

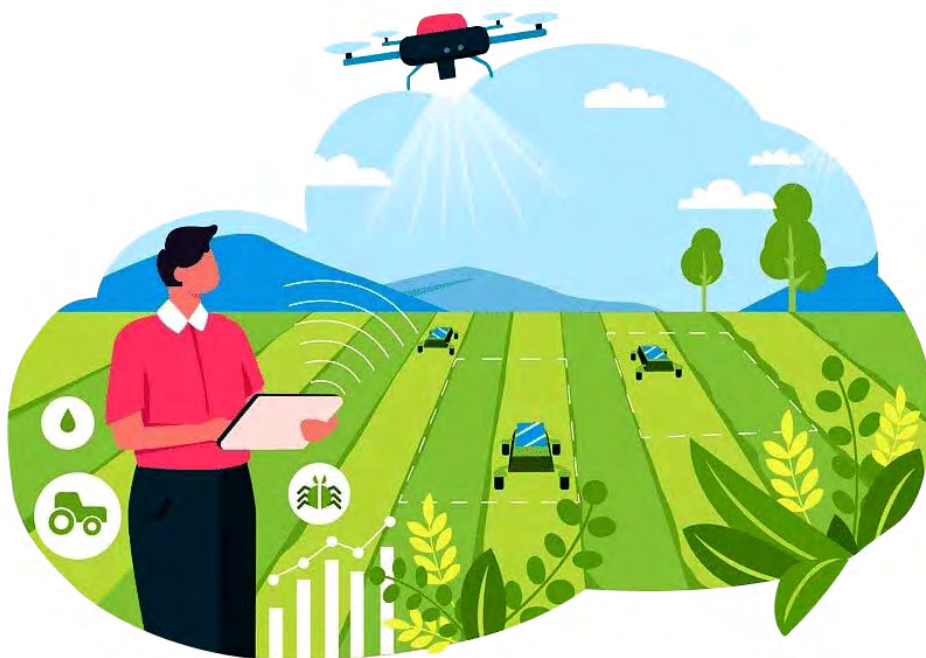


В. П. Полозова

ENGLISH FOR PART-TIME STUDENTS

Контрольные задания и тексты для чтения по английскому языку
для самостоятельной работы студентов заочной формы обучения

Учебно-методическое пособие



Нижний Новгород
2026

Министерство науки и высшего образования Российской Федерации
Федеральное государственное бюджетное образовательное
учреждение высшего образования «Нижегородский государственный
агротехнологический университет имени Л. Я. Флорентьева»

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Рецензенты:

Правдина Марина Владимировна — кандидат педагогических наук, доцент кафедры экономики и гуманитарных дисциплин АПИ (филиал) ФГБОУ ВО Нижегородский государственный технический университет им. Р. Е. Алексеева;

Радкевич Анна Валерьевна — кандидат филологических наук, доцент кафедры русского языка как иностранного НГПУ им. К. Минина.

Полозова В. П.

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Настоящее учебно-методическое пособие предназначено для самостоятельного выполнения контрольных заданий студентами заочной формы обучения.

Пособие содержит контрольные задания в трех вариантах по каждому направлению подготовки бакалавриата или специальности. Преподаватели кафедры указывают конкретный вариант, который студент должен выполнить. Остальные варианты рекомендуется использовать в качестве материала для дополнительного чтения и для подготовки к зачету или экзамену.

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МЕТОДИЧЕСКИЕ УКАЗАНИЯ

Настоящее учебно-методическое пособие предназначено для самостоятельного выполнения контрольных заданий студентами сельскохозяйственных вузов заочной формы обучения.

Пособие содержит контрольные задания в трех вариантах для каждого направления бакалавриата или специальности. Преподаватель кафедры указывает вариант, который студент должен выполнить. Все остальные варианты рекомендуется использовать в качестве материала для дополнительного чтения и для подготовки к зачету или экзамену. В конце пособия предлагаются аутентичные тексты по сельскохозяйственным специальностям (“Some more texts to read and translate”) для чтения, перевода и реферирования. Данное пособие может также использоваться в качестве дополнительного учебного материала на занятиях с магистрантами.

По использованию пособия не предлагаются строгие методические рекомендации. Оно может быть применено в разнообразных условиях учебного процесса, и преподаватель сам определит конкретные методические приемы в зависимости от уровня подготовки студентов.

Материалы пособия рекомендованы также к использованию в учебном процессе с обучающимися очного отделения вуза.

БИОЭКОЛОГИЧЕСКИЙ ФАКУЛЬТЕТ

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. Protein can also be used to provide the body with energy.
2. Flowering plants are able to reproduce using highly adapted structures called flowers.
3. If the product is to be exported to other countries, the designer must make sure that it is acceptable.
4. Farmers can produce food without using chemicals.
5. Rice should be cooked in the minimum amount of water.

II. Translate the following sentences paying attention to the Passive Voice.

1. Butter is made from cream which has to be separated from milk.
2. Besides water the soil in which crops are grown is to be provided with air and all the necessary nutrients.
3. The latest discoveries in the field of physiology were spoken much of by the scientists at the conference.
4. The introduction of modern machinery in agriculture was followed by the increase in food production.
5. Management has always been an important factor in operation of a farm.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Dairy products are likely to be the best dietary source of calcium.
3. Many specialists have been already invited to take part in the agricultural exhibition.
4. The entire length of this farm is supposed to be about twenty miles.
5. The raw milk to be drunk by little children should be boiled.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.
2. By changing feeding rations of animals, one can improve the quality of farm products.
3. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.

4. Modern agriculture having become highly mechanized, farm managers must possess a good technical knowledge to operate various farm machines.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

Y. Read and translate the text into Russian.

Fertilizer



Fertilizer is any organic or inorganic material of natural or synthetic origin that is added to a soil to supply one or more plant nutrients essential to the growth of plants. They are essential for high-yield harvest.

Mined inorganic fertilizers have been used for many centuries, whereas chemically synthesized inorganic fertilizers were only widely developed during the industrial revolution. Inorganic fertilizer use has also significantly supported global population growth — it has been estimated that almost half the people on the Earth are currently fed as a result of synthetic nitrogen fertilizer use.

Fertilizers come in various forms. The most typical form is solid fertilizer in granulated or powdered. The next most common form is liquid fertilizer; some advantages of liquid fertilizer are its immediate effect and wide coverage. There are also slow-release fertilizers which reduce the problem of "burning" the plants due to excess nitrogen.

More recently, organic fertilizer is on the rise as people are resorting to environmental friendly (or 'green') products. Although organic fertilizer usually contain less nutrients, some people still prefer organic due to natural ingredients.

Fertilizers are broadly divided into *organic* fertilizers (composed of enriched organic matter—plant or animal), or *inorganic* fertilizers (composed of synthetic chemicals and/or minerals).

БАПИАНТ 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Special laboratory tests must be done in order to find out the cause of a disease.

2. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.
3. I had to stay at the laboratory two hours more to complete the work.
4. To feed the animals properly farmers should grow grasses and grain crops.
5. Scientists can control animal physiological functions for practical purposes.

II. Translate the following sentences paying attention to the Passive Voice.

1. Sometimes water is referred to as the most essential substance for normal growth of animals.
2. Many various types of grain drills and planters have been developed to suit varying farm requirements.
3. Human health may be influenced by certain animal diseases.
4. Cereals are planted on fine and mellow seedbed.
5. Machines and fertilizers are purchased by farmers from large commercial companies.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
2. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.
3. To be successful when you produce food products, there are some simple rules to follow.
4. We expected the long-term agreements between Russia and the US to be signed in the nearest future.
5. Well cooked and attractively presented food is more likely to be chosen and enjoyed.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Wheat straw containing large amounts of indigestible fibre, the farmers use it for bedding.
2. Many people who rely on diet alone have great difficulty in controlling their body mass.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Future agricultural progress depends on improving the quality of management.
5. One more commonly used method of meat preservation is canning.

Y. Read and translate the text into Russian.

Inorganic fertilizer (synthetic fertilizer)

Inorganic fertilizer is often synthesized using the Haber-Bosch process, which produces ammonia as the end product. This ammonia is used as a feedstock for other nitrogen fertilizers, such as anhydrous ammonium nitrate and urea. These concentrated products may be diluted with water to form a concentrated liquid fertilizer. Ammonia can be combined with rock phosphate and potassium fertilizer to produce *compound fertilizer*.



The use of synthetic nitrogen fertilizers has increased steadily in the last 50 years, rising almost 20-fold to the current rate of 100 million tonnes of nitrogen per year. In the 1960s the National Fertilizer Development Center began developing Sulfur-coated urea; sulfur was used as the principle coating material because of its low cost and its value as a secondary nutrient. Usually there is another wax or polymer which seals the sulfur; the slow release properties depend on the degradation of the secondary sealant by soil microbes as well as mechanical imperfections (cracks, etc.) in the sulfur. They typically provide 6 to 16 weeks of delayed release in turf applications. When a hard polymer is used as the secondary coating, the properties are a cross between diffusion-controlled particles and traditional sulfur-coated.

Synthetic fertilizers are commonly used to treat fields used for growing maize, followed by barley, sorghum, rapeseed, soy and sunflower. One study has shown that application of nitrogen fertilizer on off-season cover crops can increase the biomass (and subsequent green manure value) of these crops, while having a beneficial effect on soil nitrogen levels for the main crop planted during the summer season.

БАРИАНТ 3

I. Translate the sentences paying attention to the Modal Verbs.

1. Farmers must feed their animals properly.
2. Man cannot regulate the amount of rainfall, but he can prevent the loss of moisture from the soil by proper cultivation or by irrigation.
3. They have to intensify and to improve agricultural production.
4. Most of Japan's land cannot be used for growing crops.
5. The farmers are to keep the cattle on pasture lands in summer.

II. Translate the following sentences paying attention to the Passive Voice.

1. More agricultural products were obtained by intensification of agricultural production on the farm last year.
2. Farm animals are bred for the production of meat, milk and eggs.
3. Dairy cows have been kept in cowsheds this spring.
4. At present more agricultural products are obtained by intensification of agricultural production.
5. The pigsty will be cleaned tomorrow.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Wheat, barley, rye, oats, corn and rice are known to be most common and valuable cereals.
2. Our farm is expected to produce high yield of rye this year.
3. It is impossible to determine the soil texture without mechanical analysis.
4. The field is too wet for the tractor to operate.
5. This soil is said to be in good structural condition.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. The ploughs being in good order, one could plough the soil well.
2. Having applied fertilizer to the soil the farmers obtained a higher yield.
3. We know several methods of planting vegetables.
4. The farmers began working at the problem of selection the plants.
5. Farmers supplying their animals with nutritious feed obtain much milk and meat.

Y. Read and translate the text into Russian.

Organic fertilizer

Organic fertilizers include naturally occurring organic materials, (e.g. manure, worm castings, compost, seaweed, guano), or naturally occurring mineral deposits. Organic fertilizers have been known to improve soil life and long-term productivity of soil, and may prove a large depository for excess carbon dioxide. Organic nutrients increase the abundance of soil organisms by providing organic matter and micronutrients and can drastically reduce external inputs of pesticides, energy and fertilizer, at the cost of decreased yield.



Chicken litter, which consists of chicken manure mixed with sawdust, is an organic fertilizer that has been shown to better condition soil for harvest than synthesized fertilizer. Researchers at the Agricultural Research Service studied the effects of using chicken litter, an organic fertilizer, versus synthetic fertilizers on cotton fields, and found that fields fertilized with chicken litter had a 12% increase in cotton yields over fields fertilized with synthetic fertilizer. In addition to higher yields, researchers valued commercially sold chicken litter at a \$17/ton premium (to a total valuation of \$78/ton) over the traditional valuations of \$61/ton due to value added as a soil conditioner.

Other studies have found that algae used to capture nitrogen and phosphorus runoff from agricultural fields can not only prevent water contamination of these nutrients, but also can be used as an organic fertilizer. Some scientists originally developed the "algal turf scrubber" to reduce nutrient runoff and increase quality of water flowing into streams, rivers, and lakes. They found that this nutrient-rich algae, once dried, can be applied to cucumber and corn seedlings and result in growth comparable to that seen using synthetic fertilizers. Leguminous cover crops are also grown to enrich soil as a green manure through nitrogen fixation from the atmosphere; as well as phosphorus (through nutrient mobilization) content of soils.

АГРОНОМИЧЕСКИЙ ФАКУЛЬТЕТ

Контрольная работа №1

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. Protein can also be used to provide the body with energy.
2. Flowering plants are able to reproduce using highly adapted structures called flowers.
3. If the product is to be exported to other countries, the designer must make sure that it is acceptable.
4. Farmers can produce food without using chemicals.
5. Rice should be cooked in the minimum amount of water.

II. Translate the following sentences paying attention to the Passive Voice.

1. Butter is made from cream which has to be separated from milk.
2. Besides water the soil in which crops are grown is to be provided with air and all the necessary nutrients.
3. The latest discoveries in the field of physiology were spoken much of by the scientists at the conference.
4. The introduction of modern machinery in agriculture was followed by the increase in food production.
5. Management has always been an important factor in operation of a farm.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Dairy products are likely to be the best dietary source of calcium.
3. Many specialists have been already invited to take part in the agricultural exhibition.
4. The entire length of this farm is supposed to be about twenty miles.
5. The raw milk to be drunk by little children should be boiled.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.

2. By changing feeding rations of animals, one can improve the quality of farm products.
3. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.
4. Modern agriculture having become highly mechanized, farm managers must possess a good technical knowledge to operate various farm machines.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

Y. Read and translate the text into Russian.

Agriculture (also called **farming** or **husbandry**) is the cultivation of animals, plants, fungi, and other life forms for food, fiber, and other products used to sustain life. Agriculture was the key development in the rise of human civilization. The study of agriculture is known as agricultural science.

The history of agriculture dates back thousands of years, and its development has been driven and defined by greatly different climates, cultures, and technologies. However, all farming generally relies on techniques to expand and maintain the lands suitable for raising domesticated species. For plants, this usually requires some form of irrigation, although there are methods of dryland farming; pastoral herding on rangeland is still the most common means of raising livestock. In the developed world, industrial agriculture based on large-scale monoculture has become the dominant system of modern farming, although there is growing support for sustainable agriculture (organic agriculture).

Modern agronomy, plant breeding, pesticides and fertilizers, and technological improvements have sharply increased yields from cultivation, but at the same time have caused widespread ecological damage and negative human health effects. Selective breeding and modern practices in animal husbandry such as intensive pig farming have similarly increased the output of meat, but have raised concerns about animal cruelty and the health effects of the antibiotics, growth hormones, and other chemicals commonly used in industrial meat production.

БАПИАНТ 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Special laboratory tests must be done in order to find out the cause of a disease.
2. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.
3. I had to stay at the laboratory two hours more to complete the work.

4. To feed the animals properly farmers should grow grasses and grain crops.
5. Scientists can control animal physiological functions for practical purposes.

II. Translate the following sentences paying attention to the Passive Voice.

1. Sometimes water is referred to as the most essential substance for normal growth of animals.
2. Many various types of grain drills and planters have been developed to suit varying farm requirements.
3. Human health may be influenced by certain animal diseases.
4. Cereals are planted on fine and mellow seedbed.
5. Machines and fertilizers are purchased by farmers from large commercial companies.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
2. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.
3. To be successful when you produce food products, there are some simple rules to follow.
4. We expected the long-term agreements between Russia and the US to be signed in the nearest future.
5. Well cooked and attractively presented food is more likely to be chosen and enjoyed.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Wheat straw containing large amounts of indigestible fibre, the farmers use it for bedding.
2. Many people who rely on diet alone have great difficulty in controlling their body mass.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Future agricultural progress depends on improving the quality of management.
5. One more commonly used method of meat preservation is canning.

Y. Read and translate the text into Russian.



Cereals are grasses cultivated for the edible components of their grain, composed of the endosperm, germ, and bran. Cereal grains are grown in greater quantities and provide more food energy worldwide than any other type of crop.

In their natural form (as in *whole grain*), they are a rich source of vitamins, minerals, carbohydrates, fats, oils, and protein. However, when refined by the

removal of the bran and germ, the remaining endosperm is mostly carbohydrate and lacks the majority of the other nutrients. In some developing nations, grain in the form of rice, wheat, millet, or maize constitutes a majority of daily sustenance. In developed nations, cereal consumption is moderate and varied but still substantial.

While each individual species has its own peculiarities, the cultivation of all cereal crops is similar. Most are annual plants; consequently one planting yields one harvest. Wheat, rye, triticale, oats, barley, and spelt are the "cool-season" cereals. These are hardy plants that grow well in moderate weather and cease to grow in hot weather. The "warm-season" cereals are tender and prefer hot weather. Barley and rye are the hardiest cereals, able to overwinter in the subarctic and Siberia. Many cool-season cereals are grown in the tropics. However, some are only grown in cooler highlands, where it may be possible to grow multiple crops in a year. For a few decades, there has also been increasing interest in perennial wheat, rice. This, due to advantages in regards to erosion control, reduced need in fertiliser.

БАПИАHT 3

I. Translate the sentences paying attention to the Modal Verbs.

1. Farmers must feed their animals properly.
2. Man cannot regulate the amount of rainfall, but he can prevent the loss of moisture from the soil by proper cultivation or by irrigation.
3. They have to intensify and to improve agricultural production.
4. Most of Japan's land cannot be used for growing crops.
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II. Translate the following sentences paying attention to the Passive Voice.

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3. Dairy cows have been kept in cowsheds this spring.
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IV. Translate the sentences into Russian paying attention to V-ing forms.

1. The ploughs being in good order, one could plough the soil well.
2. Having applied fertilizer to the soil the farmers obtained a higher yield.
3. We know several methods of planting vegetables.
4. The farmers began working at the problem of selection the plants.
5. Farmers supplying their animals with nutritious feed obtain much milk and meat.

V. Read and translate the text into Russian.

Wheat

Wheat is grown on more land area than any other commercial crop and is the most important staple food for humans. World trade in wheat is greater than for all other crops combined. Globally, wheat is the leading source of vegetable protein in human food, having a higher protein content than either maize (corn) or rice, the other major cereals. In terms of total production tonnages used for food, it is currently second to rice as the main human food crop and ahead of maize.



Wheat is planted to a limited extent as a forage crop for livestock, and its straw can be used as a construction material for roofing thatch. The whole grain can be milled to leave just the endosperm for white flour. The by-products of this are bran and germ. The whole grain is a concentrated source of vitamins, minerals, and protein, while the refined grain is mostly starch.

Yields of wheat per unit area increased as methods of crop rotation were applied to long cultivated land, and the use of fertilizers became widespread. Improved agricultural husbandry has more recently included threshing machines and reaping machines (the 'combine harvester'), tractor-drawn cultivators and planters.

Wheat protein is easily digested by nearly 99% of human population. Wheat also contains a diversity of minerals, vitamins and fats (lipids). With a small amount of animal or legume protein added, a wheat-based meal is highly nutritious. A predominately wheat-based diet is higher in fiber than a meat-based diet.

АГРОНОМИЧЕСКИЙ ФАКУЛЬТЕТ

Контрольная работа №2

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. Protein can also be used to provide the body with energy.
2. Flowering plants are able to reproduce using highly adapted structures called flowers.
3. If the product is to be exported to other countries, the designer must make sure that it is acceptable.
4. Farmers can produce food without using chemicals.
5. Rice should be cooked in the minimum amount of water.

II. Translate the following sentences paying attention to the Passive Voice.

1. Butter is made from cream which has to be separated from milk.
2. Besides water the soil in which crops are grown is to be provided with air and all the necessary nutrients.
3. The latest discoveries in the field of physiology were spoken much of by the scientists at the conference.
4. The introduction of modern machinery in agriculture was followed by the increase in food production.
5. Management has always been an important factor in operation of a farm.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Dairy products are likely to be the best dietary source of calcium.
3. Many specialists have been already invited to take part in the agricultural exhibition.
4. The entire length of this farm is supposed to be about twenty miles.
5. The raw milk to be drunk by little children should be boiled.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.
2. By changing feeding rations of animals, one can improve the quality of farm products.

3. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.
4. Modern agriculture having become highly mechanized, farm managers must possess a good technical knowledge to operate various farm machines.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

Y. Read and translate the text into Russian.

The land-property relations are a part of a special social and economic category not only because of specificity of land as a unique plant of universal multiple-objective interests, but also by virtue of a duality of state of the land fund participating in public reproduction as the natural factor and goods at the same time. The set of public interests concerning land can be divided into two groups: interests concerning efficient assimilation of natural properties of a land resource (technological aspect); and interests concerning money-goods parameters of the landownership (social and economic aspect).

Allocating resources the first group of public interests is guided by parameters of functional-economic structure of land fund: scales, proportions and priorities of its allocation depending on a degree of economic assimilation; aspects and categories of lands; types of their target usage; intensity of maintenance and productivity of lands, their geological and ecological state. The public and individual interests of this group will usually be synchronized with maintaining the most efficient functional-economic structure of the territorial land fund, and the originating contraventions have non-antagonistic character. As a rule, they are solved on the basis of market self-regulation.

БАРИАНТ 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Special laboratory tests must be done in order to find out the cause of a disease.
2. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.
3. I had to stay at the laboratory two hours more to complete the work.
4. To feed the animals properly farmers should grow grasses and grain crops.
5. Scientists can control animal physiological functions for practical purposes.

II. Translate the following sentences paying attention to the Passive Voice.

1. Sometimes water is referred to as the most essential substance for normal growth of animals.
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IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Wheat straw containing large amounts of indigestible fibre, the farmers use it for bedding.
2. Many people who rely on diet alone have great difficulty in controlling their body mass.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Future agricultural progress depends on improving the quality of management.
5. One more commonly used method of meat preservation is canning.

Y. Read and translate the text into Russian.

Land use planning is used in order to find solutions of conflicts among various groups of the population, among different villages, between villages and authorities or large companies, etc. The different approaches reflect the spectrum of contributions to solutions expected from a process in land use planning. The examples show, participation-oriented land use planning has already a notable success in projects of the technical cooperation. Integrated land use planning should be applied when the biophysical dimension has to be combined with social, political, cultural, economic and legal aspects. In other words, land use planning is applied

when social conflicts whose origins often lie in the nature of the current land use or in the form of access to resources must be settled.

Various obstacles are placed in the path which may hamper the achievements of the objectives. Creative, realistic and professional handling of the tools in land use planning are required to cope with all obstacles. Land use planning only makes sense if the contributions to the solutions in the development cooperation can be anchored in a sustainable way, and there is a prospect of applying the approach not only locally but also at larger scales.



БАҲАҲТ 3

I. Translate the sentences paying attention to the Modal Verbs.

1. Farmers must feed their animals properly.
2. Man cannot regulate the amount of rainfall, but he can prevent the loss of moisture from the soil by proper cultivation or by irrigation.
3. They have to intensify and to improve agricultural production.
4. Most of Japan's land cannot be used for growing crops.
5. The farmers are to keep the cattle on pasture lands in summer.

II. Translate the following sentences paying attention to the Passive Voice.

1. More agricultural products were obtained by intensification of agricultural production on the farm last year.
2. Farm animals are bred for the production of meat, milk and eggs.
3. Dairy cows have been kept in cowsheds this spring.
4. At present more agricultural products are obtained by intensification of agricultural production.
5. The pigsty will be cleaned tomorrow.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Wheat, barley, rye, oats, corn and rice are known to be most common and valuable cereals.
2. Our farm is expected to produce high yield of rye this year.
3. It is impossible to determine the soil texture without mechanical analysis.
4. The field is too wet for the tractor to operate.
5. This soil is said to be in good structural condition.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. The ploughs being in good order, one could plough the soil well.
2. Having applied fertilizer to the soil the farmers obtained a higher yield.
3. We know several methods of planting vegetables.
4. The farmers began working at the problem of selection the plants.
5. Farmers supplying their animals with nutritious feed obtain much milk and meat.

V. Read and translate the text into Russian.

To meet land suitability a land use planner is to be able to separate suitable land from unsuitable according to sustainability and profitability. Trials and experience of land users must be used choosing the plot of land.

Land suitability classes reflect degrees of suitability. Lands are subdivided into classes according to their degree of suitability and magnitude of changes required to achieve a satisfying level of productivity. Land suitability subclasses reflect kinds of limitations, or main kind of improvement measures required within classes. A land use planner is to identify limitations which may be reduced by specific improvements.

After matching land qualities and land use requirements, we can prepare options for development in the form of land use system, which include descriptions of biophysical requirements and the socio-economic characteristics of different land use types.

Land use system includes the combination of a land unit and a land use type. Outputs are presented to land users and decisions makers as land suitability maps and descriptions of land use types.

ФАКУЛЬТЕТ ПЕРЕРАБАТЫВАЮЩИХ ТЕХНОЛОГИЙ

Контрольная работа №1

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. Protein can also be used to provide the body with energy.
2. Flowering plants are able to reproduce using highly adapted structures called flowers.
3. If the product is to be exported to other countries, the designer must make sure that it is acceptable.
4. Farmers can produce food without using chemicals.
5. Rice should be cooked in the minimum amount of water.

II. Translate the following sentences paying attention to the Passive Voice.

1. Butter is made from cream which has to be separated from milk.
2. Besides water the soil in which crops are grown is to be provided with air and all the necessary nutrients.
3. The latest discoveries in the field of physiology were spoken much of by the scientists at the conference.
4. The introduction of modern machinery in agriculture was followed by the increase in food production.
5. Management has always been an important factor in operation of a farm.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Dairy products are likely to be the best dietary source of calcium.
3. Many specialists have been already invited to take part in the agricultural exhibition.
4. The entire length of this farm is supposed to be about twenty miles.
5. The raw milk to be drunk by little children should be boiled.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.
2. By changing feeding rations of animals, one can improve the quality of farm products.

3. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.
4. Modern agriculture having become highly mechanized, farm managers must possess a good technical knowledge to operate various farm machines.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

Y. Read and translate the text into Russian.

CHEESE



Cheese is a solid food made from the milk of cows, goats, sheep, and other mammals. It has historically been the most economically important component of the dairy industry as it can be stored and transported more easily than fresh milk. Cheese is made by curdling milk using some combination of rennet and acidification. Bacteria acidify the milk and play a role in defining the texture

and flavor of most cheeses.

There are hundreds of types of cheese produced all over the world. Different styles and flavors of cheese are the result of using milk from various mammals or with different butterfat contents, employing particular species of bacteria and molds, and varying the length of aging and other processing treatments. Other factors include animal diet and the addition of flavoring agents such as herbs, spices, or wood smoke. Whether the milk is pasteurized may also affect the flavor. The yellow to red coloring of many cheeses is a result of adding annatto. Cheeses are eaten both on their own and cooked as part of various dishes; most cheeses melt when heated.

For a few cheeses, the milk is curdled by adding acids such as vinegar or lemon juice. Most cheeses, however, are acidified to a lesser degree by bacteria, which turn milk sugars into lactic acid, followed by the addition of rennet to complete the curdling. Rennet is an enzyme mixture traditionally obtained from the stomach lining of young cattle, but now also laboratory produced.

БАПИАНТ 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Special laboratory tests must be done in order to find out the cause of a disease.
2. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.

3. I had to stay at the laboratory two hours more to complete the work.
4. To feed the animals properly farmers should grow grasses and grain crops.
5. Scientists can control animal physiological functions for practical purposes.

II. Translate the following sentences paying attention to the Passive Voice.

1. Sometimes water is referred to as the most essential substance for normal growth of animals.
2. Many various types of grain drills and planters have been developed to suit varying farm requirements.
3. Human health may be influenced by certain animal diseases.
4. Cereals are planted on fine and mellow seedbed.
5. Machines and fertilizers are purchased by farmers from large commercial companies.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
2. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.
3. To be successful when you produce food products, there are some simple rules to follow.
4. We expected the long-term agreements between Russia and the US to be signed in the nearest future.
5. Well cooked and attractively presented food is more likely to be chosen and enjoyed.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Wheat straw containing large amounts of indigestible fibre, the farmers use it for bedding.
2. Many people who rely on diet alone have great difficulty in controlling their body mass.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Future agricultural progress depends on improving the quality of management.
5. One more commonly used method of meat preservation is canning.

Y. Read and translate the text into Russian.

PORK

Pork is flesh of hogs, usually slaughtered between the ages of six months and one year. The most desirable pork is grayish pink in colour, firm and fine-grained, well-marbled, and covered with an outer layer of firm white fat. About 30 per cent of the meat is consumed as cooked fresh meat; the remainder is cured or smoked for bacon and ham, used in sausage, and also to produce lard.



Because pigs may be infected by the parasitic disease trichinosis, pork must be cooked to an internal temperature of 71°C in order to destroy the disease-causing organism.

Pork carcasses are graded according to the amount of edible meat they will yield. In the United States, where individual cuts are not graded, a US Number 1 carcass is the one having the most satisfactory ratio of fat to lean. Utility-grade pork, which is usually from mature animals, has too little fat and is less firm. The main cuts of pork are hams, spareribs, loin chops, bellies, picnic shoulders.

Pork is one of the most popular types of meats and is consumed around the world. However, it is prohibited by the dietary laws of Judaism and Islam, so pork is virtually unknown in the cuisines of the Middle East and those of some local populations in Asia and Africa.

The American pig-raising industry calls pork a white meat, as opposed to beef; "white meat" (such as poultry) is often considered healthier than "red meat." Both Islam and Orthodox Judaism forbid the eating of pork in any form, considering it to be an unclean animal: no form of pig meat can be kosher or halal.

While pigs are raised mostly for meat, their skin is used as a source of leather. Their bristly hairs are also traditionally used for brushes.

БАПИАНТ 3

I. Translate the sentences paying attention to the Modal Verbs.

1. Farmers must feed their animals properly.
2. Man cannot regulate the amount of rainfall, but he can prevent the loss of moisture from the soil by proper cultivation or by irrigation.
3. They have to intensify and to improve agricultural production.
4. Most of Japan's land cannot be used for growing crops.

5. The farmers are to keep the cattle on pasture lands in summer.

II. Translate the following sentences paying attention to the Passive Voice.

1. More agricultural products were obtained by intensification of agricultural production on the farm last year.
2. Farm animals are bred for the production of meat, milk and eggs.
3. Dairy cows have been kept in cowsheds this spring.
4. At present more agricultural products are obtained by intensification of agricultural production.
5. The pigsty will be cleaned tomorrow.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Wheat, barley, rye, oats, corn and rice are known to be most common and valuable cereals.
2. Our farm is expected to produce high yield of rye this year.
3. It is impossible to determine the soil texture without mechanical analysis.
4. The field is too wet for the tractor to operate.
5. This soil is said to be in good structural condition.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. The ploughs being in good order, one could plough the soil well.
2. Having applied fertilizer to the soil the farmers obtained a higher yield.
3. We know several methods of planting vegetables.
4. The farmers began working at the problem of selection the plants.
5. Farmers supplying their animals with nutritious feed obtain much milk and meat.

V. Read and translate the text into Russian.

MILK

Milk is known to be highly nutritious, versatile food that has been used by humans since the beginning of recorded time. People enjoy drinking milk in its natural form and also use it to make a wide range of food products (cream, butter, yoghurt, cheese, ice cream).



Humans drink the milk produced from a variety of domesticated mammals including cows, goats, sheep, camels, reindeer, buffaloes, llama. But cow milk is the main type of milk used for commercial production and consumption throughout the world. Cow

milk has been found to contain about 3.5 to 5 per cent fat, which is dispersed throughout the milk in globules. Scientists consider sweet taste of milk to be due to lactose, a kind of sugar found only in milk. The most important protein in milk is casein, accounting for 80 per cent of milk protein. Other proteins present in milk include albumin and globulin.

Milk contains many minerals, the most abundant of which are calcium and phosphorus. It also has been proved to be an excellent source of vitamins A and B. The milk to be sold commercially should be fortified with vitamin D.

Many factors influence the composition of milk, including breed, genetic constitution of the cow, age of the cow, stage of lactation, interval between milkings and certain disease conditions. In general, the type of feed only slightly affects the composition of milk.

In most countries, almost half of the milk consumed is sold as fresh pasteurized whole, low-fat or skim milk.

ФАКУЛЬТЕТ ПЕРЕРАБАТЫВАЮЩИХ ТЕХНОЛОГИЙ

Контрольная работа №2

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. There are some basic food hygiene rules that should be followed to reduce the risk of food poisoning.
2. To make a good food product you need to start with good quality ingredients.
3. If the product is to be exported to other countries, the designer must make sure that it is acceptable.
4. Farmers can produce food without using chemicals.
5. Rice should be cooked in the minimum amount of water.

II. Translate the following sentences paying attention to the Passive Voice.

1. In modern supermarket the food is displayed in a variety of packaging materials.
2. Many new products will be developed, promoted and put on sale next year.
3. The latest discoveries in the field of physiology were spoken much of by the scientists at the conference.
4. The introduction of modern machinery in agriculture was followed by the increase in food production.
5. Management has always been an important factor in operation of a farm.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Dairy products are likely to be the best dietary source of calcium.
3. To improve the product, e.g. its flavor, texture or image, some of the ingredients may need to be changed.
4. The entire length of this farm is supposed to be about twenty miles.
5. Food manufacturers invest much money and time in designing packaging to attract customers to their food products.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Investigating and comparing food products the manufacturer will find out the reasons why a new product is needed.
2. By changing feeding rations of animals, one can improve the quality of farm products.
3. Having received the results of the tests, the market researchers were disappointed.

4. There are two ways of showing how long the food will be at its best: “best before” or “use by”.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

Y. Read and translate the text into Russian.

FOOD PRODUCTION AND THE ENVIRONMENT



In Britain in the 20th century, the problems of food shortage during the Second World War and concerns about growing populations made the government encourage farmers to grow more and more food. To do this, farmers have used lots of inputs, such as: chemicals to kill insects, animals, weeds and diseases (these chemicals are called pesticides); chemical fertilizers to put nutrients back into the soil;

man-made, enriched animal feeds to make animals grow quickly and cheaply; antibiotics and other medicines to prevent disease and make animals grow quickly; tractors and farm machinery to do jobs quickly and with fewer people and working animals.

Many inputs and modern farming methods have had very serious and long-term effects on the environment. Woodlands, rainforests and other natural habitats have been destroyed to make way for big fields, and plantations for crops, and grazing land for animals. Soils have had water, nutrients, and goodness taken out of them, are not replaced. Rivers, lakes have been polluted with pesticides. Many types of insects, birds, fish and other animals have died out because they have been poisoned by chemicals. Important materials, like oil and minerals, have been taken from the Earth. They are non-renewable.

People have also been affected, because: there are not so many jobs available in farming as there are fewer farms, and much of the work is done by machines, not people; they have become ill, because of farm chemicals in their food or drinking water; intensive farming has led to diseases passing from one animal to another, and sometimes to humans.

БАПИАНТ 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Special laboratory tests must be done in order to find out the cause of a disease.

2. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.
3. I had to stay at the laboratory two hours more to complete the work.
4. To feed the animals properly farmers should grow grasses and grain crops.
5. Scientists can control animal physiological functions for practical purposes.

II. Translate the following sentences paying attention to the Passive Voice.

1. Food poisoning is caused by toxins, which are produced in food by tiny forms of life called micro-organisms.
2. Previously, food was manufactured and sold locally to a smaller area.
3. Human health may be influenced by certain animal diseases.
4. Cereals are planted on fine and mellow seedbed.
5. Machines and fertilizers are purchased by farmers from large commercial companies.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
2. To be useful and valid, surveys need to be planned and carefully worked.
3. To be successful when you produce food products, there are some simple rules to follow.
4. We expected the long-term agreements between Russia and the US to be signed in the nearest future.
5. Well cooked and attractively presented food is more likely to be chosen and enjoyed.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Food technology research can be carried out by investigating and comparing food products.
2. Many people who rely on diet alone have great difficulty in controlling their body mass.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Secondary processing involves turning basic processed foods into food products such as making margarine from oil.
5. One more commonly used method of meat preservation is canning.

Y. Read and translate the text into Russian.

KEEPING FOOD PRODUCTS SAFE TO EAT

Every year, thousands of people suffer from food poisoning. Food poisoning is caused by toxins (poisons), which are produced in the food by tiny forms of life called micro-organisms. There are three main types of micro-organism: bacteria, moulds, yeasts. Not all bacteria, moulds and yeasts are harmful. Some are used in foods. For example, bacteria are used to make yogurt, moulds are used to make some cheeses, and yeast is used to make bread. Harmful micro-organisms are called pathogenic micro-organisms or pathogens.

Micro-organisms are very small and they are found in many different places, for example water, air, soil, dust, skin. This means that they can easily contaminate food, in the following ways: by sneezing, spitting or coughing near food; by not washing dirty vegetables properly; by storing raw and cooked meats; by leaving food exposed to the air, dust and flies; by wearing dirty clothing when handling food.

If micro-organisms are given the right conditions – temperature, moisture and food – they will grow and multiply quickly. As they do so, they produce toxins (poisons), which can make people very sick if they eat the food. Very perishable foods are the most likely to be contaminated by micro-organisms and associated with food poisoning.

How can foods be kept safe? There are some basic food hygiene rules that should be followed to reduce the risk of food poisoning: wash hands before handling food; wear clean clothes; store foods correctly; keep foods and the kitchen clean; use foods before they are past their date mark; cook foods thoroughly and serve hot, or chill quickly if they are to be stored.

БАПИАНТ 3

I. Translate the sentences paying attention to the Modal Verbs.

1. There are many ways in which food producer can help to prevent damage to the environment.
2. Man cannot regulate the amount of rainfall, but he can prevent the loss of moisture from the soil by proper cultivation or by irrigation.
3. They have to intensify and to improve agricultural production.
4. Most of Japan's land cannot be used for growing crops.
5. The farmers are to keep the cattle on pasture lands in summer.

II. Translate the following sentences paying attention to the Passive Voice.

1. More agricultural products were obtained by intensification of agricultural production on the farm last year.
2. Farm animals are bred for the production of meat, milk and eggs.
3. "Best before" tells us how long the product will be in its best condition.

4. At present more agricultural products are obtained by intensification of agricultural production.
5. The pigsty will be cleaned tomorrow.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. The food manufacturer must check all stages of production to make sure that micro-organisms are not allowed to grow in the product.
2. Our farm is expected to produce high yield of rye this year.
3. It is impossible to determine the soil texture without mechanical analysis.
4. The field is too wet for the tractor to operate.
5. This soil is said to be in good structural condition.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Machinery designers develop the most efficient way of making the product on a factory production line.
2. Having applied fertilizer to the soil the farmers obtained a higher yield.
3. We know several methods of planting vegetables.
4. Food packaging keeps many foods fresh for longer because it prevents them from drying out.
5. Farmers supplying their animals with nutritious feed obtain much milk and meat.

Y. Read and translate the text into Russian.



One way of ensuring food safety is to identify possible risks during the production, transport, storage and sale of food products. Food businesses are required to make a careful study of their buildings, workers and activities and work out where there are any possibilities for the food they deal with to become contaminated.

Food manufacturers have also had a big impact on the environment, because: they use lots of non-renewable energy sources, they use lots of packaging materials, for example paper, plastics and glass, which use energy to make and end up as rubbish.

One of the causes of environmental pollution is the transport of food from the farm to the consumer's home.

There are many ways in which food producers, retailers and consumers can help to prevent damage to the environment. It is possible for farmers to produce food

without using chemical inputs or medicines. They can do this by: keeping the soil in good condition by using natural fertilizers such as manure; growing a different crop on the same piece of land each year, and then letting the land rest for a year (called crop rotation); using other insects to control insects that damage crops; removing weeds by hand or by machine; growing crops that suit local conditions.

Manufacturers and retailers can help the environment by: using less packaging; using recycled materials for packaging, supporting organic farmers.

Consumers can help the environment by: buying food that is locally grown; buying food with minimum packaging; supporting organic farmers where possible.

ИНЖЕНЕРНЫЙ ФАКУЛЬТЕТ

Контрольные работы №1

ВАРИАНТ 1

I. Translate the following sentences paying attention to the Modal Verbs.

1. The engineer will be able to discuss this problem with you next week.
2. The driver should cool the engine if he wants to start it again.
3. You ought to help the driver to mend the tyre.
4. Problems that might have taken years to solve are solved now within a few months or even weeks.
5. The operator couldn't have forgotten to switch the motor off, he is very careful.

II. Translate the following sentences paying attention to the Passive Voice.

1. The parts will be assembled and fit on the body of the machine in the assembly shop.
2. The students are taught to control the speed of a train according to the time-table.
3. All hand operations on the construction site will be minimized with the help of new machinery.
4. The new theory of nuclear physics is often referred to.
5. The results of your experiments are always looked through by our chief.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To avoid accidents the driver must strictly follow traffic rules.
2. The road surface to be repaired was destroyed many years ago by heavy vehicles.
3. The new equipment was used in order to test the vibration of the engine.
4. The new gaseous fuel is assumed to be both cheap and efficient.
5. Samples of semiconductors with improved properties are reported to be obtained on a new installation.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Our plant producing complex machinery is very large.
2. The engineer's task is solving this difficult problem as soon as possible.
3. The operator continued testing the new motor model.
4. The research being carried out is of great importance.
5. Making many calculations and drawings and carrying out extensive tests the engineer could find the optimum solution for the design of the car.

Y. Read and translate the text into Russian.

TRACTOR TECHNOLOGY

Needless to say, one of the most important industrial achievements for farmers today is the introduction of agricultural tractors in their work. Horses and men have been almost entirely replaced by tractors in many heavy and time-consuming tasks that are carried out on the land. A tractor performs the work of numerous horses and, what is of greater importance, it doesn't need any rest in order to recover from fatigue. If necessary attention is paid to its lubrication and it's constantly supplied with fuel, it will work on indefinitely.



During the years since its introduction, a huge progress has been made in developing a more efficient machine. Modern tractors have been constructed to meet all requirements of space, comfort, vision and safety. Many devices have been incorporated in the mechanisms of the tractor for this purpose. The 6-cylinder engines have been installed in them for improved productivity and reliability. Some tractors have been equipped with a hydraulic system, which gives the driver the choice of the right power for every operation.

Nowadays there exists a wide range of different types of tractors. Let's say, the most common type today is the general-purpose wheeled tractor that is used on most farms and has an engine of up to 100 h.p. On the other hand if you need to carry out heavy cultivation on farms, you can use either track-laying tractors with a large horse-power (up to 500 h.p.) or heavy-wheeled tractors. Most present-day tractors are powered by internal combustion engines, which operate on the same basic principles.

БАПИАНТ 2

I. Translate the following sentences paying attention to the Modal Verbs.

1. They ought to apply the computer to get the optimum solution while designing the undercarriage.
2. Buying a car you are to know how to steer it.
3. All preparations must have been completed long ago.
4. He might have done it more carefully.

5. He couldn't have started the engine, it was out of order.

II. Translate the following sentences paying attention to the Passive Voice.

1. The students speak much of the new device which is used for measuring pressure.
2. They were invited to visit the new plant.
3. Some instructions will be given to the workers by our engineer.
4. The synthetic materials used in the construction of that building can be relied upon as they are of high quality.
5. Everybody is acted upon by a very large number of equal parallel forces.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To protect the surface from heat and cold it was covered with special substances.
2. The engine to be installed in this car is very powerful.
3. This kind of steel is considered to possess very high corrosion resistance.
4. Atomic ice-breakers are known to operate on a negligible quantity of atomic fuel.
5. The fields are too wet to be ploughed.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. The engineers carrying out experiments combine their research with practical work.
2. The driver spent half an hour mending the tyre.
3. Nowadays engineers prefer using new methods of work.
4. In designing this device different problems must be taken into consideration.
5. The buses and motor-cars stop running when the light is red.

V. Read and translate the text into Russian.

FINDING A FAULT IN THE CAR

Servicing your car regularly you prevent it from becoming unreliable. Of course, you can't foresee everything. Having failed to start the car in the morning you had better check three things first: the battery, the fuel level and the spark plugs. It is easy to repair these faults.

If the battery appears to be flat it is necessary to recharge it. If this doesn't work, you should replace it.

An empty tank is another common fault in the car. Having noticed a fuel warning light on the instrument panel of your car you should fill up the tank with more petrol.

Dirty spark plugs are also certain to cause a problem. To drive the car it is important to clean them regularly and adjust the gap in the spark plugs to the proper width. If the gap is not correct the engine will not run well.

If your car still does not start, the petrol pump may be broken, or the fuel pipe may be blocked. Having discovered a broken pump, it is a good idea to repair or replace it. If the fuel pipe is blocked, take it off and unblock it.

And don't forget about the air filter. Its function is to remove particles of dirt and other impurities from the air passing to the carburettor. A blocked filter decreases the airflow to the carburettor thus increasing the amount of fuel in the mixture. This causes the engine to operate inefficiently. Cleaning and changing filters regularly you prevent a considerable damage that is certain to be caused inside the cylinders. In this case the engine will need a thorough overhaul.

БАПИАHT 3

I. Translate the following sentences paying attention to the Modal Verbs.

1. She is to substitute the liquid in her tube by that in the red tube.
2. We have to apply the digital computer in all branches of industry
3. He could have broken the tube while making the experiment.
4. Before the designer begins his work he must know the specifications of the aircraft.
5. Special measures must have been taken by the tunnel builders to provide stability to the works and safety to the workers in boring this tunnel.

II. Translate the following sentences paying attention to the Passive Voice.

1. The mixture is ignited by an electric spark.
2. The driver is provided with fuel for the engine.
3. Various fuels were obtained from crude oil.
4. The results of the last experiment were constantly referred to by the professor.
5. The narrow bridge has been used for many years, now it needs widening.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. In order to calculate the volume of any object you must measure its height, width and depth.
2. Another reason to consider is the absence of necessary facilities for the experiment.

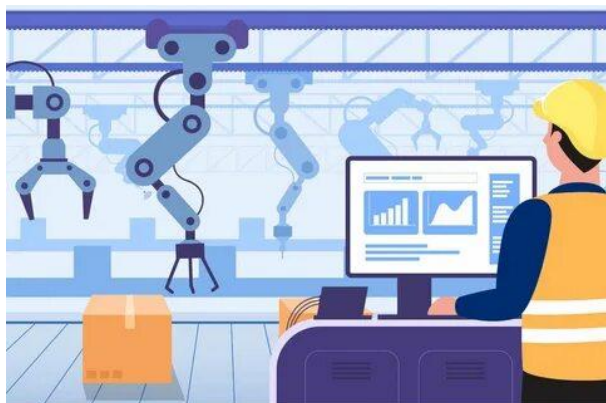
3. Many various types of airplanes are reported to have been produced in this country during the last decade.
4. The engineers are known to be working on the problem of protecting the cosmonauts from the effect of sun radiation.
5. This battery is strong enough to last forty eight hours.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. There is a possibility of using electronic machines in all branches of industry.
2. While working the designer is making many simple models.
3. Many people are against power plants burning waste.
4. There are many thousand of ways of using electric circuits.
5. The driver's duty on the railway is controlling the speed as dictated by the time-table.

Y. Read and translate the text into Russian.

AUTOMATION OF PRODUCTION



Automation is one of the main factors of engineering progress. In industrial production automation means techniques of greater mechanization by linking machine tools in automatic production lines or by automatic handling and assembly or techniques of increasingly automatic control over manufacturing processes, and non-human control of individual machine tools.

Automation of production processes would be impossible if there were no automatic control; the required machines based on electronic computation are being developed in our country and a good number of machines of this kind is already working in our industry including world-known programme-controlled metal-working machine tools, an electronic system for geological prospecting, electronic data processing systems and so on.

The rationalization of production lines is making rapid headway through the induction of automation into the mechanical processes. Especially, the adoption of special machine tools incorporating automatic loading and cycle programming devices is contributing immeasurably to the development of the automobile industry, while the system of automatic gauging and sorting has served to streamline the assembling of automobile engines, thus serving to step up production.

The sensing device of an automatic gauging equipment requires high accuracy, making it important to control the temperature of the equipment. For example, a pneumatic air micrometer is used to detect the size of the work, and thereby to control the machine tool. This device is placed in a temperature-controlled box to ensure high accuracy and continuous running.

Контрольная работа №2

ВАРИАНТ 1

I. Translate the following sentences with the Infinitive Constructions.

1. I wanted you to help me to weld these two pieces by an electric arc.
2. He suddenly felt the electrode touch the surface of the workpiece.
3. Robots are supposed to facilitate people's work.
4. The short circuit is reported to have caused a lot of damage.
5. You are likely to spot distant planets if you know about Doppeler's effect.

II. Translate the following sentences paying attention to the Subjunctive Mood.

1. If we wanted to choose the lathe we would determine the type and size of work to be performed.
2. If the ballast were poorly maintained the track would get destroyed.
3. If the voltage doubled the current would be also doubled.
4. If the production on cost were kept low, the enterprise could have good profits.
5. If computers had not been worked out many important problems might not have been solved.

III. Choose the correct verb form.

1. A group of engineers _____ the new technology recently.
a. has applied b. applied
2. Our teacher _____ the manipulator at the lesson yesterday.
a. described b. has described
3. When _____ the robot programme?
a. did you change b. have you changed
4. I _____ the new equipment.
a. have never tested b. never tested
5. _____ the history of agriculture?
a. Did you ever study b. Have you ever studied

IV. Translate the following text into Russian.

Diesel Engines vs. Gasoline Engines

Diesel's story actually begins with the invention of the gasoline engine. Nikolaus August Otto had invented and patented the gasoline engine by 1876. This invention used the four-stroke combustion principle, also known as the "Otto Cycle», — and it's the basic premise for most car engines today. In its early stage, the gasoline engine wasn't very efficient, and other major methods of transportation such as the steam engine fared poorly as well. Only about 10 percent of the fuel used in these types of engines actually moved a vehicle. The rest of the fuel simply produced useless heat.

In 1878, Rudolf Diesel was attending the Polytechnic High School of Germany (the equivalent of an engineering college) when he learned about the low efficiency of gasoline and steam engines. This disturbing information inspired him to create an engine with a higher efficiency, and he devoted much of his time to developing a "Combustion Power Engine." By 1892 Diesel had obtained a patent for what we now call the diesel engine.

In theory, diesel engines and gasoline engines are quite similar. They are both internal combustion engines designed to convert the chemical energy available in fuel into mechanical energy. This mechanical energy moves pistons up and down inside cylinders. The pistons are connected to a crankshaft, and the up-and-down motion of the pistons, known as linear motion, creates the rotary motion needed to turn the wheels of a car forward.

ВАРИАНТ 2

I. Translate the following sentences with the Infinitive Constructions.

1. We know the steam turbine to operate by virtue of the heat it derives from steam and converts into mechanical work like any other heat turbine.
2. I heard him mention this professor's name.
- 3 The engineer saw the device invented to be exact and reliable.
4. The tunnels builders are supposed to encounter many difficulties in driving tunnels.
5. The discovery of nuclear energy is thought to cause a revolution in the entire field of energetics.

II. Translate the following sentences paying attention to the Subjunctive Mood.

1. Had the possibilities of this measuring device not been exhausted it would not have been replaced by another one.
2. Were it not for the radio there would be little point in sending satellites into space.

3. Had I seen the designer yesterday I would have considered this matter again.
4. Had we used the new method we would have obtained better results.
5. If the voltage doubled the current would be also doubled.

III. Use the verb in the right form.

1. This instrument (to lose) long ago.
2. The brake system (to break) last month.
3. The engine (to switch off) several hours ago.
4. The valve in this pipe (to open) in the morning.
5. The pressure in the system (to increase) yesterday.

IV. Translate the following text into Russian.

ENGINEERING TRACTORS

The durability and engine power made tractors very suitable for engineering tasks. Tractors can be attached with different engineering tools such as hoe, ripper and so on. The most common attachments for the front of a tractor are dozer blade or a bucket. When attached with engineering tools the tractor is called an engineering vehicle.

A bulldozer is a tracked-type tractor attached with blade in the front and a rope-winch behind. Bulldozers are very powerful tractors and have excellent ground-hold, as their main tasks are to push or drag things.

Bulldozers have been further modified over time to evolve into new machines, which are capable of working in ways that the original bulldozer cannot. One example is that loader tractors were created by removing the blade and substituting a large volume bucket and hydraulic arms, which can raise and lower the bucket, thus making it useful for scooping up earth, rock and similar loose material to load it into trucks.

A front-loader or loader is a tractor with an engineering tool, which consists of two hydraulic power arms on either side of the front engine compartment and a tilting implement. This is usually a wide-open box called a bucket but other common attachments are a pallet fork and a bale grapppler.

Other modifications to the original bulldozer include the reduction in size of the machine to permit operations in small work areas where movement is limited. There also tiny-wheeled loaders, officially called skid steer loaders but nicknamed “Bobcat” after original manufacturer, which are particularly suited for small excavation in confined areas.

БАПИАНТ 3

I. Translate the following sentences with the Infinitive Constructions.

1. This system of calculating machines seems to be the most efficient.

2. The application of high-speed electronic computers proved to be extremely effective.
3. No man is likely to be able to compete with a computer as far as speed of operation and accuracy are concerned.
4. The chemical reactions mentioned are certain to take place at a high temperature.
5. Robots are supposed to facilitate people's work.

II. Translate the following sentences paying attention to the Subjunctive Mood.

1. If you increased the cross section of the conductor you would reduce its resistance.
2. The experiment might have given good results if we had all the necessary material.
3. We should not be able to demonstrate the flow of water in a pipe unless we installed a pump somewhere in the pipe-line.
4. If I were an electrician I would know how to reduce the resistance of the conductor.
5. Were it necessary the intensity of the light source could be closely controlled.

III. Choose the right verb form.

1. They ... the efficiency of a new tractor.
a) have already increased b) have already been increased
2. The oil filters in this vehicle ... recently.
a) have replaced b) have been replaced
3. This engine ... by our mechanic.
a) has just been tested b) has just tested
4. New refinements ... into this type of tractors.
a) have introduced b) have been introduced
5. The engineers ... the new acoustic system.
a) have manufactured b) have been manufactured

IV. Translate the following text into Russian.

BRAKES



Brakes are used to slow or stop the car where it is necessary. It is one of the most important mechanisms of the car as upon its proper performance the safety of passengers depends. Car brakes can be divided into two types, namely: drum brakes and disc brakes. The drum type may be either a band brake or a shoe brake. Depending on their functions, the

automobile has foot brakes and hand brakes (parking brakes). According to their mode of operation, the brakes are classified as: mechanical brakes, hydraulic brakes, airbrakes, electric brakes. Brakes are controlled by the brake pedal.

Most braking systems in use today are hydraulic. This system consists of a master cylinder mounted on the car frame and wheel cylinders. When the driver pushes down on the brake pedal, it forces the piston to move in the master cylinder and brake fluid is delivered to the wheel cylinders. The piston movement causes brake shoes to move and the brakes are applied (the brake shoes are pressed against the brake drums).

The air brake uses compressed air to apply the braking force to the brake shoes. Electric brakes use electromagnets to provide the braking effort against the brake shoes.

Formerly brakes were applied only to the two rear wheels, but now all cars are equipped with all-wheels brakes. Today many improvements are being made in brakes.

ФАКУЛЬТЕТ ЛЕСНОГО ХОЗЯЙСТВА

Контрольная работа

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. Protein can also be used to provide the body with energy.
2. Flowering plants are able to reproduce using highly adapted structures called flowers.
3. If the product is to be exported to other countries, the designer must make sure that it is acceptable.
4. Farmers can produce food without using chemicals.
5. Rice should be cooked in the minimum amount of water.

II. Translate the following sentences paying attention to the Passive Voice.

1. Butter is made from cream which has to be separated from milk.
2. Besides water the soil in which crops are grown is to be provided with air and all the necessary nutrients.
3. The latest discoveries in the field of physiology were spoken much of by the scientists at the conference.
4. The introduction of modern machinery in agriculture was followed by the increase in food production.
5. Management has always been an important factor in operation of a farm.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Dairy products are likely to be the best dietary source of calcium.
3. Many specialists have been already invited to take part in the agricultural exhibition.
4. The entire length of this farm is supposed to be about twenty miles.
5. The raw milk to be drunk by little children should be boiled.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.
2. By changing feeding rations of animals, one can improve the quality of farm products.

3. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.
4. Modern agriculture having become highly mechanized, farm managers must possess a good technical knowledge to operate various farm machines.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

Y. Read and translate the text into Russian.

TREE



In botany, a tree is a plant with an elongated stem, or trunk, supporting leaves or branches. At its broadest, trees include the taller palms, the tree ferns, bananas and bamboo. A tree typically has many secondary branches supported by the trunk. This trunk typically contains woody tissue for strength, and vascular tissue to carry materials from one part of the tree to another. For most trees it is surrounded by

a layer of bark which serves as a protective barrier. Below the ground, the roots spread out widely; they serve to anchor the tree and extract moisture and nutrients from the soil. Above ground, the branches divide into smaller branches and shoots. The shoots typically bear leaves, which capture light energy and convert it into chemical energy by photosynthesis, providing the food needed by the tree for its growth and development. Flowers and fruit may also be present, but some trees such as conifers instead have pollen cones and seed cones, and others such as tree ferns produce spores instead.

Trees play a significant part in reducing erosion and moderating the climate. They remove carbon dioxide from the atmosphere and store large quantities of carbon in their tissues. Trees and forests provide a habitat for many species of animals and plants. They provide shade and shelter, timber for construction, fuel for cooking and heating, and fruit for food as well as having many other uses. In parts of the world, forests are shrinking as trees are cleared to increase the amount of land available for agriculture.

БАРИАНТ 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Special laboratory tests must be done in order to find out the cause of a

disease.

2. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.
3. I had to stay at the laboratory two hours more to complete the work.
4. To feed the animals properly farmers should grow grasses and grain crops.
5. Scientists can control animal physiological functions for practical purposes.

II. Translate the following sentences paying attention to the Passive Voice.

1. Sometimes water is referred to as the most essential substance for normal growth of animals.
2. Many various types of grain drills and planters have been developed to suit varying farm requirements.
3. Human health may be influenced by certain animal diseases.
4. Cereals are planted on fine and mellow seedbed.
5. Machines and fertilizers are purchased by farmers from large commercial companies.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
2. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.
3. To be successful when you produce food products, there are some simple rules to follow.
4. We expected the long-term agreements between Russia and the US to be signed in the nearest future.
5. Well cooked and attractively presented food is more likely to be chosen and enjoyed.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Wheat straw containing large amounts of indigestible fibre, the farmers use it for bedding.
2. Many people who rely on diet alone have great difficulty in controlling their body mass.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Future agricultural progress depends on improving the quality of management.
5. One more commonly used method of meat preservation is canning.

Y. Read and translate the text into Russian.

TREES AS FOOD

Trees are the source of many of the world's best known fleshy fruits. Apples, pears, plums, cherries and citrus are all grown commercially in temperate climates and a wide range of edible fruits are found in the tropics. Other commercially important fruit include dates, coconuts and other nuts, figs and olives. Palm oil is obtained from the fruits of the oil palm. The fruits of the cocoa tree are used to make cocoa and chocolate and the berries of coffee trees are processed to extract the coffee beans. In many rural areas of the world, fruit is gathered from forest trees for consumption.

Many trees have flowers rich in nectar which are attractive to bees. The production of forest honey is an important industry in rural areas of the developing world where it is undertaken by small-scale beekeepers using traditional methods.

The leaves of trees are widely gathered as fodder for livestock and some can be eaten by humans but they tend to be high in tannins which makes them bitter.

In temperate climates there is a sudden movement of sap at the end of the winter as trees prepare to burst into growth. In North America, the sap of the sugar maple is most often used in the production of a sweet liquid, maple syrup. About 90% of the sap is water, the remaining 10% being a mixture of various sugars and certain minerals. The sap is harvested by drilling holes in the trunks of the trees and collecting the liquid that flows out of the inserted spigots. It is piped to a sugarhouse where it is heated to concentrate it and improve its flavour.

БАПИАНТ 3

I. Translate the sentences paying attention to the Modal Verbs.

1. Farmers must feed their animals properly.
2. Man cannot regulate the amount of rainfall, but he can prevent the loss of moisture from the soil by proper cultivation or by irrigation.
3. They have to intensify and to improve agricultural production.
4. Most of Japan's land cannot be used for growing crops.
5. The farmers are to keep the cattle on pasture lands in summer.

II. Translate the following sentences paying attention to the Passive Voice.

1. More agricultural products were obtained by intensification of agricultural production on the farm last year.
2. Farm animals are bred for the production of meat, milk and eggs.

3. Dairy cows have been kept in cowsheds this spring.
4. At present more agricultural products are obtained by intensification of agricultural production.
5. The pigsty will be cleaned tomorrow.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Wheat, barley, rye, oats, corn and rice are known to be most common and valuable cereals.
2. Our farm is expected to produce high yield of rye this year.
3. It is impossible to determine the soil texture without mechanical analysis.
4. The field is too wet for the tractor to operate.
5. This soil is said to be in good structural condition.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. The ploughs being in good order, one could plough the soil well.
2. Having applied fertilizer to the soil the farmers obtained a higher yield.
3. We know several methods of planting vegetables.
4. The farmers began working at the problem of selection the plants.
5. Farmers supplying their animals with nutritious feed obtain much milk and meat.

Y. Read and translate the text into Russian.

TREE ECOLOGY

Trees are an important part of the terrestrial ecosystem, providing essential habitat for a community of organisms. Epiphytic plants such as ferns, some mosses, liverworts, orchids and some species of parasitic plants (e.g., mistletoe) hang from branches; these along with arboreal lichens, algae, and fungi provide micro-habitats for themselves and for other organisms, including animals. Leaves, flowers and fruits are seasonally available. On the ground underneath trees there is shade, and often there is undergrowth, leaf litter, fallen branches and/or decaying wood that provide other habitat. Trees stabilise the soil, prevent rapid run-off of rain water, help prevent desertification, have a role in climate control and help in the maintenance of biodiversity and ecosystem balance.

Trees can play a role in the development of an ecosystem, for example in mangrove swamps the roots of the mangrove trees reduce the speed of flow of tidal currents and hence trap water-borne sediment, leading over time to a reduction in water depth and the creation of suitable conditions for further mangrove colonisation. Thus mangrove swamps tend to extend seawards in suitable locations. Mangrove

swamps also provide an effective buffer against the more damaging effects of cyclones and tsunamis.

A forest of great age is called ancient woodland and a forest in its natural state, before being explored or exploited by man is a virgin forest. Trees have conservation value and add interest to the landscape. They can be planted as isolated specimens in hedgerows or as shelter belts. They provide shade for people and animals. They can be planted in grand avenues in parkland or alongside roads in town and country.



ЭКОНОМИЧЕСКИЙ ФАКУЛЬТЕТ

Контрольная работа

ВАРИАНТ 1

I. Translate the following sentences paying attention to the Modal Verbs.

1. He must be sitting in his office.
2. You needn't send the letter.
3. He should sign the contract.
4. They will be able to dispatch the goods next month.
5. The flight is to arrive at 2 p.m.

II. Translate the following sentences paying attention to the Passive Voice.

1. The material loss will be estimated in three months.
2. Intensive technologies were applied on this farm last year.
3. A new research is being carried out successfully.
4. The documents have been sent for.
5. A lot of time is given to the study of the new methods of work.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. The economical problems to be solved in our country are cost accounting, labour organization and self-financing.
2. They do not expect the President to cut taxes as he has promised.
3. A new pension fund is reported to be set up next year.
4. The computer is said to be able to do computation in milliseconds.
5. The incomes to be obtained by our farm will be high.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Having looked through all the documents and letters received that day he called his secretary.
2. Farmers can produce food without using chemicals.
3. Making a decision without knowing the facts is foolish.
4. The exhibition has always been the place for introducing new products and new technologies.
5. He insisted on their being invited to the conference.

Y. Read and translate the text into Russian.

FARM MANAGEMENT

Farm management draws on agricultural economics for information on prices, markets, agricultural policy, and economic institutions such as leasing and credit. It also draws on plant and animal sciences for information on soils, seed, and fertilizer, on control of weeds, insects, and disease, and on rations and breeding;



on agricultural engineering for information on farm buildings, machinery, irrigation, crop drying, drainage, and erosion control systems; and on psychology and sociology for information on human behaviour. In making his decisions, a farm manager thus integrates information from the biological, physical, and social sciences.

Because farms differ widely, the significant concern in farm management is the specific individual farm; the plan most satisfactory for one farm may be most unsatisfactory for another. Farm management problems range from those of the small, near-subsistence and family-operated farms to those of large-scale commercial farms where trained managers use the latest technological advances, and from farms administered by single proprietors to farms managed by the state.

In western Europe the typical family farmer has less land than is economical with modern machinery, equipment, and levels of education and training, and so must select from the products of an emerging stream of technology the elements that promise improved crop and livestock yields at low cost; adjust his choice of products as relative prices and costs change; and acquire more land as farm labour is attracted by nonfarm employment opportunities and farm numbers decline.

БАПИАHT 2

I. Translate the following sentences paying attention to the Modal Verbs.

1. She had to send the letter yesterday.
2. We are not able to make a reduction in price.
3. Freight is to be paid by the Supplier.
4. Your car may be immobilized by a wheel-clamp.
5. He must have studied English for a long time.

II. Translate the following sentences paying attention to the Passive Voice.

1. The managerial decisions in large corporations are made by a board of directors elected by common stockholders.
2. This problem has not been solved yet by the US agricultural economists.
3. The credit that can be obtained by a single proprietor is much smaller than that obtained by a big corporation.
4. This letter from Continental Equipment is often referred to.
5. No capital is required if your company is well-known.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Before planning the crops to grow one should make an estimate of the income to be earned.
2. Continuous grain cropping is likely to insure the highest net returns.
3. We expect the delegation to come on Monday.
4. The equipment was reported to be delivered to other port.
5. Media salesmen are believed to be knowledgeable about business and skilled in salesmanship.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Having been offered some interesting work in Italy he went there.
2. All problems having been discussed, the businessmen left the office.
3. Forecasting the success or failure of new product introductions is very important.
4. We improved the contract by changing some points.
5. The organizers of the conference were informed of his refusing to take part in it.

V. Read and translate the text into Russian.

Pricing Methods

Price is a very important weapon that can be used to persuade consumers to buy. Price is one of many factors that determine the demand for a product. What are the most common pricing methods adopted by firms?

Cost-plus pricing is a very simple pricing method and is perhaps the most common. A firm may calculate its average costs of producing a product and simply add a profit «mark up», say 10 %, on to average costs. This mark-up could be changed to allow for the effects of competition and economic conditions, e.g. where



there is a lot of competition this mark-up may be lowered or when business is good the mark-up could be raised.

Marginal-cost pricing differs from the above in that the firm looks not at its average costs but marginal costs, i.e. the firm calculates the additional cost of producing the next unit or set of units of output and the firm charges a price (plus a 'mark-up') according to the marginal cost. A typical example is found in the shoe repair business. There appear to be no standard prices for repairing shoes. What tends to happen is that the cobbler examines the shoes and makes a quick estimate of how much material and time it will take to repair them. Larger shoes, those made of leather and those in greater disrepair have a higher marginal cost and therefore a higher price is charged for their repair.

Price discrimination: several firms are able to charge different prices for a similar product. This is known as price discrimination. British Rail (BR), for example, charges different consumers such as businessmen and women, children, senior citizens and students different prices and also charges different prices according to the time of journey, e.g. peak, off-peak, weekly and week-end.

БАПИАНТ 3

I. Translate the following sentences paying attention to the Modal Verbs.

1. I need more money. I must change my job.
2. You have to go a Payment Centre and pay a fee.
3. They will have to deliver the equipment within 12 months.
4. I won't be allowed to transfer the money.
5. He should have checked the TV set before he bought it.

II. Translate the following sentences paying attention to the Passive Voice.

1. The order cannot be canceled because it has been already sent.
2. Our business in the Middle East was influenced by inflation very badly.
3. Payment will be made by letter of credit.
4. The contract was being discussed when I came.
5. All new catalogues had been looked through by last Friday.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To maximize profits of a farm it is important to select the best enterprise combinations.
2. This experimental method proved to be quite useless.
3. Economics is known to be an independent science.

4. We believe this discussion to be very useful in helping to approach the problem in a new way.
5. Poor labour planning is sure to result in unnecessary expenditures.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Natural resources being rather poor, the country depends greatly on foreign trade.
2. All the preparations having been made, our managers went home.
3. We are interested in making our contribution partly in goods and partly in currency.
4. Before opening a branch in St. Petersburg we are planning to train a new staff in London.
5. A country may protect its economy by erecting artificial trade barriers.

Y. Read and translate the text into Russian.

FINANCIAL MANAGEMENT



The financial tools a farmer can use to analyze, plan, and control his business (business finance) include financial statements, profit and loss statements, and cash-flow statements. A financial statement tells the amount of money invested in farm assets, outstanding debts, the owner's equity in the business, and the degree to which the farm is liquid and solvent. Liquidity is the ability to meet

financial obligations on time, whereas solvency is the ability to pay all debts if the business is forced to discontinue. A profit and loss statement shows sources and amounts of income and operating expenses. Comparison of profit and loss statements over a period of years tells which resources have been most profitable and whether there has been an advance or decline in net income. A cash-flow statement shows the sources and uses of funds at given periods during the year. Such a statement provides a useful check on the accuracy of the farm's other business records.

For the traditional farmer, land and labour (his own and that of his family) are the major resources. Under favourable conditions, the farmer has changed his role from labourer to operator-manager; much larger farm units with high capital investments have resulted. Such conditions include the existence of a considerable body of applicable scientific knowledge, an opportunity for greater efficiency from large-

scale operations, the existence of good markets and transportation, the opportunity to routinize and centrally direct farm work, and an absence of community antagonism to large-scale agriculture.

ЗООИНЖЕНЕРНЫЙ ФАКУЛЬТЕТ

Контрольная работа №1

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. The results of experiments on animal behavior are to be analysed on the basis of scientific knowledge.
2. Certain animal diseases may greatly influence our health.
3. Preventive medicine should have considered the aspects of disease prevention and control.
4. The problems of the bird flu were to attract many scientists to take part in the conference.
5. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.

II. Translate the following sentences paying attention to the Passive Voice.

1. Any changes in animal feeding will be agreed on with the vet tomorrow.
2. Yesterday the specialist in animal nutrition was asked to give some recommendations and he was listened to with great attention.
3. The young farmer has been already given some advice how to look after the cows during the winter period.
4. At the moment the plan for farm reconstruction is being discussed.
5. Some essential nutrients cannot be manufactured within the cell in the body of animals.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To be most effective the sunlight must be direct.
2. To get their essential nourishing fuel, mammals have to perform a whole series of complicated operations.
3. The unused residue returns to the soil as manure to enrich the food supply.
4. Copper is known to be the activator of certain enzyme systems.
5. The pig is believed to be the world's second largest provider of meat known as pork.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Knowing the nutritive value of feed supplements a farmer can provide his animals with rations accurately calculated.

2. The calf growing on a pasture will be healthier than that kept in a barn.
3. Whitewashing the walls helps in maintaining sanitation.
4. Because of the covering of wool sheep can withstand cold temperatures better than cattle.
5. If shearing is delayed too long, the wool becomes dead and lifeless.

Y. Read and translate the text into Russian.

FEEDING PIGS



Pigs are non-ruminant animals. They have a single stomach in contrast to such animals as cattle and goats. To grow rapidly and efficiently, swine need a high energy, concentrated grain diet that is low in fiber (cellulose) and is supplemented with adequate protein.

Farm grains are the most common and best source of energy feeds for swine.

Corn is an excellent energy feed, and is ideal for finishing feed because it is high in digestible carbohydrates, low in fiber, and is very tasty to pigs. But corn alone will not keep pigs growing and healthy. Corn must be supplemented with vitamins to keep pigs healthy.

Other good sources of feed are barley, oats, and wheat. But like corn all these sources should be supplemented with protein supplements. Some people add antibacterial compounds to their feed to slow the growth of harmful bacteria that occurs naturally in most feeds. In low levels, these compounds increase the growth of pigs and lower feeding costs. They benefit younger pigs (under 100 to 125 pounds) more than finishing hogs. If you decide to use an antibacterial compound, make sure that you pay attention to the withdrawal period listed on the label (the withdrawal period is the amount of time when medicated feeds must be removed from a hog's diet before slaughter).

Water is the most important part of a pig's diet. One-half to two-thirds of a pig's body is made up of water. Pigs should be supplied with as much clean, fresh water as they will drink. Pigs can live longer without feed than without water.

БАПИАНТ 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Scientists ought to carry out many experiments before the animal cloning may become a routine procedure in the breeding of farm animals.

2. If the weather is windy and rainy hill sheep and cattle will have to stop grazing to look for grounds and shelter.
3. According to the agreement with a farmer, a veterinary surgeon is to examine farm animals regularly.
4. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.
5. In order to maintain animals in healthy condition, each farmer must follow certain sanitary requirements.

II. Translate the following sentences paying attention to the Passive Voice.

1. Sometimes water is referred to as the most essential substance for normal growth of animals.
2. A national breeding association is to publish the official record of the pedigree of purebred horses and dogs every year.
3. During the recent decades some species of animals had to move to new places and adapt to new environment conditions.
4. All animals and birds which are imported from foreign countries must be under severe quarantine for some period of time to prevent the introduction of any infections.
5. Some symptoms such as high temperature or fever may be noticed even by a non-specialist.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
2. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.
3. Meat is considered to be an essential part of human diet.
4. Fermentation is supposed to have been an ancient form of food preservation used in the meat industry.
5. This boar is not vigorous enough to be used for mating.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Before choosing cows for mating, breeders should estimate the performance of their progeny.
2. Raising and feeding cattle on pasture throughout the year is the most economical method.
3. Keeping the records about the dates of artificial insemination of cows, a farmer will know the date of calving for each animal.

4. Being raised for mutton, sheep can be also sheared in order to obtain some wool.
5. Crossbreeding is a very popular method for increasing sheep population.

Y. Read and translate the text into Russian.

POULTRY BREEDING

Poultry is the class of domesticated fowl (birds) used for food or for their eggs. The word “poultry” is often used to refer to the flesh of these birds.

On poultry farms, the male chicken is called “the rooster” or “the cock”. The female (more than a year old) is called “the hen”; the female (less than a year old) is called the pullet; the immature male is known as the cockerel; very young chickens of either sex are called chicks; and castrated males are called capons.



Chicken meat and eggs have become mass-production commodities due to modern high-value poultry farms where such operations as feeding, watering and cleaning as well as egg gathering are highly mechanized. To control heat, light and humidity, commercial farms widely use the battery system for raising chickens, that is, birds are confined in separate cages arranged in rows one above the other throughout the year. It has been found that this system increases production, lowers mortality, reduces diseases, improves culling and reduces both space and labour requirements.

Among the world’s agricultural industries, meat chicken breeding is one of the most advanced and it is presently considered the model for other animal industries. The broiler industry is leading in advanced agricultural technology and efficiency. A modern broiler chick gains over 43 times its initial weight in an eight-week period. As to the achievement in egg production, annual egg production per hen has considerably increased. Poultry breeders predict further increase in the demand for poultry production in the future.

БАПИАНТ 3

I. Translate the sentences paying attention to the Modal Verbs.

1. A farmer must separate a sick animal immediately from the other animals in the herd.

2. A national breeding association is to publish the official record of the pedigree of purebred horses and dogs every year.
3. During the recent decades some species of animals had to move to new places and adapt to new environment conditions.
4. All animals and birds which are imported from foreign countries must be under severe quarantine for some period of time to prevent the introduction of any infections.
5. Some symptoms such as high temperature or fever may be noticed even by a non-specialist.

II. Translate the following sentences paying attention to the Passive Voice.

1. More agricultural products were obtained by intensification of agricultural production on the farm last year.
2. Farm animals are bred for the production of meat, milk and eggs.
3. Dairy cows have been kept in cowsheds this spring.
4. At present more agricultural products are obtained by intensification of agricultural production.
5. The pigsty will be cleaned tomorrow.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. The lamb is not fat enough to be slaughtered this month.
2. Ecologists have found a lot of bird species to be disappearing at a rapid rate now.
3. Beekeeping is believed to have originated in the Middle East.
4. These geese do not seem to have attracted the attention of genetics.
5. The goat proved to be an important milk producer in China and India.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. For centuries pigs have been used for obtaining edible fat and meat.
2. Both biologists and chemists are interested in developing new drugs for treating farm animals.
3. Large litters greatly depend on proper selecting of a sow.
4. Raising cattle, farmers should turn animals out on pastures as early as possible in spring.
5. Dairy cattle are susceptible to all the diseases and infections affecting beef cattle.

Y. Read and translate the text into Russian.

SHEEP CARE



In addition to food, water, exercise, and shelter, a few preventative procedures are necessary to keep your sheep healthy. First, in the United States lambs usually have their tails docked, or cut close to the tailhead, for hygienic reasons (to prevent the accumulation of manure that would attract flies). Second, periodic worming is needed - at least twice a year, though the frequency will vary according to climate, terrain, and

herd condition. Third, three types of vaccinations are needed by pregnant ewes and, later, their lambs. Young lambs that have not yet been vaccinated should receive tetanus antitoxin at castration and docking time for immediate protection against tetanus. Fourth, hooves should be trimmed and checked periodically for "foot rot," an odorous fungus infection common in neglected feet that have been standing in wet mud.

Sheep are kept in mobs in paddocks; in pens or in a barn. In cold climates, sheep may need shelter if they are freshly shorn or have baby lambs. Freshly shorn hoggets, especially, may be very susceptible to wet, windy weather and can succumb to exposure very quickly. Sheep have to be kept dry for one to two days before shearing so that the fleece is dry enough to be pressed and to protect the health of the shearers.

Weaning is a critical period in the life of young sheep as it is this time when more problems occur than at any other stage of a sheep's life. Sheep of this age need careful observation as to their general health by noting any weaners that are hollow, have a pale skin or are falling behind the mob etc.

Farmers work with animal nutritionists and veterinarians to keep sheep healthy and to manage animal health problems. Lambs may be castrated and have their tails docked for easier shearing, cleanliness and to help protect them from fly strike.

ЗООИНЖЕНЕРНЫЙ ФАКУЛЬТЕТ

Контрольная работа №2

ВАРИАНТ 1

I. Translate the sentences paying attention to the Modal Verbs.

1. Protein can also be used to provide the body with energy.
2. Flowering plants are able to reproduce using highly adapted structures called flowers.
3. If the product is to be exported to other countries, the designer must make sure that it is acceptable.
4. Farmers can produce food without using chemicals.
5. Rice should be cooked in the minimum amount of water.

II. Translate the following sentences paying attention to the Passive Voice.

1. Butter is made from cream which has to be separated from milk.
2. Besides water the soil in which crops are grown is to be provided with air and all the necessary nutrients.
3. The latest discoveries in the field of physiology were spoken much of by the scientists at the conference.
4. The introduction of modern machinery in agriculture was followed by the increase in food production.
5. Management has always been an important factor in operation of a farm.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Dairy products are likely to be the best dietary source of calcium.
3. Many specialists have been already invited to take part in the agricultural exhibition.
4. The entire length of this farm is supposed to be about twenty miles.
5. The raw milk to be drunk by little children should be boiled.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.
2. By changing feeding rations of animals, one can improve the quality of farm products.

3. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.
4. Modern agriculture having become highly mechanized, farm managers must possess a good technical knowledge to operate various farm machines.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

Y. Read and translate the text into Russian.

TROUT

Trout usually live in cool fresh water and are found in most of the lakes and streams of northern regions. Trout, like salmon, spawn during the spring or occasionally in the autumn.

The most widely distributed species is the brook trout, which is similar to the brown trout of Europe. It is recognized by its large mouth, violet mantle, dark mottlings and red lateral spots, the general colouring being dark grey or green. The male has a reddish band running along the side of the body. Brook trout vary in size, the average weight is about 1 kg. Trout spawn between fall and spring and bury their eggs in a gravel nest scooped out by the female on a streambed. The eggs take two to three months to hatch and the newly hatched trout, or fry, become known as fingerlings when they leave the nest and begin feeding on plankton. Their diet consists of insects, small fishes and their eggs and crustaceans.

Trout are important sport fishes and are often raised in hatcheries for later transfer to habitable bodies of water.

The brown trout was first brought into Colorado in the 1890s and is now abundant from high mountain streams to broad rivers flowing onto the plains. These fish can be difficult to catch, but many anglers have good success during their fall spawning runs. A large dark spotting pattern and reddish dots can help anglers distinguish these fish from rainbows and cutthroats.



БАПИАHT 2

I. Translate the sentences paying attention to the Modal Verbs.

1. Special laboratory tests must be done in order to find out the cause of a disease.
2. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.

3. I had to stay at the laboratory two hours more to complete the work.
4. To feed the animals properly farmers should grow grasses and grain crops.
5. Scientists can control animal physiological functions for practical purposes.

II. Translate the following sentences paying attention to the Passive Voice.

1. Sometimes water is referred to as the most essential substance for normal growth of animals.
2. Many various types of grain drills and planters have been developed to suit varying farm requirements.
3. Human health may be influenced by certain animal diseases.
4. Cereals are planted on fine and mellow seedbed.
5. Machines and fertilizers are purchased by farmers from large commercial companies.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
2. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.
3. To be successful when you produce food products, there are some simple rules to follow.
4. We expected the long-term agreements between Russia and the US to be signed in the nearest future.
5. Well cooked and attractively presented food is more likely to be chosen and enjoyed.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. Wheat straw containing large amounts of indigestible fibre, the farmers use it for bedding.
2. Many people who rely on diet alone have great difficulty in controlling their body mass.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Future agricultural progress depends on improving the quality of management.
5. One more commonly used method of meat preservation is canning.

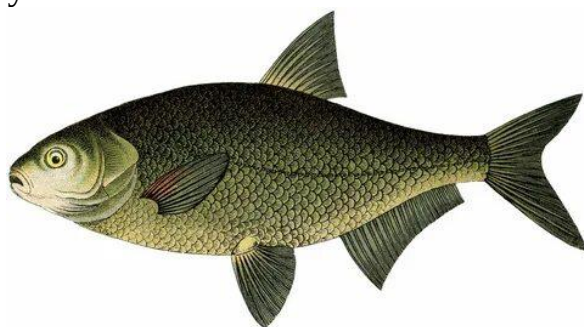
Y. Read and translate the text into Russian.

Fish are cold-blooded vertebrate animals living in the fresh or salt waters of the world. Living species vary from the primitive, jawless lampreys and hagfishes

through the cartilaginous sharks, skates and rays to the abundant and diverse bony fishes. They are poikilothermic and reproduce by laying eggs. An animal whose body temperature varies with that of its surroundings is said to be poikilothermic. The temperature of such an animal is usually a few degrees above that of its environment, but a rise or fall in the temperature of the air or water in which it lives will result in a corresponding change in the animal's body temperature. Thus, the rate of activity of fish depends to a large extent on the surrounding temperature.

Bony fishes also have an operculum which is a bony structure covering and protecting the gills; it plays an important part in the breathing mechanism. Oxygen dissolved in the water is absorbed by the gills. The movements of the mouth and operculum are coordinated to produce a stream of water, in through the mouth, over the gills and out of the operculum. There are usually four gills on each side consisting of a curved bony gill bar bearing many fine filaments.

Sight is extremely important in most fishes. The eye of a fish is basically like that of all other vertebrates, but the eyes of fishes are greatly varied in structure and adaption. As a rule, fishes living in dark and dim water habitats have large round pupils which do not vary in size.



ВАРΙΑНТ 3

I. Translate the sentences paying attention to the Modal Verbs.

1. Farmers must feed their animals properly.
2. Man cannot regulate the amount of rainfall, but he can prevent the loss of moisture from the soil by proper cultivation or by irrigation.
3. They have to intensify and to improve agricultural production.
4. Most of Japan's land cannot be used for growing crops.
5. The farmers are to keep the cattle on pasture lands in summer.

II. Translate the following sentences paying attention to the Passive Voice.

1. More agricultural products were obtained by intensification of agricultural production on the farm last year.

2. Farm animals are bred for the production of meat, milk and eggs.
3. Dairy cows have been kept in cowsheds this spring.
4. At present more agricultural products are obtained by intensification of agricultural production.
5. The pigsty will be cleaned tomorrow.

III. Translate the following sentences with the Infinitive and Infinitive Constructions.

1. Wheat, barley, rye, oats, corn and rice are known to be most common and valuable cereals.
2. Our farm is expected to produce high yield of rye this year.
3. It is impossible to determine the soil texture without mechanical analysis.
4. The field is too wet for the tractor to operate.
5. This soil is said to be in good structural condition.

IV. Translate the sentences into Russian paying attention to V-ing forms.

1. The ploughs being in good order, one could plough the soil well.
2. Having applied fertilizer to the soil the farmers obtained a higher yield.
3. We know several methods of planting vegetables.
4. The farmers began working at the problem of selection the plants.
5. Farmers supplying their animals with nutritious feed obtain much milk and meat.

V. Read and translate the text into Russian

Various methods enable aquaculturists to rear aquatic organisms artificially in fresh, brackish or salt water. In addition, aquacultural production can develop not only in natural waters but in artificial aquatic impoundments (earthen ponds, concrete pools or cages into open water). Management practices vary from pond fertilization, which increases the number of natural food organisms, to the supply of a complete feed providing all nutrients necessary for growth. Animals that have reached market size are harvested from the ponds.

Fish can also be raised in cages or raceways. Fish breeders consider raising fish in cages to be a good method in case of using the water of lakes, bays or the open ocean. Rainbow trout are grown in raceways in many places, including Chile, Europe, the United States. Salmon are grown in cages, and Norway ranks the first in the world production of farmed salmon.



One of the main tasks of aquaculture is to breed edible fish in special ponds for sale to meet the increasing demand of population for fish. Consumer demand for fish continues to increase, especially in developed countries. World aquaculture production has been experiencing a boom since the mid- 1980s and today it continues to expand in almost all world regions. But there exist some problems preventing further growth of aquaculture production such as the lack of investment capital for producers in the developing countries, environmental pollution and problems of product safety.

ВЕТЕРИНАРНЫЙ ФАКУЛЬТЕТ

специальность «Ветеринария»

Контрольные работы №1

ВАРИАНТ 1.

I. Write the main forms of the following verbs:

to do, to be, to breed, to develop, to buy, to raise, to feed, to give, to have

II. Use the correct form of the verb in brackets in the active voice. Translate the sentences into Russian:

1. In early times people (to begin) domesticating wild animals.
2. I think the farmer (to increase) the yields of crops next year.
3. The scientists from our laboratory (to present) interesting reports at the conference recently.
4. Last year the farmers (not to rely) on feeds from pastures and (to grow) additional crops for their livestock.
5. The cow (convert) large quantities of different grasses into milk which (to be) a valuable product.

III. Use the correct form of the adjective or adverb in brackets. Translate the sentences into Russian:

1. Mother's milk is (good) feed for calves and lambs.
2. The northern regions of Russia are (little) suitable for crop farming than the central regions.
3. The mechanization of agriculture in some African countries is (bad) than in Asian countries.

IV. Translate the sentences into Russian paying attention to the modal verbs:

1. The results of experiments on animal behavior are to be analysed on the basis of scientific knowledge.
2. Certain animal diseases may greatly influence our health.
3. Preventive medicine should have considered the aspects of disease prevention and control.
4. The problems of the bird flu were to attract many scientists to take part in the conference.
5. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.

Y. Read and translate the text into Russian:

ANIMAL HUSBANDRY



Animal husbandry is the agricultural practice of breeding and raising livestock. As such, it is a vital skill for farmers, and in many ways as much art as it is science. The science of animal husbandry, called animal science, is taught in many universities and colleges around the world. Students of animal science may pursue degrees in veterinary medicine or zootechnics following graduation, or go on to pursue master's degrees or

doctorates in disciplines such as nutrition, genetics and breeding, or reproductive physiology. Graduates of these programs may be found working in the veterinary and human pharmaceutical industries, the livestock and pet supply and feed industries, or in academia. It is one of the oldest world professions. Historically, certain sub-professions within the field of Animal Husbandry are specifically named according to the animals which are cared for.

A swineherd is a person who cares for hogs and pigs (older English term: swine). A shepherd is a person who cares for sheep. A goatherd cares for goats. A cowherd cares for cattle. In previous years, it was common to have herds which were made up of sheep and goats. In this case, the person tending them was called a shepherd. In more modern times, cowboys (or in Spanish: gauchos) rode horses and participated in cattle drives to watch over cows and bulls raised primarily for food.

ВАРИАНТ 2.

I. Write the main forms of the following verbs:

to ride, to let, to put, to leave, to read, to use, to domesticate, to convert

II. Use the correct form of the verb in brackets in the active voice. Translate the sentences into Russian:

1. As our agronomist (to recommend) we (to spread) manure on this field now.
2. People (to keep) domesticated animals either in barns or on pastures.
3. The production of dairy products constantly (to increase) in Russia at

present.

4. What animals (to use) people as draft animals in the 18th century?
5. For many centuries people in Africa (to breed) camels, but even now a white camel (to be) an exotic animal.

III. Use the correct form of the adjective or adverb in brackets. Translate the sentences into Russian:

1. It was (easy) to cultivate this new field than the farmer had thought.
2. Nowadays we use (modern) machinery than ten years ago.
3. Some cattle breeds require (hot) climate for growth than others.

IV. Translate the sentences into Russian paying attention to the modal verbs:

1. Scientists ought to carry out many experiments before the animal cloning may become a routine procedure in the breeding of farm animals.
2. If the weather is windy and rainy hill sheep and cattle will have to stop grazing to look for grounds and shelter.
3. According to the agreement with a farmer, a veterinary surgeon is to examine farm animals regularly.
4. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.
5. In order to maintain animals in healthy condition, each farmer must follow certain sanitary requirements.

Y. Read and translate the text into Russian.

DAIRY FARMING

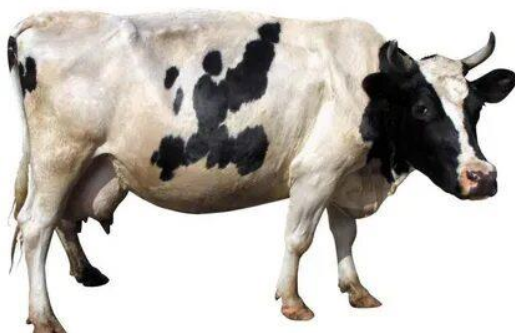
Dairy farming is a class of agricultural enterprise, raising female cattle for long-term production of milk, which may be either processed on-site or transported to a dairy for processing and eventual retail sale. Most dairy farms sell the male calves borne by their cows, sometimes for veal production, rather than raising non-milk-producing stock. Many dairy farms also grow their own feed, typically including corn, alfalfa, and hay.

On many farms, cows are given growth hormones (known as "BST" or "rBGH") to increase milk production. It is also common to include antibiotics in the animals' feed, to reduce the transmission of infection arising from the close quarters in which dairy cattle are typically housed. Both of these practices are controversial and prohibited under organic farming codes of conduct.

Most milk-consuming countries have a local dairy farming industry, and most producing countries maintain significant subsidies and trade barriers to protect

domestic producers from foreign competition. In large countries, dairy farming tends to be geographically clustered in regions with abundant natural water supplies (milk is mostly water) and relatively inexpensive land (even under the most generous subsidy regimes, dairy farms have poor return on capital).

In the United States, dairy farming is an important industry in Vermont, Pennsylvania, Wisconsin, and Minnesota, but the largest state in dairy production is California. In Europe, Denmark, northern France (particularly Normandy), and Switzerland are particularly known as centers of dairy production.



ВАРИАНТ 3.

I. Write the main forms of the following verbs:

to think, to show, to rear, to grow, to begin, to attend, to start, to become

II. Use the correct form of the verb in brackets in the active voice. Translate the sentences into Russian:

1. Last week the farmers (to keep) swine on pastures.
2. Poultry also (to convert) feed efficiently into protein and (to provide) people with meat and eggs.
3. If any species in the food chain (to disappear), there (to be) a disbalance in the whole ecosystem.
4. As soon as the environment of a species or a population (to develop) in an unfavourable way, it (to cause) an ecological crisis.
5. If ecologists (not/to make) soil and water analyses, they (not/to be able) to estimate the environmental pollution.

III. Use the correct form of the adjective or adverb in brackets. Translate the sentences into Russian:

1. Farmers are interested in (cheap) fertilizers of (high) quality.

2. This farm has (high) crop yields now than last year.
3. Application of fertilizers is one of the (good) methods of increasing crop yields.

IV. Translate the sentences into Russian paying attention to the modal verbs:

1. A farmer must separate a sick animal immediately from the other animals in the herd.
2. A national breeding association is to publish the official record of the pedigree of purebred horses and dogs every year.
3. During the recent decades some species of animals had to move to new places and adapt to new environment conditions.
4. All animals and birds which are imported from foreign countries must be under severe quarantine for some period of time to prevent the introduction of any infections.
5. Some symptoms such as high temperature or fever may be noticed even by a non-specialist.

Y. Read and translate the text into Russian.

THE PURPOSE OF SHEEP BREEDING

Sheep are mainly raised for the purpose of obtaining pelts and wool clothing and carpets. The quality and the market value of wool vary greatly with the fineness, curliness and lightness as well as the length of the fibre it consists of. Moreover, the wool is light in relation to its value and is relatively imperishable, both of which qualities have made it a valuable item of trade and export. In addition to providing wool, sheep produce meat in the form of lamb and mutton, and milk for drinking and cheese-making. Sheep can be used to a small extent as pack-animals. Recently, sheep-raising in some areas has decreased in favour of more profitable cattle.



Sheep bred for their fine wool account for nearly half the world sheep population. They are adapted to semiarid conditions and are characterized as medium in size, with the ability to produce large amounts of wool fibres 20 micrometers or less in diameter. Most sheep of this type belong to the Merino breed. The other major breed of fine-wool sheep is Rambouillet, which is similar to the Merino.

Commercial sheep today represent two-breed or three-breed crosses, with white-faced crossbred ewes preferred in the range areas and a black-faced sire, such as

Suffolk or Hampshire, preferred for market lambs, which are either finished for slaughter or sold as breeding ewes.

Контрольная работа №2

ВАРИАНТ 1.

I. Translate the following sentences paying attention to the Passive Voice:

1. Any changes in animal feeding will be agreed on with the vet tomorrow.
2. Yesterday the specialist in animal nutrition was asked to give some recommendations and he was listened to with great attention.
3. The young farmer has been already given some advice how to look after the cows during the winter period.
4. At the moment the plan for farm reconstruction is being discussed.
5. Some essential nutrients cannot be manufactured within the cell in the body of animals.

II. Translate the following sentences with the Infinitive and Infinitive Constructions:.

1. To be most effective the sunlight must be direct.
2. To get their essential nourishing fuel, mammals have to perform a whole series of complicated operations.
3. The unused residue returns to the soil as manure to enrich the food supply.
4. Copper is known to be the activator of certain enzyme systems.
5. The pig is believed to be the world's second largest provider of meat known as pork.

III. Translate the sentences into Russian paying attention to the Participle:

1. The methods recommended should help to control the spread of the disease.
2. Some investigated animal physiological processes are similar to human processes.
3. Knowing the nutritive value of feed supplements a farmer can provide his animals with rations accurately calculated.
4. The calf growing on a pasture will be healthier than that kept in a barn.
5. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.

IV. Translate the following sentences into Russian paying attention to the Gerund:

1. Besides possessing hair and producing milk, mammals also have a number of other internal characteristics.

2. Whitewashing the walls helps in maintaining sanitation.
3. Because of the covering of wool sheep can withstand cold temperatures better than cattle.
4. If shearing is delayed too long, the wool becomes dead and lifeless.
5. Frozen silage must be thawed before feeding.

Y. Translate the following sentences into Russian paying attention to the Conditional Sentences:

1. The bull would be provided with better feeding if it were to be used for breeding.
2. If the plan were developed for one farm it would not be satisfactory for another.
3. Provided the manager did not consider all the facts, he would not be able to analyze and estimate his resources.
4. If a farmer had borrowed some additional money to buy new equipment the uses of the funds at a given periods during the year would have been recorded in a cash-flow statement.
5. Unless there were certain changes in crops and livestock it would not have been possible to increase agricultural productivity.

YI. Read and translate the text into Russian.

DISEASE

Livestock constitute a major source of epidemic diseases in humans; these diseases have had a significant impact on history. When an agricultural society, that raises livestock, comes in contact with a non-agricultural society their diseases often spread to the latter (who lack any resistance), which can have devastating consequences. Other diseases can be transmitted from animals. Mad cow disease is transmitted between cattle which are fed food containing cattle brains and spines. It is postulated that the disease vector causing mad cow disease can also be transmitted to humans who eat infected cattle, causing the fatal disease known as variant Creutzfeldt-Jakob disease (vCJD). Though this connection has not been conclusively proven, over 95% of identified cases of vCJD are in Britain, which suffered a mad cow disease epidemic in the mid to late 1980s. Mad cow disease has led to a ban on using cattle by-products in cattle feed.

Other diseases that may be transmitted from livestock to humans include bird flu and some may originate from the bacteria *E. coli* O157:H7. Also, anthrax was called the *woolsorter's disease* because the skin form of the disease could be contracted from handling raw wool. Anthrax may be contracted from cattle, sheep, goats, camels and antelopes as well as directly from infected soil.

The use of antibiotics in animals that end up in the human food chain is controversial. The issue of antibiotic resistance has limited the practices of preventative dosing such as antibiotic-laced feed.

БАПИАНТ 2

I. Translate the following sentences paying attention to the Passive Voice:

1. Animals are bred for utility, sport, pleasure and research.
2. The planning of mating combinations was introduced in practice.
3. Much effort is being made to study the possibilities of utilizing agricultural and industrial waste in the nutrition of farm animals.
4. If animal manure is utilized for feed nutrients, some pollution problems will be solved.
5. Horses are being bred for sport.

II. Translate the following sentences with the Infinitive and Infinitive Constructions:.

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Fermentation is supposed to have been an ancient form of food preservation used in the meat industry.
3. Meat is considered to be an essential part of human diet.
4. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
5. This boar is not vigorous enough to be used for mating.

III. Translate the sentences into Russian paying attention to the Participle:

1. Keeping the records about the dates of artificial insemination of cows, a farmer will know the date of calving for each animal.
2. Being raised for mutton, sheep can be also sheared in order to obtain some wool.
3. Having been raised under severe conditions in mountains, lambs seemed to be healthier than the ones raised in the sheep-pen.
4. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.
5. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.

IV. Translate the following sentences into Russian paying attention to the Gerund:

1. Before choosing cows for mating, breeders should estimate the performance of their progeny.
2. Raising and feeding cattle on pasture throughout the year is the most economical method.

3. This book deals with the planning of mating combinations.
4. The recording of individual performance in breeding populations of farm animals developed rapidly in 1970s.
5. Crossbreeding is a very popular method for increasing sheep population.

Y. Translate the following sentences into Russian paying attention to the Conditional Sentences:

1. Provided livestock records were organized in the table form, it would save time in preparing various financial statements.
2. Young piglets may gain rapidly and reach the market faster provided they are supplied with all necessary feeds.
3. If farmer were provided with the required information concerning feeds and farm implements, one could expect him to make proper management decisions.
4. If we had considered the data concerning the number of pigs and their weight, we should have calculated the expected income.
5. If cold milk were given to new-born calves, it would cause digestive troubles.

YI. Read and translate the text into Russian:

SHEEP

Sheep are kept in mobs in paddocks; in pens or in a barn. In cold climates, sheep may need shelter if they are freshly shorn or have baby lambs. Freshly shorn hoggets, especially, may be very susceptible to wet, windy weather and can succumb to exposure very quickly. Sheep have to be kept dry for one to two days before shearing so that the fleece is dry enough to be pressed and to protect the health of the shearers.

Sheep, particularly those kept inside, are vaccinated when they are newborn lambs. The lambs receive their first antibodies via their mother's colostrum in the first few hours of life, and then via a vaccination booster every six weeks for next three months and then by booster every six months.

Weaning is a critical period in the life of young sheep as it is this time when more problems occur than at any other stage of a sheep's life. Sheep of this age need careful observation as to their general health by noting any weaners that are hollow, have a pale skin or are falling behind the mob etc. Weaners are very susceptible to the deadly Barbers Pole worm (*Haemonchus*), fly strike, scabby mouth, mycotic dermatitis, occasionally pneumonia, fluctuations in feed availability.

ВАРИАНТ 3

I. Translate the following sentences paying attention to the Passive Voice:

1. The most significant progress in animal breeding has been done with dairy

cattle.

2. It is necessary to examine young males that will be used for breeding.
3. When poultry and swine are kept in confinement, their manure will be collected, recovered and used for refeeding to cattle.
4. Ecology is widely studied as one of the most important aspects of biology.
5. Animals should be examined by veterinary surgeons regularly.

II. Translate the following sentences with the Infinitive and Infinitive Constructions:.

1. The lamb is not fat enough to be slaughtered this month.
2. Ecologists have found a lot of bird species to be disappearing at a rapid rate now.
3. Beekeeping is believed to have originated in the Middle East.
4. These geese do not seem to have attracted the attention of genetics.
5. The goat proved to be an important milk producer in China and India.

III. Translate the sentences into Russian paying attention to the Participle:

1. Being obtained from different kind of animals, meats are usually classified by the type of animal.
2. Producers dealing with meat processing have already succeeded in new technologies having been introduced in order to satisfy the increasing demand for their products.
3. Raising cattle, farmers should turn animals out on pastures as early as possible in spring.
4. Dairy cattle are susceptible to all the diseases and infections affecting beef cattle.
5. A balanced ration is the one consisting of several nutrients in proper proportions.

IV. Translate the following sentences into Russian paying attention to the Gerund:

1. For centuries pigs have been used for obtaining edible fat and meat.
2. Both biologists and chemists are interested in developing new drugs for treating farm animals.
3. Large litters greatly depend on proper selecting of a sow.
4. By changing feeding rations of animals, one can improve the quality of farm products.
5. The shelf life of dried milk products was extended due to their having been dried less than three per cent moisture.

V. Translate the following sentences into Russian paying attention to the Conditional Sentences:

1. If cold milk is given to new-born calves, it will cause digestible troubles.
2. Unless there had been achievements in genetics, it would not be possible to improve cattle breeds.

3. Provided a farmer had raised sheep both for mutton and wool he would have increased the efficiency of his farm.
4. If the farmer used a purebred sire for breeding, he would improve his livestock.
5. If it had not been a large commercial farm, a farm manager wouldn't have negotiated on the discount for animals feeds.

VI. Read and translate the text into Russian:

DOG REPRODUCTION



Unlike undomesticated canine species, where the females typically come into estrus (also called in season or in heat) once a year, usually in late winter, and bear one litter of young, the female of the domestic dog can come into season at any time of the year and usually twice a year. Most bitches come into season for the first time between 6 and 12 months, although some larger breeds delay

until as late as 2 years. Like most mammals, the age that a bitch first comes into season is mostly a function of her current body weight as a proportion of her body weight when fully mature rather than age, with the different maturation rates of the various sizes of dogs accounting for this variation in age of first season. The amount of time between cycles varies greatly among different dogs, but a given dog's cycle tends to be consistent through her life.

Dogs bear their litters roughly 9 weeks after insemination. An average litter consists of about six puppies, especially for breeds that have not strayed too far from their wild ancestors. However, litters of many more or only one or two puppies are also common. Some breeds have a tendency to produce very large litters. Since a mother can provide milk for only a few of those puppies, humans must assist in the care and feeding when the litter exceeds eight or so. Some breeds have been developed to emphasize certain physical traits beyond the point at which they can safely bear litters on their own. For example, the Bulldog often requires artificial insemination and almost always requires cesarean section for giving birth.

ВЕТЕРИНАРНЫЙ ФАКУЛЬТЕТ

Контрольная работа

направление подготовки

«Ветеринарно-санитарная экспертиза»

ВАРИАНТ 1.

I.. Translate the sentences into Russian paying attention to the Modal Verbs:

1. The results of experiments on animal behavior are to be analysed on the basis of scientific knowledge.
2. Certain animal diseases may greatly influence our health.
3. Preventive medicine should have considered the aspects of disease prevention and control.
4. The problems of the bird flu were to attract many scientists to take part in the conference.
5. During the Ice Age in order to survive, animals had to adapt to colder environmental conditions.

II. Translate the following sentences paying attention to the Passive Voice:

1. Any changes in animal feeding will be agreed on with the vet tomorrow.
2. Yesterday the specialist in animal nutrition was asked to give some recommendations and he was listened to with great attention.
3. The young farmer has been already given some advice how to look after the cows during the winter period.
4. At the moment the plan for farm reconstruction is being discussed.
5. Some essential nutrients cannot be manufactured within the cell in the body of animals.

III. Translate the following sentences with the Infinitive and Infinitive Constructions:

1. To be most effective the sunlight must be direct.
2. To get their essential nourishing fuel, mammals have to perform a whole series of complicated operations.
3. The unused residue returns to the soil as manure to enrich the food supply.
4. Copper is known to be the activator of certain enzyme systems.
5. The pig is believed to be the world's second largest provider of meat known as pork.

IV. Translate the sentences into Russian paying attention to V-ing forms:

1. The calf growing on a pasture will be healthier than that kept in a barn.
2. Only animal products satisfying all the necessary veterinarian standards can be sold in the market.
3. Whitewashing the walls helps in maintaining sanitation.
4. Because of the covering of wool sheep can withstand cold temperatures better than cattle.
5. Frozen silage must be thawed before feeding.

Y. Read and translate the text into Russian:

ANIMAL HUSBANDRY

Animal husbandry is the agricultural practice of breeding and raising livestock. As such, it is a vital skill for farmers, and in many ways as much art as it is science. The science of animal husbandry, called animal science, is taught in many universities and colleges around the world. Students of animal science may pursue degrees in veterinary medicine or zootechnics following graduation, or go on to pursue master's degrees or doctorates in disciplines such as nutrition, genetics and breeding, or reproductive physiology. Graduates of these programs may be found working in the veterinary and human pharmaceutical industries, the livestock and pet supply and feed industries, or in academia. It is one of the oldest world professions. Historically, certain sub-professions within the field of Animal Husbandry are specifically named according to the animals which are cared for.

A swineherd is a person who cares for hogs and pigs (older English term: swine). A shepherd is a person who cares for sheep. A goatherd cares for goats. A cowherd cares for cattle. In previous years, it was common to have herds which were made up of sheep and goats. In this case, the person tending them was called a shepherd. In more modern times, cowboys (or in Spanish: gauchos) rode horses and participated in cattle drives to watch over cows and bulls raised primarily for food.

БАРИАНТ 2.

I. Translate the sentences into Russian paying attention to the Modal Verbs:

1. Scientists ought to carry out many experiments before the animal cloning may become a routine procedure in the breeding of farm animals.
2. If the weather is windy and rainy hill sheep and cattle will have to stop grazing to look for grounds and shelter.
3. According to the agreement with a farmer, a veterinary surgeon is to examine farm animals regularly.
4. Livestock often eat forage and other food sources that humans are not able to eat, and convert them to types of food that humans can consume.

5. In order to maintain animals in healthy condition, each farmer must follow certain sanitary requirements.

II. Translate the following sentences paying attention to the Passive Voice:

1. Animals are bred for utility, sport, pleasure and research.
2. The planning of mating combinations was introduced in practice.
3. Much effort is being made to study the possibilities of utilizing agricultural and industrial waste in the nutrition of farm animals.
4. If animal manure is utilized for feed nutrients, some pollution problems will be solved.
5. Horses are being bred for sport.

III. Translate the following sentences with the Infinitive and Infinitive Constructions:

1. To prevent meats from being contaminated by harmful bacteria, producers widely used vacuum-packing.
2. Fermentation is supposed to have been an ancient form of food preservation used in the meat industry.
3. Meat is considered to be an essential part of human diet.
4. Milk is known to be highly nutritious food that has been used by humans since the beginning of recorded time.
5. This boar is not vigorous enough to be used for mating.

IV. Translate the sentences into Russian paying attention to V-ing forms:

1. Being raised for mutton, sheep can be also sheared in order to obtain some wool.
2. Being rich in such nutrients as essential amino acids, meat is highly valued as human food.
3. Having become more concerned about our diet, we began to eat more poultry, fish and fresh fruit and vegetables and fewer eggs and less pork.
4. Raising and feeding cattle on pasture throughout the year is the most economical method.
5. The recording of individual performance in breeding populations of farm animals developed rapidly in 1970s.

Y. Read and translate the text into Russian.

DAIRY FARMING

Dairy farming dealing with production and use of milk products is one of the important branches of agriculture in many countries. Dairy husbandry includes the management of dairy cows, the cultivation of crops for feed, the production of milk and cream, and the manufacture of butter, cheese and ice-cream.

It is necessary to mention some essential features of modern dairy farming. Under the modern system of evaluating milk on the basis of butterfat content, it is important that the dairy farmer keep records not only of the total production of a herd but of the performance of individual cows. In this way the best cows can be selected and poor producers can be replaced by better cattle. Moreover, one should take into account that there has been an enormous expansion of milk-drying facilities, which has resulted in the increase in human consumption of nonfat dry milk solids. The introduction of labour-saving machinery has made the dairy farmer's work much easier. Besides, modern improvements in refrigeration and transportation have eliminated the influence of climate and adverse weather conditions on milk delivery. The research done by governmental and association agencies has led to higher milk production and greater use of dairy products and especially to the discovery of new industrial uses for milk by-products.

Many countries are known to have adopted laws requiring that milk should be pasteurized as a protection against disease-causing organisms called pathogenic. Pasteurization is a partial sterilization accomplished by raising the milk to a temperature high enough to destroy pathogenic bacteria and a large portion of those causing spoilage. Pasteurized milk to be kept refrigerated in closed containers may remain consumable for approximately 14 days. Ultrapasteurized milk is heated to an even higher temperature and can be stored at room temperature for several weeks.

БАРИАНТ 3.

I. Translate the sentences into Russian paying attention to the Modal Verbs:

1. A farmer must separate a sick animal immediately from the other animals in the herd.
2. A national breeding association is to publish the official record of the pedigree of purebred horses and dogs every year.
3. During the recent decades some species of animals had to move to new places and adapt to new environment conditions.
4. All animals and birds which are imported from foreign countries must be under severe quarantine for some period of time to prevent the introduction of any infections.
5. Some symptoms such as high temperature or fever may be noticed even by a non-specialist.

II. Translate the following sentences paying attention to the Passive Voice:

1. The most significant progress in animal breeding has been done with dairy cattle.
2. It is necessary to examine young males that will be used for breeding.

3. When poultry and swine are kept in confinement, their manure will be collected, recovered and used for refeeding to cattle.
4. Ecology is widely studied as one of the most important aspects of biology.
5. Animals should be examined by veterinary surgeons regularly.

III. Translate the following sentences with the Infinitive and Infinitive Constructions:

1. The lamb is not fat enough to be slaughtered this month.
2. Ecologists have found a lot of bird species to be disappearing at a rapid rate now.
3. Beekeeping is believed to have originated in the Middle East.
4. These geese do not seem to have attracted the attention of genetics.
5. The goat proved to be an important milk producer in China and India.

IV. Translate the sentences into Russian paying attention to V-ing forms:

1. Being obtained from different kind of animals, meats are usually classified by the type of animal.
2. Producers dealing with meat processing have already succeeded in new technologies having been introduced in order to satisfy the increasing demand for their products.
3. For centuries pigs have been used for obtaining edible fat and meat.
4. Both biologists and chemists are interested in developing new drugs for treating farm animals.
5. By changing feeding rations of animals, one can improve the quality of farm products.

Y. Read and translate the text into Russian:

THE PURPOSE OF SHEEP BREEDING

Sheep are mainly raised for the purpose of obtaining pelts and wool clothing and carpets. The quality and the market value of wool vary greatly with the fineness, curliness and lightness as well as the length of the fibre it consists of. Moreover, the wool is light in relation to its value and is relatively imperishable, both of which qualities have made it a valuable item of trade and export. In addition to providing wool, sheep produce meat in the form of lamb and mutton, and milk for drinking and cheese-making. Sheep can be used to a small extent as pack-animals. Recently, sheep-raising in some areas has decreased in favour of more profitable cattle.

Sheep bred for their fine wool account for nearly half the world sheep population. They are adapted to semiarid conditions and are characterized as medium in size, with the ability to produce large amounts of wool fibres 20 micrometers or less in diameter. Most sheep of this type belong to the Merino breed. The other major breed of fine-wool sheep is Rambouillet, which is similar to the Merino.

Commercial sheep today represent two-breed or three-breed crosses, with white-faced crossbred ewes preferred in the range areas and a black-faced sire, such as Suffolk or Hampshire, preferred for market lambs, which are either finished for slaughter or sold as breeding ewes.

SOME MORE TEXTS TO READ AND TRANSLATE

HAY PRODUCTION



Hay production and harvest, colloquially known as "making hay", "haymaking", or "doing hay", involves a multiple step process: cutting, drying or "curing", processing, and storing. Hayfields do not have to be reseeded each year in the way that grain crops are, but regular fertilizing is usually desirable, and overseeding a field every few years helps increase yield.

Methods and the terminology to describe the steps of making hay have varied greatly throughout history, and many regional variations still exist today. However, whether done by hand or by modern mechanized equipment, tall grass and legumes at the proper stage of maturity must be cut, then allowed to dry (preferably by the sun), then raked into long, narrow piles known as windrows. Next, the cured hay is gathered up in some form (usually by some type of baling process) and placed for storage into a haystack or into a barn or shed to protect it from moisture and rot.

During the growing season, which is spring and early summer in temperate climates, grass grows at a fast pace. It is at its greatest nutritive value when all leaves are fully developed and seed or flower heads are just a bit short of full maturity. When growth is at a maximum in the pasture, if judged correctly, the pasture is cut. Hay cut too early will not cure as easily due to high moisture content, plus it will produce a lower yield per acre than longer, more mature grass. But hay cut too late is coarser, lower in resale value and has lost some of its nutrients. There is usually about a two-week "window" of time in which hay is at its ideal stage for harvesting.

Hay must be fully dried when baled and kept dry in storage. If hay is baled while too moist or becomes wet while in storage, there is a significant risk of spontaneous combustion. Hay stored outside must be stacked in such a way that moisture contact is minimal. Some stacks are arranged in such a manner that the hay itself "sheds" water when it falls. Other methods of stacking use the first layers or bales of hay as a cover to protect the rest. To completely keep out moisture, outside haystacks can also be covered by tarps, and many round bales are partially wrapped in plastic as part of the baling process. Hay is also stored under a roof when resources permit. It is frequently placed inside sheds, or stacked inside of a barn. On the other hand, care must also be taken that hay is never exposed to any possible source of heat or flame, as dry hay and the dust it produces are highly flammable.

POTATO

Potatoes are generally grown from seed potatoes - these are tubers specifically grown to be disease free and provide consistent and healthy plants. To be disease free, the areas where seed potatoes are grown are selected with care. In the USA this restricts production of seed potatoes to only 15 states out of the 50 states that grow potatoes. These locations are



selected for their cold hard winters that kill pests and long sunshine hours in the summer for optimum growth. In the UK, most seed potatoes originate in Scotland in areas where westerly winds prevent aphid attack and thus prevent spread of potato virus pathogens. Potato growth has been divided into five phases. During the first phase, sprouts emerge from the seed potatoes and root growth begins. During the second, photosynthesis begins as the plant develops leaves and branches. In the third phase stolons develop from lower leaf axils on the stem and grow downwards into the ground and on these stolons new tubers develop as swellings of the stolon. This phase is often (but not always) associated with flowering. Tuber formation halts when soil temperatures reach 80 °F (26.7 °C); hence potatoes are considered a cool-season crop. Tuber bulking occurs during the fourth phase, when the plant begins investing the majority of its resources in its newly formed tubers. At this stage, several factors are critical to yield: optimal soil moisture and temperature, soil nutrient availability and balance, and resistance to pest attacks. The final phase is maturation: The plant canopy dies back, the tuber skins harden, and their sugars convert to starches.

New tubers may arise at the soil surface. Since exposure to light leads to greening of the skins and the development of solanine, growers are interested in covering such tubers. Commercial growers usually address this problem by piling additional soil around the base of the plant as it grows ("hilling", or in British English "earthing up"). An alternative method used by home gardeners and smaller-scale growers involves covering the growing area with organic mulches such as straw or with plastic sheets.

Three successive plowings, with associated harrowing and rolling, are desirable before planting. Eliminating all root-weeds is desirable in potato cultivation. In general, the potatoes themselves are grown from the eyes of another potato and not from seed.

Potatoes are sensitive to heavy frosts, which damage them in the ground. Even cold weather makes potatoes more susceptible to bruising and possibly later rotting, which can quickly ruin a large stored crop.

POTATO STORAGE

Storage facilities need to be carefully designed to keep the potatoes alive and slow the natural process of decomposition, which involves the breakdown of starch. It is crucial that the storage area is dark, well ventilated and for long-term storage maintained at temperatures near 4 °C (39 °F). For short-term storage before cooking, temperatures of about 7 °C (45 °F) to 10 °C (50 °F) are preferred.

On the other hand, temperatures below 4 °C (39 °F) convert potatoes' starch into sugar, which alters their taste and cooking qualities and leads to higher acrylamide levels in the cooked product, especially in deep-fried dishes — the discovery of acrylamides in starchy foods in 2002 has led to many international health concerns as they are believed to be possible carcinogens and their occurrence in cooked foods are currently under study as possible influences in potential health problems.

Under optimum conditions possible in commercial warehouses, potatoes can be stored for up to ten to twelve months. When stored in homes, the shelf life is usually only a few weeks. If potatoes develop green areas or start to sprout, these areas should be trimmed before using. Trimming or peeling green areas are inadequate to remove copresent toxins, and such potatoes are no longer suitable as animal food.

Commercial storage of potatoes involves several phases: drying of surface moisture; a wound healing phase at 85% to 95% relative humidity and temperatures below 25 °C (77 °F); a staged cooling phase; a holding phase; and a reconditioning phase, during which the tubers are slowly warmed. Mechanical ventilation is used at various points during the process to prevent condensation and accumulation of carbon dioxide.

When stored in the home, mature potatoes are optimally kept at room temperature, where they last 1 to 2 weeks in a paper bag, in a dry, cool, dark, well ventilated location. If mature potatoes are refrigerated, dark spots can occur and conversion of starch into sugar can give rise to an unpleasant sweet flavour when cooked. Only new potatoes can be refrigerated, and should be kept so, where they have a shelf life of 1 week. If kept in too warm a temperature, both mature and new potatoes will sprout and shrivel. Exposure to light causes them to turn green. Also, potatoes absorb odours produced by pears.

VEGETABLE FARMING

Vegetable farming is the growing of vegetables for human consumption. Traditionally it was done in the soil in small rows or blocks, often primarily for consumption on the farm, with the excess sold in nearby towns. Later, farms on the edge of large communities could specialize in vegetable production, with the short distance allowing the farmer to get his produce to market while still fresh. Planting in long rows allows machinery to cultivate the fields, increasing efficiency and output;

however, the diversity of vegetable crops requires a number of techniques to be used to optimize the growth of each type of plant. Some farms, therefore, specialize in one vegetable; others grow a large variety. Due to the needs to market vegetables while fresh, vegetable gardening has high labor demands. Some farms avoid this by running u-pick operations where the customers pick their own produce. The development of ripening technologies and refrigeration has reduced the problems with getting produce to market in good condition.

Over the past 100 years a new technique has emerged—raised bed gardening, which has increased yields from small plots of soil without the need for commercial, energy-intensive fertilizers. Modern hydroponic farming produces very high yields in greenhouses without using any soil.

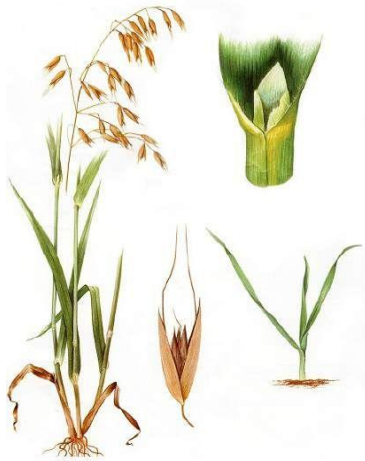
Several economic models exist for vegetable farms: farms may grow large quantities of a few vegetables and sell them in bulk to major markets or middlemen, which requires large growing operations; farms may produce for local customers, which requires a larger distribution effort; farms may produce a variety of vegetables for sale through on-farm stalls, local farmer's markets, u-pick operations. This is quite different from commodity farm products like wheat and maize which do not have the ripeness problems and are sold off in bulk to the local granary. Large cities often have a central produce market which handles vegetables in a commodity-like manner, and manages distribution to most supermarkets and restaurants.

In America, vegetable farms are in some regions known as truck farms; "truck" is a noun for which its more common meaning overshadows its historically separate use as a term for "vegetables grown for market". Such farms are sometimes called muck farms, after the dark black soil in which vegetables grow well.

OAT

Oats have numerous uses in food; most commonly, they are rolled or crushed into oatmeal, or ground into fine oat flour. Oatmeal is chiefly eaten as porridge, but may also be used in a variety of baked goods, such as oatcakes, oatmeal cookies, and oat bread. Oats are also an ingredient in many cold cereals, in particular muesli and granola. Oats may also be consumed raw, and cookies with raw oats are becoming popular.

Oats are also occasionally used in several different drinks. In Britain, they are used for brewing beer. Oatmeal stout is one variety brewed using a percentage of oats for the wort. The more rarely used oat malt is produced by the Thomas Fawcett & Sons Maltings, and was used in the Maclay Oat Malt Stout before Maclays Brewery ceased independent brewing operations. A cold, sweet drink made of ground oats and milk is a popular refreshment throughout Latin America. Oatmeal caudle, made of ale and oatmeal with spices, was a traditional British drink and a favourite of Oliver Cromwell.



Historical attitudes towards oats have varied. Oat bread was first manufactured in Britain, where the first oat bread factory was established in 1899. In Scotland, they were, and still are, held in high esteem, as a mainstay of the national diet.

In Scotland, a dish called sowans was made by soaking the husks from oats for a week, so that the fine, floury part of the meal remained as sediment to be strained off, boiled and eaten. Oats are also widely used there as a thickener in soups, as barley or rice might be used in other countries.

Oats are also commonly used as feed for horses—as crimped or rolled oats or as part of a blended food pellet. The oat hull must be crushed ("rolled" or "crimped") for the horse to digest the grain. Cattle are also fed oats, either whole, or ground into a coarse flour using a roller mill, burr mill, or hammer mill.

Oat straw is prized by cattle and horse producers as bedding, due to its soft, relatively dust-free, and absorbent nature. The straw can also be used for making corn dollies. Tied in a muslin bag, oat straw was used to soften bath water.

Oat extract can also be used to soothe skin conditions. It is the principal ingredient for the Aveeno line of products.

Oats are generally considered "healthful", or a health food, being touted commercially as nutritious. The discovery of the healthy cholesterol-lowering properties has led to wider appreciation of oats as human food.

PLANT BREEDING

Plant breeding is the art and science of changing the traits of plants in order to produce desired characteristics. Plant breeding can be accomplished through many different techniques ranging from simply selecting plants with desirable characteristics for propagation, to more complex molecular techniques.

Plant breeding has been practiced for thousands of years, since near the beginning of human civilization. It is practiced worldwide by individuals such as gardeners and farmers, or by professional plant breeders employed by organizations such as government institutions, universities or research centers.

International development agencies believe that breeding new crops is important for ensuring food security by developing new varieties that are higher-yielding, resistant to pests and diseases, drought-resistant or regionally adapted to different environments and growing conditions.

One major technique of plant breeding is selection, the process of selectively propagating plants with desirable characteristics and eliminating those with less desirable characteristics.

Another technique is the deliberate interbreeding (crossing) of closely or distantly related individuals to produce new crop varieties or lines with desirable properties. Plants are crossbred to introduce traits/genes from one variety or line into a new genetic background. For example, a mildew-resistant pea may be crossed with a high-yielding but susceptible pea, the goal of the cross being to introduce mildew resistance without losing the high-yield characteristics.

Traits that breeders have tried to incorporate into crop plants include:

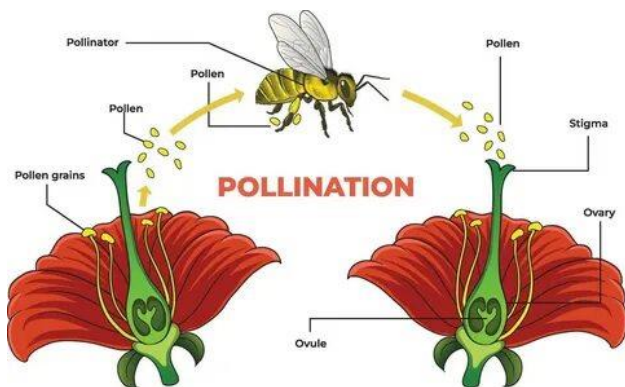
- Improved quality, such as increased nutrition, improved flavor, or greater beauty
- Increased yield of the crop
- Increased tolerance of environmental pressures (salinity, extreme temperature, drought)
- Resistance to viruses, fungi and bacteria
- Increased tolerance to insect pests
- Increased tolerance of herbicides
- Longer storage period for the harvested crop

Modern plant breeding may use techniques of molecular biology to select, or in the case of genetic modification, to insert, desirable traits into plants. Application of biotechnology or molecular biology is also known as molecular breeding.

POLLINATION

The female sex organ of a flower is the pistil, which has an outer sticky end called the stigma and an enlarged base called the ovary. The male sex organs of a flower are called stamens. Each stamen is composed of a slender stalk or filament at the top of which there is a bag-like anther, which produces pollen grains. Pollination is the transfer of pollen grains from the anther to the ovules of the ovary.

Self pollination takes place when the pollen from one flower pollinates the same flower or other flowers of the same plant. Self pollination is a form of pollination which can occur when a flower has both the male and the female gametes, that is the stamens and the carpel or pistil.



The mechanism of self pollination is seen on some legumes like peanuts, soybeans. Most plants that self pollinate have small, inconspicuous flowers. These flowers spill pollen directly onto the

stigma even before the bud blooms. Plants that follow self pollination process often have the same lengths of the stamens and carpels.

Cross pollination is also known as allogamy. Cross pollination occurs when pollen grains are transferred to a flower from a different plant. The plants that undergo cross pollination often have taller stamens than their carpels. The process of cross pollination requires the help of abiotic or biotic agents like wind, water, insects, birds, bats, snails and other animals as pollinators.

Bees are one of the most well known and important types of pollinator, both in agriculture and natural ecosystems.

Honeybees (or honey bees) travel from flower to flower, collecting nectar (later converted to honey), and pollen grains. The bee collects the pollen by rubbing against the anthers. The pollen collects on the bee's body and legs. As the bee flies from flower to flower, some of the pollen grains are transferred onto the stigma of other flowers.

The importance of these native pollinators in the reproduction of flowering plants (including those used in agriculture) is just beginning to be understood. Unfortunately, there has been a major decline in native pollinators due to habitat loss and pesticide use. Habitat loss due to intensive agriculture, deforestation, and urban development reduces available food resources for native bee species.

It is clear that the conservation of bees and other pollinators is an urgent issue. Our activities are destroying the diversity of all wildlife, and having an affect on our own food supply. Clearly a balance between the biodiversity of natural environments and a system of sustainable agriculture is needed.

ASIAN RICE

Rice is the seed of the monocot plants *Oryza sativa* (Asian rice) or *Oryza glaberrima* (African rice). As a cereal grain, it is the most widely consumed staple food for a large part of the world's human population, especially in Asia and the West Indies. It is the grain with the second-highest worldwide production, after maize (corn), according to data for 2010.

Since a large portion of maize crops are grown for purposes other than human consumption, rice is the most important grain with regard to human nutrition , providing more than one fifth of the calories consumed worldwide by the human species.

Genetic evidence has shown that rice originates from a single domestication 8,200–13,500 years ago, in the Pearl River valley region of China. Previously, archaeological evidence had suggested that rice was domesticated in the Yangtze River valley region in China. From East Asia, rice spread to Southeast and South Asia. Rice was introduced to Europe through Western Asia, and to the Americas through European colonization.

There are many varieties of rice and culinary preferences tend to vary regionally. In the Far East, there is a preference for softer and stickier varieties.

Because of its importance as a staple food, rice has considerable cultural importance. Rice is often directly associated with prosperity and fertility. Therefore, there is the custom of throwing rice at weddings.

Rice is normally grown as an annual plant, although in tropical areas it can survive as a perennial and can produce a ratoon crop for up to 30 years. The rice plant can grow to 1-1.8 m (3.3-5.9 ft) tall, occasionally more depending on the variety and soil fertility. It has long, slender leaves 50-100 cm (20-39 in) long and 2-2.5 cm (0.79-0.98 in) broad. Rice cultivation is well-suited to countries and regions with low labor costs and high rainfall, as it is labor-intensive to cultivate and requires ample water. Rice can be grown practically anywhere, even on a steep hill or mountain. Although its parent species are native to Asia and certain parts of Africa, centuries of trade and exportation have made it commonplace in many cultures worldwide.

Rice is the primary cereal of tropical and some temperate regions. Staple food in India, Brazil, Thailand, Korea, Japan and China.

FARM MACHINERY



Farm machinery is the machinery that is used on farms to assist with farming work. Previously, hand-held implements and animal-drawn machinery were used. In modern times, mechanized farming is the norm. Electric or fuel-powered machinery carry out most of the tasks that were once carried out by men and animals.

Using machinery is less time-consuming and more cost-effective than working by hand or using tools like scythes or animal drawn plows. Advances in farm machinery have revolutionized the farming industry. Whether it is a family farm, an organic farming enterprise or a commercial farming endeavor, a wide range of farm machinery is used. Commercial farming uses more sophisticated farming equipment than the other two.

Farming and farm machinery have continued to evolve. The threshing machine has given way to the combine, usually a self-propelled unit that either picks up wind-rowed grain or cuts and threshes it in one step. The grain binder has been replaced by the swather which cuts the grain and lays it on the ground in windrows, allowing it to dry before being harvested by a combine. Plows are not used nearly as extensively as before, due in large part to the popularity of minimum tillage to reduce soil erosion and conserve moisture. The disk harrow today is more often used after harvesting to cut up the grain stubble left in the field. Although seed drills are still used, the air seeder is becoming more popular with farmers. Today's farm machinery allows farmers to cultivate many more acres of land than the machines of yesterday.

Farm machinery are mechanical devices, including tractors and implements, used in farming to save labour. Farm machines include a great variety of devices with a wide range of complexity: from simple hand-held implements used since prehistoric times to the complex harvesters of modern mechanized agriculture.

POTATO PLANTER

This potato planter, which comes into being on base of the long cooperation between the factory and customers, is the ideal machine that meets the requirements of modern agriculture. It can be used for different areas, climates and soils. The potato planting machine is a multifunctional planter. It can ditch and fertilize, finish the complete process of sowing and planting. The potato planter can meet the requirements of different areas, the natural environments, geographical features, the climate, soils and agriculture demands. This machine has the features of compact structure, good mobility, strong adaptability, simple maintenance.



Modern farming is not only mechanized, it is also computerized. Farmers routinely use satellite imagery, GPS guidance and electric sensors in their farming work. Advanced farming machinery reduces waste and ensures more profitable use of seeds, fertilizers, irrigation and fuel. It has improved the production and transport of farm produce. The most common and well-known farm machinery is a tractor. Tractors are used to pull a variety of farm machines and equipment. Farm machinery used for soil cultivation includes a plow, a power tiller, a spike, drag and disk harrows, a chisel plow, a cultivator, a spading machine and a rock picker. These machines clear the land of stones and weeds, and loosen the soil for planting. The actual planting is done using mechanized planters, transplanters, seed drills, broadcast seeders and mulch layers. Planters plant seeds in precise rows at precise intervals. Drills plant seeds much closer together than planters.

Irrigation is made easier by specialized irrigation machinery. Quick and mechanized irrigation facilities have made it possible to cultivate high yields of crops in dry areas. Water can also be supplied over a wide range of land and in specific required quantities.

Harvesting farm machinery includes the famous combine harvester and thresher. The combine, as it is usually called, saves farmers a lot of time and effort. It cuts, threshes and separates grain as it works its way through crop fields. Other harvesting farm machines are the cane, corn and bean harvesters and the cotton pickers.

SIMPLE AND COMPLEX MACHINES

A **machine** is any device that uses energy to perform some activity. In common usage, the meaning is that of a device having parts that perform or assist in performing any type of work.

Historically, a device required moving parts to be classified as a machine; however, the advent of electronics technology has led to the development of devices without moving parts that are considered machines—the computer being the most obvious example.

Machines are ubiquitous in a wide variety of industrial, commercial, residential and transportation applications. Those employing hydraulics are especially useful in manufacturing and construction.

A **simple machine** is a mechanical device that changes the direction or magnitude of a force. In general, they can be defined as the simplest mechanisms that use mechanical advantage (also called leverage) to multiply force. A simple machine uses a single applied force to do work against a single load force. Ignoring friction losses, the work done on the load is equal to the work done by the applied force. They can be used to increase the amount of the output force, at the cost of a proportional decrease in the distance moved by the load. The ratio of the output to the input force is called the mechanical advantage.

Complex machines are two or more simple machines working together. A wheelbarrow is an example of a complex machine that uses a lever and a wheel and axle. Machines of all types make work easier by changing the size or direction of an applied force. The amount of effort saved when using simple or complex machines is called mechanical advantage or MA.

Complex machines are designated, as a rule, by the operations they perform; the complicated devices used for sawing, planting, and turning, for example, are known as sowing machines, planting machines, and turning machines respectively and as machine tools collectively.

Machines used to transform other forms of energy (as heat) into mechanical energy are known as engines, i.e. the steam engine or the internal-combustion engine. The electric motor transforms electrical energy into mechanical energy. Its operation is the reverse of that of the electric generator, which transforms the energy of falling water or steam into electrical energy.

ENGINES

Engines are machines that convert heat or other forms of energy into mechanical energy. For example, in an internal combustion engine the expansion of gases caused by the heat from an exothermic chemical reaction results in a force being applied to a movable component, such as a piston or turbine blade.



An engine whose purpose is to produce kinetic energy output from a fuel source is called a prime mover; alternatively, a motor is a device which produces kinetic energy from a preprocessed "fuel" (such as electricity, a flow of hydraulic fluid or compressed air). A motor car has a starter motor and motors to drive pumps (fuel, power steering, etc.) – but the power

plant that propels the car is called an engine. The term "motor" was originally used to distinguish the new internal combustion engine -powered vehicles from earlier vehicles powered by a steam engine.

A steam engine is a machine for converting heat energy into mechanical energy using steam as a medium, or working fluid. When water is converted into steam it expands, its volume increasing about 1,600 times. The force produced by the conversion is the basis of all steam engines. Steam engines operate by having superheated steam force a piston to reciprocate, or move back and forth, in a cylinder. The piston is attached by a connecting rod to a crankshaft that converts the back-and-forth motion of the piston to rotary motion for driving machinery. A flywheel attached to the crankshaft makes the rotary motion smooth and steady. The typical steam engine has an inlet valve at each end of the cylinder. Steam is admitted through one inlet valve, forcing the piston to move to the other end of the cylinder. This steam then exits through an exhaust valve. Steam from the other inlet valve then pushes the piston back to its original position, and the cycle starts again.

An internal combustion engine (or ICE) is an engine in which the combustion of a fuel occurs in a combustion chamber inside and integral to the engine. In an internal combustion engine it is always the expansion of the high temperature and pressure gases that are produced which apply force to the movable component of the engine, such as the pistons or turbine blades.

The internal combustion engine contrasts with the external combustion engine, such as a steam engine in which the energy is delivered within a working fluid heated in a boiler by fossil fuel, wood-burning, nuclear, solar etc.

DIESEL ENGINES VS. GASOLINE ENGINES

Diesel's story actually begins with the invention of the **gasoline engine**. Nikolaus August Otto had invented and patented the gasoline engine by 1876. This invention used the four-stroke combustion principle, also known as the "Otto Cycle," and it's the basic premise for most car engines today. In its early stage, the gasoline engine wasn't very efficient, and other major methods of transportation such as the steam engine fared poorly as well. Only about 10 percent of the fuel used in these

types of engines actually moved a vehicle. The rest of the fuel simply produced useless heat.

In 1878, Rudolf Diesel was attending the Polytechnic High School of Germany (the equivalent of an engineering college) when he learned about the low efficiency of gasoline and steam engines. This disturbing information inspired him to create an engine with a higher efficiency, and he devoted much of his time to developing a "Combustion Power Engine." By 1892 Diesel had obtained a patent for what we now call the diesel engine.

In theory, diesel engines and gasoline engines are quite similar. They are both internal combustion engines designed to convert the chemical energy available in fuel into mechanical energy. This mechanical energy moves pistons up and down inside cylinders. The pistons are connected to a crankshaft, and the up-and-down motion of the pistons, known as linear motion, creates the rotary motion needed to turn the wheels of a car forward.

Both diesel engines and gasoline engines convert fuel into energy through a series of small explosions or combustions. The major difference between diesel and gasoline is the way these explosions happen. In a gasoline engine, fuel is mixed with air, compressed by pistons and ignited by sparks from spark plugs.

In a diesel engine, however, the air is compressed first, and then the fuel is injected. Because air heats up when it's compressed, the fuel ignites.

BASIC ENGINE PARTS

The core of the engine is the cylinder, with the piston moving up and down inside the cylinder. Most cars have more than one cylinder (four, six and eight cylinders are common). In a multi-cylinder engine, the cylinders usually are arranged in one of three ways: inline, V or flat (also known as horizontally opposed or boxer).

Different configurations have different advantages and disadvantages in terms of smoothness, manufacturing cost and shape characteristics. These advantages and disadvantages make them more suitable for certain vehicles.

Let's look at some key engine parts in more detail.

Spark plug The spark plug supplies the spark that ignites the air/fuel mixture so that combustion can occur. The spark must happen at just the right moment for things to work properly.

Valves The intake and exhaust valves open at the proper time to let in air and fuel and to let out exhaust. Note that both valves are closed during compression and combustion so that the combustion chamber is sealed.

Piston A piston is a cylindrical piece of metal that moves up and down inside the cylinder.

Piston rings Piston rings provide a sliding seal between the outer edge of the piston and the inner edge of the cylinder. The rings serve two purposes:

- They prevent the fuel/air mixture and exhaust in the combustion chamber from leaking into the sump during compression and combustion.
- They keep oil in the sump from leaking into the combustion area, where it would be burned and lost.

Most cars that "burn oil" and have to have a quart added every 1,000 miles are burning it because the engine is old and the rings no longer seal things properly.

Connecting rod The connecting rod connects the piston to the crankshaft. It can rotate at both ends so that its angle can change as the piston moves and the crankshaft rotates.

Crankshaft The crankshaft turns the piston's up and down motion into circular motion just like a crank on a jack-in-the-box does.

Sump The sump surrounds the crankshaft. It contains some amount of oil, which collects in the bottom of the sump (the oil pan).

EXHAUST SYSTEM

After the fuel is burned in the pistons, the gases and heat created must be discharged from the cylinder to make room for the next infusion of fuel. The exhaust system is also responsible for reducing the noise caused by the explosion of the fuel.

Exhaust gases are discharged from the cylinder through an exhaust valve. The exhaust gathers in an exhaust manifold before eventually being channeled through the exhaust pipe and muffler and finally out the tailpipe and away from the car. The muffler is constructed with a maze of what are called baffles, specially developed walls that absorb energy, in the form of heat, force, and sound, as the exhaust passes through the muffler.



The burning of fuel creates additional byproducts of hazardous gases—hydrocarbons, carbon monoxide, and nitrogen oxide—which are harmful both to the engine's components and to the environment. The emission control system of a car is linked to the exhaust system, and functions in two primary ways. The first is to reduce the levels of unburned fuel. This is achieved by returning the exhaust to the fuel-air mixture injected into the cylinders to burn as much of the exhaust as possible. The second method is through a catalytic converter. Fitted before the muffler, the catalytic converter contains precious metals that act as catalysts. That is, they increase the rate of conversion of the harmful gases to less harmful forms.

FERTILIZER



Fertilizer is any organic or inorganic material of natural or synthetic origin that is added to a soil to supply one or more plant nutrients essential to the growth of plants. They are essential for high-yield harvest.

Fertilizers come in various forms. The most typical form is solid fertilizer in granulated or powdered. The next most common form is liquid fertilizer; some advantages of liquid fertilizer are its immediate effect and wide coverage. There are also slow-release fertilizers which reduce the problem of "burning" the plants due to excess nitrogen.

Fertilizers are broadly divided into *organic fertilizers* (composed of enriched organic matter—plant or animal), or *inorganic fertilizers* (composed of synthetic chemicals and/or minerals).

Inorganic fertilizer is often synthesized using the Haber-Bosch process, which produces ammonia as the end product. This ammonia is used as a feedstock for other nitrogen fertilizers, such as anhydrous ammonium nitrate and urea. These concentrated products may be diluted with water to form a concentrated liquid fertilizer. Ammonia can be combined with rock phosphate and potassium fertilizer to produce *compound fertilizer*.

The use of synthetic nitrogen fertilizers has increased steadily in the last 50 years, rising almost 20-fold to the current rate of 100 million tonnes of nitrogen per year. In the 1960s the National Fertilizer Development Center began developing Sulfur-coated urea; sulfur was used as the principle coating material because of its low cost and its value as a secondary nutrient. Usually there is another wax or polymer which seals the sulfur; the slow release properties depend on the degradation of the secondary sealant by soil microbes as well as mechanical imperfections (cracks, etc.) in the sulfur. They typically provide 6 to 16 weeks of delayed release in turf applications. When a hard polymer is used as the secondary coating, the properties are a cross between diffusion-controlled particles and traditional sulfur-coated.

ECOLOGICAL STRATEGY

Agroecologists study a variety of agroecosystems, and the field of agroecology is not associated with any one particular method of farming, whether it be organic, conventional, intensive or extensive. Furthermore, it is not defined by certain management practices, such as the use of natural enemies in place of insecticides, or polyculture in place of monoculture.

Additionally, agroecologists do not unanimously oppose technology or inputs in agriculture but instead assess how, when, and if technology can be used in conjunction with natural, social and human assets. Agroecology proposes a context- or site-specific manner of studying agroecosystems, and as such, it recognizes that there is no universal formula or recipe for the success and maximum well-being of an agroecosystem.

Instead, agroecologists may study questions related to the four system properties of agroecosystems: productivity, stability, sustainability and equitability. As opposed to disciplines that are concerned with only one or some of these properties, agroecologists see all four properties as interconnected and integral to the success of an agroecosystem. Recognizing that these properties are found on varying spatial scales, agroecologists do not limit themselves to the study of agroecosystems at any one scale: farm, community, or global.

Agroecologists study these four properties through an interdisciplinary lens, using natural sciences to understand elements of agroecosystems such as soil properties and plant-insect interactions, as well as using social sciences to understand the effects of farming practices on rural communities, economic constraints to developing new production methods, or cultural factors determining farming practices.

Agroecologists do not always agree about what agroecology is or should be in the long-term. Different definitions of the term agroecology can be distinguished largely by the specificity with which one defines the term “ecology,” as well as the term’s potential political connotations. Definitions of agroecology, therefore, may be first grouped according to the specific contexts within which they situate agriculture. Agroecology is defined by the OECD as “the study of the relation of agricultural crops and environment.” This definition refers to the “-ecology” part of “agroecology” narrowly as the natural environment. Following this definition, an agroecologist would study agriculture’s various relationships with soil health, water quality, air quality, meso- and micro-fauna, surrounding flora, environmental toxins, and other environmental contexts.

WHAT IS ECOLOGY ?

What is ecology and how does it affect you? Simply speaking, ecology is the term for the scientific studies that are done on the earth and everything that affects it. This includes wildlife, humanity, nature and in some cases environmental issues. These studies are done from a variety of different viewpoints and by using many different techniques. Ecology covers a broad area of studies and research that provides information on how organisms interact and affect each other and the chemical and physical environment of each.



When you ask different people the question “what is ecology”, you could get many different answers. This is because ecology is such a broad area to cover. You may be told that it is the study of humanity and its impact on the earth or that it is the evolution of the human race. Evolution is the result of environmental changes over time and it has an impact on every living creature.

Ecology is the study of the global patterns that occur within the boundaries of the biosphere and that is the answer that you will get from many scientists when you ask, what is ecology? Still yet another scientist would answer the question “what is ecology” by saying it is the study of wildlife and organism and their effects on the environment. All of these answers are correct because ecology is a huge subject that can’t be narrowed down to just a few topics.

Having an understanding of ecology is critical to the survival of the human species. With populations increasing and natural resources running thin, the more we learn the better we will be able to make the changes needed to preserve the natural resources for the generations of the future.

Studying ecology requires many experiments that are conducted in laboratories and out in the field. These experiments help scientists to learn about the environment, natural resources and more. The importance of ecology has grown enormously just over the last few years and will surely continue to grow in the future.

So what is ecology? You might say it is the answer to many problems that now face the environment due to all the changes that have taken place over the centuries. Ecology analyzes each element of the ecosystem and everything it consists of. It teaches how all living things, no matter how large or small, affect everything else in the world.

To find the answers needed to the many problems humanity now faces and to ensure the future of generations to come, the study of ecology is imperative. There is so much to be learned from the environment and every creature that inhabits the earth.

ECOLOGY PROBLEMS

Ecology problems are being studied by scientists from around the world. The world itself is facing a number of very risky changes that could potentially destroy life on the planet. While many scientists believe that changes can still be made to stop the deconstruction and to repair the problems, many others believe some areas are lost. For example, in the global ecology, many species have gone extinct long before they were discovered and marveled at. At the same time, many medications and unique plants have been lost because their habitats have been destroyed, and with them the healing powers that so many people need have disappeared.

There are ecology problems on a grand scale. In ecology, the study is of animals and plants and the interactions they have with each other and the environment around them. By studying this information, scientists can better understand the roles that each organism and microorganism has on the next. In addition, they can see what problems exist, especially those caused by humans. Anytime humans come into contact with an ecosystem, they leave changes and they disrupt the ecosystem in many ways. In some situations, this is very deep damage. In others it is minor. Yet, ecology problems happen in most situations.

Two of the largest ecology problems have to do with the global ecology or the way that the ecosystems on the planet interact with each other. These problems are ozone depletion and global warming, two very different problems equally troubling.

Global warming is an ecology problem that is caused by the buildup of gasses (which hold in heat) in the atmosphere. Global warming is often called a greenhouse effect. In a greenhouse, heat is allowed to come into the greenhouse, to grow the plants, but it is unable to escape again. This is similar to what is happening on a global scale with global warming.

The other large ecology problems centre on ozone depletion. This is different from global warming because here you have the actual destruction of the ozone layer. Many chemicals cause this because they interact with the ozone. They in effect leave a hole that lets in UV rays.

These ecology problems are very serious and both are a threat to life on Earth. The more people study and get to know what is happening, the better decisions they can make for the future. For many people, these seem like problems for someone else to deal with, but in effect, they have a direct effect on you, and every person can help.

FOREST ECOLOGY



The forest ecology is an amazing thing. Not only is the world inside a forest completely different from any other, but it is a fragile one as well. As soon as man starts moving through the forest, he makes changes to the layout and to the ecosystem as a whole. For this reason, if you will be studying forest ecology, be sure to be as unnoticed as possible. Leave behind nothing that was not already there and pre-

serve everything you come into contact with. After all, this is an ecosystem filled with living organisms, both small and large.

The study of forest ecology is complex. It studies the structure of the forest as well as how it grows and functions as an ecosystem. One of the most important areas of study is the canopy portion of forests considered deciduous. Many scientists believe that the structure of the canopy will determine and influence the way forests work. The work of these scientists is quite important, especially since many forests and surrounding environments have been destroyed in the process of deforestation. As people work to improve the forest area, it becomes increasingly important to understand why, how and what can be done to improve the situation.

The human effect on forest ecology is quite profound. Some of the common problems in local forests, national forest and even much larger forests include the following.

Small, local forests are important to the local environment yet many are overrun with litter and debris. This causes a breakdown in the ecosystem and often leads to potential long term effects on the living environment.

Ecotourism has hurt many of the larger forests. Even national forests that are well protected have changed considerably due to the tourism of people. Tourism changes the landscape and often destroys part of the ecosystem in the process.

Deforestation is a large problem in many areas of the country. The search for wood is detrimental to the livelihood of the forest. Often, when forests are wiped out, they are not replanted, which destroys an entire habitat for animals and microorganisms.

Forest ecology is an important topic. Since trees are a natural beauty and they provide support for the larger ecosystem contained under their canopy, it is very harsh to believe that these forests are unimportant. What is important is having protection and special care to better save these forests for generations to come.

BIRD ECOLOGY

What is bird ecology and conservation and why is it so important? Ecology is the study of animals and how they relate to their environment. Bird conservation is the study and science relating to birds that are threatened by the dwindling of natural resources.

It is a way to try and conserve these birds and prevent them from dying off.

Therefore, bird ecology and conservation would be the science that revolves around the bird population and the environment. Scientists have learned that the human race has made quite an impact on the birds in the world. In fact, some have already become extinct or on the verge of extinction due to the impact humanity has made on the earth. The study of bird ecology and conservation can help to find ways to undo some of the damage that has been done or at the very least help to prevent more harm from being done.

Humanity is not the only thing that affects birds and their environment. Other animals that are natural predators play a big role in how birds of all kinds impact the earth. The change in the weather even has an effect on the bird population and their habitats.

The study of bird ecology and conservation has taught scientists how the natural order of things should be when it comes to their habitat and food source. They have learned their mating habits and migration routes which play a huge part in the natural order of things. Scientists will know when things have been thrown off-balance and with further studies can determine how this will shape the world a few years into the future.

Birds follow a certain behaviour pattern that could have a big impact on the earth if it were to be drastically changed. This happens when a species becomes extinct or when the weather changes dramatically causing confusion among the birds. They aren't sure when to migrate, mate or do any of their natural functions when nature is out of whack. This in turn has an impact on everything else including society.

Bird ecology and conservation studies are essential to the health and well-being of the bird species. The way they eat, live, mate and even take care of their young will affect the world in some way. Therefore, it is important to study them and learn how they are related to the environment. This is the only chance to protect and conserve the natural order of things, to help enhance the quality of life for the future generations to enjoy.

ENVIRONMENTAL POLLUTION

Environmental pollution is definitely a serious threat for the entire world in this age of development and industrialization. The pollution in developed cities is rising at a fast pace according to the reports of several environmental scientists. Environmental protection is the need of the hour, and countries across the world are working on developing technologies imposing certain restrictions to reduce or control environmental pollution. There have been many meetings on the international level between executives and ministers of different nations to curb environmental pollution. However, being aware of the different types of environmental pollution is essential before we adopt measures to deal with it. So, what are those?

Among the different types of environmental pollution, noise pollution is one of the major types. Any kind of undesirable and loud noise which can be disturbing for human beings and cause health hazards is known as noise pollution. Controlling noise pollution is totally in the hands of human beings because it is totally because of activities such as noise of airplanes, vehicle noise, machinery noise, noise due to different construction activities, noise of crowd, etc. Noise pollution can be especially dangerous for patients in critical conditions. Silence zones at the right place and im-

plementation of the set rules can help to lower the adverse effects of noise pollution greatly.

No less dangerous is soil pollution. Contamination of the soil or land because of improper or incorrect agricultural techniques, dumping of chemical wastes by factories and industries are responsible for soil pollution. Deforestation done in huge amounts is also equally responsible for soil pollution. Certain mining activities are also believed to cause land pollution. These environmental pollution facts must have helped you realize the real causes of different types of environmental pollution.

Thermal pollution is characterized by excessive heat and is mainly the result of deforestation and power plants. Scientists also speak about personal pollution, meaning the harmful effect of a bad and improper lifestyle on the human body which can lead to diseases and disorders. Smoking, drinking and irregular eating habits are the main causes of personal pollution.

Actually, any sphere of life can suffer from various types of pollution. But all living creatures on the earth are affected by air and water pollution, as well as by radioactive pollution and plastic pollution.

AIR POLLUTION

Air pollution is a substance introduced into the air, like chemicals, biological pollutants, or particles, which damage environments, or cause harm to living organisms. These pollutants can be caused by stationery or moving sources. The examples of stationery sources are huge factories, and coal and mining industries. However, the more damaging sources of pollution are the moving ones, like different types of motor vehicles. These can include boats, automobiles, busses, trains, and aircrafts.

Pollution in the air is harmful to the environment, and also to all of our bodies. If you continuously breathe in pollutants, it can lead to severe respiratory disease, and in some cases premature death. Air pollution is a major cause of lung cancer and heart disease. It is best to try to avoid living in areas that are near high traffic roads, and large factories, if you already have respiratory problems or respiratory disease.

People in big cities rarely find themselves asking the question “What is air pollution?” because they have things like smog to constantly remind them about it. Smog is a form of outdoor pollution that is on a large scale. This terrible form of pollution can form when exhaust from vehicles mixes with pollution from industries. Usually during the summer months is when cities experience smog.



During the cold months of the year cities can get a different kind of pollution such as carbon monoxide, or particulate air pollution. The reason for either type of pollution getting trapped in the city is due to something called temperature inversion. This inversion is caused when air near the earth surface is much colder than the air right above it. When this temperature inversion occurs, then the pollution can't rise and be dispersed away from the city. That inversion can happen in any season, and that smog is a major form of air pollution.

If you are going to move, say, to Los Angeles, you should know that it's a leading city, in America, for smog concentration. Some of the metropolitan areas there, like Los' Angeles, Orange County, and Riverside are the worst to live in if you want to breathe clean air. Knowing answers to what is air pollution is just the first step to making life, and the air we breathe better. Using pollution reducing methods will help everyone breathe a little easier.

ECOLOGY CONTROL

Whenever we use personal-care products and household cleaning products — whether they be laundry detergent, window cleaner, shampoo, conditioner, toothpaste or mouthwash — we should realize that almost all of it goes down the drain when we do laundry, wash our hands, brush our teeth, bathe, or do any of the other things that use household water. Similarly, when we take medications, we eventually excrete the drugs in altered or unaltered form, sending the compounds into the waterways.

Studies have shown that up to 90% of your original prescription passes out of you unaltered. Animal farming operations that use growth hormones and antibiotics also send large quantities of these chemicals into our waters.

Unfortunately, most wastewater treatment facilities are not equipped to filter out personal care products, household products, and pharmaceuticals, and a large portion of the chemicals passes right into the local waterway.

Study of the effects of these chemicals getting into the water is just beginning, but examples of problems are now shown up regularly. Scientists are finding fragrance molecules inside fish tissues. Ingredients from birth control pills are thought to be causing gender- bending hormonal effects in frogs and fish. The chemical nonylphenol, a remnant of detergent, is known to disrupt fish reproduction and growth.

But the major source of water pollution is, certainly, sewage. In developing countries, an estimated 90% of wastewater is discharged directly into rivers and streams without treatment. Even in modern countries, untreated sewage, poorly treated sewage, or overflow from undercapacity sewage treatment facilities can send disease- bearing water into rivers and oceans. In the US, 850 billion gallons of raw sewage is sent into US rivers, lakes, and bays every year by leaking sewer systems and inadequate combined sewer / storm systems that overflow during heavy rains. Leaking septic tanks and other sources of sewage can cause groundwater and stream contamination.

Beaches also suffer the effects of water pollution from sewage. About 25% of the beaches in the US are put under water pollution advisories or are closed each year. It's clear that sewage is part of the problem, even in what is supposedly the most advanced country in the world.

REDUCE, REUSE, RECYCLE

Cheap and quick production, durability and usefulness in a number of applications make plastic a desired material for creating objects. But its durability is what makes plastic so dangerous to the environment. Wood is biodegradable, it will ultimately return to the soil. Metals are not completely biodegradable but they can be melted and then re-molded to form something new.

But the chemical make-up of plastic makes it highly resistant to the degrading forces of nature. A plastic bag can remain for at least 10-15 years or even longer. To add to their harmfulness, they break into smaller particles. Burning them releases toxic fumes. So when a plastic bottle is dumped into the ocean, it can sink to the bottom and remain on the ocean's floor for ages. But plastic products will sink, only if there is some weight or mass to them. Here's the real problem with plastic products: they float, especially plastic bags.

A plastic bag floating on the surface of the ocean can fool a sea gull or albatross into thinking it's food. On scooping the bag up, the bird could try to swallow it and end up choking. If it manages to ingest it, the bag will slowly poison the bird from within. Small, white bottle caps look like fish eggs or small fish. Such debris can be used to build nests and feed chicks. Another deadly plastic product is six-pack can rings. There are horrifying pictures of birds and fish getting entangled in these rings and slowly dying due to an inability to breathe. Such pack rings have sharp edges and can cut or wound an animal grievously. Plastic fishing nets have equally harmful consequences.

A study conducted by Dutch researchers on marine life in the North Sea reported that the local seagull population has ingested so much plastic, that an average of 30 plastic pieces could be found in one seagull's stomach.

Albatrosses are other sea birds which are vulnerable to plastic pollution. According to some reports, albatross chicks die from being fed plastic by their parents, who have mistaken it for food.

Plastic has been found in nearly every level of the oceanic food chain. From large predators like sharks and whales to turtles and jellyfish, no animal is safe from accidental ingestion. Even plankton, the tiniest of marine organisms have ingested plastic. In some areas of the ocean, like the Great Pacific garbage patch, plastic mass exceeds the local zoo-plankton population by 6!



An estimated one hundred million tons of plastic are present in the Earth's oceans. Marine species may slowly become endangered and then extinct. Keep our oceans clean. Try substituting plastic with paper or recyclable products. Reduce, reuse and recycle before it is too late for the Earth's oceans.

POLLUTION OF OUR ENVIRONMENT

Although people in general and economists in particular agree that we must control pollution of our environment, there is little agreement as to how this should be done.

The measures to control the pollution are divided into two groups. First, there exist different regulatory standards based on the idea of the "best available" technology for all sorts of pollution in every industry. But as each pollutant has many sources, national agencies that are supposed to ban pollution have to establish numerous maximum discharge standards for any of them.

Old sources of pollution (old factories, for example) can follow less strict standards than those devised for new sources, as it is considered more expensive to modernize an old factory than to introduce pollution control devices into a new one. Moreover, discharge standards for sources that already exist, as well for new sources, are more onerous in places with a higher-quality environment that is with cleaner air, cleaner water, etc.

The regulations of pollution may be established by the federal government. Usually they are very expensive. For example, direct expenditures for compliance with vehicle standards in the USA totalled an estimated \$14 billion in 1988, costs shouldered primarily by consumers.

The market-based approach to control pollution is less burdensome for taxpayers and the government. This approach is based on market incentives to reduce pollution, which fall into two groups: pollution fees and so-called "marketable permits."

The first are taxes on polluters that are set proportionally to the amount they discharge into air, water, or local landfill.

Marketable permits are discharge licenses. Polluters can buy and sell them to meet the control levels established by the governments. Marketable permits, actually, allow manufacturers to pollute the environment up to a certain level, and within the whole industry emitters may pollute over the control level as long as other polluters compensate by polluting less. The government decides on the desired level of pollution and the initial distribution of pollution rights within an industry, the latter then being redistributed among all the enterprises concerned.

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Учебно-методическое пособие

Валентина Петровна Полозова

ENGLISH FOR PART-TIME STUDENTS

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