — палка
spade — лопата
rake — граблі
hoe — мотика
fork — вила

b) TRANSLATE INTO UKRAINIAN:

1. The primitive man hunted animals by using a stick. 2. He could gather plants by using a spade and a fork. 3. Agronomists can reproduce the fertile layer of soil by cultivating the land.

VII. a) REMEMBER THE FOLOWING WORDS AND WORD-COMBINATIONS. SAY IN WHAT SITUATIONS YOU CAN MEET THEM.:

early — ранній
as early as 3000 B.C. (before Christ) — за 3000 років до нашої ери
Mediterranean — середземноморський
the land tenure — землекористування

b) READ AND TRANSLATE THE FOLLOWING SENTENCES:

1. The system of land tenure is a complex problem. 2. The first agricultural implement was the stick. 3. The first plow was originated as early as 3000 B.C. 4. The plow was first used in the Mediterranean region. 5. The plow gave a start to a more complex form of agriculture. 6. Then people began to use the fork, the rake and the spade. 7. Later on people began to use the plow. 8. By using the plow people gave a start to a more complex system of land tenure.

VIII. PUT THE INFINITIVES IN BRACKETS IN THE PRESENT INDEFINITE TENSE:

1.The names of primitive implements people still (to use) in some countries (to be) the spade, the rake and the fork. 2. The plow (to be) the first agricultural implement. 3. The soil (to require) many chemical elements for the productive soil cultivation.

IX. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1.One … the soil in spring. 2. We … potatoes and hops in our region. 3.The rural population … cows at the cattle–farm. 4. The field work … in spring. 5. Agriculture …. the climatic conditions. 6. Wheat, rye and barley … the cereals.

to cultivate, to plough, to feed, to start, to depend upon, to belong to.

X. TRANSLATE INTO UKRAINIAN:

THE ORIGIN OF AGRICULTURE

It is known that the primitive man lived by gathering plants and by hunting animals. Later on people began to exploit plant resources. The earliest implements for the land cultivation were the stick and the hoe. The implements people began to use later on were the spade, the rake, the fork and the plow. It is supposed that the plow was first originated in the Mediterranean region as early as 3000 B. C. It is said that the plow was the first implement which gave a start not only to a more complex form of agriculture but also to a system of land tenure.

XI. TRANSLATE INTO ENGLISH:

1. Сільське господарство — головна галузь економіки нашої країни. 2.Більшість сільського населення працює в сільському господарстві. 3.Розвиток сільського господарства залежить від рівня розвитку промисловості. 4.Сільськогосподарські роботи починаються навесні і закінчуються восени. 5. Дві великі галузі сільського господарства — рослинництво і тваринництво. 6. Пшениця, жито, овес і ячмінь належать до зернових культур. 7.До технічних культур належать цукрові буряки, хміль, льон і конопля. 8. Першими примітивними знаряддями праці були палка, лопата, граблі і плуг. 9. Сезонне виробництво є особливістю сільського господарства.

LESSON 2

THE BRANCHES OF AGRICULTURE

I. VOCABULARY:

the forest growing — лісове господарство
to nourish — годувати, живити
nourishment — харчування, живлення, годівля
the grain crops production — зернопродуктів
the fruits and vegetable production — виробництво овочів і фруктів
the industrial crops production — виробництво технічних культур
the sugar beets production — виробництво цукрових буряків
the flax production — льонарство
the hops production — хмелярство
the animal breeding — розведення худоби
the plant raising — рослинництво
spring varieties — ярі культури
winter varieties — озимі культури
a carpenter bee — робоча бджола
viticulture — виноградарство
a hornet — шершень
a yellow jacket bee –бджола-охоронець
a boast –трутень
apiculture — бджільництво
a wasp — матка
a bumble bee — джміль
an ant — личинка

II. TEXT

THE BRANCHES OF AGRICULTURE

The nowadays agriculture doesn't only deal with the soil cultivation. It is also interested with the forest growing, with the protection of the river sides, mountains and with the hothouses. The agriculture is not only a nourishing resource. It also supports the human organism.

Without nourishment the human life may become impossible. The nourishment problem is the most important problem of all the countries in the world. Within the agriculture itself one distinguishes the following independent branches: the grain crops production, the fruits and vegetables production, the technical crops production (the sugar beets production, the flax and hops production, etc), the animal breeding and the apiculture.

All the agricultural branches may be divided into two large groups: the plant-raising and the animal breeding. The main branch is the grain crops cultivation. Thanks to the selection a lot of different wheat, rye, oats and barley sorts appeared in the fields. All of them have spring and winter varieties. They may be cultivated in different climatic zones.

The fruit and vegetable production covers the needs of the urban population. It also gives all the necessary vital vitamins, proteins and sugars. In the southern regions viticulture has become a very profitable branch of industry. The industrial crops production is a substantial resource of the raw materials for the industry. Hops is cultivated in our region. Nowadays the world market requires more aromatic varieties. Flax is cultivated to cover the needs of the clothing industry. The animal breeding supplies meat, milk, sour cream and cottage cheese. Poultry covers the needs of the population in eggs and meat. The apiculture is a peculiar branch of agriculture. It requires much attention and knowledge. Honey bees belong to the Kingdom Animalia which include all the animals. They are classified very peculiarly and represent a sort of a society which includes all the solitary and social bees, wasps, boasts, some familiar insects like yellow jackets, bald-faced hornets, bumble bees and ants. All of them fulfill their special duties. Bee-keepers must keep and protect bee-hives from different deseases.

When speaking about the branches of agriculture we can't forget the mechanization. This branch provides the mechanized order of the agricultural labour.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What is the main task of agriculture?
2. How can you characterize the nourishment problem?
3. What branches of agriculture do you know?
4. What varieties of grain crops do you know?
5. What do fruits and vegetables supply?
6. What do the technical crops supply?
7. How can you characterize the apiculture?
8. How are the bees classified?
9. What are the duties of bee — keepers?
10. What branch of agriculture organizes the mechanized order of the agricultural labour?

GRAMMAR

THE PLURAL OF NOUNS

IV. GIVE THE PLURAL OF THE FOLLOWING NOUNS:

a plant, a crop, a yield, an animal, a sort, a variety, a sheep, a bee, a goose, an ox, an ant, a wasp, a boast, a forest.

V. FILL IN THE BLANKS WITH THE NECESSARY WORDS IN BRACKETS:

1. Agronomy deals with the cultivation of …for the regular production of food, feed and industrial … . (field, fields, crop, crops).

2. The cultivation of … means the ground preparation for planting … and other … . (field, fields, tuber, tubers, plant, plants).

3. Viticulture deals with the growing of different … of grapes. (sort, sorts).

4. Each bee … consists of … several…, …, a lot of … and many. (a wasp, wasps, a boast, boasts, a yellow jacket bee, yellow jacket bees, a carpenter bee, carpenter bees, an ant, ants).

5. Regular rise of … is an essential … in the development of national economy. (a crop, crops, an element, elements).

6. Preparation of the ground is done by means of …, … and other… . (a plow, plows, a harrow, harrows, an implement, implements).

VI. a) REMEMBER THE NEW WORDS AND MAKE UP SENTENCES WITH THEM:

stock feeding — годівля худоби
nutritive deficiencies — харчовий дефіцит
white — білок
corn — зерно

b) FORMULATE THE PECULIARITIES OF THIS GRAIN CROP, TRANSLATE INTO UKRAINIAN:

BARLEY

Barley is one of the most widely cultivated crops of the cereals throughout the world. The crop is adapted to a wide range of climatic conditions.

Once the chief bread, grain of many ancient nations, barley is now used for stock feeding. It has the same nutritive deficiencies as the other cereals. It is low in vitamin A, though apparently containing somewhat more than white corn.

VII. ANALYZE A PIECE OF INFORMATION. COMPARE IT WITH THE PREVIOUS ONE:

OATS

Oats is an important grain crop in nearly all the countries. It is not commonly grown so far north or at such high altitudes as barley, and it does not stand drought so well. On the other hand, oats yields better than barley on poor soil.

Oats contains nearly as much protein as wheat does and even more fat than corn does.

The proteins are not of a high quality but contain low amounts of the essential amino acids. Oats also lacks vitamin D like all cereals, and contains little vitamin A, like white corn.

Due to the hulls, oats is the safest of all common grains for horse feeding, and hence is widely used for this purpose. Oats is useful because of its bulk, in starting fattening cattle or sheep on feed, but more concentrated grain is usually substituted for all or most of the oats as fattening progresses. Oats is highly esteemed as a part of the concentrates for owes, young lambs, brood sows and young pigs. It is too bulky to serve well as the chief grain for fattening pigs.

VIII. CHARACTERIZE THE WAYS OF THE BEE TREATMENT IN THE USA:

Preventative treatment for both nosema disease and American foulbrood disease traditionally have consisted of a prophylactics administration of chemicals. Fumagilin (Fumidil — B) has been used for prevention of nosema disease, and oxytetracyclin has been used against American foulbrood. The feeding of fumagilin in syrup in sufficient concentration and amount has been shown to be highly effective way to prevent active cases of nosema desease. While not completely effective in eliminating the protozoan responsible for the disease, fumagilin has proven to be capable of keeping nosema infections at subclinical levels. This chemical is still successfully used in beekeeping.

IX. TRANSLATE INTO UKRAINIAN:

The strengthening of the industrial and material basis of agriculture is necessary for the further intensification and convertion to the industrial methods.

The most field works are nowadays fully mechanized. In the last years one uses more and more tractors and combine harvesters. Different devices increase the job productivity both in the fields and at the cattle farms.

X. TRANSLATE INTO ENGLISH:

1. Всі галузі сільського господарства можна розділити на дві великі групи:
рослинництво і тваринництво.
2. До зернових культур відносяться озимі зернові та ярі зернові культури.
3. Овочівництво і садівництво задовольняють потреби населення.
4. Виробництво цукрових буряків задовольняє потреби населення в цукрі.
5. Молочнотоварні ферми постачають в міста молоко, сир, масло і сметану.
6. Бджільництво є особливою галуззю сільського господарства.
7. Птахівництво задовольняє потреби населення у м'ясі та яйцях птиці.
8. Більшість польових робіт на даний час повністю механізовані.

LESSON 3

THE AGRICULTURAL EDUCATION IN UKRAINE

I. VOCABULARY:

to join the Bologna process — приєднатись до болонського процес
the Candidate of Agriculture — кандидат сільськогосподарських наук
he Doctor of Agriculture — доктор сільськогосподарських наук
the more ... the better — чим більше ... тим краще
the scientific research — наукове дослідження
to train specialists — готувати фахівців
to write theses — писати дисертацію
bachelor — бакалавр
master — магістр

II. TEXT

THE AGRICULTURAL EDUCATION IN UKRAINE

The agricultural education is a consisting part of the educational system in our country. The demand for specialists increases every year. The national economy needs the specialists with the middle special and higher education. Specialists are nowadays trained at special secondary (technical) schools and higher schools (institutes and universities). Our country is going to join the Bologna process in the system of education. It supposes the utilization of the most progressive methods in teaching and their close approach to the modern economy. Nowadays one must consider two levels in education: the Bachelor level and the Master level.

The system of the agricultural education is directed to the solution of different practical tasks in the production. The initial level of the agricultural education includes special technical schools where the young people are mostly given some theoretical knowledge (especially in agricultural engineering) and different practical skills. The agricultural colleges belong to the next level The students of the agricultural colleges are trained both theoretically and practically. The training takes into account different natural and climatic conditions in different regions of our country. It also includes practical work. Thousands of young specialists who have been trained at the colleges are working in agriculture. Some of the best students reach the Bachelor level and are given the possibility to study at the Master level depart-

ment. After having graduated from the Master level department the young specialists may work practically in agriculture or devote themselves to the scientific research. They may write theses and become Candidates of Agriculture and then later Doctors of Agriculture.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. Where are the specialists for agriculture trained?
2. How can you characterize the higher education?
3. Where is the system of the agricultural education directed to?
4. What does the initial level of the agricultural education include?
5. What can you tell about the agricultural colleges?
6. What does the training take into account?

GRAMMAR

THE DEGREES OF COMPARISON

IV. GIVE THE DEGREES OF COMPARISON OF THE FOLLOWING ADJECTIVES AND ADVERBS:

high, progressive, educated, good, possible, complex, primitive, bad.

V. OPEN THE BRACKETS. MIND DEGREES OF GOMPARISON OF THE ADJECTIVES AND ADVERBS:

1. The stick is (primitive) agricultural implement,
2. The tractor is one of (complex) agricultural machines.
3. Oats has (much) vitamins than barley has.
4. The Bolonga system in education is (progressive) in the world.
5. The Master level is (high) than the Bachelor level,
6. (Much) you study the special subjects (good) you may use
7. your knowledge in the practice.
8. (Old) he grew (wise) he became.

VI. a) REMEMBER THE FOLLOWING WORD -COMBINATIONS:

to meet the demands (requirements) —задовольняти, відповідати вимогам (потребам)

to meet the ever increasing demands — задовольняти безперервно зростаючі потреби

b) ANSWER THE FOLLOWING QUESTIONS:

1. Does the training at the agricultural college meet the demand» for young specialist?
2. Must the agricultural enterprises meet the ever increasing requirements of the national economy?

VII a) REMEMBER THE FOLLOWING WORD COMBINATIONS:

to take into account — враховувати, приймати в розрахунок
the branch of engineering — галузь механізації
the branch of agronomy — галузь агрономії

b) TRANSLATE INTO UKRAINIAN:

1. The young specialists must take into account various complicated problems.
2. Our specialists will work in the branches of engineering and agronomy.

VIII. a) TRANSLATE INTO UKRAINIAN:

The demand for specialists in agronomy increases every year. To meet this ever increasing demand many agricultural higher schools and colleges are set in our country. They train specialists for all the branches of agriculture. As far as agronomy is concerned the training takes into account different natural and soil conditions. The specialists must know how to cultivate different fruits, vegetables, grain and technical crops. They must know how to fertilize soil according to its peculiarity. They must know how to operate various kinds of agricultural machinery such as tractors, harrows, plows, combine harvesters, etc. They also solve various production problems.

b) ANSWER THE QUESTIONS:

1. Does the demand for specialists in agriculture increase every year?
2. What does the training take into account?
3. What must the young specialists know?

IX. FILL IN THE BLANKS WITH THE NECESSARY WORDS:

1. ... is done after plowing.
2. The ... for specialists in agriculture has greatly increased

3. The ... of agronomists takes into account that they will work in the regions with different climatic and soil conditions .

4. The practical work on farms includes the preparation of ... who will work under different conditions.

1. *training,* 2. *fertilizing,* 3. *demand,* 4. *operators*.

X. TRANSLATE INTO UKRAINIAN:

Agricultural engineering can be defined as the application of engineering in agriculture. But this definition does not cover all the fields it is connected with. Engineering and agronomy are the integral parts of the science of agriculture. The present high position of the modern agriculture largely depends upon them.

The utilization of fertile swamps and overflowed lands, its fertilizing become important factors in the development of agriculture in many countries. The invention of agricultural machines has affected not only agriculture, but also many of the economic and social phases of life.

At first the progress was slow but with the growth of engineering more and more engineering achievements found the useful application in agriculture.

XI. TRANSLATE INTO ENGLISH:

1. Вимоги до спеціалістів зростають відповідно до вимог часу.

2. Наша країна вступає до болонського процесу в системі освіти, який відповідає вимогам Європейської хартії у всьому світі.

3. Система аграрної освіти направлена на розв'язання різноманітних практичних завдань у виробництві.

4. Студенти сільськогосподарських коледжів проходять практичну і теоретичну підготовку.

5. При підготовці агрономів враховують різноманітні природні і кліматичні умови.

6. Чим більше студенти працюють у теплицях, тим кращою буде їх теоретична і практична підготовка.

7. Найкращі студенти присвячують себе науковим дослідженням і пишуть дисертації.

8. Зараз у вищій освіті існують такі рівні: бакалавр, магістр та доктор філософії.

РОЗДІЛ II

LESSON 4

FARM ANIMALS. THE COW

I. VOCABULARY:

gestation — стильність (корови), період вагітності
compartment — відділ (шлунку), перегородка
rumen — рубець-перший відділ передшлунку тварин
reticulum — сітка — другий відділ передшлунку жуйних тварин
omasum — книжка — третій відділ передшлунку жуйних тварин
abomasum — сичуг — четвертий відділ шлунку жуйних тварин
lactation — лактація
dairy cows — молочні корови
evaporation — випаровування
calf (calves) — теля (телята)
the class of ruminants — клас жуйних тварин
calving — отел
to consume — споживати , використовувати
colostrum — молозиво
to digest — переварювати
laxative — слабуючий
roughage — грубий корм
to milk — доїти
to convert — перетворювати
to water — напувати
stomach — шлунок

II. TEXT

THE COW

The cow belongs to the class of ruminants. Its value as a domestic animal consists in her ability to consume and digest large quantities of roughage and to convert it into milk and meat for human food.

The cow's stomach, which is a compound one, has four distinct compartments: rumen, reticulum, omasum and abomasum. The stomach of mature cows varies in capacity to 25 gallons (150 to 300 pounds) depending on the size of the animal.

To produce a large supply of rich milk, cows must be not only well fed but also be of good milking qualitities. The cows that are producing milk require a much larger quantity of water that is necessary for growing animals.

The period of gestation in cows is about 40 weeks.

The lactation period is the period of milking after each calf and it usually lasts for about ten months.

The first milk after calving is called colostrum , and it has a necessary laxative action on the calf's stomach.

Dairy cows are milked three times a day and watered twice a day.

In summer the consumption of water by cattle is greater on account of the greater evaporation from the skin.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What class of animals does the cow belong to ? 2. What farm animals chew the cud? 3. Why is the cow a valuable animal? 4. How many compartments are there in the cow's stomach? 5. How long does a period of gestation in the cow last? 6. How long does the lactation period last? 7. In what season do the cattle consume more water?

GRAMMAR

THE PRESENT INDEFINITE TENSE

IV. PUT THE INFINITIVES IN BRACKETS IN THE PRESENT INDEFINITE TENSE:

1. It (to depend), upon the size of the animal.2. A great quantity of water (to be) necessary for growing animals. 3. The cow (to belong) to the class of ruminants. 4. The stomach of the mature animals (to vary) in capacity from 25 to 60 gallons. 5. The lactation period (to last) for about ten months.

V. TRANSLATE INTO UKRAINIAN:

Hay from timothy and other grasses is generally much inferior to legume hay for dairy cattle. It is low in protein when cut at the usual stage of growth, is not high in calcium, is commonly even lower in phosphorus than legume hay, and is lower in vitamin A than well-cured legume hay. Such grass hay is also much less palatable to dairy cows than is good legume hay, and therefore the cows will not eat so much of it. As a result,

in order to secure good production they must be fed a larger amount of grain and other concentrates than is needed with legume hay.

Timothy hay or hay from other grasses, cut not later than full bloom and even earlier, is greatly superior for dairy cattle to grass hay cut at the usual stages of maturity. This is because it is much more palatable and is considerably higher in protein, especially hay grown on well-fertilized land.

When there is insufficient legume hay to feed liberally throughout the barn-feeding period to all the herd, it is best to give the cattle one feed of legume hay a day, rather than to use it all up during a part of the winter and then confine them to non-legume roughage for the rest of the time.

If the grass hay is fed, with or without silage, as the chief roughage to dairy cows, it may be wise to add a calcium supplement to the ration.

VI. CHARACTERIZE THE QUALITY OF THE FODDER

Straw is akin to hay as a food, but is much more bulky and fibrous. Straw consisting of the mature stems and leaves has relatively little protein, starch or fat, while the content of fibre or cellulose is high.

The great bulk of straw is an unsuitable food, at least in large proportions, for heavy milking cows, hard working horses, calves. For dry cattle and slowly fattening animals straw is a useful part of the ration. The actual nutritive value and palatability depends on the type of crop from which it is made.

The straw of barley and wheat, because of the advanced stage of ripeness at which they are cut, are somewhat less valuable than the straw of oats which is usually cut in a less ripe condition.

VII. a) REMEMBER THE FOLLOWING WORDS:

skeleton — скелет
to accumulate — акумулювати
coarse fodder — грубий корм
pasture herbage — зелений корм
green forage — зелений корм

b) READ AND TRANSLATE THE FOLLOWING SENTENCES:

1. Cows have a remarkable ability to store calcium, phosphorus and other minerals in their skeletons, and the dry period gives them the opportunity to accumulate these reserves of minerals as well as of vitamins. 2. The cow is capable of utilizing a large quantity of coarse

fodder and of converting huge amounts of pasture herbage and green forage crops into milk. 3. The milking cows must have water at least twice daily, and the heavy yielder must have access to it more frequently.

VIII. TRANSLATE INTO UKRAINIAN:

A cow's food consists of concentrates and roughage. The concentrates are foods in which the nutritive energy is high in proportion to their weight and bulk, and they are from 75 to 100 per cent digestible. In roughages, the nutritive energy is lower in proportion to weight, the digestibility being from 30 to 75 per cent.

IX. CHARACTERIZE THE FUNTIONS OF THE COW'S ABOMASUM:

ABOMASUM

The fourth compartment is the true stomach. It is the only stomach tissue, the mucous lining of which contains glands that produce digestive juices. The chief cells in the anterior or fundic portion produce hydrochloric acid.

The abomasum is separated from the small intestine by the pyloric valve, guarded by a well — developed sphincter muscle. This valve open at intervals, permitting some of the content to pass into the duodenum or anterior portion of the small intestine.

X. TRANSLATE INTO ENGLISH:

1. Корови можуть перетравлювати більшу кількість грубих кормів.
2. Молочних корів слід доїти тричі на день.
3. Період лактації у корів триває близько трьох місяців.
4. Корови цієї породи дають молоко високої жирності.
5. Молозиво стимулює нормальну діяльність кишкового тракту.
6. Влітку худоба п'є більше води, ніж взимку. Тому влітку потрібно забезпечувати велику кількість води для худоби.
7. Шлунковий сік виробляється у черевному відділі шлунку жуйних тварин.
8. У свиней та коней прості шлунки.

LESSONS 5

FARM ANIMALS. THE PIG

I. VOCABULARY:

the omnivorous animal — всеїдна тварина
to breed — розводити, виводити тварини
to grind — пережовувати , молоти-ти, переламувати
Tamworth — тамворс, англійська порода свиней м'ясного напрямку
confinement — обмеження, утри-мання в приміщені
to suckle — згодовувати, давати ссати вим'я, смоктати
the pure breed — чиста порода
pregnant — вагітний
breed — порода
to farrow — опороситися
sow — свиноматка
farrowing — опороситися
parturition — роди
harmful — шкідливий
fibre — волокно, нитка
to thrive — швидко рости
ration — раціон
anaemia — малокрів'я
grinding — пережовування

II. TEXT

THE PIG

The pig is an omnivorous animal with a simple stomach. There is a number of pure breeds of pigs, including Black breeds. White breeds, and the Tamworth's which have a golden-red colour. Crosses commonly show the mixed colours of the pure breeds.

Pigs thrive in the open air under summer conditions, and they can during warm weather, convert their food into meat.

A pregnant pig is called a sow which usually produces from 6 to 12 piglets. The act of parturition is called farrowing.. On the approach of farrowing a sow should be in good condition but not fat. Close confinement prior to farrowing is harmful. Some suckling piglets require somewhat more water. Their rations should be supplied with micro and macroelements other-wise anemia will result.

One should remember that the teeth of the pig do not provide conditions for a very fine grinding. That's why they do not grind the fibre of feeds well.

III. ANSWER THE FOLLOWING QUESTIONS:

1. How many breeds of pigs do you know? 2. What do crosses commonly show? 3. How is a pregnant pig called? 4. Has the pig a compound stomach? 5. What is harmful for a pregnant sow? 6. What should the rations of suckling piglets be supplied with? 7. Do the teeth of the pig provide conditions for very fine grinding?

GRAMMAR

THE PAST INDEFINITE TENSE

IV. PUT THE INFINITIVES IN BRACKETS IN THE PAST INDEFINITE TENSE:

1. Numerous experiments (to show) that tankage or buttermilk (to produce,) excellent results when one of these feeds is used as the only protein supplement for pigs on pasture. 2. Buttermilk (to be) excellent protein supplements to the grains in swine feeding 3. The daily requirements of the pig in calcium (to be) large. 4. None of the cereal grains (to furnish) proteins of good quality.

V. TRANSLATE INTO ENGLISH

1. Pigs excel all other farm animals in the economy with which they convert feed into edible flesh. 2 Beef and mutton furnish a higher percentage of protein, on the average, than pork.

3. Because of the small proportion of bone in the dressed carcass of swine, the percentage of the carcass that is edible is decidedly higher than in the case of cattle or sheep. 4. When pigs are on good pasture, a considerable amount of protein is provided by the green forage they eat. 5. Swine, like all other classes of stock, should always be supplied with plenty of water. 6. Wheat in a ground form is an excellent ingredient of a pig diet. 7. Though swine require less salt than cattle, horses, or sheep, they should be supplied with it regularly. 8. After weaning the little pig requires a considerable amount of protein and of minerals for growth.

VI. a) REMEMBER THE FOLLOWING WORDS.

livestock — поголів'я худоби
the pork production — виробництво свинини
nutrient requirements — вимоги до поживності

b) READ AND TRANSLATE THE TEXT:

NUTRIENT REQUIREMENTS OF SWINE

Swine are fed largely on grain, and they eat relatively little roughage, except on pasture. Moreover, they grow more rapidly than cattle, horses, or sheep, and produce young when less mature.

As a result, swine suffer much more frequently than the other classes of livestock from inadequate rations. It is therefore especially necessary, if maximum, profits are to be secured from pork production, that their nutrient requirements be clearly understood.. .Numerous experiments show that the nutrient requirements of swine are relatively simple and that is not necessary to feed complicated or expensive rations in order to secure the best results.

Because swine are fed chiefly on grain, particular care is necessary to provide in their rations a sufficient amount of protein and also protein of good quality.

Since the grains are all low in calcium, it is necessary to feed swine a mineral supplement supplying this essential, unless an adequate amount of calcium is furnished by the other feeds in the ration. A phosphorous supplement must also be added to certain swine rations, because the cereal grains are not rich in this mineral. The vitamin, requirements of swine are met adequately when they are on good pasture, but under other conditions they may suffer seriously from deficiencies of vitamin A or vitamin D, unless well-cured legume hay or some other vitamin supplement is fed.

VII. FILL IN THE BLANKS WITH THE MISSING ADVERBS:

1. The vitamin requirements of swine are met ... when they are on good pasture.

2. Swine are fed ... on grain. 3. They eat . . . roughage. 4. Swine grow .... than cattle, horses, or sheep. 5.They suffer ... than the other classes of livestock from inadequate rations.

VIII. a) REMEMBER THE FOLLOWING WORDS:

tankage — відходи боєнь, які йдуть на удобрення
skimmilk — зняте молоко, обрат
buttermilk — пахта
whey — сироватка

b) READ AND TRANSLATE THE FOLLOWING SENTENCES:

1. In feeding skimmilk, buttermilk or whey to swine, it must be borne in mind that they are all very low in vitamin A and that they have traces of vitamin D. 2. The daily requirements of the pig in calcium are large. 3. Good pasture or well-cured legume hay aid greatly in meeting the protein requirements of swine. 4. Any ration made up of only grain and grain by-products is very unsatisfactory.

IX. TRANSLATE INTO UKRAINIAN:

FATS AND OILS

The fats and oils are of much importance, both in plants and animals. They are alike in composition and properties, except that fats are solid at ordinary temperatures, while oils are liquid. All fats and fat-like substances are soluble in ether and certain other solvents.

Fats, like carbohydrates are made up of carbon, hydrogen and oxygen. However, the proportion of oxygen is much less and of carbon and hydrogen much greater than in carbohydrates.

X. TRANSLATE INTO ENGLISH:

1. Свиня — це швидкоростуча тварина. 2. Строк вагітності у свиней становить три місяці. 3. Раціони свиней складаються в основному із зерна та інших концентрованих кормів. 4.Свиней годують відходами молочних та інших продуктів. 5. При низьких температурах у поросят розвивається анемія. 6.Вітаміни А і В мають велике значення в годівлі свиней.

LESSONS 6

FARM ANIMALS. THE POULTRY

I. VOCABULARY

poultry — домашні птахи
a duck — качка
a gosling — гуценя
a goose (geese) — гуска
a turkey — індик
gizzard — мускульний (другий) шлунок у птахів
to macerate — вимочувати, спустошувати
pancreas — підшлункова залоза
caecum (pl. caeca) –сліпа кишка
fowl — птиця
to swallow — ковтати
crop — зоб у птахів
to dilate — розширяти
gullet — харчопровід
a cock — півень
a hen — курка
a duckling — каченя
a chicken — курча
a poult — індичатко
starch — крохмаль
to squeeze — вижимати
intestine — кишечник
liver — печінка
gland — залоза
faeces — фекалії
to evacuate — удаляти
respiration — дихання
fluid — рідина

II. TEXT

THE POULTRY DIGESTION

Poultry are kept for flesh and eggs. They include hens with chickens, turkeys with poults, ducks with ducklings and geese with goslings.

The breeds of poultry are numerous.

As there are no teeth in the mouth of the fowl, the food is swallowed whole and passes into the crop, which is a dilated portion of the gullet. It remains there for a short interval during which the fluids of the crop exert a softening influence and some digestion of starch.

The food then enters the stomach, which secretes digestive juices on to it, and, without much delay in this compartment, it is paused on to the gizzard which is a very thick-walled organ. It squeezes the contents into a very fluid state of subdivision by the rhythmic contraction movement. The macerated food material, together with the stomach juices, pass into the small intestine where digestive juices —

from the liver, pancreas and intestinal glands — are poured on it, and digestion proceeds rapidly.

A curious feature of the large intestine is the division of the caecum into two parts, each of which is a long blind tube.

As in other animals, absorption of the digested food goes on in the small and large intestine, and the faeces are evacuated at intervals. The heart of the fowl beats quicker and respiration is more rapid.

The fowl is able to digest its food and absorb the food nutrients much more rapidly than other farm stock.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What are poultry kept for? 2. Are there teeth in the fowl's mouth? 3. What is a curious feature of the large intestine of the fowl? 4. Is the fowl able to digest its food more rapidly than other farm stock? 5. Where does absorption of the digested food go on? 6. How does the heart of the fowl beat?

GRAMMAR

THE FUTUTE INDEFINITE TENSE IN THE PASSIVE VOICE

IV. PUT THE INFINITIVES IN BRACKETS IN THE FUTURE IHDEFINITE TENSE:

1. A shortage of salt (to result) in poor growth. 2. A deficiency of calcium in the diet (to have) serious results. 3. Laying fowl (to require), a sufficient supply of vitamins A, B, riboflavin and other vitamins, 4. Shortage of vitamin A (to cause) the egg production. 5. Chickens suffering from vitamin D deficiency (to develop) soft bones and their limbs (to become) weak.

V. FILL IN THE BLANKS WITH REQUIRED WORDS:

1. The heart of the fowl beats ... and respiration is more … . 2. The fowl is ... to digest its food slowly. 3. The gizzard is a very ... organ. 4. The fluids of the crop exert ... influence on the food. 5. There are ... breeds of poultry.

VI. a) REMEMBER THE FOLLOWING WORDS:

pullets — курочки, молоді індички cereals — зернові
to retard — уповільнювати bones — кістки
the laying fowl— несучка

b) TRANSLATE INTO UKRAINIAN:

VITAMIN REQUIREMENTS

Laying fowl requires a considerable supply of vitamins A, B, riboflavin und other members of the B complex group, D and E.

Shortage of vitamin A causes decreased egg production, they become listless with ruffled feathers; a peculiar staring appearance of the eye develops, followed by inflammation; a cheesy deposit occurs inside the mouth, and after a few months on the vitamin A deficiency diet deaths occur in the flock.

An inadequate intake of vitamin D by laying fowl causes a reduction in egg yield, produces thin of soft shelled eggs, lowers the fertility and hatchability of the eggs.

Chickens suffering from vitamin D deficiency develop soft bones, the limbs are weak, the bird adopts a sitting posture longer than usual, and in movement it becomes progressively more stiff and crampy.

VII. READ AND TRANSLATE THE TEXT:

POULTRY FEEDING

In feeding poultry, careful attention should be given to the kinds of feeds that are used. Cereals form the main part of poultry diet. The most important nutritive indegrient in the diet of laying fowl is water, of which the birds should at all times have abundance.

Birds need a great variety of minerals, some in considerable supply, but others only in very minute quantity.

A shortage of salt results in poor growth, inefficient utilization of the organic part of the food and particularly of the protein, and retarded development of egg-laying in pullets.

A deficiency of calcium in the diet has serious results, Since the minerals of bone consist chiefly of a mixture of calcium and phosphate in proportions which remain constant, a shortage of calcium in the diet of growing birds causes unossified bone, and the chickens so fed show leg weakness, soft bone and a general rickety condition.

VIII. a) REMEMBER THE FOLLOWING WORDS:

the digestive organs — органи травлення
lime — вапно
rate — ступінь

b) READ AND TRANSLATE THE FOLLOWING WORDS:

1. The digestive organs of the fowl differ considerably, both structurally and physiologically, from those of mammals. 2. The lime requirements of poultry are very high. 3. A characteristic feature of ducks and geese is a very rapid rate of growth in early life. 4. Turkeys like plenty of space and freedom.

IX. CHARACTERIZE THE FUNCTIONS OF THE HEART AND LUNGS FOR THE ANIMALS:

Inside the body there are two large cavities — the anterior cavity being the thorax or chest, and the posterior cavity — the abdomen or belly. These two cavities are separated by a tense sheet of muscle called the diaphragm.

The heart is situated in the anterior — chest cavity between the lungs in a chamber called the pericardium. This is a double bag, one covering forms a thin layer closely adherent to the heart itself, while the other or outer one envelops the heart more closely.

X. TRANSLATE INTO ENGLISH:

1. Існує багато порід птахів. 2. Оскільки у птахів немає зубів, то їжа ковтається повністю. 3. Зоб — це поширений у птахів відділ харчопроводу. 4. Зоб служить головним чином резервуаром перед поступанням їжі в шлунок. 5. Всмоктування перетравлюваної їжі відбувається у товстому і тонкому кишечнику. 6. Жовчний сік домашньої птиці відрізняються за своїм хімічним складом від жовчного соку ссавців.7. Домашні птахи погано перетравлюють клітковину.

РОЗДІЛ III

LESSON 7

THE MECHANIZATION. TRACTORS

I. VOCABULARY

linkage — зчеплення, важільний механізм, важільна передача
three-point linkage — триточковий навісний пристрій
to drive (drove, driven) — керувати, проводити в дію
the regular servicing — регулярне обслуговування
to cultivate — обробляти землю, вирощувати
general-purpose — загального користування
to supply — постачати
implement — причіпне знаряддя
road making — будівництво доріг
PTO shaft — вал відбору потужності
track — слід, гусениця
load — вантаж
tyre — шина, покришка
crawler — гусеничний трактор
belt pulley — привідний шків
shaft — вал
to mount — монтувати, навіщувати
dam building — будівництво дамб
grip — зчеплення із землею, захват
pulley — блок, шків
wheeled tractor — колісний трактор
necessary — необхідний
to increase — збільшувати
to measure — вимірювати

II. TEXT

TRACTORS

Tractor is useful when it supplies power to machines. Power can be supplied by the tractor in various forms. The tractor can pull or push machines, it can supply power to machines from the power-take-off shaft and it can drive machines by means of a belt from a belt pulley.

The tractor power is produced by the engine and is measured by horsepowers (hp) or kilowatts. There are tractors with engine power from 3 to 300 hp.

Tractors are classified according to the maximum power that their engine can produce.

The crawlers or track laying tractors are large. They are used for heavy operations, such as road making or dam building.

Large tracks increase the grip of the tractor on the ground and the crawlers are able to push or pull heavy loads and machines.

Most of the tractors have tyres which can be placed closer or farther apart according to the distance between the rows that must be cultivated.

Wheeled tractors may have mounted implements and machines on them. This is done by the three-point linkage,

There are tractors with diesel or gasoline engines. The diesel engine will use less fuel than the gasoline engine for the same work done.

The regular servicing of tractors is necessary because it provides the tractor's useful work.

The fuel should be clean and have no water. If the engine is water-cooled one must be sure that there is water in the radiator, The radiator should be clean. The oil has to be changed regularly.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. In what forms can power be supplied by the tractor? 2. What operations can the tractor do? 3. By what means can the tractor drive machines? 4. What is produced by the engine? 5. How is the tractor power measured? 6. How are tractors classified? 7.What are the crawlers able to push or pull? 8. What are the crawlers used for? 9. How can tyres be placed? 10. What tractors have implements and machines mounted on them? 11. What engines will use less fuel? 12. Why is the regular servicing of tractors necessary? 13. What should the fuel be?

GRAMMAR

THE PASSIVE VOICE

IV. PUT THE VERBS IN THE PRESENT INDEFINITE ACTIVE OR PASSIVE VOICE:

1. The power (to measure) by kilowatts or horsepowers. 2. Tracks (to increase) the grip of the tractor on the ground 3. The regular servicing of tractors (to provide) useful work. 4. The cylinder and the

cylinder heads (to form) the combustion chamber.5. Crawlers (to use) for heavy operations. 6. The camshaft (to open) the valves of the engine, 7. The oil (to change) regularly.

V. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

four-wheel-drive tractors — трактори з приводом на 4 колеса
equally-sized —однакового розміру
at least — принаймні

b) READ AND TRANSLATE THE TEXT:

TYPES OF TRACTORS

Four-wheel tractors are produced with engines of any size from the small tractor of about 15 hp to the giants with the engine power more than 200 hp. There are two basic types of four-wheel-drive tractors. One type has four large equally-sized wheels, the other has small front wheels and large rear wheels.

Most equal-sized wheel models have engines with at least 75 kw (100 hp) and tractors of this type with 150 kw engines are in use in some areas.

Ploughing and heavy cultivations are ideal work for these big tractors.

Many of the four-wheel-drive tractors with small front wheels are basically general-purpose tractors and are able to transmit the engine power to the front wheels. The four-wheel-drive tractors can move along roads and their pulling power is greater than the pulling power of the two-wheel-drive tractors.

Row crop tractor has narrow tyres which can be placed closer or farther apart according to the distance between the rows that must be cultivated. It has a light-weight design and good visibility. It uses a diesel engine from 30 to 4-5 hp.

The general-purpose tractor does most of the work on the farms. It has powerful hydraulics and is able to pull heavy loads at the drawbar. This type of tractor is heavier than the rowcrop tractor and its weight is used to increase wheel grip.

Track laying tractors or crawlers are used for dam building, road making, drainage work. This type of tractors has low operating speed but it does less damage to the soil than the large powerful wheeled tractor.

VI. FILL IN THE BLANKS WITH THE NECESSARY WORDS AND WORD- COMBINATIONS:

1. The tractor can supply power to the machines from the ... (power-take-off shaft, belt pulley, three-point linkage). 2. The tyres can be placed closer or farther apart ... (according to, by means of), distance between the rows. 3. The crawlers are usually ... (small, large, various). 4. The tractor can ... (increase, pull, do) machines. 5. The crawlers are able to ..... (produce, push, drive) heavy loads. 6. Implements are mounted on the tractor by means of ... (a belt pulley, tyres, a three-point linkage). 7. The fuel should be . . . (heavy, clean), and have no water.

VII. TRANSLATE INTO UKRAINIAN:

MODERN TRACTORS

1. Modern farm tractors can do various job very effectively. Modern farm tractor can: 1)pull or push machines; 2) operate implements mounted upon it by means of the three-point linkage; 3) transmit power by means of its PTO- shaft; 4) drive machines by belt power; 5) transmit power by means of shafts; 6) supply power for different operations; 7) generate electricity.

2. There are various types of farm tractors: wheeled tractors, and track laying tractors or crawlers, general-purpose tractors, large field tractors and garden tractors,

3. Crawlers are also necessary in agriculture, they are usually used for heavy operations such as road making and dam building. All the crawlers have tracks which must increase the grip of the crawler on the ground. They have low operating speeds but they can pull or push heavy loads and machines.

VIII. TRANSLATE FOLLOWING SENTENCES PAYING ATTENTION TO THE TRANSLATION OF THE MODAL VERBS WITH THE PRONOUN ONE:

1. One should study the basic parts of the engine. 2. One can drive machines by means of a belt pulley. 3. One must support the crankshaft by bearings. 4. One should mount implements on the tractor. 5. One cannot use crawlers for light operations. They are used for heavy operations. 6. One has to change the oil regularly.

IX. COMPARE THE FOLLOWING PAIRS OF THE SENTENCES. WHAT IS THE DIFFERENCE BETWEEN THEM?

1. An electric spark ignites the fuel. The fuel is ignited by an electric spark.

2. The engineers used the first diesel engine in 1931. The first diesel engine was used by the engineers in 1931. 3. The tractor will supply power. Power will be supplied by the tractor. 4. One may classify modern tractors according to the power produced. 5. The engine produced power. The power was produced by the engine.

6. Our plant will produce new engines. New engines will be produced by our plant.

X. TRANSLATE INTO ENGLISH:

1. Трактор може тягнути або штовхати машини, а також передавати свою потужність до машин від валу відбору потужності. 2. Трактори класифікується відповідно до максимальної потужності, яку можуть виробляти їх двигуни. 3. Більшість тракторів мають шини, які можуть знаходитись далі або ближче залежно до відстані між міжряддями. 4. Колісні трактори можуть мати навісні знаряддя, які кріпляться з допомогою три точкового навісного пристрою. 5. Є трактори з дизельними і бензиновими двигунами. 4. Трактори потребують регулярного обслуговування. 7. Паливо має бути чистим і не містити води. 8. Потрібно регулярно змінювати масло. 9. Оранка здійснюється з допомогою чотирьохколісних та гусеничних тракторів. 10. Трактор загального призначення виконує всі польові та фермерські роботи.

LESSON 8

THE MECHANIZATION. PLOUGHS

I. VOCABULARY

to attach — прикріплювати, приєднувати
conventional — звичайний
with up to six mouldboards — з числом полиць, що досягає шести
right-handed mouldboard — правостороння полиця
to produce a very level surface — давати дуже рівну поверхню
the soil engaging parts — ґрунтозахватні частини
coulter — різак, чересло плуга
to cut — зрізувати
plough — плуг
digger — плуг з передплужником
to plough — орати
angle — кут
trailed — причіпний
deep — глибокий
tine — зуб
depth — глибина
soil — ґрунт
seedbed — рілля, підготовлений до посіву ґрунт
frame — рама
furrow — борозна
slice — пласт
reversible — оборотний, реверсний
root crops — коренеплоди
to rotate — обертатися
mouldboard — полиця плуга
share — сошник, леміш

II. TEXT

PLOUGHS

The plough has been used in its different forms for many centuries. It has become the main implement used for the preparation of seedbeds.

A plough is an implement with one or more mouldboards which cut and turn the soil. Modern ploughs are commonly fully mounted on the tractor hydraulic system. Some are semi-mounted with the front supported by the tractor hydraulic linkage and the rear by one or more wheels, a semi-mounted plough is not lifted off the ground.

The number of mouldboards on a plough will depend on the type of soil and the tractor size. Ploughs with up to six mouldboards are in common use.

There are three main types of ploughs:

1) Conventional ploughs with right-handed mouldboards. They are usually fully mounted but some semi-mounted and trailed models are also in use.

2) Reversible ploughs having left- and right-handed mouldboards, we can plough up and down in the same furrow. Most of them are mounted but some of the larger models are semi-mounted. Reversible ploughs produce a very level surface.

3) Disc ploughs are rarely used in Great Britain. In place of the mouldboards they have large rotating discs which cut and turn the soil slice.

Both right-handed and reversible types are being produced.

The soil engaging parts, disc coulter and the body of the plough are attached to legs, whish are in turn bolted to the plough frame.

The base of a plough body is called the frog, the soil engaging part being bolted to it. The share cuts the bottom of the furrow slice.

The mouldboard lifts and turns the furrow slice.There are many types of mouldboards each producing its special surface. The disc coulter cuts the side of the furrow that is to be turned.

There are various types of plough body, each having its special use. The main types common in Great Britain are general-purpose type and digger type. The general-purpose type is useful for the general ploughing work. The digger type is used for deep ploughing, generally for root crops.

III. ANSWER THE FOLLOWING QUESTIONS:

1. How long has the plough been used? 2. What has the plough become? 3. What kind of an implement is the plough? 4. Where are ploughs usually mounted? 5. Are all ploughs fully mounted? 6. Is a semi-mounted plough lifted off the ground? 7. What will the number of mouldboards depend on? 8. What ploughs are in common use? 9. How many main types of ploughs are there? 10. Are all conventional ploughs fully mounted? 11. Can we plough with a reversible plough up and down in the same furrow? 12. What do the reversible ploughs produce? 13. Are disc ploughs often used in Great Britain? 14. What do disc ploughs have in place of mouldboards? 15. What are the soil-engaging parts, disc coulter and the body of the plough attached to? 16. What kind of work does the share do? 17. What kind of work does the mouldboard do? 18. Are there many types of mould-

boards? 19. What are the main types of the plough body? 20. What is the digger type used for?

GRAMMAR

THE PRESENT PERFECT TENSE

IV. DETERMINE PRESENT PERFECT IN THE SENTENCES AND TRANSLATE THEM INTO UKRAINIAN:

1. The general-purpose type of plough has become useful for the general ploughing work. 2. After the reversible plough had made a pass across the field it was mechanically turned on its frame 3. The tractor hydraulic system has provided the power turning the plough. 4. By this time the farmers have finished the soil cultivation. 5. The implement has not been correctly attached to the tractor. 6. Discs will not turn the soil when they have not been set at the correct angle.

V. TRANSLATE THE FOLLOWING SENTENCES INTO UKRAINIAN:

1. A modern plough has up to six mouldboards. 2. When the piston has reached the bottom of its stroke the inlet valve closes. 3. Both conventional and reversible ploughs have been produced by our plant. 4. The driver has to attach the plough ccorrectly. 5. The pneumatic tyres have become so efficient and so popular that they are standard part of all wheeled tractors. 6. Modern tractors usually have a four-stroke engine. 7. We have to set all mouldboards at the same angle.

VI. a) REMEMBER THE FOLLOWING WORDS AND WORD –COMBINATIONS:

conventional and reversible ploughs — звичайні і реверсні плуги
automatically draudht-controlled — з автоматичним регулюванням тяги.
in this case — у цьому випадку
idle running on the headlands — холостий пробіг на незораному кінці лану
a hand-operated lever — ручний важіль
a double- acting ram — циліндр двосторонньої дії

b) READ AND TRANSLATE THE TEXT:

CONVENTIONAL AND REVERSIBLE PLOUGHS

Mounted ploughs have many advantages over trailed tyres. Small mounted ploughs are in common use; for larger implements, semi-mounting is common.

Many ploughs have the depth controlled by levers that operate on the land wheel: but most small modern ploughs are controlled by adjustments of the linkage mechanism connecting them to the tractor. There is a limit to the size of plough that can be lifted in this way.

Long five- to twelve-furrow semimounted ploughs can be hydraulically controlled. Some are automatically draught-controlled at both front and rear, the action of the rear cylinder being regulated in the same way as that of the main cylinder of the tractor. On another tyre the front of the plough is controlled by the automatic draught-controlled system, and working depth at the rear is regulated by a depth wheel, which also acts as a hydraulic lift wheel. The rear wheel in this case runs on the unploughed land.

Reversible ploughs have some advantages over conventional ploughs; they produce a level field, making seedbed preparation and harvesting operations easier; there is little idle running on the headlands.

At the end of each pass across a field the plough is turned on its frame. It can be turned mechanically or hydraulically.

VII. TRANSLATE INTO UKRAINIAN SUCH WORD-COMBINATIONS:

the furrow slice, the tractor linkage, general-purpose type, a higher power requirement, plough body, the plough frame, seedbed preparation, root crop seedbed work, depth control, disc harrows.

VIII. FIND OUT IN WHICH SENTENCE THE PARTICIPLE II IS USED FOR THE PERFECT TENSE FORMATION:

1. The plough is used for the preparation of seedbeds. 2. Disc ploughs rarely used in Great Britain have a large rotating disc in place of the mouldboards. 3. Farmers have used the plough for many centuries.

IX. TRANSLATE INTO UKRAINIAN:

1. A modern plough has up to six mouldboards. 2. When the piston has reached the bottom of its stroke the inlet valve closes. 3. Both

conventional and reversible ploughs have been produced by our plant. 4. The driver has to attach the plough correctly. 5. The pneumatic tyres have become so efficient and so popular that they are the standard part of all wheeled tractors. 6. Modern tractors have a four-stroke engine. 7. We have to set all mouldboards at the same angle.

X. TRANSLATE INTO ENGLISH:

1. Плуг є основним навісним знаряддям, яке використовується для підготовки ріллі. 2.Плуг є навісним знаряддям з однією або більшою кількістю поличок, які подрібнюють і перевертають ґрунт. 3. Кількість поличок плуга залежить від типу ґрунту і розміру трактора. 4. Реверсні плуги можуть зорювати і перевертати ґрунт на тій же борозні. 5. Дискові плуги рідко використовуються у Великій Британії. 6. Реверсні плуги мають певні переваги над звичайними плугами. 7. Плуг із передплужником використовується для звичайної та глибокої оранки. 8.Багато плугів мають важелі, якими регулюють глибину оранки. 9. Сучасний плуг може мати до шести полиць. 10 У Великій Британії рідко використовуються плуги із передплужниками.

LESSON 9

THE MECHANIZATION CULTIVATORS HARROWS

I. VOCABULARY

to disturb the crop — пошкодити врожай
power harrows –важкі борони
rotary cultivators — ротаційні фрези
to ensure long working life — забезпечити тривалий експлуатаційний період
after frost has weathered the soil — після того, як ґрунт піддався дії низьких температур
L-shaped blades — L-подібні ножі
a chain drive unit — ланцюгова передача
a drive disengagement lever — важіль вимикання
an overload slip clutch — запобіжна фрикційна муфта
to cover seed –заробляти насіння
to destroy weeds — знищувати бур'ян
drill — висів
spring cultivation of autumn–sown corn — весняний догляд засіяних восени зернових
to set straight — прямо встановлювати

II. TEXT

CULTIVATORS

1. A cultivator has a frame with a number of tines for breaking the soil. It is usually mounted on the tractor and its working depth is controlled hydraulically. As with all cultivation machinery, there is a wide range of working widths, from 2 to 8 m suitable for all sizes of tractors.

2. Rigid tines are used for heavier works. They are arranged across the frame allowing free passage of soil.

3. Spring tines are flexible, sometimes with a coil at the top which vibrates in the soil. The vibrating movements of the tines will give fast seedbed preparation in most conditions.

4. Shares are used for seedbed and general work, stubble cleaning. When shares have been worn they must be replaced,

5. Cultivators are used for seedbed preparation, often after ploughing: for stubble cleaning and breaking; general weed-control; cultivation between potatoes and other rowcrops (the tines are grouped to pass between the rows without disturbing the crop).

6. Power-take-off-driven cultivation machines include power harrows and rotary cultivators. All power-driven cultivation machinery is costly and needs regular maintenance in order to ensure long working life.

7. Power harrows have two or more rows of reciprocating tines, others have tines which rotate in the soil. Most reciprocating-tine power harrows have two-tine bars. The drive is from the power take-off through a gearbox and eccentric unit. A typical machine has a tine bar stroke of 15 cm.

8. Reciprocating tine power harrows are tractor mounted and depth control is provided by the hydraulic system. A roll is often attached behind the harrow. The roll can be used to control working depth, working width ranging from 1,5 to 4,5 m depending on the model. The tines may work to a depth of about 20 cm.

9. Rotary-tine power harrows have tines fitted on the rotors across the width of the machine. The tines are driven by the power shaft through a gearbox. Some models have various rotor speeds. This type of power harrow is also tractor mounted with depth control by a roll at the rear. Working width and depth are similar to those of the tine bar power harrows.

10. Power harrows make good seedbeds in spring after frost has weathered the soil. They are suitable for both root crop and cereal seedbed work.

11. Rotary cultivators may be mounted or trailed and have a power take — off driven shaft with L — shaped blades which cultivate the soil. The drive arrangement is through a gearbox and chain drive unit. A drive disengagement lever is sometimes included in the gearbox allowing the power shaft to turn with the blades. An overload slip clutch is also built into the drive.

12. The rotor and blades run at speeds ranging from 90 to 240 hp, the power shaft turning at 450 hp. Rotary cultivators are made in working width ranging from 1 to more than 5 m. The wider types are trailed and require tractor power of 110 kw (150 hp).

13. Rotary cultivators are used for 1) stubble cleaning; 2) seedbed work, usually for root crops; 3) cutting up weeds and crop residues; 4) land reclamation work.

III. TEXT

HARROWS

1. Harrows are used for various purposes such as the preparation of seedbeds, the covering of seeds, the destruction of weeds and the aeration of soil. Many types and sizes are in use today. The most common type is that with a zigzag frame and rigid tines.

2 Seed harrows are light implements with closely fitted tines about 4 in (100 mm.) long. They are used for the final preparation of seed-beds and for covering seeds after the drill. They are mounted on small tractors.

3. Medium tractors harrows have various functions: the preparation of seedbeds, mixing of fertilizers with soil and spring cultivation of autumn-sown corn. The wider the implement, the more important it is to have good arrangements for transport. Mounted implements up to 8 m wide may be used with tractors of 40-50 kw. Heavier and wider harrows for use with tractors of about 75 km may be semi-mounted. One type provides for lifting of the harrow sections to a wheeled frame, the wings of which can be manually rolled behind the centre sections.

4. Disc harrows cut and consolidate the soil. Two or more sets of discs are fitted on a frame which may be mounted or semi-mounted. Some heavy discs are trailed and have hydraulically operated transport wheels. Disc diameter varies from 30 to 75 cm. Discs are supported by bearings. Disc harrows working widths vary from 1,5 to 6 m.

5. Adjustments of disc angle. A hand-operated lever on the harrow is used to vary the cutting angle of the discs. Disc being fitted at the widest angle, the soil movement will be the greatest. When discs are set straight, they will not move the soil very much and have a consolidating effect.

IV. GIVE UKRAINIAN EQUIVALENTS OF THE FOLLOWING WORDS AND WORD-COMBINATIONS:

The number of mouldboards; semi-mounted and trailed models; in place of the mouldboards; the soil slice; both right-handed and reversible types; disc coulter, used for deep ploughing; digger bodies.

V. TRANSLATE INTO ENGLISH:

1. Культиватор навішується на трактор і його робоча глибина контролюється гідравлічно. 2. Культиватор використовується для розпушування та вирівнювання ріллі. 3. Борони використовуються для підготовки ріллі, знищення бур'янів та аерації ґрунту. 4. Чим ширше причіпне знаряддя, тим важливіше добре підготувати обладнання. 5. Дискові борони розрізають і перемішують ґрунт. 6. Ручний важіль борони використовується для зміни кута атаки дисків.

LESSON 10

THE MECHANIZATION. COMBINE-HARVESTERS

I. VOCABULARY

auger — шнек, шнековий конвеєр
bar — пруток, стрижень
beater — вітер
to consist of — складатися з
cutter bar — різальний апарат
to divide — ділити
drum — барабан
flow — потік grain — зерно
harvest — врожай
reel — мотовило
self-propelled — самохідний
space — простір
speed — швидкість
to thresh — молотити
unit — одиниця, агрегат, секція, блок, вузол
capacity — потужність, продуктивність
chaff — полова, січка
concave — підбирання, дека
crop — врожай, біологічний врожай
to direct — направляти
divider — той, хто ділить
to fall (fell, fallen) — падати
to be angled — бути нахиленим
combine harvester — комбайн
to separate — відокремлювати
sieve — сито, решето
straw — солома
tank — бак, резервуар
trailer — причіп

II. TEXT

COMBINE HARVESTERS

Combine harvesters are used to harvest various crops. The combine harvester cuts the crop, threshes it, separates the grain from the straw and chaff.

The mechanism of a combine harvester can be divided into three sections. They are cutting, threshing and finally separating the grain from the straw and chaff.

To cut the crop a reciprocating tyre cutter bar is used. There is a divider at each side of the cutter bar. It separates the crop to be cut from that which will be left for the next round. The crop is cut while held against the cutter bar by the reel. After the crop is cut, the reel directs it to the cutter bar platform. The reel is one of the main parts of a combine harvester.

It has tines which can be angled to provide better cutting of the crops.A large auger moves the crop to the centre of the platform. By

means of tines the auger directs the crop to the main elevator which lifts the crop to the threshing mechanism.

The threshing mechanism consists of a front beater, a heavy rotating drum, a concave, and a rear beater.

The main elevator is used to lift the crop to the front beater. It delivers the crop to the drum and concave. The front beater increases the speed of the crop as it moves to the drum.

Some combines do not have a front beater. In these combines the work of the front beater can be done by the main elevator.

Threshing takes place between the drum and concave. There are spaces between the concave bars, so the threshed grain can fall through on the grain pan. To reduce the speed of the crop as it leaves the cylinder is the task of the rear beater. The rear beater is the part of the threshing mechanism which both reduces the speed of the crop and directs it to the separating mechanism. To separate the grain from the straw is the main function of this mechanism. The separating mechanism consists of two parts: the straw walkers and the grain sieves.

The grain is separated from the straw by the rising and falling action of the straw walkers. They are driven by two crankshafts. The grain separated from the straw moves through the straw walkers and is directed to the grain pan under the concave.

The separating unit is used to sort the grain and chaff on the grain pan. This unit consists of two sieves and a fan. The vibrating action of the sieves separates the threshed grain. The fan provides a flow of air to keep sieves clean.

The harvested grain is directed to the grain tank. Big combines have an auger in the grain tank to provide the proper flow of the grain.

Grain tank capacities vary from 1 to 50 tonnes. A high capacity auger is used to deliver the threshed grain from the grain into a trailer.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What machines are used to harvest various crop? 2. What operations does the combine harvester do? 3. In what sections can the mechanism of a combine harvester be divided? 4. What are these sections doing? 5. What tyre of a cutter bar is used to cut the crop? 6. What is there at each side of the cutter bar? 7. What does a divider do? 8. Where does the reel directs the crop? 9. Where does a large auger move the crop? 10. What does the thereshing mechanism consist of? 11.What is used to lift the crop to the front beater? 12. Where does threshing take place?

13. What is the task of the rear beater? 14. What does the separating mechanism consist of? 15. What is used to sort the grain and chaff on the grain pan? 16. What does the separating unit consist of? 17. What does the fan provide? 18. Where is the harvested grain directed? 19. What is used to deliver the threshed grain from the grain tank into a trailer?

GRAMMAR

THE FUNCTIONS OF THE INFINITIVE

IV. DETERMINE THE FUNCTIONS OF THE INFINITIVE IN THE FOLLOWING SENTENCES:

1. To provide a proper maintenance of farm machines is important for the farmer. 2.A mixture of air and fuel to be compressed between the piston and the cylinder head is necessary for combustion. 3. To drive a straw walker two crankshafts are used. 4. Tractors to be used for heavy operations are crawlers or tracklaying tractors. 5. To force the fuel into the combustion chamber is the main task of a high pressure pump. 6. To ignite the fuel charge an electric spark is necessary.7. A film of oil to be produced between the working surfaces of the metal parts will reduce friction and wear. 8. The main elevator to lift the crop to the threshing mechanism must be clean.

V. TRANSLATE THE FOLLOWING SENTENCES INTO UKRAINIAN PAYING ATTEENTION AT THE FUNCTION OF THE INFINITIVE:

1. To reduce the speed of the crop is the function of the rear beater. 2. To cut and turn the soil various types of ploughs are used. 3. The mechanism to cut the crop is called a cutter bar. 4. Oil filters are located between working engine parts to reduce engine wear. 5. The crop to be cut is separated from that to be left for the next round. 6. The air-fuel mixture must burn to move the piston with great force. 7. To mix the fuel and air gasoline engines must have a carburettor. 8. To harvest various crop is the main task of a combine.

VI. TRANSLATE INTO UKRAINIAN:

1. Ploughs have become main implements used for soil preparation. 2. The construction of straw walkers and sieves will be discussed in this

lecture. 3. In the thermosiphon system water expands as it is being heated and rises to the top of a radiator. 4. Modern ploughs are mounted on the tractor hydraulic system. 5. The number of grain was delivered from a grain tank to a trailer. 6. The number of mouldboards depends on the soil and tractor size. 7. Self-propelled machines with pick-up reel and vertical cutter bar have been widely used in Britain and Canada. 8. On some machines speed of the fan is kept constant. 9. The crop is usually taken to the cutter bar centre by a large-diameter auger.

VII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

even flow- рівномірний потік
to brush the ground — ледве торкатися землі
heavy straw crops — довгостебелесті культури
laid crop–полеглі культури
standing crop– біологічний урожай

b) READ AND TRANSLATE THE TEXT:

CONTROLS AND ADJUSTMENTS

1. The combine harvester must be set to suit various crops and harvesting conditions. To provide efficient threshing it is necessary to receive an even flow of crop to the drum and concave. The even flow of the crop depends on correct adjustment of all parts of a combine.

2. Both speed and position of the reel need adjustment. Working in a standing crop the reel should contact the straw below the ears. The reel speed should be faster than the forward speed of the combine.

3. Working in a laid crop the reel should be set well forward. The tines should brush the ground, when the cutter bar is about 3 inches above the ground. The cutter bar and the knife must be in good condition. Some combines have an automatic cutting height control system. This maintains a regular stubble height.

4. In heavy straw crops there is a risk of feeding too much material into the combine which may result in the loss of grain over the back of the straw walkers. To reduce the amount of straw on the straw walkers it is necessary to reduce forward speed or raise the cutter bar a little.

VIII. a) REMEMBER THE FOLLOWING WORDS:

windrowing or swathing — укладання у валки
notably — особливо

b) READ AND TRANSLATE THE FOLLOWING SENTENCES:

Combine harvesters are mostly used to cut and thresh in one operation, but they may be used to pick up and thresh crops which have been cut and left in the swath or windrow.

Windrowing or swathing is mainly used before combining in Britain to avoid losses of grain before it is taken into the harvester. In some other countries, notably Canada, its main task is to spread the season in which combines may be efficiently used.

IX. GIVE EQUIVALENTS OF THE FOLLOWING WORDS AND WORD — COMBINATIONS:

Cutter bar, divider, front beater, concave, rear beater, self-propelled machines, forward speed, auger, straw walkers, concave clearance.

X. TRANSLATE INTO ENGLISH:

1. Комбайни скошують зернові культури, молотять їх, відокремлюють зерно від соломи і полови. 2.Для того, щоб скошувати зернові культури прямим комбайнуванням, використовується обертальний різальний апарат. 3.Мотовило є одним із головних частин комбайна. 4. Молотильний механізм складається з фронтального бітера, 5. Передній бітер збільшує швидкість проходження врожаю на шляху до барабану. 6. Задній бітер є частиною молотильного механізму. 7. Відокремлюючий вузол використовується для того, щоб сортувати зерно і полову на транспортній дошці. 8. Обертальний рух решет відокремлює обмолочене зерно. 9. Вентилятор забезпечує потік повітря для того, щоб тримати решето чистим. 10. Обмолочене зерно направляється в зерновий бункер.

РОЗДІЛ IV

LESSON 11

AGRONOMY

I. VOCABULARY:

crops — сільськогосподарські культури
feed crops — кормові культури
to sow — сіяти
drill — висів
Seeds — насіння
range of plants — сівозміна
to fertilize — удобрювати
industrial crops — технічні культури
chemical composition of soils — хімічний склад ґрунту food crops — харчові культури
to plant — саджати
to drill — висівати
planting — посадка
tubers — коренеплоди
to grow — вирощувати
fertility — родючість

II. TEXT.

AGRONOMY

Agronomy deals with the cultivation of fields for the regular production of crops : food crops, feed crops and industrial crops. The cultivation means the soil cultivation for planting seeds, tubers, etc. The cultivation is made by means of various kinds of agricultural machines and implements: gang plows, harrows, sweepers, etc.

As the climate and soils greatly differ in different regions, agronomists regularly exchange experience. This regular exchange has increased the range of plants which may be grown in different regions, and has given a start to the development of various means for the improvement of crops.

It is known that the regular study of the chemical composition of soils and the development of means for the reproduction of their fertility have become a fundamental part of the agricultural science.

It may be said that the development of agriculture has become an important factor in the development of national economy.

III.ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What does agronomy deals with ? 2. What does the cultivation mean ? 3. What agricultural machines and implements do we need? 4. What do agronomists regularly do? 5. What has become a fundamental part of the agricultural science ?

GRAMMAR

MODAL VERBS

IV. a).PAY ATTENTION TO THE WAY OF TRANSLATING THE FOLLOWING MODAL VERBS IN THE PASSIVE VOICE:

This can be done. — Це можна зробити.
Fields must be cultivated. — Поля потрібно обробляти.
It may be said that the exchange of experience has been very useful. — Можна сказати, що обмін досвідом був дуже корисним.

b) TRANSLATE THE FOLLOWING SENTENCES:

1. Cultivation must be done regularly. 2.Tubers can be planted by using machines. 3. The range of plants which may be grown in different regions has increased. 4. The cultivation of fields for the regular production of crops must be done regularly. 5.The ground preparation for planting seeds and tubers can be done by means of various kinds of machines.

V. a) REMEMBER THE VERBS, THE FOLLOWING ADJECTIVES AND NOUNS:

to differ — відрізнятися
improvement — поліпшення, удосконалення
to develop — розвивати
different — різноманітний
to improve — поліпшувати
development — розвиток

b) TRANSLATE THE FOLLOWING SENTENGES:

1. Soils differ in different regions of our country. 2.The improvement of soils is the most essential problem. 3. We can develop agriculture due to the development of the agricultural machines.

VI. PUT THE QUESTIONS TO THE UTILIZED WORDS:

1. *Agronomists from different regions* regularly exchange experience. 2. *The exchange of experience* is a good means for the rising of food and industrial crops. 3. The use of various kinds of agricultural machines rises *the range of food, feed and industrial crops.* 4. *Regular rise of crops* is an essential element in the development of the national economy.5.The ground preparation is *done by means of gang plows, harrows, sweepers and other implements.*

VII. FILL IN THE BLANKS WITN THE NECESSARY WORDS AND WORD-COMBI NATIONS:

1.Agronomy ... the cultivation of fields for the regular production of food, feed and industrial crops (deal with, deals with) 2.The cultivation of fields ... the preparation of the ground for planting tubers and other plants (means, mean). 3. The cultivation is done ... various kinds of machines (by means of, by different kinds of). 4. The climate and the soils greatly differ in ... regions of our country (difference, different). 5. It is known that the range of plants which may be grown in different regions has greatly increased due to the ... between agronomists (they exchange experience, exchange of experience). 6. It is known that the exchange of experience has resulted in the increase of the ... which may be grown in different regions (range of machines, range of plants). 7. The study of the means which can be used for the reproduction of the soil fertility has become an ... of the agricultural science (useful means, important part)

VIII a). REMEMBER THE NAMES OF THE FOLLOWING IMPLEMENTS:

gang plow — багатокорпусний тракторний плуг
sweeper— зрихлювач
cultivator — культиватор
harrow — борона

b) TRANSLATE THE FOLLOWING SENTENCES:

1. The gang plow is mounted on the tractor. 2. The harrow is an implement which is used for the preparation of seedbeds. 3. The sweeper prepares the soil for the drill. 4.The cultivator is usually mounted on the tractor and its working depth is controlled hydraulically.

IX. TRANSLATE INTO ENGLISH:

1. Агрономи використовують різноманітні хімічні елементи, щоб підвищити родючість ґрунту. 2. Агрономія займається обробітком полів для регулярного виробництва сільськогосподарських культур. 3. Вивчення хімічного складу ґрунтів і розвиток засобів для відродження родючості стало фундаментальною частиною сільськогосподарської науки. 5. Обробіток ґрунту здійснюється за допомогою різноманітних сільськогосподарських машин і причіпних знарядь: багатокорпусних плугів, борін і культиваторів. 6. Ми виростили добрий врожай коренеплодів. 7. Клімат і ґрунти є різними в різних регіонах країни.

LESSON 12

THE SOIL CULTIVATION AND FERTILIZING

I. VOCABULARY

to fertilize-удобрювати
fertilizer — добриво
to facilitate — сприяти
poultry droppings — пташиний послід
litter manure — підстілковий гній
sewage waste — каналізаційні відходи
phosphorus — фосфор
ashes — попіл
unfavorable weather conditions — несприятливі погодні умови
loose organical substance — сипуча органічна речовина
half-liquid manure — напіврідкий гній
composted fertilizer — компост
fertilizing — внесення добрив
manure — гній
decay substance — гноївка
peat — торф
liquid manure — рідкий гній
nitrogen — азот
potassium — калій
lime — вапно

II.TEXT

THE SOIL CULTIVATION AND FERTILIZING

The soil cultivation is made with the help of the agricultural machines which ensure the best conditions for the cultivation of the food crops, feed crops and industrial crops. The ploughing is the most important operation. Thanks to it the plowed land can absorb and preserve the moisture.

The fertilizers utilization is very important in the modern agriculture. The fertilizing system is an important part in the complex of the agricultural operations which are necessary to increase the soil fertility. The fertilizers increase the plant stability against the unfavorable weather conditions, insects and illnesses. The numerous experiments show that the yield increase depends upon the fertilizers in 40-50%.And when using the intensive technologies the yield increases in 60-70%. A ton of manure during a range of plants ensure the yield increase of the grain crops. The fertilizing improves the soil reaction.

The fertilizers are organical and mineral substances which contain elements improving the plants vegetation and the soil fertility.

Organical fertilizers are produced at the agricultural enterprises. The mineral fertilizers are produced at the special industrial enterprises.

Manure, decay substance, poultry droppings, peat and green fertilizer belong to the organical fertilizers. Manure is the most wide-spread fertilizer. It contains 0.5% of nitrogen, 0.25% of phosphorus, 0.6% of potassium. The litter manure, half-liquid and liquid manure are of great importance in agriculture. The half-rotten manure is the most effective fertilizer. The poultry droppings is a valuable organical fertilizer. It is used before the sowing of sugar beets, corn and vegetable crops. The composted fertilizer is a loose organical substance. Peat, straw, rubbish and sewage waste are used for its production.

Mineral fertilizers are divided into two groups: industrial fertilizers and local fertilizers. They belong to the industrial fertilizers. Ashes and lime belong to the local fertilizers.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1.What is the ploughing? 2. What operations can increase the soil fertility? 3. What do the fertilizers increase? 4. What groups of fertilizers do you know? 5. Where are the organical fertilizers produced? 6. Where are the mineral fertilizers produced? 7. What substances belong to the organical fertilizers? 8. Why is manure the most wide-spread fertilizer? 9. When do we use the poultry droppings? 10. What mineral fertilizers do you know?

GRAMMAR

THE COMPLEX SUBJECT

IV.TRANSLATE INTO UKRAINIAN PAYING ATTENTION TO THE PECULIARITIES OF THE COMPLEX SUBJECT CONSTRUCTIONS:

1. Manure is considered to be the most effective fertilizer. 2. Poultry droppings is known to be the most valuable fertilizer before sowing sugar beets, corn and vegetable crops. 3. The composted fertilizer is considered to be a loose organical substance. 4. Ashes and lime are believed to be the local fertilizers.

V. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

ammonia saltpetre — аміачна селітра
to acidify — підкислювати
acid soil — кислий ґрунт
to dissolve — розчиняти

b) TRANSLATE THE FOLLOWING SENTENCES:

The ammonia saltpetre belongs to the nitrogen fertilizers. It contains 34—35% of nitrogen. It dissolves in water very easily. The plants absorb it acidifying the soil a little bit. This fertilizer is very effective for the acid soils.

VI. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

superphosphate — суперфосфат
carbonate soils — карбонатні ґрунти
phosphate flour — фосфоритне борошно

b) TRANSLATE THE FOLLOWING SENTENCES INTO UKRAINIAN:

Superphosphate is considered to be the most wide-spread phosphorus fertilizer. It is divided into two groups: the simple superphosphate and double superphosphate. The phosphorate flour contains 10-38% of phosphorus. Superphosphate is effective for the carbonate soils.

VII. a) REMEMBER THE FOLLOWING AND WORD-COMBINATION:

acidity — кислотність
extinted lime — гашене вапно
lime fertilizers — вапнякові добрива
liming — вапнування

b) TRANSLATE THE FOLLOWING SENTENCES INTO UKRAINIAN:

Lime fertilizers are very effective for the acid soils. Extincted lime is used for the acidity neutralization of the soils. Liming enriches soils with potassium. It is very useful for feed crops, fruits and vegetables.

VIII. ANALYZE THE FERTILIZING SYSTEM:

The fertilizing system is a system of the fertilizers and chemical meliorates arrangement on the unique plot of land. While preparing the fertilizing system it's necessary to know the chemization level, the necessity of fertilizing, climatic conditions and the biological peculiarities of the plants. The balance of nutrient substances is very important. It determines the influence of manure, the quantity of perennial and leguminous grasses. It's necessary to count the quantity of mineral fertilizers. The fertilizers in the ranges of plants must ensure high yields.

IX. TRANSLATE INTO ENGLISH:

1.Обробіток ґрунту здійснюється з допомогою сільськогосподарських машин, які забезпечують високі врожаї зернових і кормових культур. 2. Система удобрення є важливою частиною підвищення родючості ґрунту. 3. Добрива підвищують стійкість рослин до несприятливих погодних умов. 4. Удобрення поліпшує процеси мінералізації ґрунту. 5. Гній, гноївка, пташиний послід, торф і зелене добриво належать до органічних добрив. 6. Напівперепрілий гній є найбільш ефективним добривом. 7. Пташиний послід використовується перед посівом цукрових буряків, кукурудзи і овочів. 8. Торф, солома, сміття і каналізаційні відходи використовуються для виробництва компостів. 9. До промислових мінеральних добрив належать азотні, фосфорні та калійні добрива. 10. Попіл і вапно належать до місцевих добрив.

LESSON 13

TYPES OF SOIL

I. VOCABULARY

soil — ґрунт
entire — весь, цілий
loam — суглинок
loamy — суглинистий
lime — вапно
fertile — родючий
light sandy soil — легкий піщаний ґрунт
black soil — чорнозем
stunted — низькорослий
germination — проростання
tillage — обробіток ґрунту з допомогою с/г знарядь
particle — частка
clay — глина
sandy loam — супіщаний ґрунт
to till — обробляти
tilled crop — пропашна культура
fertility — родючість
stunt — затримка в рості
to germinate — проростати
germinating power — схожість

II. TEXT

SOIL AND ITS MANAGEMENT

Good farming means proper use of many factors such as natural conditions, land, crops, livestock, machinery, fertilizers and some others. All these factors have to be put together to make the farming system work successfully.

One of the most important points to be taken into consideration in farming is the soil which is known to be a natural resource that supports plant life. It is a mixture of particles of rock, organic materials, living forms, air and water.

During his entire existence upon the earth man has depended on the soil, either directly or indirectly. Grain, fruits and vegetables are food products obtained by man directly from the soil. Domestic animals consume grain and forage produced by the soil and in turn supply people with meat, milk, eggs and other products used for human food. These are the products obtained from the soil indirectly.

Some good clay and loamy soils are naturally highly fertile, some light sandy soils are naturally poor. Various factors that make up soil fertility are moisture conditions, plant food and soil structure. All these components may be regulated by proper management of the soil.

Soil management is the science of tillage operations, cropping practices using fertilizers, lime and other treatments conducted on, or applied to.

Plant growth and yields can be increasing by applying certain recommended soil management practices, liming, fertilization and irrigation producing, as a rule, immediate yield increases. Good soil management results in better yields and lower cost per unit of production. Fertile soils produce plants that are less affected by diseases and less likely to be attacked by insects. In this case small losses of crops result.

The feed that livestock eat is reflected in their health. The healthiest animals are found on farms that have productive soils producing high-quality feed for livestock. Certain nutrient elements are essential in the animal's diet for proper growth, reproduction and production. The lack of one or more elements can cause stunted animals, less milk, smaller litters and certain animal diseases.

So, a good chemical composition of soils provides better conditions for seed germination and plant growth.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What means good farming? 2. What are the main components of a fertile soil? 3. What particles does the soil consist of? 4. What soils are naturally highly fertile?

5. What does the soil management deal with? 6. What influences upon the livestock?

GRAMMAR

ADVERBIAL CLAUSES OF CONDITION

IV. TRANSLATE INTO UKRAINIAN:

1. I don't know whether good farming can ensure a proper use of natural resources, land, livestock, machinery and fertilizers. 2. If the crops are yielded from a good loam, the harvest may be rather sufficient.3. If we sow grain crops on the fertile soils, the harvest will be very good. 4. Our main task is to determine whether lime should be applied to the soil. 5. We don't know whether sandy soils are good for flax.

V. GROUP SENTENCES ACCORDING TO THE MEANINGS OF THE VERB TO MAKE:

1) робити; 2) примушувати:

1.Sunlight makes the temperature of water raise, which leads to its evaporation. 2. Different methods are used by farmers to make high-

quality hay. 3. The students were made to pass the examination earlier.4.The use of greenhouses makes the heat balance of the area change.5.Physical and biological factors act to make a wide variety of environments in the world.

VI. DETERMINE WHICH WORDS FROM THE LEFT COLUMN ARE COMPATIBLE WITH THE WORDS FROM THE RIGHT COLUMN:

Soil	poor, sandy, considerable, loamy, recent, fertile, suitable
Yield	average, harmful, high, low, fresh, poor
Plant	annual, capable, useful, gradual, green
Plant nutrients	available, proper, rapid, major, essential, needed,
Climatic conditions	optimum, difficult, controlled
	cool, efficient, early, moist, different

VII.TRANSLATE INTO UKRAINIAN:

1. A mixture of organical matter and the soil that is subjected to biological decomposition. 2. The protection of natural resources according to principles that will assure their highest economic efficiency. 3. The practice of crop production in low rainfall areas is impossible without irrigation. 4. All the external conditions that may act upon an organism to influence its development or existence.

VIII. DETERMINE THE NOTIONS USING THE PATTERN:

PATTERN: What is plow? — It is a machine used to till the soil.

A fertilizer, a spring crop, an annual plant, a greenhouse, a domestic animal, a ration.

IX.TRANSLATE INTO ENGLISH:

1. Органічні речовини, вода, повітря необхідні для рослин. 2. Вони містять все необхідне для родючості ґрунту. 3. Важливо, щоб ґрунт містив всі необхідні компоненти для рослин. 4. Родючість ґрунту можна поліпшити, вносячи необхідні добрива. 5. Щоб добре рости і розвиватись, рослини повинні бути забезпеченими в достатній кількості мікро і макроелементами. 6. Деякі ґрунти — не дуже родючі. 7. Вода — головний компонент ґрунту. 8. Недостатня кількість азоту в ґрунті погіршує розвиток рослин.

LESSON 14

SELECTION OF AGRICULTURAL GROPS

I. VOCABULARY

selection — селекція
preparation — препарат
cell engineering — клітинна інженерія
hybrid — гібрид
gene — ген
simultaneously — одночасно
processing — обробка
to transfer — передавати
cereals — зернові
dezoxyribonucleic acid (DNA) — дезоксирибонуклеїнова кислота (ДНК)
nitrogen — fixing genes — бульбочкові бактерії які фіксують атмосферний азот
plant — breeder — селекціонер
cell — клітина
variety — сорт
granule — гранула
gene engineering — генна інженерія
utensils — посуд
interaction — взаємодія
bacterium (pl. bacteria) — бактерія
pest resistance — протидія шкідникам

II. TEXT

SELECTION OF AGRICULTURAL GROPS

Selection is an important direction of agronomy. For a long time plant-breeders have been breeding new varieties of drought-resistant grain crops and other agricultural plants which are resistant to the unfavorable climatic and weather conditions. At the same time they are characterized by a high yield productivity. The agricultural biotechnology is of the greatest importance. It should create the new highly productive varieties and hybrids of the agricultural plants, biological means of the plant protection, different preparations and the ways of the waste recovery.

Thanks to the cell engineering the researchers have bred an unvirus substance for different potatoes varieties. They have been breeding new varieties and hybrids of grain crops, fruits and vegetables. They breed seeds of sugar beets in the form of seedlings. Later they are ready for the further sowing in the granule form.

The biotechnology is based on the fact that a celled organism is fully preserved by a gene of the previous type. Simultaneously this

simplest organism has much common with the microorganism. Exactly it is a basis of the cell engineering and biotechnology. The plant cells are able to divide without any limit.

It's necessary to keep the cell sterility and that's why we use special utensils. The cell amount for the cultivation is provided with the help of the plant organs processing. Their cultivation is provided into separate cells. They are put on the nutrient environment.

The gene engineering is based on the molecular biology. It gives the possibility of inserting changes into the molecular interaction of the principal molecules inside the cell and outside it.

Recombinant DNA are used and will be used in the work with microorganism for the production of different valuable substances in medicine, biochemical industry and agriculture. Besides their use is connected with two important discoveries. New techniques developed a rapid analysis of complicated biological molecules. After analysis came synthesis. The first gene was synthesized. Then it became possible to synthesize necessary genes.

The construction technology of recombinant DNA is the most important achievement of the biotechnology. The agricultural, possibilities of such techniques are almost as exciting. For example, it may become possible to transfer the nitrogen-fixing genes of certain bacteria to plants such as cereals which are unable to fix nitrogen. Should this prove possible, the savings in terms of fertilizer and improved soil fertility will be enormous. Similarly of there is the prospect of transferring to a number of different crops civic genes responsible for improved yield or pest resistance

III. ANSWER THE FOLLOWING QUESTIONS:

1. What is the selection purpose?
2. How are new plant varieties characterized?
3. What should the agricultural biotechnology create?
4. What have the plant-breeders been breeding?
5. What is the biotechnology based on?
6. What is the basis of the cell engineering?
7. What do we use to keep the cell sterility?
8. What is the gene engineering based on?
9. When are the recombinant DNA used?
10. What are two important discoveries in the gene engineering?
11. What substances are transferred for cereals?

GRAMMAR

THE PRESENT PERFECT CONTINUOUS TENSE

IV. TRANSLATE INTO UKRAINIAN:

1. Plant-breeders have been breeding new highly productive grain varieties for a long time. 2. For ten years the researchers have been inserting changes into the molecular interaction. 3. The scientists have been breeding new sugar-beets varieties for a long time. 4. Plant-breeders have been breeding new grain crops varieties with a high productivity and useful heredity for many years.

V. PUT THE INFINITIVES IN BRACKETS IN PRESENT PERFECT CONTINUOUS:

1. Plant-breeders (to breed) new varieties and hybrids of grain crops. 2. They (to create) new highly productive varieties of agricultural plants. 3. The researchers (to breed) an unvirus substance for different potatoes varieties. 4. The scientists (to transfer) the nitrogen-fixing genes of certain bacteria to cereals for twenty years.

VI. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. The agricultural biotechnology ... new plant varieties with a high productivity and good heredity. 2. The farmers ... new varieties of feed crops. 3. The researchers … special utensils to keep the cell sterility. 4. The gene engineering … changes into the molecular interaction of the principal biological molecules inside the cell and outside it. 5. The researchers … necessary genes with a high productivity and useful heredity.

to synthesize, to create, to use, to sow, to insert

VII. READ, TRANSLATE AND EXPLAIN THE UNDERLINED WORDS:

DNA is the basic genetic material present in most animate organisms. *Molecules* of DNA are found in a cell's *chromosomes*. Chromosomes occur in pairs: one from the mother and one from the father. The number of chromosomes differs from spices to species.

DNA is made up of genes, *linear* sections of a DNA molecule which contain the instructions for the development of a DNA molecule characteristics that living things inherit from their *forbears*. DNA molecules contain the genetic instructions needed for cells to organize strands wrapped around each other to form a *double-helix*.

VIII. TRANSLATE INTO UKRAINIAN:

The plant immunity and the pest resistance has substantially increased after the seed processing with special preparations. The special combination of different plants during the vegetation time is of the greatest importance. The researchers found out that the hemp plants in the sugar beets field may liquidate pests. A lot of different wild plants may be poisonous for pests and microorganisms. In Germany farmers sow different wild plants. Their leaves resist the pest multiplication. Different substances preserved in the leaves protect the agricultural plants from pests and microorganisms. The substances are also synthesized artificially.

IX. a) REMEMBER THE FOLLOWING WORD AND WORD-COMBINATIONS:

fungus (pl. fungi) — грибки
wild species — дикі види
cross — breeding- схрещування
trimmed — осушений

b) TRANSLATE THE FOLLOWING SENTENCES:

The choice of varieties and hybrids which are diseases and pest resistant is very important in the plant protection. The plant-breeders solve this problem differently. They breed varieties which have some peculiar structure of a stem and leaves. These plants are pest resistant. It's possible to use certain varieties which disorientate certain fungi. Nowadays the researchers have been breeding new agricultural crops. They use wild species of plants, and breed resistant varieties with the help of cross-breeding, selection, molecular biology and gene engineering. Wheat with trimmed leaves enables to protect plants from pests.

X. TRANSLATE INTO ENGLISH:

1. Селекція є важливим напрямом агрономії. 2. Селекціонери виводять посухостійкі сорти. 3. Нові сорти характеризуються ви-

сокою врожайністю. 4. Сільськогосподарська біотехнологія створює високопродуктивні сорти і гібриди. 5. Дослідники вивели безвірусну речовину для різних сортів картоплі. 6. Мікроорганізми є базою клітинної інженерії. 7. Генна інженерія базується на молекулярній біології. 8. ДНК має вигляд довгої подвійної спіральної молекули в ядрі клітин, що містить генетичний код і спрямовує розвиток і функціонування всіх клітин. 9. Сучасні технології розвинули швидкий аналіз складних біологічних молекул. 10. Селекціонери виводять специфічні гени, які регулюють підвищення врожайності.

LESSON 15

THE GRAIN CROPS. WHEAT

I. VOCABULARY

wheat– пшениця
protein content — вміст білка
absorption — засвоєння, поглинання
spring wheat — яра пшениця
ripening — наливання, стиглість
precipitations — опади
swath — валок
header — жатка
environmental conditions — умови оточуючого середовища
baking qualities — хлібопекарські властивості
windrow harvesting — роздільне збирання
sticky substance — клейковина
winter wheat — озима пшениця
liming — вапнування
sowings — посіви
nutrition — підживлення
to thresh — обмолочувати

II. TEXT

WHEAT CULTIVATION

Wheat is a principal grain crop. Nowadays two wheat varieties are of the greatest importance for the production: mild and firm ones. Wheat yields are very stable in the main cultivation zones. Wheat is very demanding to the substantial fertilizing. According to the baking qualities all the wheat varieties are divided into three groups: strong, valuable or middle and weak ones. The protein content in the grain of the strong wheat variety should be up to 14%. The sticky substance content should be up to 28%. Its quality must belong to the first group.

The growth and vegetation peculiarities of the winter wheat and the nutrient substances cause its high demands of the soil fertility. That's why winter wheat is high-yield only on the fertile soils. If a substantial quantity of the organical and mineral fertilizers is applied, it'll be high-yield too. The black soils are the best for the wheat cultivation. They contain much moisture and many nutrient substances. Wheat is low-yield on the light sandy, loamy and acid soils. A high wheat harvest is possible after a substantial application of organical and mineral fertilizers and after liming.

The winter wheat has 12 stages of its development. The productivity elements are formed at that time. That's why the plants are not equally demanding to the environmental conditions during the vegetation time. Wheat seeds germinate by +1-2 degrees. But wheat shoots appear by 15- 18 degrees over zero. The winter wheat is characterized by the cold endurance. Under the snow blanket of 20 cm wheat can endure 30 degrees below zero. The winter wheat is very demanding to the moisture. If there is a moisture lack in the germination time, wheat is low-yield. At the blossom and ripening periods a high temperature and a lack of precipitations may cause the harvest waste.

The spring harrowing is an important agrotechnical measure to keep winter wheat sowings in order. The application of nitrogen fertilizers, the weeds and insects destruction are also very important factors. The nitrogen fertilizers are used for their better nutrition. It's necessary to cut and thresh winter wheat very quickly. Headers are used for the windrow harvesting. The swaths are threshed after a short drying and biological ripening of the yield. Before the transportation to the elevator grain is dried additionally.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What crops does wheat belong to? 2. What wheat varieties are of the greatest importance? 3. What is the protein content in the grain of the strong variety? 4. What is the sticky substance content in the grain of the strong variety? 5. What soils are the best for the wheat cultivation? 6. What soils are low-yield? 7. How many development stages are very characteristic for wheat? 8. When do wheat seeds germinate? 9. What may cause the harvest waste? 10. What important agrotechnical measures are necessary to keep winter sowings in order? 11. What implements are used for the windrow harvesting?

GRAMMAR

THE PRESENT INDEFINITE TENSE IN THE PASSIVE VOICE

IV. TRANSLATE INTO UKRAINIAN:

1. The wheat varieties are divided into three groups. 2. Wheat is cultivated in our region. 3. A substantial quantity of the organical and

mineral fertilizers is applied on the sandy soils. 4. The productivity elements are formed at that time. 5. Headers are used for the windrow harvesting.

V. PUT THE INFINITIVES IN BRACKETS IN PRESENT INDEFINITE PASSIVE VOICE:

1. The protein content of the weak wheat varieties (to increase). 2. The best wheat yields (to harvest) on the black soils. 3. After liming the organical and mineral fertilizers (to apply) on the acid soils. 4. Winter wheat (to characterize) by the cold endurance. 5. The weeds and insects (to destroy) in spring.

VI. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. The growth and vegetation peculiarities of the winter wheat … its high demands to the soil fertility. 2. Black soils … much moisture and many nutrient substances. 3. In order to have a high wheat harvest we … organical and mineral fertilizers. 4. Headers … wheat after a short drying and biological ripening of the grain.

to thresh, to contain, to apply, to cause

VII. a) REMEMBER THE FOLLOWING WORDS AND WORD- COMBINATIONS:

annual grasses — однорічні трави
fallow ground — земля під паром
mayze corn silage — кукурудза на силос
pea — горох

b) TRANSLATE THE FOLLOWING SENTENCES:

The winter wheat fertilizing depends upon the soil and climatic conditions, its variety peculiarities and the cultivation technology. Fertilizing, its amount and the quantity of the nutrient substances greatly influence on the yield capacity of wheat. Very often winter wheat is sown after annual grasses, mayze silage and leguminous crops. In some areas winter wheat is sown after pea and sometimes on

the fallow ground. It's very important to preserve the moisture balance.

VIII. TRANSLATE INTO UKRAINIAN:

During the soil preparation for winter crops it's very important to destroy weeds and preserve moisture. After scrubbling on the acid soils liming and soil tillage are also desireable. It's necessary to plough not later than 25 days before sowing. The intensive technology of the wheat cultivation needs many mineral and organical fertilizers. A high yield capacity is possible with the grain of a high quality.

IX. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

blossoming — цвітіння
ear — колос
full-earedness — колосіння
lactic ripening — молочна стиглість
solution — розчин

b) TRANSLATE THE FOLLOWING SENTENCES:

The wheat with a high protein content may be harvested after the nitrogen application. The nitrogen fertilizers are applied in the form of a solution with a sharp concentration. It's necessary to apply the nitrogen fertilizers at the period of the ear formation or more exactly at the time of the full-earedness, blossoming and the grain lactic ripening.

IX. TRANSLATE INTO ENGLISH:

1. Пшениця — це головна зернова культура. 2. За хлібопекарськими властивостями всі сорти пшениці поділяються на три класи: сильні, цінні та середні і слабкі. 3 Вміст білка в зерні сильної пшениці має бути не менше 14%. 4. Особливості росту і розвитку рослин озимої пшениці та засвоєння поживних речовин

зумовлюють її високі вимоги до родючості ґрунту. 5. Найкращими ґрунтами для вирощування пшениці є чорноземи. 6. Легкі піщані й супіщані ґрунти, а також кислі ґрунти для вирощування озимої пшениці є малопридатними. 7. Озима пшениця має 12 етапів органогенезу. 8. Насіння пшениці проростає при температурі –2 +1 градуси С. 9. В період цвітіння і наливання зерна висока температура і мала кількість опадів може призвести до зниження врожаю. 10. Важливим агротехнічним заходом є весняне боронування, внесення азотних добрив і знищення бур'янів. 11. Жатки використовуються при роздільному збиранні. 12. Валки обмолочують після сушіння і достигання зернових культур.

LESSON 16

THE GRAIN CROPS. RYE

I. VOCABULARY

boron — бор
copper — мідь
density– густота
drought — засуха
hydrological soil acidity — гідрологічна кислотність ґрунту
leguminous crops — бобові культури
rye — жито
sensitive — чутливий
soil acidity — кислотність ґрунту
solution — розчин
superphosphate — суперфосфат
to react(to) — реагувати
weak acid reaction— слабка кислотна реакція
zinc — цинк

II. TEXT

RYE CULTIVATION

Rye is an important food crop. It is one of the principal grain crops. Rye is not very demanding to the climatic conditions. Its sowings may be found on the loamy soils. Because of the soil acidity rye belongs to the third group of the agricultural crops. It bears an extreme acidity. Rye positively reacts to high lime norms. Besides it may grow satisfactorily in the conditions of the phosphorous soil solution up to 7,5%. But it grows in conditions of a weak acid reaction. That's why it's necessary to do liming and reach a weak acid soil environment. The lime doses are determined by the norms of the hydrological soil acidity.

Rye is very sensitive to the lack of the nutrient substances. It may grow quickly having about 100 — 150 mg of phosphorous and up to 180 mg of potassium. Depending upon the cultivation conditions rye produces a ton of grain and a corresponding straw quantity from 1 ha.

About 36 kg of nitrogen, 14 kg of phosphorous and 28 kg of potassium are absorbed on 1 ha of rye.

It's necessary to keep to the stem density. It depends upon the vegetation conditions during the first and the second vegetation stages. At the fourth vegetation stage grain in the ear starts to form.

Manure and mineral fertilizers are applied mostly in spring during ploughing. Rye needs much nitrogen. In the drought conditions of the spring period ammonia saltpetre is applied. Rye reacts positively to the microfertilizers. It needs much superphosphate, boron, copper and zinc.

Rye may be sown on the fallow ground after perennial grasses, after mayze silage and leguminous crops, flax and potatoes.

The harvest period lasts about 12 days. Rye is cut in swaths. The swaths are threshed after a short drying and biological ripening of the yield.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. Is rye demanding to the cultivation conditions? 2. What group of agricultural crops does rye belong to? 3. On what soils is rye grown? 4. How are the lime doses determined? 5. How much grain does rye produce from 1 ha? 6. What fertilizers are applied in spring? 7. What fertilizer is applied in the drought conditions? 8. What mineral fertilizers does rye need? 9. How can we harvest a high yield? 10. How many days does the harvest period last?11. How is rye harvested?

GRAMMAR

THE PAST INDEFINITE TENSE IN THE PASSIVE VOICE

VI. TRANSLATE INTO UKRAINIAN:

1. Many years ago rye was cultivated in our region. 2. Nutrient substances were absorbed by plants. 3. The stem density was kept correctly. 4. Ammonia saltpetre was applied in spring.

V. PUT THE INFINITIVES IN BRACKETS IN PAST INDEFINITE PASSIVE VOICE:

1. Rye sowings (to find) on the loamy soils. 2. The lime doses (to determine) with the help of the hydrological soil acidity. 3. Manure

and mineral fertilizers (to apply) mostly in spring. 4. Rye (to sow) on the fallow ground.

VI. FILL IN THE BRACKETS WITH THE NECESSARY VERBS:

1. Rye … on the loamy soils. 2. It … a ton of grain and the corresponding straw quantity. 3. The stem density … the vegetation conditions. 4. We … manure and mineral fertilizers. 5. Rye … the microfertilizers.

to react to, to depend upon, to apply, to produce, to grow.

VII. TRANSLATE INTO UKRAINIAN:

Before sowing seed is processed with granosane, kynolite, mercurbensole and other substances. The seed sterilization is connected with the simultaneous drying. The processing is made with the help of the special equipment for the half-dried sterilization. The thermal seed treatment helps to protect plants from pests. The sowing norms are established according to the soil state, its fertility and humidity. It's also necessary to keep to sowing terms and the biological peculiarities of the rye variety.

VIII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

layer — шар
sowing term — строк сівби
to split — роз'єднуватися

b) TRANSLATE THE FOLLOWING SENTENCES:

Triticale belongs to the grain crops. It is very demanding to the soil fertility. Triticale is a hybrid. It's a wheat and rye hybrid. The best soil for triticale is the black soil. Its winter variety is resistant to the ground frosts. It isn't split to the paternal types of wheat and rye. Triticale is sown on the fallow ground and on the former pea field. A layer of perennial grasses, mayze silage and leguminous crops is also positive for triticale. September is a sowing term for triticale.

IX. TRANSLATE INTO ENGLISH:

1. Жито є важливою зерновою культурою. 2. Найкращими ґрунтами для вирощування жита є чорноземи і суглинки. 3. На кислих потрібно проводити вапнування. 4. Дози вапна визначаються з допомогою норм гідрологічної кислотності ґрунту. 5. Жито є дуже чутливим до поживних речовин. 6. В залежності від якості ґрунту жито може давати достатню кількість зерна і відповідну кількість соломи з гектара. 7. Під час четвертого етапу вегетації починає формуватись зерно в колосі. 8. Гній і мінеральні добрива вносять навесні під основний обробіток. 9. Жито потребує багато суперфосфату, бору, міді і цинку. 10. Жито скошують у валки.

LESSON 17

INDUSTRIAL CROPS. POTATOES

I. VOCABULARY

aminoacid — амінокислота
arduous — трудомісткий
black soils — супіщані чорноземи
calcium saltpetre — кальційова селітра
clay soils — глинисті ґрунти
content — вміст
crop — просапна культура
grey forest soils — сірі лісові ґрунти
high-yield — високоврожайний
low-yield — низьковрожайний
magnesium — магній tillage
root system — коренева система
loamy
shale — сланець
starch — крохмал
to germinate — пророщувати
to warm — прогрівати
underground amount — підземна маса
weeds — бур'яни
yield capacity — врожайність

II. TEXT

POTATOES CULTIVATION

Potatoes belongs to the most important agricultural crops. It's very valuable for the human nutrition. The potatoes value is determined by the high tasty data and favourable chemical composition for the human health. Generally its tubers contain about 75-80% of water and up to 25% of dry substances. The protein content is up to 20%. It is easily absorbed and divided into sugar amounts. According to its aminoacid content potatoes is very close to meat. Potatoes tubers contain much potassium, calcium, magnesium, phosphorous and iron.

Potatoes is a valuable feed crop especially for pigs. It is also a valuable industrial crop. We use potatoes as a principal raw material to produce glucose, starch, alcohol, etc. Potatoes is a tillage crop. It is of a high agrotechnical importance. It influences positively upon the grain crops if it is sown the next year. Potatoes belongs to the crops of the moderate climate. If the temperature falls to 7-8 degrees below zero or rises up to 30 degrees over zero, potatoes stops its vegetation. This crop is very demanding to moisture. It forms a big underground amount having a developed root system. If the soil humidity is 75 — 80%, a high potatoes yield is harvested. Potatoes is cultivated on the sandy and loamy black soils and grey forest soils. Former peat deposits are good for the potatoes cul-

tivation. Potatoes is high-yield on the sandy soils with a substantial amount of the organical fertilizers. It is low-yield on the clay soil and shale. Flax, winter crops and perennial grasses positively influence on a high yield of potatoes. A main task of the soil tillage is a deep ploughing of a soil layer, the formation of the favourable water and aerial conditions, the weeds destruction, the moisture preservation and the increase of the soil nutrient substances. In order to increase the soil fertility and the yield capacity it's very important to enrich fields with organical fertilizers. After fertilizing the seedbed is plowed again. Later it's necessary to sow quick-growing cabbage crops, oil reddish, mustard,etc. Organical fertilizers and cyderates improve the soil structure and the yield capacity, Mineral fertilizers such as nitrogen fertilizers and calcium saltpetre also improve the yield capacity.

The seed material preparation is an arduous process. It forsees both the tuber preservation in the winter time and job in spring. In spring it's necessary to warm and germinate the selected tubers. It is also necessary to disinfect them before the sowing.

Nowadays about 70 potatoes varieties are utilized in agriculture. Depending on their utilization they are divided into four groups: food varieties, feed varieties, industrial varieties and universal varieties.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1.How is the potatoes value determined? 2. What is the chemical composition of potatoes tubers? 3. What products are produced from potatoes? 4. What crops does potatoes positively influence on? 5. When does potatoes stop its vegetation? 6. What soils are good for the potatoes cultivation? 7. Where is potatoes low-yield? 8. What is it necessary to do after fertilizing the seedbed? 9. What is it necessary to do with the selected tubers in spring? 10. How many potatoes varieties are utilized in agriculture? 11. What groups are they divided into?

GRAMMAR

THE FUTURE INDEFINITE TENSE IN THE PASSIVE VOICE

VI. TRANSLATE INTO UKRAINIAN:

1. The protein will be easily absorbed and divided into sugar. 2. Potatoes will influence on the grain crops. 3. Flax, winter crops and

perennial grasses will be cultivated on the fields. 4. The seed material preparation will forsee the tuber preservation at the winter time. 5. The feed varieties of potatoes will be grown for pigs.

V. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

The potatoes need for moisture … in the blossom time. 2. The root system … more oxygen than other plants. 3. In order to increase the soil fertility and yield capacity it's necessary … fields with organical fertilizers. 4. The ammonia saltpetre insertion … the vegetation.

to enrich, to absorb, to increase, to facilitate

VI. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

row-middle — міжряддя herbicides — гербіциди

b) TRANSLATE THE FOLLOWING SENTENCES:

The chemical method of the weed destruction is very effective. It's necessary to use the agrotechnical method. First of all it forsees the field choice, the effective spring tillage and the row middle ploughing. If the effectiveness is not sufficient, it's necessary to use different herbicides.

VII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

colorado beetles/bugs (Amer.) — колорадські жуки
voracity — прожерливість
ovum (pl. ova) — яйце
larva (pl. larvae) — личинка
to spray — оприскувати

b) TRANSLATE THE FOLLOWING SENTENCES:

The Colorado beetle is a principal pest of potatoes fields. It is accustomed to different climatic and weather conditions. It is also characterized by a great fertility and voracity. Each bug female lays about 3000 ova. Its larvae may destroy potatoes plants on the area of 2,5 ha. That's why it's necessary to spray insecticides twice during the vege-

tation time. We may use different insecticides mostly of phosphorous and organical composition. Nowadays the piretroide variety of insecticides is widely spread in Ukraine.

VIII. TRANSLATE INTO UKRAINIAN:

The early varieties of potatoes are harvested before the physiological maturity of tubers comes. The early varieties for seeds preservation are harvested in August. The late-ripening tubers are harvested by the first of October. The ground frosts may damage tubers. We can use three harvesting methods: In-line harvesting, the combine harvesting and the separate harvesting.

IX. CHARACTERIZE THE DUTCH TECHNOLOGY OF THE POTATOES CULTIVATION:

The Dutch technology ensures a high yield capacity. It's necessary to follow the range of plants. One must apply a lot of organical and mineral fertilizers. Heavy harrows are used in spring to preserve moisture. Each tuber should be about 55 mm. The distance between each tuber must be 22-24cm. The width of row middles should be 75cm. The tubers are planted at the depth of 6cm. It's necessary to form the furrow ridge. It's also important to put tubers at the equal depth. It facilitates a quick germination.

X. TRANSLATE INTO ENGLISH:

1. Картопля належить до найважливіших сільськогосподарських культур. 2. Бульби містять 75—80% води і до 25% сухих речовин. 3. За своїм амінокислотним складом білок близький до м'яса. 4. З картоплі виготовляють спирт, крохмал і глюкозу. 5. Ця культура — дуже вимоглива до вологи, оскільки формує велику підземну масу при відносно малорозвинутій кореневій системі. 6. Картопля вирощується на супіщаних і суглинистих чорноземах, дернових і сірих лісових ґрунтах. 7. Картопля добре родить на піщаних ґрунтах при внесенні значної кількості органічних добрив. 8. Основним завданням обробітку ґрунту під картоплю є глибоке розпушування орного шару. 9. Підготовка насіннєвого матеріалу є трудомістким процесом. 10. Наразі використовується понад 70 сортів картоплі.

LESSON 18

INDUSTRIAL CROPS. HOPS

I. VOCABULARY:

acid — кислота
annual — річний
aromatic variety — ароматичний сорт
bitter variety — гіркий сорт
black soil — чорнозем
cone — шишка
foetus — плід
hemp group — родина коноплевих
humidity — волога
particle — частка
perennial — багаторічний
pitch — смола
sample — зразок
seedling — саджанець
temperate climate — помірний клімат
turf-podzol soil — дерново-підзолистий ґрунт
volatile oil — ефірна олія

II. TEXT

HOPS CULTIVATION

Hops belongs to the hemp group of plants. The Ukrainian varieties belong to the ordinary hops varieties. It is a perennial plant which consists of the underground and overground parts. The hops foetus is a firm grayish-brown cone 3 mm long and 2 mm wide.

Hops is very demanding to the natural and climatic conditions. It substantially influences on its development and productivity. It is a crop of the temperate climate. Hops is cultivated in the zones with the average annual temperature of 8 degrees over zero in spring, with the average daytime temperature 17—19 degrees over zero at the vegetation time and without any sharp change in the afternoon and at night.

Hops likes humidity. It needs 500—600 mm of the annual rainfalls. About 250—300 must fall on the vegetation period. Hops requires relative air humidity of about 70—80 per cent. The light positively influences on the yield and especially on its quality. During the vegetation time hops requires 1600 hours of the sun radiation. Hops needs about 700—750 hours of radiation during blossoming and about 850 hours of the sun radiation before harvesting.

Hops needs peculiar soils. Its best soils are turf — podzol, grey forest and black soil. Hops planting is a very responsible agrotechnical process. The further vegetation, the life duration and productivity of hops plants strongly depend upon hops. The best planting term is autumn and the best planting material is a seedling.

The forest planting machine MLU-1 as an implement with a tractor is used for the mechanized planting.

The aromatic varieties with a small percentage of bitter particles are widely used in the modern selection. The bitter varieties were used earlier. The hops varieties contain a certain quantity of common pitches, alfa-acids, beta-acids, common polyphenoles and the volatile oil in the laboratory samples of the cones after the recount to the dry substance quantity.

Different hops varieties of the Ukrainian and foreign selection are cultivated in our country. They are the British varieties: Northern Brewers, Brewers Gold, Bullion, etc. Ukrainian hops varieties are Alta, Kumir, Polyssian, Zagrava, etc.

Ukraine occupies a certain position at the world and European hops market.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What groups of plants does hops belong to? 2. How can you characterize hops as a plant? 3. In what zones is hops widely cultivated? 4. What are the climatic conditions for the hops cultivation? 5. What soil does hops need? 6. What terms are the best for hops planting? 7. What substances does dry hops consist of? 8. What hops varieties are cultivated in our country?

GRAMMAR

MODAL VERBS AND THEIR EQUIVALENTS

IV. TRANSLATE INTO UKRAINIAN:

1. Hops can be grown in the temperate climatic conditions. 2. The average annual temperature must be very favourable for hops. 3. Bitter hops varieties could be cultivated earlier. 4. Aromatic varieties are to be cultivated now. 5. Different hops varieties of the Ukrainian and

foreign selection have to be cultivated now. 6. The annual rainfalls about 250—300 mm must fall on the vegetation time.

V. TRANSLATE THE WORDS IN THE BRACKETS INTO ENGLISH:

1. Hops (може) be very profitable. 2. We (повинні) apply mineral and organical fertilizers. 3. Hops (може) be harvested in August. 4. Bitter hops varieties (могли) be cultivated earlier.

VI. a) REMEMBER NEW WORDS AND WORD-COMBINATIONS:

wash-basin — умивальник
to check weedy growth — здійснювати стримуючий вплив на ріст бур'янів
to apply as a powder — застосовувати у вигляді порошку
a control agent against weeds and insects — засіб боротьби з бур'янами і комахами
to render poisons — знешкодити отруту

b) TRANSLATE INTO UKRAINIAN:

THE SECURITY REGULATIONS DURING THE PESTICIDE INSERTION

The majority of pesticides are very poisonous for the people. Pesticides check
weedy growth. Pesticides may be applied as a powder. They are a control agent against weeds and insects. But it's very important to be rather careful applying them. The pesticides should be kept in special stocks with a concrete floor. It must be isolated from any other premises. It's necessary to have special scales, wash-basin, soap, towels and the means to render poisons.

VII. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. Hops … relative air humidity. 2. The bitter hops varieties … earlier. 3. The light positively … on the yield and especially on its quality. 4. Different hops varieties … in our country.
to cultivate, to use, to require, to influence

VIII. CHARACTERIZE THE PECULIARITIES OF THE HOPS VARIETY:

REGENT

The Regent variety was compiled by means of the individual selection from the hybrid group of the British hops variety Northern Brewers. It is a variety with a middle yield at the vegetation period of 120 days.

The hops cones are oval. The cone length is up to 4,4 cm, the width is up to 2,9 cm. The cone fragrance is nice and stable. The cones contain:

a. common pitches — 12,3 — 18,3%
b. alfa-acids — 4,0 — 7%
c. beta-acids — 5,4- 6,7%
d. common polyphenoles — 3,0 — 5,7 %
e. the common quantity of the ether oil — 1,9 — 2,8%

XI. TRANSLATE INTO ENGLISH:

1. Хміль належить до родини коноплевих. 2. Хміль — дуже вимогливий до природних і кліматичних умов. 3. Він потребує 500—600 мм річних опадів. 4. Під час вегетації хміль потребує 1600 годин сонячної радіації. 5. Найкращими ґрунтами е підзолисті, сірі лісові ґрунти і чорноземи. 6. Різні сорти хмелю української і зарубіжної селекції вирощуються в нашій країні. 7. Україна займає відповідне місце на світовому і європейському ринку хмелю.

LESSON 19

INDUSTRIAL CROPS. FLAX

I. VOCABULARY

ammonia saltpetre — аміачна селітра
blossom — суцвіття
bulk — маса
fibre — волокно
fibre production — виробництво волокна
flax — льон
flax shoots — сходи льону
flax straw — льоносолома
germinating power — схожість
ground frosts — приморозки
maturity — стиглість
nitrogen fertilizers — азотні добрива
nutrient substances — поживні речовини
phosphorous fertilizers — фосфорні добрива
potassium fertilizers — калійні добрива
poultry droppings — пташиний послід
stem — стебло
stock — треста
warmth — тепло
wax — віск
waxen film — восковий наліт

II. TEXT

FLAX PRODUCTION

Flax is mainly cultivated for the fibre production. Its principal productive part is a stem. Its share in the common bulk is about 75—80%.

The flax plant is one-stemmed. Its height is 70—125 cm. Its diameter is 0,8 — 1,5mm.

The stem is of a cylindrical shape. It is covered with the waxen film of the greenish and dark green colours. The most valuable part of the stem is its productive length (50—110 cm). It is a stem from the spot with seed leaves up to the blossom spot.

The higher is the stem and the longer is its productive part, the longer is its fibre. The fibre of the best quality is produced from thin stems.

Flax is an industrial crop which requires more humidity, warmth and nutrient substances. All the physiological processes occurred inside the flax plants take place only with a warm temperature. For a whole vegetation period flax requires quite a high amount of active temperatures.

The best temperature for the growth is 9 — 18 degrees over zero. Flax shoots can bear ground frosts. But the germinating power is still high. Flax likes humidity. During the seed germination it absorbs the water quantity equal to its amount. The moisture conservation is of a great importance for the flax production.

Flax is cultivated on the different types of soils. But a high yield may be harvested from middle and light loamy soils. Sandy soils are low-yield because they obtain little nutrient substances and preserve little moisture. Both organical and mineral fertilizers positively influence on the flax yield. The poultry droppings are good enough for flax. Poultry droppings contain a lot of nutrient particles which are quickly absorbed by the plant. Flax also needs nitrogen, phosphorous, potassium fertilizers and ammonia saltpetre.

Flax is harvested with the help of flax combines at the period of the yellow maturity. At that time no more than 5% of green seeds remain on the stems. The highest yields are best at the maturity phase. Seeds, flax straw, stock and fibre are of the best quality.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. What is flax cultivated for? 2. What is the size of the flax plants? 2. How does the flax stem look like? 4. What does flax require for the whole vegetation period? 5. On what soils may a high yield be harvested? 6. What soils are low-yield? 7. What organical fertilizers have a positive influence on the flax yield? 8. What mineral fertilizers are good enough for the flax yield? 9. How is flax harvested? 10. When are the highest yields best?

GRAMMAR

THE POSSESSIVE CASE OF THE NOUNS

IV. TRANSLATE INTO UKRAINIAN PAYING ATTENTION TO THE PECULIARITIES OF THE POSSESSIVE CASE TRANSLATION IN ENGLISH:

1. The agricultural society’s flax shoots are always of a good quality. 2. The flax fields are situated in a stone’s throw from the village. 3. The flax goods market is filled to the population heart’s content.

V. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. Flax … for the fibre production. 2. It … more humidity, warmth and nutrient substances. 3. At the period of the seed germination it … much water. 4. The flax shoots … ground frosts. 5. Sandy soils … little nutrient substances.

to require, to be cultivated, to absorb, to bear, to obtain

VI. TRANSLATE INTO UKRAINIAN:

SOWING

Flax greatly depends upon the seeds sowing quantities. Seeds should be well-shaped, shining and smooth without any additional particles. The flax seeds must be light brown. They should have a high germinating power. The seeds must be kept in the conditions of the permanent humidity (about 10—11%). If the percentage of the humidity is higher, the flax seeds will be damaged by mites. The seeds of a good quality ensure good shoots.

VII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

fibre content — вміст волокна
high-yield crops — високоврожайні культури
spinning qualities — прядивні властивості

b) TRANSLATE THE FOLLOWING SENTENCES:

The Mriya variety of flax is very perspective for our region. It belongs to the flax varieties of the middle maturity. The variety matures about 90 days. It has a high fibre content and good spinning qualities. The Mriya variety belongs to high –yield crops.

VIII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

adjustment — регулювання
beater — тіпальна машина
breaker — м’ялка
outlet — вихід
roller — валець
the laborating rim of the knives — робоча кромка ножів

b) TRANSLATE THE FOLLOWING SENTENCES:

The outlet and quality of a long fibre depends upon a correct adjustment of breakers and beaters. The breaker adjustment also depends upon the flax stock quality. It's necessary to ensure a free rotation of the top and bottom rollers. It's also necessary to sharpen the laborating rim of the knives.

IX. TRANSLATE INTO ENGLISH:

1. Льон вирощують для виробництва волокна. 2. Основною продуктивною частиною льону є стебло. 3. Стебло є циліндричним, покритим восковим нальотом, світло-зеленого і темно-зеленого кольорів. 4. Чим вище стебло і довша його технічна частина, тим більше довгого волокна міститься в ньому. 5. Льон — культура помірного клімату, вимоглива до тепла та вологи. 6. Високий врожай льону можна зібрати на середніх і легких суглинках. 7. У фазі жовтої стиглості найвищим є врожай і якість насіння, льоносоломи, трести і волокна. 8. З органічних добрив найкращим для льону є пташиний послід.

LESSON 20

INDUSTRIAL CROPS. SUGAR-BEETS

I. VOCABULARY

cessation — припинення
flow harvesting — потокове збирання
germination — проростання
humid — вологий
moisture — волога
nutrition — живлення
roll harvesting — перевалочне
sugar amount — маса цукру
sugar beet top — гичка цукрових буряків
to adjust — регулювати
to cause — викликати
to dig — копати
to increase — збільшуватись
to sprout — проростати
to warm — прогріватися

II. TEXT

SUGAR-BEET CULTIVATION

The sugar-beet is a two-year plant. It forms a well-developed tuber. The seeds absorb much moisture at the germination time. The sugar-beet seeds must be sown into the plowed soil. The seeds sprout at the temperature of 3—4 degrees over zero. If the soil is enough humid and warms up to 18 degrees over zero, the sugar-beet shoots will germinate in 7—8 days. It's very important to reduce the term between the sowing and the germination of shoots. Shoots absorb the nutrient substances of seeds before they sprout. First leaves appear in ten days. Leaves start growing very quickly. The sugar-beet yield depends upon the moisture quantity especially in July and August.

Sugar-beets need a sufficient amount of the nutrient substances in the ground. The fertilizing system requires a sufficient fertilization in three terms: the principal fertilizer is applied in autumn. At the sowing time we apply the row fertilizers. And at the vegetation time the sugar-beets need some nutrition. That's why sugar-beets are very high-yield on the fertile soil. Sugar-beets are also cultivated on the loamy soils and grey forest soils. It is low-yield on the clay soils.

Sugar-beets occupy the second place in the range of plants after wheat. A regular range of plants and a proper ploughing ensure high and stable yield of sugar-beets.

The highest yield of sugar-beets with the biggest sugar amount is harvested at the period of the growth cessation. Too early and too late terms of harvesting cause the yield loss. Generally the tuber amount increases in August and September. Simultaneously the sugar amount increases up to 2,2%.

Sugar-beets are mostly harvested with the help of the special equipment. There are three ways of harvesting: flow, roll and mixed harvesting. The sugar-beet top is cut simultaneously. Sugar-beet combines dig tubers. In order to get rid off sugar- beet losses, it's necessary to adjust all the combine mechanisms taking into account the soil humidity, the top height and the tuber size.

III. ANSWER THE FOLLOWING QUESTIONS:

1. What do you know about sugar-beets? 2. How do the seeds sprout? 3. What does the sugar-beet yield depend upon? 4. What types of soil are the most fertile for sugar-beets? 5. What is the sugar-beet place in the range of plants? 6. What does the fertilizing system require? 7. When is the highest yield of sugar-beets harvested? 8. When does the sugar-beet increase? 9. How many ways of harvesting do you know?

GRAMMAR

PARTICIPLE I

IV. TRANSLATE INTO UKRAINIAN:

1. Shoots absorbing nutrient substances sprout very quickly. 2. Destroying weeds tractors plough the soil. 3. Increasing the norms of fertilizers we can harvest a bigger quantity of sugar-beets. 4. We harvest a high yield applying manure.

V. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. First leaves … in ten days. 2. The sugar-beet yield … the moisture quantity. 3. The seeds … much moisture. 4. The sugar-beet combines … the tubers. 5. They … the sugar-beet top.

to cut, to depend upon, to absorb, to appear, to refine

VI. TRANSLATE INTO UKRAINIAN:

SOWING PROTECTION

The soil harrowing is very important before the shoots appear. It improves the air and temperature conditions of the soil. At the period between the sowing and germination of shoots the soil is compressed. The harrowing is the most efficient in 5-6 days after sowing.

VII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

hand-operated job — ручна праця
mechanized production — механізоване виробництво
shoot gapping — проріджування сходів

b) TRANSLATE THE FOLLOWING SENTENCES:

The technology of the sugar-beet mechanized production deals with the minimum waste of the hand-operated job and correct norms of sowing. It's necessary to take into account the seed germination, pest destruction and the mechanized way of the shoot gapping.

VIII. TRANSLATE INTO UKRAINIAN:

REDUCTION OF YIELD WASTE

Harvesting sugar-beets it's very important to reduce the yield waste. It mostly depends upon the type of the harvesting machinery, its adjustment and the quality of the seedlings. Sugar-beets may be undug or lost during the transportation. The most progressive way of the mechanized harvesting will prevent from the yield losses. It includes the utilization of the adjusted equipment and a proper labour organization.

IX. READ, TRANSLATE AND EXPLAIN THE UNDERLINED WORDS:

In order to organize the sugar-beet production more effectively the *plant-breeders* use the gene engineering. It helps *to get rid off* the microorganisms. That's why different *herbicides* and *pesticides* may be used. But they may be very dangerous for the *environment*. The most progressive way is to prepare seeds of a good quality.

X. TRANSLATE INTO ENGLISH:

1. Насіння поглинає багато вологи під час проростання. 2. Якщо ґрунт є оптимально вологим і прогрівається до +18ºС, сходи цукрових буряків проростають за 7—8 днів. 3. Дуже важливо скоротити час між посівом і проростанням. 4. Цукрові буряки потребують достатньої кількості поживних речовин у ґрунті. 5. Цукрові буряки займають друге місце у сівозміні після пшениці. 6. Під цукрові буряки вносяться органічні і мінеральні добрива. 7. Найвищий врожай цукрових буряків з найбільшим вмістом цукру отримується в період припинення росту. 8. Маса коренеплодів збільшується у серпні і вересні. 9. Цукрові буряки в основному збираються з допомогою спеціального обладнання.

LESSON 21

FRUIT PRODUCTION

I. VOCABULARY

apple-tree — яблуня
apricot-tree — абрикос
branch — гілка
cherry-tree — вишня
crown — крона
crumb and peel density — щільність м'якуша і шкірки
currants — смородина
fruit colouring intensity — інтенсивність забарвлення плода
horticulture — садівництво
labour-intensive process — трудомісткий процес
marshy soil — заболочений ґрунт
peach-tree — персик
pear-tree — груша
planting — насадження
plum-tree — слива
raspberry — малина
ripe — стиглий
ripening — стиглість
ripening proof — ознака стиглості
soil tillage — обробіток ґрунту
strawberry — полуниця
to bear fruits — плодоносити
to root out — викорінювати

II. TEXT

HORTICULTURE

Horticulture is an important branch of agriculture. The industrial fruit plantings are classified according to the fruit varieties: apple-trees, pear-trees, plum-trees, cherry-trees, apricot-trees, peach-trees. According to the ripening terms they are classified as early-ripening, middle-ripening and late-ripening. In order to increase the yield capacity it's necessary to form the tree crown. It's very important to reduce the crown. It must be less than the root system. Each branch is cut in such a way that the bottom branch should be shorter than the top one. Before the trees start bearing fruits, the gardeners cut all the unnecessary branches and ensure the maximum yield capacity. In order to increase the fruit productivity it's necessary to choose fruit varieties very correctly. They must be resistant to the unfavourable climate conditions. The fruit varieties must have a high yield capacity. The fruits should have a good taste and a proper technological quality. It's necessary to choose correctly the fruit varieties in the garden planting.

The principal task of the soil tillage is to increase its fertility. We must use ploughs and harrows. The weeds are rooted out with the help of special implements. Herbicides are also used to root out all the

weeds. It's necessary to follow the norms of the safety technique. The gardeners must apply organical fertilizers once in 3-4 years. But the mineral fertilizers are applied each year.

Strawberry, raspberry and currants belong to the berry crops. Strawberry grows on all the soil types with the exception of lime, clay and marshy soils. Raspberry and currants are very demanding to the soil type. Organical and mineral fertilizers are mostly applied before planting. Harvesting is the most labour-intensive process in horticulture. The fruits must be ripe. Then they'll be well preserved. The ripening proof is the size and the fruit colouring intensity. Fruits easily split off the branch. The crumb density and taste qualities are also a very important factor at the harvesting time.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1. How are the industrial fruit plantings classified? 2. What is it necessary to do in order to increase the yield capacity? 3. What form must the tree crown have? 4. What do the gardeners do before the trees start bearing fruits? 5. What is it necessary to do in order to increase the fruit productivity? 6. What is the principal task of the soil tillage? 7.Why do we use herbicides? 8. What fertilizers must be applied? 9. What crops belong to the berry crops? 10. What factor may be considered as a ripening proof of fruits and berries?

GRAMMAR

THE GERUND

IV. TRANSLATE INTO UKRAINIAN:

1. The plant-breeders started breeding new frost resistant fruit varieties last year. 2.A lot of people are fond of planting fruit trees and berry bushes. 3. We stop strawberry harvesting in June. 4. The scientists suggest applying nitrogen fertilizers in the gardens.

V. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. The gardeners … the tree crown in spring. 2. We … the resistant fruit varieties. 3. Before the garden planting the gardeners … all the

weeds. 4. Strawberry, raspberry and currants …the berry crops.5. We … organical and mineral fertilizers.

to cut, to choose, to root out, to belong to, to apply

VI. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

chip — щепа
grapes — виноград
viticulture — виноградарство

b) READ AND TRANSLATE THE FOLLOWING SENTENCES:

Viticulture is an important branch of horticulture. Grapes belongs to the perennial liana group. It is a drought-resistant plant. It may grow on different soil types, but it is high-yield on the fertile soil with a substantial humidity. The underground part of the bush consists of a wide root system. The overground part of the bush consists of skeleton and fruit-bearing branches. In order to increase the yield capacity it's necessary to connect chips with the principal bulk of the plant. Fertilizing is also very important for grapes. The yield is harvested in a short period of time when the fruits are ripe and the sugar content is not less than 14%.

VII. READ AND TRANSLATE THE SENTENCES:

The first year after planting the fertilizing is not necessary. Later when the trees start fruit bearing organical and mineral fertilizers are applied. In fruit-bearing gardens organical fertilizers are applied once in 3-4 years. Mineral fertilizers are applied each year. The fertilizing norms are established according to the planting productivity. It's also necessary to take into account the phosphorous and potassium availability.

VIII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

to rejuvenate — омолоджувати; to prune — обрізати дерева

b) READ AND TRANSLATE THE FOLLOWING SENTENCES:

It’s necessary to prune trees in spring. It limits the size of the branches and increases the yield capacity. Pruning rejuvenates trees, berry crops and grapes.

IX. READ, TRANSLATE AND EXPLAIN THE UNDERLINED WORDS:

In order to increase the yield capacity the scientists breed new varieties of fruit and berry crops. The new varieties are resistant to the *unfavourable climatic conditions*. The varieties are divided into early-ripening and late-ripening varieties. The grapes varieties are divided into *dining* and *industrial* ones.

X. TRANSLATE INTO ENGLISH:

1. Садівництво — важлива галузь сільського господарства. 2. Для того, щоб збільшити врожайність, необхідно формувати крону дерев. 3. Кожна гілка дерева обрізається так, щоб нижня гілка була коротшою верхньої. 4. Перед тим, як дерева починають плодоносити, садівник обрізує всі непотрібні гілки і забезпечує максимальну врожайність. 5. Головне завдання обробітку ґрунту полягає у збільшенні його родючості. 6. Перед посадкою саду потрібно знищити всі бур’яни. 7. Мінеральні добрива вносяться кожного року. 8. Полуниця, малина і смородина належать до ягідних культур. 9. Збирання врожаю є найбільш трудомістким процесом у садівництві. 10. Щільність м’якуша і шкірки яблук є дуже важливим фактором під час збирання врожаю.

LESSON 22

VEGETABLE PRODUCTION

I. VOCABULARY

beets — буряки
bulb — цибулина
cabbage — капуста
carrot — морква
condiments — приправи
cucumbers — огірки
dill — окріп
early-ripening — ранньостиглий
garlic — часник
greenhouse — теплиця
late-ripening — пізньостиглий
middle-ripening — середньостиглий
onion — цибуля
parsley — петрушка
pepper — перець
range of vegetables — овочева сівозміна
salt solution — розчин солі
seedling — саджанець
sorrel — щавель
to correspond — відповідати
to dry — сушити
to marinate — маринувати
to water — поливати
tomatoes — помідори

II. TEXT

VEGETABLE PRODUCTION

The vegetable production provides the population with necessary products. Vegetables are a reliable resource of the vitamins. Cabbage, carrot, beets, cucumbers, tomatoes, onion, pepper, garlic, different condiments such as parsley, sorrel and dill belong to vegetables. It's very important to keep to the range of vegetables. A deep plowed layer must form the biological soil activity. This layer should preserve moisture and nutrient substances. The soil must be plowed very thoroughly. The ploughing depth must be up to 30 cm. The organical and mineral fertilizers must be applied in spring before planting. The vegetable seeds should correspond to certain demands. Tomato, cucumber, pepper and carrot seeds must be put into the salt solution or into the ammonia saltpetre solution. They are covered with the nutrient mixture. It consists of peat and manure. The vegetable seeds are sown in the greenhouses. In the favourable weather conditions seedlings are planted out-of-doors if there are no ground frosts.

The black soil is the best for vegetables. But they may grow on the loamy soil too. The seedlings planted on the light sandy soils need

much fertilizing. If there is a lack of precipitations in summer, the seedlings of tomatoes, pepper and cucumbers must be watered.

Tomatoes are harvested if they are enough ripe. Cucumbers are harvested if they reach a certain size and a certain dark green colour. Cabbage has several varieties. There are early-ripening, middle-ripening and late-ripening varieties. After harvesting tomatoes, cucumbers and cabbage may be marinated. Among them only cabbage is resistant to the ground frosts.

Carrot and beets belong to the tubers. They contain a lot of vitamins and nutrient substan-

ces. They may be preserved all the year. They are frost resistant.

Condiments are very useful for the marination and for everyday meals. Their leaves are cut about four times a year. Onion and garlic are cultivated on all the soil types. Onion may be sown by seeds and may be planted by bulbs. Bulbs are harvested in August. It's very important to dry bulbs very thoroughly before the preservation.

III. ANSWER THE FOLLOWING QUESTIONS:

1.What is the role of vegetable production? 2. What crops belong to the vegetables? 3. How must the soil be plowed? 4. What is the ploughing depth? 5. What fertilizers should be applied? 6. How are seeds of tomatoes, cucumbers and carrot processed? 7. What does the nutrient mixture consist of? 8. Where are the vegetable seeds sown? 9. What soil is the best for vegetables? 10. When are tomatoes and cucumbers harvested? 11. What cabbage varieties do you know? 12. How many times a year are the condiment leaves cut?

GRAMMAR

SEQUENCE OF TENSES

IV. TRANSLATE INTO UKRAINIAN:

1. I think that the vegetable production will provide the population with the necessary products. 2. We knew that the nutrient substances consisted of peat and manure. 3. The researcher told that the vegetable seeds had been already sown in the greenhouses. 4. He said that the vegetable seeds would correspond to certain demands.

V. PUT THE INFINITIVES IN BRACKETS INTO THE RIGHT TENSE ACCORDING TO THE RULES OF SEQUENCE OF TENSES:

1. The tractor driver says that the ploughing depth (to be) up to 30 cm. 2. The farmer tells that the tomatoes (to be already harvested), 3. We knew that the cucumbers (to ripen) very soon. 4. He said that he (to plant) already onion and garlic.

VI. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. The farmers … the range of plants. 2. Parsley, sorrel and dill … vegetables. 3. The researcher … seeds with the nutrient mixture. 4. The nutrient mixture … peat and manure. 5. Onion and garlic … on all the soil types.

to keep to, to belong to, to cover, to consist of, to grow

VII. TRANSLATE INTO UKRAINIAN:

Lettuce belongs to annual plants. It is characterized by the early-ripening and cold resistance. Lettuce contains carotene, vitamins B, P, C, zinc, manganese and other substances. The people cultivate three lettuce varieties:the leaf variety, the tip variety and romen. The seeds are sown either in spring or in autumn. The organical and mineral fertilizers may be also applied. The yield is harvested three times a year in the sunny weather. The leaves should be fresh.

VIII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

lactic acid fermentation — молочнокисле бродіння
late-ripening varieties — пізньостиглі сорти
middle-ripening varieties — середньостиглі сорти
to pickle cabbage — квасити капусту

b) TRANSLATE THE FOLLOWING SENTENCES:

Cabbage is pickled in December. Middle-ripening and late-ripening varieties are especially good for pickling. The pickled cabbage contains about 90% of the vitamin C. The cabbage is pickled in jugs. It is minced and mixed with the minced carrot. It’s necessary to add some salt and condiments. The lactic acid fermentation means that the pickling has been already over.

IX. READ, TRANSLATE AND EXPLAIN THE UNDERLINED WORDS:

Tomatoes and cucumbers *are salted* in *barrels*. Before salting they are selected according to their size. It's necessary to add different *quantities* of onion, garlic and condiments. Tomatoes and cucumbers in the barrels are watered with the *salt solution*.

X. TRANSLATE INTO ENGLISH:

1. Капуста, морква, буряки, огірки, помідори, перець, цибуля, а також різні приправи такі як петрушка, щавель і кріп належать до овочів. 2. Шар ґрунту повинен зберігати вологу і поживні речовини. 3. Органічні і мінеральні добрива потрібно вносити перед основним обробітком ґрунту. 4. Поживна суміш складається з торфу і гною. 5. Насіння овочів висівається в теплицях. 6. Чорнозем є найкращим ґрунтом для овочів. 7. Після збирання помідори, огірки і капусту можна маринувати. 8. Морква і буряки належать до коренеплодів. 9. Приправи — дуже корисні для маринування. 10. Цибулю і часник збирають в серпні. 11. Салат належить до однорічних рослин.

LESSON 23

FEED PRODUCTION

I. VOCABULARY

annual — однорічний
bud — бутон
budding period — час бутонізації
cereals — тонконогові
clover — конюшина
covering — покрив
efficiency — ефективність
feed production — кормовиробництво
grass flour — трав'яне борошно
grass mixture — трав'яна суміш
hay — сіно
haymaking — сінокіс
legume crops — бобові культури
pasture — пасовище
peat deposit — торфовище
perennial — багаторічний
polymowing — багатоукісний
range of grasses — сівозміна
stem — пагон
to influence — впливати
to mow — косити
utilization — використання

II. TEXT

FEED PRODUCTION

Feed production is a decisive branch of the cattle-farming. It supplies feeds. Different perennial and annual grasses are cultivated in the fields and pastures. The grass quantity depends upon the soil. It also depends upon the climatic conditions. The top and bottom cereals are included into the grass mixtures. The grass mixtures have a lot of shortened vegetation stems. The cereals with long vegetation stems are included into haymaking grass mixtures. The majority of their leaves is located in the middle and top parts of the grass bush. For the polymowing utilization, for the hay and grass flour production it's necessary to combine the cereals with shortened and long stems. The grass mixtures in the fields and pastures consist of different perennial grasses and clover. In order to increase the cattle productivity it's necessary to sow the legumes. The range of plants consists of the legume and cereal grasses. The common norm yield is about 35 kg/ha. The large quantity of the nitrogen fertilizers is applied at the long-flooded pastures. The grass mixtures of the cereal components are sown in spring with the covering of the annual crops. In summer the pasture grasses are sown without any covering after early crops.

At the former peat deposits grasses must be sown in summer without any covering. The legume grasses and their mixtures with cereals must be sown in June. Fertilizing is the most effective means on very humid pastures. The pasture grasses mown many times need a large quantity of nutrient substances. The hay yield of 50 c\ha needs approximately 75 kg of nitrogen and potassium and 20 kg of phosphorous and calcium. The highest hay yields are harvested with a large amount of nitrogen and phosphorous fertilizers. The phosphorous fertilizers are characterized by a prolonged yield increase.

The efficiency of the potassium fertilizers is the highest at the former peat deposits and long-flooded pastures. The nitrogen and potassium fertilizers are applied early in spring. It is also necessary to apply organical fertilizers mostly manure.

Fields and pastures supply hay and grass flour. The best term for haymaking is the budding period. At this period grasses start blossoming. The mowing terms greatly influence on their growth. The height of mowing influences on the hay quality. The maximum length of the mown grasses is up to 5 cm.

III. ANSWER THE FOLLOWING QUESTION ON THE TEXT:

1.What grasses are cultivated in the fields and pastures? 2. What does the content of grasses depend upon? 3. What grasses are included into the range of plants? 4. What is it necessary to do to produce hay and grass flour? 5. What mineral fertilizers are applied? 6. When are the grasses sown at the former peat deposits? 7. When are the grasses mown? 8. What is the efficiency of nitrogen fertilizing? 9. What is the efficiency of phosphorous fertilizing? 10. What is the best term for haymaking?

GRAMMAR

THE SUBJUNCTIVE MOOD

IV. TRANSLATE INTO UKRAINIAN:

1. If the fertilizer had been applied in time, the yield would have been higher. 2. If the efficiency of the potassium fertilizers were higher, the tractor would mow more grass for the hay production. 3. If

the cereals had been sown in spring, the yield would have been higher. 4. If the range of grasses consisted of legumes and cereals, the yield would be more then 35 kg/ha.

V. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. The farmers … perennial and annual grasses. 2. The cereals … grasses for haymaking. 3. The range of grasses … the legume and cereal grasses. 4. The farmers … a lot of nitrogen fertilizers. 5. We … grasses at the former peat deposits. 6. The fields and pastures … hay and grass flour.

to supply, to cultivate, to consist of, to include, to sow, to apply

VI. FILL IN THE BLANKS WITH THE NECESSARY WORDS IN BRACKETS:

1. The content of grasses … the keeping ways and terms (depend upon, depends upon). 2. The range of plants … the legume and cereal grasses (consists of, consist of). 3. The hay yield of 50 c\ha… approximately 75 kg of nitrogen and potassium (need, needs). 4. The fields and pastures … hay and grass flour (supplies, supply). 5. The height of the mown grass … the hay quality (influence, influences).

VII. READ, TRANSLATE AND EXPLAIN THE UNDERLINED WORDS:

The raw material auger must ensure the permanent functioning of the *drying units*. It's possible to dry hay of the *high quality*. It is characterized by a *quick ripening*. It's also necessary to take into account the soil and climatic conditions of the area. For example, such augers must be built at the former *peat deposits*.

VIII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

stand of grasses — травостій; enclosure — загін

b) TRANSLATE THE FOLLOWING SENTENCES:

It's necessary to keep pastures on the fertile soils near the cattle farms and water springs. The basis of the cattle keeping is the enclo-

sure system. It ensures the increase of the pasture productivity up to 35%. The stand of grasses increases the feed quality.

IX. TRANSLATE INTO UKRAINIAN:

In order to save the stand of grasses it's necessary to keep the pastures from the cattle grazing. In spring the farmers start grazing the cattle when the cereal bushes begin to form. The cattle feed about 90% of the stand of grasses before the blossoms appear. It decreases the grass quality. The protein quantity decreases. It influences on the cattle productivity.

X. TRANSLATE INTO ENGLISH:

1. Кормовиробництво є важливою галуззю тваринництва. 2. Урожайність травостою залежить від ґрунтово-кліматичних умов. 3. Трав'яні суміші на полях і пасовищах складаються із багаторічних трав і конюшини. 4. На заливних землях вноситься велика кількість азотних добрив. 5. Тут сіють трав'яні суміші, які складаються із злакових компонентів. 6. Потрібно сіяти бобово-злакові суміші у червні. 7. Внесення добрив є надзвичайно ефективним засобом на дуже зволожених пасовищах. 8. Фосфорні добрива забезпечують тривалу врожайність. 9. Ефективність калійних добрив є найвищою на торфовищах. 10.На полях і сіножатях вирощують сіно.

LESSON 24

PLANT PROTECTION

I. VOCABULARY:

acaricides — акарициди
fertilizing tube — тукопровід
fungicides — фунгіциди
herbicides — гербіциди
infectious — інфекційний
mite — кліщ
pesticides — пестициди
rodent — гризун
rodenticides — родентициди
spot — пляма
tissue — тканина
to be atrophied — відмирати
to decay — гнити
to disperse — розсівати
to fade — в'янути
to meet sanitary requirements — відповідати санітарним вимогам
to rot on the stalk — гнити на корені
to spray — оприскувати
to swell — пухнути
uninfectious — неінфекційний

II. TEXT

PLANT PROTECTION

The plant deseases may have different features. The plants may fade, decay or even rot on the stalk. Some parts of the plant may be atrophied. Some spots may appear on the stem and leaves. Some plant tissues may increase too much. Some tissues may swell. The plants may change their colouring.

All the plant deseases are divided into uninfectious and infectious ones. Uninfectious deseases may be caused by unfavourable climatic conditions, mechanical damages or nutrition damages. Infectious deseases may appear because of some fungi, bacteria and other microorganisms. They may cause different deseases: the plant cancer, decay, etc.

The modern complex system of the plant protection is a combination of agrotechnical, chemical and biological methods. The agrotechnical method gives a possibility to keep soils and crops in a proper state. It ensures the maximum conditions for high yields. It's necessary to keep to a proper range of plants, to a proper soil tillage, to the watering and selection.

The biological method is based on the use of the natural enemies of the dangerous species. The biological industry produces cells of bacteria and fungi. These cells are used to protect plants from different pests.

The chemical method is based on a proper use of pesticides, the chemical protection means. The pesticides preparations are divided into several groups:

1. Insecticides are used to protect plants from pests.
2. Acaricides are used to protect plants from mites.
3. Fungicides are used to protect plants from fungi.
4. Rodenticides are used to protect plants from rodents: rats and mice.
5. Herbicides are used to protect plants from weeds.

Each year the chemical industry produces a lot of different pesticides. But their utilization is possible if they meet sanitary requirements. The principal way of the pesticides usage is spraying and dispersing. Insecticides, acaricides and herbicides are sprayed on the soil, leaves and stems of the plants. The granule pesticides are used to protect maize and sugar-beets from pests. Sometimes the granule pesticides destroy weeds. The pesticides are applied by a fertilizing tube of the sowing machines.

III. ANSWER THE FOLLOWING QUESTIONS:

1. What are the features of the plant deseases? 2. What groups are the plant deseases divided into? 3. What causes the uninfectious deseases? 4. How may the infectious deseases appear? 5. What methods are included into the modern complex system of the plant protection? 6. What is the role of the agrotechnical method?

7. What is the basis of the biological method? 8. What is the basis of the chemical method? 9. How many groups of the pesticide preparations do you know? 10. How are the pesticides applied?

REVIEW

GRAMMAR EXERCISES

IV. PUT THE INFINITIVES IN BRACKETS IN PRESENT INDEFINITE AND PAST INDEFINITE ACTIVE VOICE:

1. Each year the chemical industry (to produce) a lot of different pesticides. 2. Last year we (to harvest) a high yield of grain crops. 3. In spring the farmers (to apply) organical and mineral fertilizers. 4. Last spring they (to plant) a lot of seedlings of the aromatic hops

variety. 5. At the vegetation period each female of colorado beetles (to lay) about 3000 ova.

V. TRANSLATE INTO UKRAINIAN:

1. Because of the deseases the plants may even rot on the stalk. 2. We must keep to a proper range of plants. 3. The bee-keepers have to use different acaricides to protect bees from mites. 4. The prehistoric man could use the most primitive labour implements. 5. Some plant tissues could swell.

VI. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1. Infectious deseases … because of fungi, bacteria and other microorganisms. 2. Because of the deseases the plants … their colouring. 3. The agrotechnical method … the maximum conditions for high yields. 4. Rodenticides … plants from rodents. 5. The modern complex system … agrotechnical, chemical and biological methods of the plant protection.

to *combine, to change, to ensure, to protect, to appear*

VII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

pollution — забруднення
processing — обробка
to evaporate — випаровуватись
working liquid — робоча рідина

b) TRANSLATE INTO UKRAINIAN:

An important task of the plant protection is to ensure the agricultural enterprises with highly effective preparations. They must protect plants from pests, bacteria, fungi and rodents. It's also very important to avoid from the pollution with pesticides. Small areas must be sprayed. It's necessary to use a little quantity of the working liquid. When spraying it shouldn't evaporate. The preparations shouldn't be dissolved in water. They must be dissolved in the ammonia saltpetre solution.

VIII. TRANSLATE INTO UKRAINIAN:

It's necessary to keep to the safety engineering norms when working with pesticides. The workers must put on special clothes,

shoes and gloves. Drops of pesticides may poison agricultural animals, bees, other useful insects and fish in the ponds and rivers. It's necessary to keep to the norms of the pesticide spraying and dispersing. The pesticides must be stored according to the demands of the safety engineering.

IX. READ AND EXPLAIN THE MEANING OF THE UNDERLINED WORDS:

All the workers working with pesticides should wear special clothes, shoes and protection glasses. The pesticides should not penetrate into the *breathing organs*. The breathing organs are protected with *respirators*. After the work with pesticides it's necessary *to rinse* the face and hands.

X. TRANSLATE INTO ENGLISH:

1. Рослини можуть в'янути, гнити або навіть гнити на корені. 2. Деякі частини рослин можуть відмирати. 3. Всі хвороби рослин діляться на інфекційні і неінфекційні. 4. Інфекційні хвороби можуть виникати із-за грибків, бактерій та інших мікроорганізмів. 5. Тканини рослин можуть змінювати своє забарвлення. 6. Сучасна комплексна система захисту рослин є поєднанням агротехнічних, хімічних і біологічних методів. 7. Агротехнічний метод забезпечує максимальні умови для високих врожаїв. 8. Біологічний метод базується на використанні природних компонентів проти небезпечних грибків, бактерій та інших мікроорганізмів. 9. Хімічний метод передбачає використання пестицидів та інших засобів захисту рослин (інтегрована система захисту). 10. Пестициди застосовують методом інкрустації насіння.

LESSON 25

AGRONOMIST — OUR FUTURE PROFESSION

I. VOCABULARY

crop area — посівна площа
crop-growing agriculture — землеробство
crops approvement — апробація посівів
economic efficiency — економічна ефективність
field work — польові роботи
pure — чистий
reproduction — відтворення
scientific research institute — науково-дослідний інститут
seed farming насінництво
soil tillage — обробіток ґрунту
to compile — складати
to rejuvenate — омолоджувати

II. TEXT

OUR FUTURE PROFESSION

When the student of the agronomist faculty graduates from the agricultural university, he'll work as an agronomist. The agronomist with the higher education and with an educational bachelor level can work at any agricultural enterprise. He can deal with the seed farming, plant protection, feed production, hops and flax production, etc. Besides the agronomist can work at the scientific research institutes and at the educational establishments.

The agronomist must solve the chief problem of agriculture. It contains the reproduction of the soil fertility and the soil protection. The chief problem of agriculture also includes high yields of the ecologically pure production. It means a new system of the plant production in the certain climatic and economic conditions. The bachelor must organize the crop-growing agriculture. It should be based on the complex mechanization with the use of the scientific and technological achievements. Besides the agronomist must consult the farmers. The agronomist-bachelor must know the principal directions of the scientific and technological progress in agronomy. He should correctly plan the range of plants and the soil tillage. The bachelor must know the biological peculiarities of the agricultural crops and their varieties. He must know the main norms of fertilizing. The agronomist must have a good command of the agricultural economy, management and marketing. The future spe-

cialist should be able to use the crop area in a proper way. The agronomist must correctly use fertilizers. The future specialist should compile the cultivation schemes. The bachelor has to rejuvenate the varieties of different agricultural crops. It's also necessary to approve crops. The field work efficiency must be controlled. The bachelor must use new scientific achievements in the everyday activity. The agronomist must determine the economic efficiency of the agricultural production.

III. ANSWER THE FOLLOWING QUESTIONS ON THE TEXT:

1.What can the bachelor deal with? 2. Where can the agronomist work? 3. What does the chief problem of agriculture contain? 4. What should the crop-growing agriculture be based on? 5. What must the agronomist know?

REVIEW

GRAMMAR EXERCISES

IV. TRANSLATE INTO UKRAINIAN PAYING ATTENTION TO THE CORRECT TRANSLATION OF THE MODAL VERBS AND THEIR EQUIVALENTS:

1. The agronomist can work at any agricultural enterprise. 2. The future specialist must solve difficult problems. 3. The crop-growing agriculture has to be organized. 4. The bachelor should compile the ranges of plants.

V. FILL IN THE BLANKS WITH THE NECESSARY VERBS:

1.The agronomist … the chief problem of agriculture. 2. The bachelor … the crop-growing agriculture. 3. The future specialist … the main norms of fertilizing. 4. The agronomist …new scientific achievements in the everyday activity.

to use, to organize, to know, to solve

VI. CHARACTERIZE THE PECULIARITIES OF THE GRADUATE'S CAREER IN THE USA:

Work is a very important part of the American identity. The only thing that is more important to Americans than work is money. How

to make money is an activity that is shown to children even at a very early age. Children are legally able to work at age 16. Since teenagers have not finished their education, they only qualify for non-skilled positions which pay by the hour and usually only the minimum amount by the law. People employed in semi-skilled positions have usually finished a vocational or technical program at junior college or vocational school. For higher education and training people enter a university. An average university program takes four years to complete. Most people with a college degree begin their career after they graduate. College graduates make the distinction of starting a «career» and not having a «job». A career position is paid on a salary (yearly) rate and always offers benifits.

VII. GIVE SYNONYMS TO THE WORDS IN BOLD TYPE:

1. All kinds of agricultural **tools** are produced by our plant. 2. The production manufactured by this plant got an **excellent** mark. 3. The **article** about our textile **mills** and chemical **factories** was very important. 4. The **agreement** concluded by them is useful for both **sides.** 5. The **contract** signed last year was **soon broken.**

VIII. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

appeal — заява
market — ринок
persuasive — переконливий

b) TRANSLATE THE FOLLOWING SENTENCES:

To introduce a product, you study it to find its superior qualities and uses. You next study your market to find who are your prospective buyers, where they live, what their buying habits are, what features and qualities they are looking for and what appeals will be the strongest.

You follow the same process in finding a job. You study yourself to discover your personal qualities. You get ready to put into persuasive words a description of your training, your skill, your knowledge and your ability. You study the services you can offer in order to be able to present them effectively.

IX. a) REMEMBER THE FOLLOWING WORDS AND WORD-COMBINATIONS:

business enterprise — комерційне підприємство
employment — зайнятість
joint stock company — акціонерна компанія
sole proprietor — одноосібний власник

b) TRANSLATE THE FOLLOWING SENTENCES:

The sole proprietor is the simplest and the oldest form of business enterprises and often referred to as the one-person business. A single person provides the capital, takes the decisions and assumes the risks. He or she is solely responsible for the success or failure of the business and has, therefore, the sole rights to such profits as may be made, or, alternatively, bears the sole responsibility for such losses. The one-person business is still far more numerous than any other types of business organization, but in terms of total output employment, value of capital employed, or value of total output, it is relatively unimportant compared with the joint stock company.

X. TRANSLATE INTO ENGLISH:

1. Агроном з вищою освітою і кваліфікаційним рівнем бакалавра може працювати в будь-якому сільськогосподарському підприємстві. 2. Він може займатись насінництвом, захистом рослин і кормовиробництвом. 3. Агроном повинен вирішувати багато важливих проблем. 4. Основна проблема сільського господарства також включає вирощування високих врожаїв екологічно чистої продукції. 5. Землеробство повинно опиратись на комплексну механізацію з використанням науково-технічних досягнень. 6. Агроном повинен знати біологічні особливості сільськогосподарських культур. 7. Агроном повинен визначати економічну ефективність сільськогосподарського виробництва. 8. Більшість людей в США починають свою кар'єру після того, як вони закінчили коледж. 9. Ви готуєтесь з допомогою переконливих слів описати свої знання і професійні здібності. 10. Одноосібне підприємство є найстарішою формою приватного підприємництва.

ГРАМАТИЧНИЙ КОМЕНТАР

LESSON 1

THE ARTICLE.
THE INDEFINITE AND DEFINITE ARTICLE

Артикль — це службове слово, яке використовується для визначення того, до якої категорії належить іменник. В сучасній англійській мові використовуються два артиклі: неозначений артикль a (an) і означений артикль the.

Неозначений артикль має форми a або an і використовується з іменником в однині. Форма a використовується перед іменниками, які починаються з приголосного звука: a spade, a rake, a fork, a harrow, a plant.

Означений артикль використовується перед іменником, щоб вказати, що об'єкт, який відтворено у думці мовця, належить до категорії іменників і є певним об'єктом, який відрізняється від усіх інших об'єктів. Цей об'єкт належить до певної категорії об'єктів. Означений артикль може вживатися перед іменником в множині і в однині. Вживання означеного артикля свідчить про те, що із ситуації зрозуміло, про який саме предмет йде мова: the grain crops, the cereals, the cultivation, the organical fertilizers.

Відсутність артикля. В деяких випадках іменник не асоціюється ні з неозначеним, ні з означеним артиклем. Артикль опускається тоді, коли мова йде про іменники, які вживаються в загальному значенні: friendship, hatred, love; перед назвами продуктів: bread, milk, sugar: перед назвами речовин і рідин: oil, gas, water, acid.

LESSON 2

NOUNS. THE PLURAL OF NOUNS

Іменники в англійській мові поділяються на дві категорії: злічувані і незлічувані. Злічувані іменники означають предмети, які можна полічити: a harrow, a rake, a plough. Незлічувані іменники — це назви речовин і багатьох абстрактних понять: milk, colos-

trum, whey, hatred. Злічувані іменники вживаються в однині і в множині. Незлічувані іменники множини не мають.

Більшість іменників в англійській мові утворюють множину додаванням до форми однини закінчення -(-e)s. Це закінчення вимовляється як [s] після глухих приголосних: tasks: і як [iz] в словах: grasses, bushes, watches: [z] — після голосних і дзвінких приголосних: pauses, badges.

У деяких іменниках, що в однині закінчуються на -f або -fe у множині [f] змінюється на [v] з додаванням закінчення -(-e)s буквосполучення –ves вимовляється як [vz]:

a calf — calves, a leaf — leaves.

Множина деяких іменників утворюється зміною кореневого голосного (без додавання закінчення –s):

a man — чоловік — men a woman — жінка — women
a foot — нога — feet a goose — гуска — geese
a mouse — миша — mice

Множина іменника sheep — вівця утворюється без додавання закінчення –s. Множина іменника ox — бик утворюється з допомогою закінчення –en: oxen.

Деякі іменники мають форму множини від мов (латинська, грецька), від яких вони запозичені:

bacterium — bacteria ovum — ova
caecum — caeca larva — larvae
nucleus — nuclei

LESSON 3

DEGREES OF COMPARISON OF ADJECTIVES

Прикметники в англійській мові не змінюються ні за числами, ні за родами, ні за відмінками:

big — великий, велика, велике.

Вони змінюються лише за ступенями порівняння. якісні прикметники в англійській мові мають основну форму (the positive degree), вищий ступінь (the comparative degree) і найвищий ступінь порівняння (the superlative degree).

Форми вищого й найвищого ступенів порівняння прикметників можуть бути простими і складними.

Прості форми ступенів порівняння утворюються додаванням до основної форми прикметника закінчення -er у вищому і -est у найвищому ступені порівняння: short — shorter — the shortest.

Складні форми ступенів порівняння утворюються додаванням до основної форми прикметника слова more-більш у вищому ступені і most-найбільше у найвищому:

complex — more complex — the most complex

складний — складніший — найскладніший

Ступені порівняння прикметників good — добрий, хороший і bad — поганий утворилися від інших коренів:

good — better — best bad — worse — the worst

Прикметники old- старий та far далекий мають дві форми вищого і найвищого ступенів порівняння:

old — older, elder — oldest, eldest

far — farther, farther — farthest

Форми elder і eldest вживаються, коли йдеться про членів однієї сім'ї, але при порівнянні вживається форма older.

Обидві форми farther і further вживають, коли говорять про відстань, крім того, має ще значення дальший, наступний.

LESSON 4

THE PRESENT INDEFINITE TENSE

Present Indefinite (теперішній неозначений час) — це часова форма, що вживається для вираження дії, яка відбувається в теперішньому часі, і яка є постійною дією, носить постійний характер.

Стверджувальна форма дієслова в Present Indefinite в усіх особах однини і множини, крім третьої особи однини збігається з інфінітивом неозначеної форми дієслова без частки to:

The mature cows bear calves.

Дорослі корови народжують телят.

У третій особі однини в Present Indefinite до інфінітива (без частки to) додається закінчення –s або -es:

The cows belong to the class of ruminants.

Корова належить до родини жуйних

Питальна форма Present Indefinite утворюється з допоміжного дієслова to do в Present Indefinite та інфінітива основного дієслова без частки to. Допоміжне дієслово do, does ставиться перед підметом:

Do the cows consume much water? (Чи споживають корови багато води?)

Does the lactation period last for about ten months? (Чи триває період лактації приблизно десять місяців?)

Заперечна форма Present Indefinite утворюється за допомогою допоміжного дієслова без частки to:

A lot of people do not like colostrum. (Багато людей не люблять молозива)

LESSON 5

THE PAST INDEFINITE TENSE

Past Indefinite минулий неозначений час — це часова форма дієслова, яка виражає дію, що відбулася в минулому.

Past Indefinite стандартних дієслів утворюються додаванням до інфінітива без частки to закінчення -ed:

to furnish — furnished
to farrow — farrowed
to milk — milked

Дієслова в Past Indefinite не змінюються за особами й числами і мають однакову форму в усіх особах однини і множини:

I worked They worked
It worked We worked
He worked You worked
She worked

Past Indefinite нестандартних дієслів утворюються по-різному, здебільшого чергуванням голосних та приголосних кореня:

to send — посилати — sent

Past Indefinite деяких нестандартних дієслів збігаються з формою інфінитива без частки to:

to put — класти — put to shut — закривати — shut

Форми Past Indefinite дієслів *to go* і *to be* утворилися від інших коренів:

to go — went
to be — was/were

Формою Past Indefinite є друга форма дієслова в таблиці нестандартних дієслів.

Питальна форма Past Indefinite стандартних і нестандартних дієслів утворюється за допомогою дієслова to do в Past Indefinite (did) та інфінитива основного дієслова без частки to:

Did the tankage of buttermilk produce excelent results? (Чи виробила пахта чудові результати?).

Заперечна форма Past Indefinite утворюється за допомогою дієслова to do в Past Indefinite, заперечної частки not та інфінітива основного дієслова без частки to:

The sow didn't farrow in time. (Свиноматка невчасно опоросилась).

LESSON 6

THE FUTURE INDEFINITE TENSE

Future Indefinite (майбутній неозначений час) — це часова форма, що виражає дію, яка відбуватиметься в майбутньому.

Future Indefinite утворюється з допоміжних дієслів shall і will та інфінитива основного дієслова без частки to.

Допоміжне дієслово shall вживається в першій особі однини і множини, will у другій і третій особах:

I (we) shall work at the poultry farm. (Я \ми працюватимемо на птахофермі).

В усному мовленні замість shall і will як правило вживається скорочена форма '**ll**, яка на письмі приєднується до підмета:

I'll work at the poultry farm. (Я працюватиму на птахофермі).

У питальній формі допоміжне дієслово ставиться перед підметом:

Will the shortage of vitamin A cauze the egg production? (Чи позначається нестача вітаміну А на виробництві яєць?).

У заперечній формі після допоміжного дієслова вживаються частка not:

The cereals will not damage the growth of pullets. (концентровані корми, виготовлені із зернових культур не зашкодять росту молодих індичок)

В усному мовленні переважно вживаються скорочені форми shan't та won't:

We shan't work at the pig farm (Ми не будемо працювати на свинофермі.)

Enough quantity of the vitamin A won't cause decreased egg production (Достатня кількість вітаміну А не призведе до скорочення виробництва яєць).

LESSON 7

THE PASSIVE VOICE OF THE INDEFINITE TENSES

В англійській мові дієслова вживаються в активному стані (The Active Voice) та пассивному стані (The Passive Voice).

Усі часові форми пасивного стану в англійській мові утворюються з відповідних часів допоміжного дієслова to be та дієприкметника минулого часу основного дієслова.

Present (Past, Future) Indefinite Passive утворюється з допоміжного дієслова to be в Present (Past, Future) Indefinite та дієприкметника минулого часу (Past Participle) основного дієслова.

Present Indefinite Passive
I am examined.
We (you, they) are examined.
He (she), is examined It is cultivated
Past Indefinite Passive.
We (you, they) were examined.
I (he, she) was examined
It was cultivated.
Future Indefinite Passive (she, you, they) will be examined.
It will be cultivated.
I (we) shall be examined

LESSON 8

THE PRESENT PERFECT TENSE

Present Perfect утворюється за допомогою дієслова to have в Present Indefinite та дієприкметника минулого часу основного дієслова.

Past Participle стандартних дієслів утворюється додаванням до інфінитива закінчення -ed, тобто за формою Past Participle стандартних дієслів не відрізняється від Past Indefinite. Past Participle нестандартних дієслів треба запам'ятати.

В усному мовленні вживаються переважно скорочені форми:
I've grown
He's grown
У питальній формі допоміжне дієслово ставиться перед підметом:

Have the farmers finished the soil cultivation by this time? (Чи закінчили фермери обробіток ґрунту до цього часу?)

У заперечній формі після допоміжного дієслова вживається частка not:

By this time the farmers have not finished the soil cultivation. (До цього часу фермери не закінчили обробку ґрунту).

Скорочена заперечна форма часто вживана в усному мовленні, має два варіанти:

I haven't — I've not

He hasn't — He has not.

Present Perfect вживається для вираження дії, яка відбувалась до моменту мовлення, і той, хто говорить, має на увазі результат цієї минулої дії, її важливість на момент мовлення.

Present Perfect вживається також у реченнях з обставинами часу, що означають період часу, який почався в минулому і триває до моменту мовлення: up to now до цього часу, lately нещодавно, за останній час, recently останнім часом, тільки що, so far до цього часу, since від тоді, not yet ще ні:

The tractor hydraulic system has recently provided the power turning the plough. (Гідравлічна система трактора тільки-що забезпечила потужність для підняття плуга).

LESSON 10

FUNCTIONS OF THE INFINITIVE

Інфінітив — це неособова форма дієслова, яка тільки називає дію і відповідає на питання що робити? що зробити?

В англійській мові інфінітив має одну просту і 5 складних форм. Інфінітив перехідних дієслів має форми часу і стану, а неперехідних — тільки часу:

Форми інфінітива	Active	Passive
Indefinite	to sow, to fertilize	to be fertilized
Continuous	to be sowing, to be fertilized	
Perfect	to have fertilized	to have been fertilized
Perfect Continuous	to have been fertilized	

Ознакою інфінітива в англійській мові є частка to, але в багатьох випадках інфінітив вживається без неї.

Частка not перед інфінітивом вказує на заперечну форму.

Інфінітив в формі Indefinite вживається:

1. Якщо дія, яку він виражає, одночасна з дією, вираженою дієсловом-присудком речення:

It's very important to reduce the speed of the crop in the rear beater (Дуже важливо зменшити швидкість проходження врожаю зерна у задньому бітері).

2. З дієсловами, що виражають намір, надію, бажання, Indefinite Infinitive означає дію, майбутню відносно дії, вираженої дієсловом-присудком:

I want to reduce the engine wear. (Я хочу зменшити зношування двигуна).

3. З модальними дієсловами Indefinite Infinitive часто виражає майбутню дію:

The gasoline engines must have a carburettor. (Бензинові двигуни повинні мати карбюратор.)

4. Continuous Infinitive виражає тривалу дію, що відбувається одночасно з дією, вираженною дієсловом-присудком:

It was pleasant to be briving a combine-harvester again. (Приємно було знову вести комбайн).

5. Perfect Infinitive виражає дію, що передує дії, вираженій дієсловом присудком:

I am very sorry the oil filters to have been damaged. (Мені дуже шкода, що зіпсовано масляні фільтри).

Perfect Continuous Infinitive виражає тривалу дію, що відбувалася протягом певного часу перед дією, вираженою дієсловом-присудком:

He must have been cutting the crop. (Очевидно, він косив зернові культури).

LESSON 11

MODAL VERBS

В англійській мові є група дієслів (can, may, must, ought, shall, will, would, need, dare), які називаються модальними.

Модальні дієслова не вживаються самостійно, а лише в сполученні з іншим дієсловом, а саме з його інфінітивом:

It must be done in time. (Це потрібно зробити вчасно).

Tubers can be planted. (Коренеплоди можна висаджувати).

Модальні дієслова не виражають дію або стан, а лише можливість, необхідність, бажаність, ймовірність, сумнів, дозвіл, заборону, здатність виконання дії, позначеної інфінітивом.

Після модальних дієслів інфінітив вживається без частки to. Виняток становлять дієслова ought, dare, need, після яких інфінітив може вживатися з часткою to.

Дієслово can виражає фізичну або розумову здатність, уміння або можливість виконати дію:

In April we can sow feed crops. (У квітні ми можемо посіяти кормові культури).

Дієслово may найчастіше виражає дозвіл, припущення з відтінком сумніву, невпевненість:

Now one may fertilize the soil. (Зараз можна удобрити ґрунт).

Дієслово must має лише одну часову форму. Дія виражена інфінітивом у сполученні з must може стосуватися теперішнього та майбутнього часу. Дієслово must виражає обов'язок, необхідність:

The range of plants must be changed regularly. (Сівозміна повинна витримуватися регулярно).

LESSON 12

THE SUBJECTIVE INFINITIVE COMPLEX

До складу цього комплексу входить підмет, який передається іменником або займенником і присудок, який складається з дієслова в пасивному стані. Через те, що до складу комплексу входить інфінітив, а весь комплекс виконує роль підмета у реченні, він називається суб'єктним інфінітивним комплексом:

The composted fertilizer is considered to be a loose organical substance (Вважають, що компост — це органічна речовина.)

Отже, суб'єктний інфінітивний комплекс складається з двох частин. Перша частина — іменник у загальному відмінку або особовий займенник у називному відмінку. Друга частина комплексу — інфінітив, що виражає дію, яку виконує або якої зазнає особа чи предмет, позначений іменником або займенником.

Суб'єктний інфінітивний комплекс вживається з дієсловами to say — говорити, to believe — вірити, to consider — вважати, to

report — повідомляти, to suppose — припускати, to think думати та ін.:

Ashes and lime are supposed to be the local fertilizers. (Припустимо, що попіл і вапно є місцевим добривом.)

LESSON 13

ADVERBIAL CLAUSES OF CONDITION

Підрядні умовні речення (adverbial clauses of condition) найчастіше з'єднуються з головним реченням за допомогою сполучників if, whether якщо, якби, чи:

We don't know whether sandy soils are good for flax. (Ми не знаємо, чи піщані ґрунти є добрими для льону.)

Умовні речення в англійській мові поділяються на речення реальної умови (sentences of real condition) і речення нереальної умови (sentences of unreal condition).

Речення реальної умови перекладаються на українську мову умовними реченнями з дієсловом-присудком у дійсному способі; підрядні речення в них виражають реальні, здійснені припущення:

If we sow grain crops on the fertile soils, the harvest will be very good. (Якщо ми посіємо зернові культури на родючих ґрунтах, врожай буде дуже добрим.)

У реченнях нереальної умови присудок підрядного речення виражає дію, що суперечить дійсності, малоймовірну або й зовсім нездійсненну. На українську мову речення нереальної умови перекладається умовними реченнями з дієсловом в умовному способі:

If the grain crops had been yielded in time, the harvest might have been rather sufficient. (Якби зернові культури були зібрані вчасно, врожай був би досить значним).

LESSON 14

THE PRESENT PERFECT CONTINUOUS TENSE

Present Perfect Continuous виражає дію, що тривала протягом певного часу до моменту мовлення або все ще продовжується в цей момент, або щойно закінчилась.

Present Perfect Continuous утворюється за допомогою допоміжного дієслова to be, в Present Perfect Continuous та дієприкметника теперішнього часу основного дієслова:

I have been breeding; He\She has been breeding; We\you have been breeding.

Present Perfect Continuous може вживатися із вказівкою на тривалість дії:

The scientists have been breeding new sugar beet varieties for a long time (На протязі довгого часу вчені виводять нові сорти цукрових буряків).

Present Perfect Continuous може вживатися і без вказівки на тривалість дії:

Plant-breeders have been breeding new varieties of agricultural plants. (Селекціонери виводять нові сорти сільськогосподарських рослин).

LESSON 15

THE PRESENT INDEFINITE TENSE IN THE PASSIVE VOICE

Особа або предмет що виконує дію, називається суб'єктом дії. Так у реченні The tractor pulls a truck. (Трактор тягне причіп) the tractor — суб'єкт, a truck — об'єкт.

В англійській мові дієслова вживаються в активному і пасивному стані.

Якщо підметом речення є суб'єкт дії, то дієслово-присудок вживається в активному стані:

We use headers for the windrow harvesting. (Ми використовуємо жатки для роздільного збирання).

Якщо підметом речення є об'єкт дії, то дієслово-присудок вживається в пасивному стані:

Headers are used for the windrow harvesting. (Жатки використовуються для роздільного збирання).

Present Indefinite Passive утворюється з допоміжного дієслова to be в Present Indefinite та дієприкметника минулого часу (Past Participle) основного дієслова:

I am examined. He/She is examined.

It (Wheat) is cultivated in our region we\you are examined.

LESSON 16

THE PAST INDEFINITE TENSE IN THE PASSIVE VOICE

Усі часові форми, в тому числі і Past Indefinite мають свою форму пасивного стану.

Past Indefinite Passive утворюється з допоміжного дієслова to be в Past Indefinite та дієприкметника минулого часу (Past Participle) основного дієслова:

I was examined. He/She was examined.

It (rye) was cultivated in our zone. We/you were examined

They (the lime doses) were determined with the help of the hydrological soil acidity

LESSON 17

THE FUTURE INDEFINITE TENSE IN THE PASSIVE VOICE

Усі часові форми, в тому числі і Future Indefinite, мають свою форму пасивного стану.

Future Indefinite Passive утворюється з допоміжних дієслів shall (will) та пасивний інфінітив основного дієслова:

I (we) shall be examined. It (protein) will be easily absorbed.

He (she, you) will be examined They (seeds) will be prepared for sowing.

LESSON 18

MODAL VERBS AND THEIR EQUIVALENTS

Модальні слова не виражають дію або стан, а лише можливість, необхідність, бажаність, імовірність дії, позначеної інфінітивом.

Модальні дієслова can, may, must, ought передають дію в теперішньому часі:

We can grow hops in the temperate climatic conditions. (Ми можемо вирощувати хміль в помірних кліматичних умовах).

Модальне дієслово could може вживатись в минулому часі:

The bitter sorts of hops could be used earlier. (Раніше могли використовуватись гіркі сорти хмелю).

Дієслова to have, to be вжиті як модальні, виражають необхідність чи обов'язок дії, зумовленої обставинами.

На відміну від інших модальних дієслів, дієслова to have, to be має форми інфінітива, дієприкметника і можуть вживатися в тих часових формах, яких не мають модальні дієслова. З цими дієсловами інфінітив основного дієслова вживається з часткою to:

Different hops varieties have to be cultivated on the black soils and other types of soils. Різні сорти хмелю треба вирощувати на чорноземах та інших придатних для вирощування цієї культури ґрунтах.

Hops seedlings are to be planted in spring or in autumn.

Саджанці хмелю необхідно висаджувати навесні або восени.

LESSON 19

THE POSSESSIVE CASE

Присвійний відмінок відповідає на питання чий? чия? чиє? чиї? Присвійний відмінок однини утворюється додаванням апострофа і закінчення -s:

the farmer's combine harvester — комбайн фермера.

У присвійному відмінку вживаються головним чином іменники, що означають назви істот. Крім назв істот у присвійному відмінку вживаються:

а) іменники, що означають час і відстань:

two year's drought — дворічна засуха;

б) назви країн, міст, а також слова country, city, town, world, river:

Ukraine's mountains and steppes — гори і степи України;

У присвійному відмінку вживаються також стійкі словосполучення:

a stone's throw — незначна відстань, to one's heart's content — досхочу.

LESSON 20

THE PARTICIPLE I

Present Participle не має певного часового значення і виражає різні часові відношення залежно від контексту і значення дієслова, від якого утворено дієприкметник.

Present Participle вживається для позначення дії, одночасної з дією, вираженою дієсловом-присудком у реченні. Залежно від часу дієслова-присудка Present Participle може відноситись до теперішнього минулого або майбутнього часу:

Increasing the norms of fertilizers we can harvest more sugar beets. (Збільшуючи норми добрив, ми можемо зібрати більше цукрових буряків.)

Present Participle може виражати дію, що відноситься, до теперішнього часу, незалежно від часу дії, вираженої дієсловом-присудком речення:

Shoots absorbing nutrient substance sprout very quickly. (Сходи, поглинаючи поживні речовини, розвиваються дуже швидко).

LESSON 21

THE GERUND

Герундій — це не особова форма дієслова, із закінченням -ing, що має властивості дієслова й іменника. Як й інфінітив, герундій називає дію.

В українській мові немає форми, яка відповідала б герундію. Герундій — єдина дієслівна форма, перед якою може вживатись прийменник. Тому герундій вживається після дієслів, прикметників і виразів, які вимагають додатка з прийменником:

Thank you for telling me — дякую, що розказали мені.

Після деяких дієслів герундій вживається без прийменника. До цієї категорії належать: to finish, to suggest, to avoid, to leave off, to give up, to go on, to keep on, to enjoy, to forgive, to post pone, to delay, to fancy, to want, to need, to require:

We need harvesting very quickly. (Нам потрібно швидко зібрати врожай).

LESSON 22

SEQUENCE OF TENSES

В українській мові дієслово-присудок підрядного додаткового речення може вживатись у будь-якому часі (теперішньому, минулому чи майбутньому) залежно від змісту. В англійській мові це можливо лише тоді коли дієслово-присудок головного речення виражає дію стосовно теперішнього або майбутнього часу:

I think that the vegetable production will provide the population with the necessary vegetables. (Я думаю, що овочівництво забезпе-

чить населення всіма необхідними овочами).

Якщо у головному реченні дієслово-присудок виражає минулу дію, а дія підрядного додаткового речення відбувається в той самий момент, що і дія головного, то в підрядному реченні вживається Past Indefinite або Past Continuous:

We knew that the nutrient substances consisted of peat and manure. (Ми знали, що в торфі та гною є поживні речовини).

Якщо в головному реченні дієслово-присудок виражає минулу дію, а дія підрядного додаткового речення відбулася раніше дії головного, то в підрядному реченні вживається Past Perfect:

The farmer told that the vegetable seeds had been already sown in the greenhouses. (Фермер сказав, що насіння овочевих культур вже посіяно в теплицях).

Якщо в головному реченні дієслово-присудок виражає минулу дію, а дія підрядного додаткового речення є майбутньою з точки зору головного, то в підрядному реченні вживається Future-in-the-Past.

LESSON 23

SUBJUNCTIVE II

Subjunctive II вживається для дії, яка відбулася б за певних умов у теперішньому, минулому або майбутньому часі, але не відбулася з якихось причин:

We should sow wheat in time but we had very little time. (Ми б посіяли пшеницю вчасно, але мали дуже мало часу).

Subjunctive II має дві часові форми: present і past.

Subjunctive II виражає дію, що за певних умов могла б відбуватися у теперішньому або майбутньому часі, але таку яка суперечить дійсності:

If the efficiency of the mineral fertilizers were higher, the tractor mowed more grass pasture for the hay production. (Якби ефективність мінеральних добрив була б вищою, трактор скосив би меншу площу трави на сіно).

Subjunctive II виражає дію, яка за певних умов могла б відбутися в минулому, але через відсутність цих умов не відбулася:

If the cereals had been sown in time, the yield would have been higher Якби злаки (тонконогові) були посіяні в оптимальні строки, то урожай отримали б значно вищим.

NON-STANDARD VERBS

Infinitive		Past Indefinite	Participle II
be	бути	was/were	been
become	стати	became	become
begin	починати	began	begun
break	ламатися	broke	broken
breed	виводити	bred	bred
bring	приносити	brought	brought
choose	вибирати	chose	chosen
cost	коштувати	cost	cost
cut	зрізати	cut	cut
do	робити	did	done
draw	тягнути	drew	drawn
drive	вести	drove	driven
fall	падати	fell	fallen
feed	годувати	fed	fed
flow	текти	flew	flown
get	одержувати	got	got
have	мати	had	had
hold	тримати	held	held
keep	зберігати	kept	kept
lay	класти	laid	laid
leave	залишити	left	left
loose	втрачати	lost	lost
make	робити	made	made
mean	означати	meant	meant
mow	косити	mowed	mown
pay	платити	paid	paid
rise	піднімати	rose	risen
rot	гнити	rotted	rotten
set	вставляти	set	set
show	показувати	showed	shown
shut	закривати	shut	shut
sow	сіяти	sowed	sown
spread	поширювати	spread	spread
strike	бити	struck	struck
take	брати	took	taken
thrive	швидко рости	throve	thriven
wear	носити	wore	worn

СПИСОК НАЙУЖИВАНІШИХ СКОРОЧЕНЬ МІР, ПЛОЩІ,ВІДСТАНІ
І ЇХ ПОВНЕ НАПИСАННЯ АНГЛІЙСЬКОЮ МОВОЮ І ПЕРЕКЛАД

kg	Kilogram	Кілограм
mg	Milligram	Міліграм
t	Ton	Тона
mm	Millimeter	Міліметр
km	Kilometer	Кілометр
m	Meter	Метр
ha	Hectare	Гектар
hp	Horsepower	Кінська сила
kw	Kilowatt	Кіловат

ТАБЛИЦЯ ПЕРЕВОДУ АНГЛО-АМЕРИКАНСЬКИХ ОДИНИЦЬ ВИМІРЮВАННЯ В МЕТРИЧНУ СИСТЕМУ

1 mile (ml) миля = 1,609 км
1 foot (ft) фут = 30,48 см
1 inch (in) дюйм = 2,54 см
1 acre (a) акр = 0,405 га
1 pound (lb) фунт = 453,59 г
1 gallon (gal) галон = 4,546 г

АНГЛО-УКРАЇНСЬКИЙ СЛОВНИК СІЛЬСЬКОГОСПОДАРСЬКИХ ТЕРМІНІВ

УМОВНІ СКОРОЧЕННЯ

a — adjective прикметник
adv. — adverb прислівник
cj. — conjunction сполучник
inf. — infinitive неозначена форма дієслова
n. — noun іменник
num. — numeral числівник
pl. — plural множина
prep. — preposition прийменник
pron. — pronoun займенник
sing. — singular однина
v. — verb дієслово

A

abdomen n. брюшна порожнина
abundance n. надлишок
achievement n. досягнення
adherent a. близький, суцільно прижатий
agriculture n. сільське господарство
agricultural a. сільськогосподарський
agronomy n. агрономія
akin a. подібний, близький, схожий
aminoacid n. амінокислота
application n. внесення, застосування
anterior a. передній
apply v. використовувати, вносити
artificially adv. штучно
attach v. прикріпити, приєднати
average n. середина
a. середній, звичайний

B

bar n. пруток, стрижень
cutter bar n. різальний апарат
barley n. ячмінь
barn n. конюшня, корівник
barrel n. бочка
bear v. переносити
bearing n. підшипник
beater n. бітер
bee-keeper n. пасічник
bee-hife (Pl. –hives) n. вулик
belly n. живіт
belt n. пас, ремінь
branch n. галузь
breathe v. дихати
breed v. виводити
breed n. порода
bone n. кістка
bulk n. основна маса, об’єм
bulky a. об’ємистий (корм)
buttermilk n. пахта

C

capable a. здатний cattle n. велика рогата худоба
cavity n. порожнина cell n. клітина
chamber n. камера chest n. грудина
charge n. заряд cheesy a. сирний
coil n. котушка combustion n. горіння
compress v. стискувати, спресовувати concentrate n. концентрат
consume v. споживати consumption n. споживання
convert v. перетворювати correspond v. відповідати
coulter n. ніж плуга, сохи crankshaft n. колінчатий вал
crampy a. страждаючий від судорог cylinder n. циліндр, барабан

D

decrease v. зменшувати define v. визначати
deposit n. відкладення digest v. переварювати
digestive a. травний drill n. сівалка, рядкова сівалка v. сіяти по стерні double helix n. подвійна спіраль
drought-resistant a. стійкий до посухи
drought n. посуха
duodenum n. дванадцятиперсна кишка
drive n. привод v. керувати, приводити в дію
four-wheel drive з приводом на чотири колеса

E

egg n. яйце
engine n. двигун
endurance n. витривалість
environment n. оточуюче середовище
engineering n. техніка, машинобудування
agricultural engineering n. механізація сільського господарства

F

fat n. жир, сало fattening n. відгодівля
feed v. годувати fibrous a. фіброзний

film n. плівка firm a. твердий
fit v. точно підняти furnish v, постачати
flesh n. сире м'ясо, м'язева тканина flock n. зграя птахів
fodder n. корм для худобиforbear n. попередник
foul-brood n. кліщ (хвороба бджіл) frame n. рама
friction n. тертя fuel n. паливо
fundic glands n. pl. фундальні залози шлунку
frog n. стійка плуга

G

gear n. шестерня, зубчата передача grain n. зерно
graze v. пасти, пастися grind v. молотити, переломувати
grip n. зчеплення, захват grow v. рости
growth n. ріст

H

harmful a. шкідливий, згубний harrowing n. боронування
hatchability n. яйценосність heat v. нагрівати n. тепло
hemp n. конопля hull n. лушпайка
hydrochloric acid n. соляна кислота

I

immunity n. імунітет implement n. знаряддя
inflammation n. запалювання intestine n. кишечник

J

jug n. банка juice n. сік

K

kilowatt (kw) n. кіловат kind n. рід, сорт, розряд, клас
knob n. кнопка, ручка

L

legume n. бобові культури lettuce n. салат
lever n. ричаг limb n. кінцівка
linear a. лінійний listless a. апатичний
live-stock n. худоба, поголів'я худоби load n. вантаж
lung n. легені

M

management n. управління soil management n. ґрунтознавство
mammal n. ссавець maturity n. зрілість
mature v. дозрівати meat n. м'ясо
mild a. м'який milk n. молоко
mite n. кліщ moist a. вогкий, вологий
muscle n. мускул

N

nitrogen n. азот nourishing a. поживний
nourishment n. споживання, їжа, харчі nutritive n. поживний

O

oats n. овес odourless a. непахучий
occur v. траплятися oil n. масло

P

palatable a. смачний, апетитний, їстівний plough n. плуг
peracardium n. (pl. –dia) білясерцева сумка protein n. білок
palatability n. смачність pump n. помпа, насос v. нагнітати
parturition n. роди posterior a. задній
piston n. поршень
plough v. орати
potassium n. калій

power n. сила, потужність, енергія
v. приводити в дію
pregnant a. вагітний
pullet n. курочка, молода індичка

Q

quality n. якість quantity n. кількість

R

rear a. задній reciprocating a. зворотно-поступальний
reduce v. скоротити require v. потребувати
requirement n. потреба residues n. pl. залишки,відходи
retart v. уповільнювати retarded a. уповільнений
rickets n. рахіт rigid a. короткий, нерухомо прикріплений
rinse v. полоскати roll n. каток, ролик v.котитися
rotate v. обертати rotation n. обертання

S

safety n. безпека safety engineering n. техніка безпеки
scuffling n. лущення share n. леміш
shell n. шкорлупа shoot n. сходи
shortage n. брак, недолік silage n. силос
skimmilk n. обрат, зняте молоко sow n. свиня, свиноматка
spark n. іскра species n. pl. вид
speed n. швидкість spring n. пружина, джерело
starch n. крохмал stiff a. негнучкий
stock n. порода, поголів'я stomach n. шлунок
stubble n. стерня straw n. солома
stroke n. такт, хід поршня power stroke n. робочий хід
sunflower n. сонячник swallow v. ковтати
swath n. смуга прокошеної трави, валок sweeper n. культиватор, розпушувач
synthesis n. синтез synthesize v. синтезувати
solution n. вирішення, розв'язання, розчин

T

tankage n. відброси боєнь, що йдуть на добрива tasty a. смачний
tenure n. володіння thorax n. грудна клітка
thrive v. швидко рости tillage n. обробіток землі
tillage crop n. просапна культура timothy hay n. тимофіївка лучна
tine n. зуб tissue n. тканина trail v. тягнути
treatment n. обробка tyre n. шина, покришка

U

unossified a. незакостенілий utilize v. використовувати

V

valuable a. цінний value n. цінність, важливість
valve n. клапан variety n. сорт

W

walker n. платформовий соломотряс
straw walker n. клавішний соломотряс wear n. зношування
wheel n. колесо windrow n. валок v. загрібати у валки
whey n. сироватка write theses v. писати дисертацію
write v. писати

Y

year n. рік yield n. врожай
last year n. минулого рокуnext year n. наступного року

Z

zink n. цинк zink oxide n. оксид цинку
zink sulphate n. сульфат цинку

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