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Содержание

Введение 4
Text 1. What is agriculture? 5
Text 2. Two branches of agriculture 6
Text 3. The practice of farming 7
Text 4. Tillage and Tillage Implements 8
Text 5. Electricity in agriculture 9
Text 6. Robots today and tomorrow 10
Text 7. Effects of mechanization on American agriculture 11
Text 8. Mechanization in livestock raising 11
Text 9. Farm machines 12
Text 10. Harvesting Machinery 13
Text 11. Losses in harvesting grain crops 14
Text 12. Cultural practices 15
Text 13. History of the plow 17
Text 14. Mechanization in crop production 17
Text 15. Equipment for planting cereals 18
Text 16. Importance of machinery and energy in agriculture 19
АНГЛО-РУССКИЙ СЛОВАРЬ ТЕРМИНОВ 21

Введение

Учебно-методическое пособие «ENGLISH FOR ENGINEERS» предназначено для студентов средних профессиональных учебных заведений, обучающихся по специальности 35.02.16 «Эксплуатация и ремонт сельскохозяйственной техники и оборудования» (ФГОС ТОП-50) и первых курсов высших учебных заведений сельскохозяйственного профиля.

Основной целью обучения студентов иностранному языку является овладение навыками практического пользования языком, это предполагает формирование умения самостоятельно читать литературу по специальности с целью извлечения информации из иноязычных источников.

В процессе обучения решаются воспитательные и общеобразовательные задачи, способствующие повышению образовательного, культурного и профессионального уровня студентов.

Данное пособие состоит из 16 текстов, предназначенных для аудиторной работы студентов, отражающих общую тематику раздела, и заданий к ним, лексический минимум по специальности представлен в виде словаря.

В течение всего курса обучения рекомендуется использовать технические средства обучения и компьютерные обучающие программы, а так же различные тексты, упражнения, видеофильмы, учебные, документальные и художественные фильмы.

Text 1. What is agriculture?

Agriculture is an important branch of economy. Economic growth of any country depends on the development of agriculture which supplies people with food and clothing and industry with raw materials. The word "agre" is a Latin word. It means the cultivation of fields in order to grow crops. Now agriculture also includes the use of land to breed farm animals.

We do not know when people began to grow crops. It was many thousand years ago. Now crop production and animal husbandry are highly developed branches of agriculture. Life is impossible without plants. They play a highly, important role in everyday life of people. Plants that ate grown by farmers are known as farm crops. They are used for many different purposes. Most of them are used directly as food for people, some are consumed by farm animals, others are used in industry and medicine. In order to increase crop yields and animal products our collective and state farms apply widely intensive technologies.

Learn the words:

agriculture – сельское хозяйство
animal – животные
apply - применять
breed – разводить
crop - культура
cultivation – обработка
develop – развивать
development – развитие
farm – ферма, хозяйство
field – поле
food – пища
grow – расти, выращивать
growth –рост
increase – увеличение
plant – растение
supply – снабжать
use – использовать
yield – урожай

1. Call equivalents following international words:

region, climate, machine, tractor, combine, bulldozer, to mechanize, tendency, tradition, traditional, industrial.

2. What questions are answered in the text:

1) Из каких отраслей состоит сельское хозяйство?
2) Когда люди начали выращивать сельскохозяйственные культуры?
3) Может ли человек жить, не выращивая культуры?
4) О каких интенсивных технологиях говорится в тексте?

3. Answer the following questions

1. Why is agriculture very important?
2. What are the two branches of agriculture?
3. What does the Latin word "agre" mean?
4. Is life possible without plants?
5. Where are farm crops used?
6. How do people increase crop yields?

Text 2. Two branches of agriculture

There are two main branches of agricultural production — crop production and animal husbandry. Crop production is the practice of growing and harvesting crops. The most important crops grown by man are grain crops, vegetables and grasses. In order to obtain high yields crops are grown under favorable soil and climatic conditions. Animal husbandry is a branch of agriculture including the breeding of farm animals and their use. Dairy and beef cattle, hogs, sheep, and poultry are widely bred throughout the world. Farm animals are highly important sources of food for man. They are kept for the production of such nutritious products as meat, milk and eggs.

Many crops grown by man are used in feeding livestock. At the same time manure produced by farm animals is an important source for the maintenance of soil fertility . Most of the nutrients taken by plants from the soil are thus returned. Applying manure, farmers improve the physical condition of the soil. Thus, crop production and animal husbandry are closely connected with each other.

Learn the words:

beef cattle - мясной скот
dairy cattle – молочный скот
egg - яйцо
favourable - благоприятный
grain - зерно
grass - трава
hog - свинья
improve - улучшать
to keep – содержать
manure - навоз
meat - мясо
milk - молоко
nutrient – питательное вещество
poultry – домашняя птица
to produce - производить
sheep – овца, овцы
soil fertility – плодородие почвы

1. Answer the following questions

1. What are the two branches of agriculture?
2. What is crop production?
3. What are the main farm crops?
4. What does animal husbandry include?
5. What products do farm animals produce?
6. What is manure used for?
7. How do farmers improve the physical condition of the soil?

2. Translate the sentences (pay attention to the words some and same):

1. Some farmers keep poultry in poultry houses in summer and in winter.
2. All grain crops take the same nutrients from the soil.
3. Some cultural practices are highly effective in controlling weeds.
4. These two farmers use the same methods in growing vegetables.

3. Find 3 adjectives and form three degrees of comparison.

Text 3. The practice of farming

The practice of farming, including the cultivation of the soil (for raising crops) and the raising of domesticated animals. The units for managing agricultural production vary from smallholdings and individually owned farms to corporate-run farms and collective farms run by entire communities or by the government.

Crops . For successful production, the land must be prepared (ploughed, cultivated, harrowed, and rolled), seed must be planted and the growing plants nurtured. This may involve fertilizers, irrigation, pest control by chemicals, and monitoring of acidity or nutrients. When the crop has grown, it must be harvested and, depending on the crop, processed in a variety of ways before it is stored or sold. Greenhouses allow cultivation of plants in cold climates. Hydroponics allows commercial cultivation of crops using nutrient-enriched water instead of soil. Special methods, such as terracing, may be adopted to allow cultivation in steep regions and to retain topsoil in mountainous areas with heavy rainfall.

Animals are raised for wool, milk, leather, dung (as fuel), or meat. They may be semidomesticated, such as reindeer, or fully domesticated but nomadic (where naturally growing or cultivated food supplies are sparse), or kept on a farm. Animal farming involves rearing, feeding, breeding, gathering the produce (eggs, milk, or wool), slaughtering, and further processing such as tanning.

Learn the words.

To include – включать

cotton and sisal –хлопок и сизаль

to plough – пахать

to harrow – боронование

to involve – включать что-л.

The fertilizers – удобрения

Irrigation – ирригация

pest control by chemicals – борьба с вредителями при помощи химических средств

pest control by chemicals – мониторинг кислотности и питательных веществ

stored or sold – храниться или продаваться

a greenhouse – теплица

Hydroponic – гидропоника

To allow – позволять что-л.

Instead – вместо

The terracing – террасирование

to retain topsoil – сохранять верхний слой почвы

domesticat – одомашнивание

nomadic – кочевой

gathering the produce – сбор продукции

slaughtering - забой

1. Make 10 questions to the text.

2. Find 10 verbs and put them in Past simple tense.

3. Complete the sentences using the words below:

1) For successful production, the land must be… .

2) … of farming, including the cultivation of the soil (for raising crops) and the raising of domesticated animals.

3) When the crop has …, it must be harvested.

4) … are raised for wool, milk, leather, dung, or meat.

5) Greenhouses allow cultivation of plants in … climates.

Cold , grown , prepared, the practice, animals.

4. Make singular from plural

Eggs, crops, animals, farms, greenhouses, climates, methods, nutrients, areas, fertilizers, ways.

Text 4. Tillage and Tillage Implements

As you know tillage is used to prepare the ground for seeding or planting, to retard weed growth and to im¬prove the physical condition of soil. Tillage includes various operations: plowing (primary tillage), harrowing (secondary tillage), deep tillage, cultivation, fertilizing, etc.

Primary tillage, or plowing, may be done by various kinds of plows, such as two-way plows, disk plows, ro¬tary plows, etc. The plows may be both tractor-mounted and tractor-drawn.

Tractor-drawn plows are attached to the tractor by an adjustable hitch which permits horizontal adjustment of the plow and prevents "nosing" of plow points. The hitch incorporates a spring release or some other device which disconnects the plow when it strikes an obstacle. In some plows each bottom is held in working position by a heavy spring which permits the bottom to raise and pass over the obstacle. Tractor-drawn plows are provided with a lifting mechanism which raises them from or lowers them to their working position. The lifting mecha¬nism may be either mechanical or hydraulic. There are also1 two levers – one for regulating the depth of plow¬ing, the other for levelling the plow. A tractor-mounted plow is a compact unit of high maneuverability which is adjusted by means of hydraulic

Controls. Due to hydraulic controls the tractor operator can quickly connect and disconnect the implements without leaving the cabin. Tractor-mounted plows, like tractor-drawn plows, have two levers — one is used for regulating the depth, the other — for levelling the plow.

Secondary tillage, or harrowing, is done to refine the ground after plowing. Depending on the physical condi¬tion of soil 2 and other factors various kinds of harrows must be used, such as, disc harrow, spike-tooth harrow, spring-tooth harrow, etc. It goes without saying3 that all types of harrows, like plows, are either tractor-mounted or tractor-drawn. There are other implements ' intended for retarding weed growth, such as row-crop cultivators, field culti¬vators, spring-tooth weeders, etc.

Notes:

1 there are also – есть также

There are other implements – существуют (есть) и другие приспособления

2 depending on the physical condition of soil – в зависимости от физического состояния почвы

3 it goes without saying – не приходится и говорить, само собой разумеется

Learn the words.

retard weed growth – замедление роста сорняков

two-way plows – двусторонние плуги

tractor-mounted and tractor-drawn – навесная и тракторная тяга

an adjustable hitch – регулируемое устройство

to prevent – предотвращать
the hitch – устройство
strikes an obstacle – удар о препятствие
a lifting mechanism – подъёмный механизм
to adjust – регулировать
a lever – рычаг
secondary tillage – вторичная обработка почвы
disc harrow – дисковая борона
spike-tooth harrow – шипованая борона
spring-tooth harrow – пружинная борона
row-crop cultivators – пропашные культиваторы

1. Answer the following questions
1) What kind of tillage do you know ?
2) What operations includes tillage?
3) What kind of plow do you know?
4) Describe a tractor-mounted plow.
5) How much levers have tractor-mounted plows?
6) What factors affect the secondary tillage?
7) What other implements do you know?

2. Find English equivalents.

Использоваться для подготовки, быстро соединить или разъединить, различные операции, регулировать глубину плуга, физическое состояние почвы, механический или гидравлический.

Text 5. Electricity in agriculture

Electricity has become highly important in our modern world. It has made our work easier and our life more comfortable. In agriculture electricity is being used in many ways. It is especially widely applied in animal buildings for lighting and for operating different machines such as barn cleaners, feed conveyers, automatic ventilators and automatic waterers. Electric energy is more economical than any other forms of energy. Electricity operated machines save time and labour, increase labour productivity and improve the quality of work.

Learn the words.

Comfortable – удобный
in many ways – для многих целей
to apply – использовать
to save - экономить
to improve – повышать

1. Answer the questions:
1) What is the role of electricity in agricultural?
2) For what purposes we use electricity?
3) Is electric energy more economical than any other forms of energy?

2. Find English equivalents.

Современный, важный, более, время, повышать, широко, освещение, сельское хозяйство, качество, различные, работа, корм, мир, автоматический.

3. Complete sentences:

1) In agriculture electricity is being used …. … ….
2) … has become highly important in our modern world.
3) … … machines save time and labour, … labour productivity and improve the quality of ...
4) Electric energy … … economical … any other forms of energy.
5) … … … our work easier and our life more comfortable.

Text 6. Robots today and tomorrow

Robots are ideal workers not only for industry but for agriculture as well. In the Soviet Union robotization is a young branch of agricultural mechanization. It is highly important because of both certain lack of working hands in the country and the necessity to eliminate hand labour, which is one of the main social and economic problems of the day. If robots were widely used in agriculture, labour productivity would be raised greatly, crop, meat and milk yields would be increased and the product quality would be improved due to more timely performing of farm operations.

Robot-type agriculture is used now in irrigation systems where people are no longer needed to apply and control water or move irrigation pipelines. Intensive work has been started on the development of various types of robots designed specially for agriculture. New robots are likely to appear for doing work on fields. Such electronic farmers will be able to till the soil, to sow seeds and to harvest crops. They will be able even to see weeds and control them. The farmer will only press the necessary buttons on the control panel and then leave the machine which will work unattended. Time is not very far when many labour-consuming operations on farms will be performed by robots.

Learn the words.

working hands – рабочие
due to – благодаря
no longer – больше не
are likely – вероятно
control panel – пульт управления
labour-consuming – трудоёмкий
to appear – появляться
lack – недостаток
robot – робот
robotization - роботизация
labour – труд

1. Answer the questions:

1. Will robotization in agriculture eliminate hand labour?
2. Where are robots used now?
3. What will robots do on fields?
4. What will farmers do to make robots work?
5. Do robots work unattended?

Text 7. Effects of mechanization on American agriculture

The dominant trend in American agriculture in the past years can be summarized in two words - increased productivity. The increased productivity is a resist of technological revolution1. The principal components of this revolution in crop and livestock production have been greater use of fertilizers, improved crop varieties, better breeding and feeding practices, better skills in management, mechanization and automation being the most important among them.

Mechanization and application of other scientific developments to farming have increased the output per farm worker. Hand labour required for farming has markedly decreased while the production per person has increased. The increase in production is greater in crop farming than in livestock breeding because crop production has been mechanized to a greater extent2 than in livestock production.

About 50 years ago 27 per cent of the total population of the country was engaged in agriculture, now the employment in this sector of the economy is about 2.5%. In 1955 labour made up 32 per cent of the cost of farming; by 1980 it only 3.1 per cent. The machinery cost in farming, on the other hand, has continued to increase. The organization of agriculture in the years to come will use less land, lees labour, fewer but better managers and much more capital, machines and various types of technology. These trends have been in progress for decades and it is unlikely3 that there will be any change from this direction.

Notes:

technological revolution – научно- техническая революция

to … extent – в… степени

it is unlikely - вряд ли, маловероятно

Learn the words.

employment – занятость

manager – управляющий

population –население

skill – мастерство, умение

trend – тенденция

Answer the following questions:

1. What is the trend in American agriculture?
2. What are the most important components of the technological revolution?
3. What has increased the output per farm worker?
4. Why is the produce increase in crop production greater than in livestock breeding?
5. What is the employment in agriculture now?
6. What will the trend of the development of agriculture be in future?

Text 8. Mechanization in livestock raising

Further increase in animal productivity is achieved both by the introduction of new machinery and by wider electrification and automation of different processes on livestock farms. Some kinds of livestock equipment are almost completely automatic, thus eliminating most of the hand labour. Many farms are using now automatic wa-

terers which provide water to livestock at all times. At the press of the button silage unloaders remove silage from the silo and drop it into the conveyer that carries the silage to the feed troughs. The feeding of grain and hay to dairy cattle has also been almost completely mechanized on some farms. On most farms manure is collected and transported automatically.

Different machines are now being used which permit a better digestion of various feeds by livestock. For instance, grain grinders, feed mixers, forage cutters increase the feeding value of grain, roughages and other feeds. Milk pipelines connected to milking machines carry the milk to milk tanks where it is automatically cooled to the proper temperature.

In some poultry houses time clock devices are installed so that chickens can be fed automatically at the desired time of the day. On many poultry farms eggs are cleaned, graded and packed primarily by automation.

Learn the words:

automatic waterer - автопоилка
to carry - тащить, перевозить
digestion - переваривание, усваивание
feed mixer – кормосмеситель
feed trough - кормушка
forage cutter – корморезка
to grade – сортировать
grain grinder – зернодробилка
milk pipeline - молокопровод
milk tank - цистерна для молока
to remove вынимать, удалять
silo – силосная башня, яма

1. Answer the following questions:

1. How is higher productivity achieved?
2. Does mechanization eliminate hand labour?
3. What do silage unloaders do?
4. Is manure collected automatically?
5. What machines increase the feeding value of feeds?
6. What processes are mechanized in poultry breeding?

Text 9. Farm machines

Every collective farm has various types of machines that plow the soil, plant the seeds, cultivate the plants, harvest the crops and transport the products harvested. Collective farmers use tractors (in terms of 15 horsepower units), lorries, different drills, planters and harvesters. At present nearly every branch of agronomy uses specialized harvesters. Thus, we find grain combine harvesters, corn pickers, cotton pickers, tea pickers, fruit pickers, tomato harvesters. For harvesting root and tuber crops there exist various diggers such as potato diggers, carrot diggers, sugar beet diggers, onion diggers, etc.

Learn the words:

a lorry- грузовик
a digger – экскаватор
in terms – в пересчёте
an onion – лук
the tubers – клубни

1. Answer the following questions:

1. What kinds of farm machines do you know?
2. What belongs to the specialized harvesters?
3. Exist various diggers for harvesting root and tuber crops ?

2. Complete the sentences:

a) Every branch of agronomy uses _____.
b) There are various diggers such as_____.
c) _____ has various types of machines.
d) _____ use tractors, lorries, different drills, planters and harvesters.

……..

potato diggers, carrot diggers; every collective farm; specialized harvesters; collective farmers.

3. Find English equivalents.

Используются различные экскаваторы, транспортировка выращенной продукции, в настоящее время, отрасли агрономии, сбор урожая.

4. Make singular from plural:

Types, diggers, pickers, harvesters, seeds, plants, lorries, drills.

Text 10. Harvesting Machinery

Harvesting machinery or equipment is a mechanical device used for harvesting. There are several types of harvesting machines which are generally classified by crop. Reapers are used for cutting cereal grains, threshers for separating the seed from the plant; whereas corn or maize harvesting is performed by employing a specially designed mechanical device ' mechanical corn pickers.' A typical harvesting machine comprises of a traveling part, a reaping part, and a baler part. Harvesting machines are also used for controlling the production of weeds. Machines like field choppers, balers, mowers, crushers and windrowers are the common examples of this category. A forage harvester is used for cutting and chopping of almost all silage crops.

Types of Harvesting Machinery

Following is a brief description of major harvesting machines used all around the globe:

- Crop Harvesting Machine: The mechanical device which harvests forage crops cultivated in upland/paddy field and forms roll bale simultaneously was developed, is termed as crop harvesting machinery. It comprises of traveling, reaping and a baler part.

• Grain Harvesting Machine: This machine is used to harvest grains, the edible brans or fruit seeds of a cereal crop.

• Root crop Harvesting Machine: Traditionally root crops are harvested with diggers and digger-pickers. Nowadays, several machines are available in the market. Modern sugar-beet harvester is one of the most popular examples of the root crop harvesting machine.

• Threshers: Threshers or threshing machine is used for the separation of grain from stalks and husks.

• Vegetable Harvesting Machine: Nowadays, machines are also available for the harvesting of vegetables. These 'vegetable harvesting machines', are quite common among the global vegetable farmers. Tomato harvesting machine is the most common example of this.

Learn the words:

thresher – молотилка

whereas – в то время как

mechanical corn pickers – механические сборщики кукурузы

a reaping – жатва

a baler – пресс-подборщики

a weed – сорняк

a mower – косилка

a crushers – жатка

a windrower – дробилка

a forage harvester – кормоуборочный комбайн

a brief description – краткое описание

crop harvesting machine – машина для сборки урожая

grain Harvesting Machine – зерноуборочная машина

root crop Harvesting Machine – машина для уборки корнеплодов

a digger-picker – экскаватор-сборщик

a stalk – стебель

a husk – шелуха

1. Answer the following questions:

1)What is Harvesting Machinery?
2) What types of harvesting machinery do you know?
3) What is crop Harvesting Machine?
4) For what purposes is used grain Harvesting Machine?
5) Give an example of root crop Harvesting Machine.
6) Call vegetable Harvesting Machine.

2. Find English equivalents.

В наши дни, механическое устройство, рисовое поле, типичная машина для сборки урожая, пример из этой категории, использоваться, сбор овощей.

Text 11. Losses in harvesting grain crops

Grain harvest losses result from shattering of the standing grain, shattering during windrowing, picking up the window with the combine, and threshing, separating and cleaning in the combine. Estimates of acceptable losses for small grains such as wheat, barley and oats are placed at 3 percent of total yield. Total yield is harvested

yield plus harvest losses. It is usually very difficult to reduce total losses below 1-2 percent so the operator must decide on the value of the crop, the cost of combining and the time available for combining or climate conditions. Some harvest loss is unavoidable in order to get a reasonably clean threshing job done in the time available.

Loss studies show a considerable amount of grain is left in the field due to shattering out of the grain heads. This can occur at several stages in the harvest operation. A considerable amount of grain is lost from the standing grain. A hailstorm on standing grain can shell heads, break them off and cause severe lodging problems. Wind can blow entire heads down or shell out a number of kernels. As the grain moisture content decreases, susceptibility to shatter and birds becomes greater. Some grain varieties are more shatter resistant than others. Cutting grain at moisture contents of 20-35 percent will help to avoid some of the shatter loss. Random field checks show that combine operators are doing a good job of setting their combines to thresh and separate the grain. But more concern should be devoted to getting the grain into the machine.

Farmers usually adjust their machines to recommendations in the operator's manual for the particular crop to be harvested. In the field small adjustments should be performed according to field conditions.

Learn the words:

a shattering – крушение, разрушение, поломка
a windrowing – валкование
estimates of acceptable losses – приемлемые потери
unavoidable – неизбежный
considerable – значительный
a hailstorm – град
a kernel – ядро
a variety – сорт
to separate – отделять

1. Answer the following questions:

1) Call causes grain harvest losses.
2) Is it usually very difficult to reduce total losses below 1-2 percent?
3) What show loss studies?
4) Which harm (вред) brings the wind?
5) What can show random field checks?
6) Why farmers usually adjust their machines?

2. Make singular from plural:

Losses, estimates, grains, conditions, heads, problems, kernels, operators, combines, farmers.

Text 12. Cultural practices

Before planting a grower has to perform some tillage operations that insure proper environment for germination. The first tillage operation is plowing. It may be done either in the fall or1 in spring, depending on2 the crop and the region. Harrowing and rolling are the operations that are known to insure a level and firm seedbed.

Nowadays the traditional tillage practices are increasingly replaced by minimum tillage. Under minimum tillage the number of operations is reduced. Farm machines can prepare the soil, apply fertilizers, and plant the seed in one operation. Main advantages of this method are lower soil compaction and lower labour and energy costs. Planting the seed is usually done when the soil and the air are warm enough. For cereals to germinate well two factors must be controlled during planting: depth and rate. Everybody knows the depth of planting the seed to depend largely3 on the type of the soil and the size of the seed. The coarse seeds of corn and peas are to be planted much deeper than fine seeds of clover or alfalfa. The establishment of high-quality stand is also favoured by a proper seeding rate. Too thick or too thin sowing4 lowers grain production. Harvesting is the last cultural practice. Mechanical harvesting helps farmers obtain highest yields of good quality.

Notes:

1. either … or – или… или
2. depending on - в зависимости от
3. largely – в основном
4. thick sowing – загущенный посев; thing sowing – редкий посев

Learn the words.

coarse seed - крупное семя
depth – глубина
firm seedbed – уплотнённая пашня
fine seed – мелкое семя
grower – фермер, земледелец
level seedbed – ровная пашня
to perform – выполнять
to plow – пахать
rate – норма
to reduce – уменьшать, сокращать
to roll – прикатывать (почву)
size – размер
stand – всходы, травостой
tillage – обработка земли

1. Call russian equivalents international words

Situation, unbalanced, effectively, aeration, progressive, automatically, irrigation, importer, limited, unlimited, economist.

2. Fill in the blanks:

1. Coarse seeds are planted deeper than ... . 2. For the seedbed to be firm it should be ... . 3. The depth of sowing depends on the seed .... 4. The new tillage practice is known as ..... 5. To obtain a good stand the grower should use a proper seeding ... .

3. Answer the following questions:

1. What is the first tillage operation?
2. What other tillage operations are necessary before planting? What is minimum tillage?
3. What are the advantages of minimum tillage?
4. What factors are important during planting?
5. What is the last cultural practice?

Text 13. History of the plow

First steel plows came to the fields of America in 1937. First plows were of the "walking" type, that is, the operator walked behind the plow while horses pulled it. Some decades later the first riding plow was developed. The plow was mounted on wheels and pulled by two to four horses. It had a place for the operator to sit. The operator could plow two acres per day, as compared to about one acre with the walking plow. Today there are tractor-drawn plows that can plow an acre or more per hour.

Learn the words.

steel – стальной
behind – идти за
some decades later – спустя несколько десятилетий
riding plow – едущий плуг
wheel – колесо
tractor-drawn – на тракторной тяге

1. Find English equivalents and make your own sentences with them.

Плуг, получить развитие, колесо, сегодня, акр, день, лошади, в сравнении, тянуть, место, поле, тип.

Text 14. Mechanization in crop production

Tillage practices vary with soil and climatic conditions and the crop that is to be grown. Tillage includes plowing, harrowing and rolling the soil. There are some purposes of tilling the soil. They are to improve the aeration and temperature conditions, to produce a firm soil and to control weeds. Different types of plows, harrows and rollers are now available to till the soil.

Seed should be sown in a firm, moist soil and covered at a proper depth to germinate rapidly and uniformly. Many various types of grain drills and planters have been developed to suit varying farm requirements. Some modern drills are equipped with attachments for seeding legume and grass seed and for spreading fertilizers. So, seed can be sown and fertilizer spread in one operation. Fertilizers can also be broadcast before planting. Recently attachments have been added to planters for applying insecticides and herbicides to the soil.

Harvesting crops is the final field operation. Combines that harvest and thresh small grains and some other crops have displaced most threshing machines or threshers. For harvesting to be successful, one should grow a variety that is adapted to mechanical harvesting. The plants should be of uniform height and should mature uniformly. Root crops and potatoes are harvested with root lifters and potato diggers respectively.

Learn the words:

aeration - аэрация (почвы)
attachment – приспособление
to control – уничтожать, бороться
cover seed – заделывать семена
to equip – оборудовать, оснащать
moist – влажный
potato digger – картофелекопалка
roller – каток
rootlifter – уборочная машина для корнеплодов

to spread – разбрасывать
to thresh – молотить
thresher – молотилка
uniform – однородный, одинаковый

1. Answer the following questions:

1. What operations does tillage include?
2. What machines are used in tilling the soil?
3. What are some drills equipped with?
4. What is the final field operation?
5. What machines are used in root crop and potato har¬vesting?

2. Complete the sentences of the following words and phrase:

1. tillage practices; by applying; proper; can be; improved; soils. 2. a fine oil; are used; harrows; to produce. 3. seed; in; a moist soil; rapidly, germinates. 4. in one operation; harvest; thresh; and; combines.

Text 15. Equipment for planting cereals

Broadcasting by hand was used in the USA as the main method of planting wheat and other small grains about a century ago. Later various types of grain drills and seeders have been developed. Today, with a 12-foot (фут = 30,5 CM) tractor-drawn drill one person can seed 50 to 60 acres per day at a proper rate and at uniform depth. To increase the daily acreage two or more of these drills are combined together.

Planting. The warm-season cereals are grown in tropical lowlands year-round and in temperate climates during the frost-free season. Rice is commonly grown in flooded fields, though some strains are grown on dry land. Other warm climate cereals, such as sorghum, are adapted to arid conditions.

Cool-season cereals are well-adapted to temperate climates. Most varieties of a particular species are either winter or spring types. Winter varieties are sown in the autumn, germinate and grow vegetative, then become dormant during winter. They resume growing in the springtime and mature in late spring or early summer. This cultivation system makes optimal use of water and frees the land for another crop early in the growing season.

Winter varieties do not flower until springtime because they require vernalization: exposure to low temperature for a genetically determined length of time. Where winters are too warm for vernalization or exceed the hardiness of the crop (which varies by species and variety), farmers grow spring varieties. Spring cereals are planted in early springtime and mature later that same summer, without vernalization. Spring cereals typically require more irrigation and yield less than winter cereals.

Learn the words:

the wheat – пшеница
a drill – сеялка
an acreage – площадь
a broadcasting – посев
a lowland – низменность
flooded fields – затопленные поля
sorghum – сорго
the varieties – сорта

to become dormant during winter – становиться пассивным зимой

to resume – возобновлять

to mature – созревать

to require vernalization – требовать яровизации

an exposure – воздействие

the hardiness of the crop – морозостойкость культур

an irrigation – полив

winter cereals – озимые зерновые

1. Answer the following questions:

1) What is the main method of planting grain a century ago?

2) What equipment is used for planting crops?

3) What kind of cereal do you know?

4) Are sown winter varieties in the autumn?

5) When are planted spring cereals?

6) What kind of cereals require more irrigation?

Text 16. Importance of machinery and energy in agriculture

More and more machines are used on farms today replacing hand labour and increasing labour productivity. With machines and power avail¬able farmers not only can do more work and do it more economically, but (hey can do higher-quality work and the work may be finished in a shorter and more favourable time.

Machines that are used for crop production include those that till the soil, plant the crops, perform various cultural practices during the growing season and harvest the crops. Many machines are known to be powered by tractors. Implements such as plows, cultivators and planters may be mounted on a tractor or they may be pulled by a tractor.

However, an increasing number of farm machines are now self-propelled. These machines are grain combine harvesters, cotton pickers, forage harvesters, and many other specialized farm machines. Machines that do not require mobility are usually powered with electric motors. Such machines include silage unloaders, livestock feeding equipment and milking machines.

Farm machines we use today are quite different from those the farmers used two or even one decade ago. The tractors, tractor-drawn planters and drills were smaller and less productive. They could plant less acres per day than the machines do now.

Learn the words:

combine harvester- уборочный комбайн

cotton picker - хлопкоуборочная машина

cultivator – культиватор

drill – рядовая сеялка

equipment – оборудование

hand labour – ручной труд

implement – орудие

milking machine – доильный аппарат

mount – навешивать

planter – посадочная машина, сажалка

plow – плуг

power – энергия, приводить в движение (глаг.)

pull – тянуть

self- propelled – самоходный
silage – unloader – разгрузочная машина для силоса
to till – обрабатывать почву
tractor- drawn – на тракторной тяге

1. Complete the sentences:

1. Plows and various cultivators are used
2. Self-propelled machines are those that
3. Silage unloader and milking machines are powered
4. Cereals are planted

_____

a. are not powered by tractors.
b. with tractor-drawn drills.
c. to till the soil.
d. with electricity.

2. Answer the following questions:

a. Do machines make labour more productive?
b. Can machines do work in a shorter time?
c. What machines are mounted on a tractor?
d. What self-propelled machines do you know?
e. Are milking machines pow¬ered with electricity?
f. What do modern machines differ in?

АНГЛО-РУССКИЙ СЛОВАРЬ ТЕРМИНОВ

Сокращения:

a – adjective – прилагательное

adv – adverb – наречие

n – noun – существительное

pl – plural – множественное число

v – verb - глагол

A

adaptability n - приспособляемость

aeration n - аэрация (почвы)

affect v – влиять (на что-либо)

alfalfa n – люцерна

apply v – применять, вносить

attachment n - приспособление

automation n – автоматизация

B

bedding n – подстилка

body n – орган

breeder n – селекционер, животновод

broadcast v – разбрасывать (семена и др.)

C

carbohydrate n - углевод

care n – уход, забота; v заботиться

closely adv – тесно

coarse a – крупный (о семенах)

common a – обычный, распространённый

compaction n- уплотнение

concentrate n- концентрированный корм, концентрат

condition n- состояние, кондиция

control n – борьба, контроль; v бороться, контролировать

cost n – стоимость, себестоимость; pl затраты, издержки

cover v – заделывать(семена)

cowshed n – хлев, коровник

crop n - (с.-х.) культура

crossbreeding n - кросс-бридинг (скрещивание неродственных особей)

cultivation n- выращивание, возделывание; обработка

cutter n – резальная машина

D

dairy a – молочный

depreciation n- амортизация, износ

digestible a – перевариваемый, усвояемый

digestion n - переваривание, усвоение

digger n - копалка

draft a - тягловый, рабочий (скот)

dual-purpose (cattle) a- мясо-молочный скот

E

economics n – экономика

economy n – экономика, хозяйство

efficiency n – эффективность, производительность

electronic a – электронный

employment n- занятость

F

farming n – ведение хозяйства, земледелие

fibre n – клетчатка

fibrous a - мочковатый (о корне)

fine a – мелкокомковатый (о почве), мелкий (о семенах)

firm a – уплотнённый, осевший (о почве)

flock n – отара

G

gain v – прибавлять в весе

germination n – прорастание

grass n – злак, трава

grinder n – дробилка

grower n – фермер, колхозник; производитель

H

herbicide n – гербицид

high-yielding a – высокоурожайный, высокоудойный

I

inbreeding n- инбридинг (родственное спаривание)

indication n - показатель

indigestible a – неперивaримый

insecticide n – инсектицид

L

labour-consuming a - трудоёмкий

legume n – бобовое растение

lifter n - подъёмное приспособление

M

maintenance n – поддержание, сохранение

management n –содержание, управление

markedly adv заметно

marketing n – реализация, сбыт

mellow a – рыхлый, спелый

mobility n - побвижность, мобильность

mount v - навешивать

N

nutrient n – питательное вещество; а питательный

nutritional a – пищевой

O

overfeed v – перекармливать

P

photosynthesis n - фотосинтез

picker n – уборочная машина

planter n – посадочная машина

power n – энергия; v приводить в движение

practice n - приём

production n – возделывание, производство

productivity n – производительность, продуктивность

profitability n – рентабельность, прибыльность

profitable a – рентабельный, прибыльный

purebred a – чистопородный

R

rainfall f n – осадки

remove v – выносить (питательные вещества из почвы)

robotization n - роботизация

roll v - прикатывать (почву)

roller n - каток

roughage n – грубый корм

S

seedbed n – пашня

self-propelled a - самоходный

set v – устанавливать, налаживать

sheep-pen n – овчарня, загон для овец

sire n – производитель (о животных)

soybeans n - соя

spread v - разбрасывать

stand n – всходы, травостой, стеблестой

supplement n – добавка

T

tap a - стержневой (о корне)

technology n – технология

tractor-drawn a – на тракторной тяге

tuber n - клубень

U

underfeed v- недокармливать

unloader n – разгрузочная машина

utilization n – использование

V

variety n – сорт

Y

yield n – урожай, надой (молока)

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