

ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ОЛИЙ ВА ЎРТА МАХСУС  
ТАЪЛИМ ВАЗИРЛИГИ

ТОШКЕНТ ДАВЛАТ АГРАР УНИВЕРСИТЕТИ  
ТОШКЕНТ ДАВЛАТ ПЕДАГОГИКА УНИВЕРСИТЕТИ

М.Х.НУРМАТОВА, Д.А.САИМНАЗАРОВА

# TEXTS ON AGRICULTURE

*(Text book)*



Тошкент-2018

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*(ўқув қўлланма)*

Тошкент-2018

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*LEARNING is knowledge acquired in small portions,  
as drops make that flow to the oceans*

*(A.Navoi)*

### **Сўз боши**

Мазкур ўқув қўлланма қишлоқ хўжалик олий ўқув юртлари бакалаврият йўналиши ва магистратура мутахассислик талабалари, мустақил тадқиқотчилар, докторантлар, қишлоқ хўжалиги мутахассис профессор- ўқитувчилари учун яратилган.

Қўлланмада қишлоқ хўжалигига оид матнлар, мавзуга оид сўзлар луғати, мавзу бўйича саволлар берилган ва қўлланма матнларга мос келадиган расмлар билан бойитилган. Матнлар қишлоқ хўжалигининг турли соҳаларини қамраб олган бўлиб, унда талабалар ва қишлоқ хўжалиги мутахассислари ўзларини қизиқтирган мавзуларини инглиз тилида ўрганишлари мумкин. Қўлланмада қишлоқ хўжалиги мутахассислари томонидан халқаро нашр ва ҳужжатларда ишлатиладиган турли махсус сўз ва сўз бирикмалари, терминлар ҳам берилган бўлиб, булар талаба ёки мустақил тадқиқотчиларнинг ўзлари тайёрлаётган тезис ва мақолалар тайёрлашда катта ёрдам беради.

Юқоридагиларга қўшимча қилиб, қўлланмада янги ташкил этилган “Балиқчилик” ва бугунги кунда ривожлантирилиши кўзда тутилаётган “Асаларичилик ва ипакчилик” соҳалари бўйича ҳам матнлар берилган.

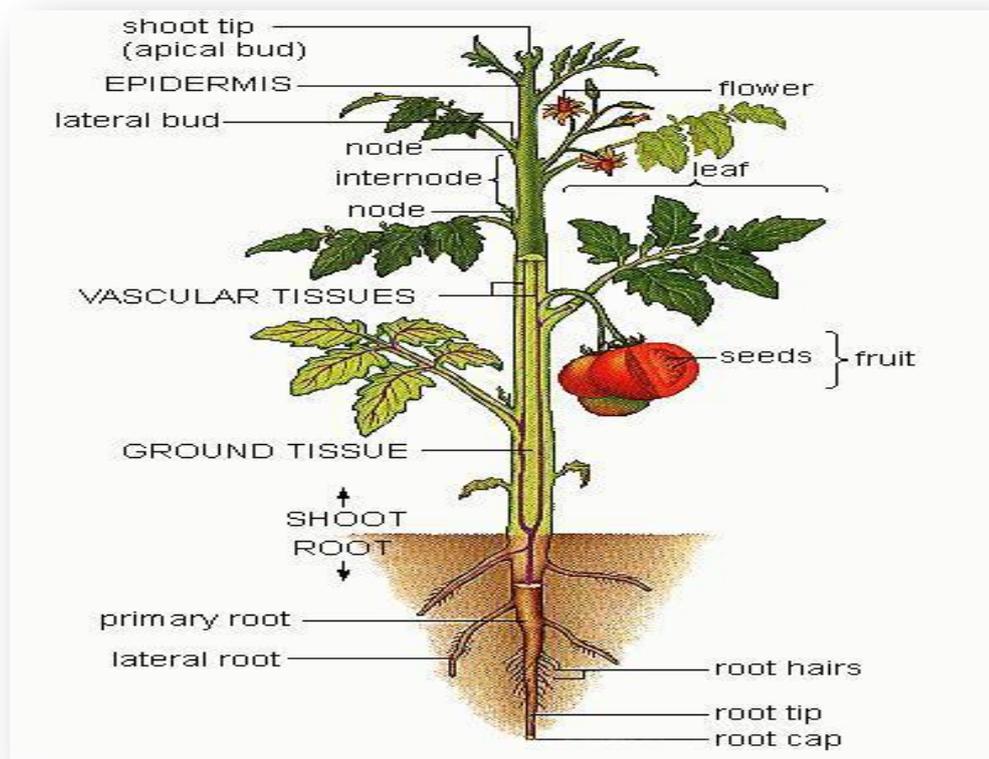
Ушбу қўлланмада ўқув режасида кўрсатилган мавзуга оид бир қанча матнлар ҳам ёритилган бўлиб, қўлланмадан маъруза ва амалий машғулотларда фойдаланиш мумкин.

# PART I

## TEXTS ON AGRICULTURE

### 1. AGRONOMY

#### TEXT. THE PLANT



The common seed bearing plant such as a grass consists of four major parts: 1) root, 2) stem, 3) leaf and 4) flower.

**The Root.** The roots of plants serve several purposes. The primary purpose of the root is to provide a means where by the plant can absorb water and nutrients from the soil. The fine root hairs lie in close contact with the soil particles and under favorable conditions water and plant nutrients pass through the semi-permeable membrane of the

plant cell to be transported to the leaf where they enter into most interesting factory, where the raw materials of nature are elaborated into food stuffs for human and animal nutrition.

The root also serves as an anchor or support for the plant. In many instances the root is an important storage organ. This may serve to carry the plant through an unfavorable environmental period such as winter.

**The Stem.** The plant stem, which differs greatly in the various species, serves as a connection between root and leaf. Frequently, the stem is so intimately associated with the leaf that it is difficult to differentiate them.

The stem supports the leaves and flower parts of most plants and aids in getting up into the sunlight.

As a passageway for water and minerals to the leaf for manufacture of organic materials, and the transport of these manufactured products to other parts of the plant, the stem has a most important function. The stem, like the root, may serve as a most important store house of energy.

**The Leaf.** Frequently it is difficult to differentiate between leaf and stem. In many respects they are alike. Particularly in the early stages of development it would require a careful examination to separate the two tissues.

The leaf may be considered as serving two major functions: 1) it is the factory of the plant, 2) it is a source of nutritive materials.

While leaves vary greatly in size, shape, and structure, the typical leaf is essentially a broad thin structure which is formed on the plant as to give its upper surface the maximum exposure to light. The inner part of the leaf consists of chlorophyll – bearing cells which are capable of food manufacture. An examination of a leaf will disclose ribs or veins which aid in holding the leaf rigid. These veins form the seat of the fibrovascular system and form a direct passage from the leaf to all parts of the plant.

Scattered over the surface of the leaf are numerous small openings known as stomata. Each microscopic opening enables the carbon dioxide of the atmosphere to

enter the leaf where it is dissolved in water that has been transported from the root. Green bodies known as chloroplasts are specialized structure through which the energy of the sun is brought to man.

### ***GLOSSARY***

1. chloroplast – хлоропласт;
2. bindweed – печак ўт;
3. conspicuous – кўзга кўринган, сезиларли;
4. inconspicuous – сезилмайдиган, кўзга ташланмайдиган;
5. stamen – чангчи (ўсимлик гулида);
6. anther –чангдон;
7. stalk – тана, поя, банд;
8. self – pollinated-ўзи чангланувчи;
9. filament –тола, чўғланма лампа толаси;
10. ovary – тухумдон, тугунча, уруғдон;
11. ovule – уруғланиш;
12. stigma –*бот.* тумшукча, оғизча;
13. tassel – попук, гажим;
14. silk – ипак;
15. breed – боқмоқ, кўпайтирмақ;

### ***TRANSLATE INTO UZBEK***

1. Wheat **is grown** more widely than any other crop.
2. Fertilizers **have** already **green applied** to this soil.
3. Between 200 and 300 pounds of water are transpired from the leaves of plants for every pound of dry matter **produced**.
4. A relatively low moisture content in the plow depth of soil favors a well **developed** root system.

### ***ANSWER THE QUESTIONS***

1. What are the main part of the plant?

2. What for the does the plant stem serve?
3. What parts of the plant serve as a storehouse of energy?
4. What are the main functions of the leaf?
5. What does the inner part of the leaf rigid?
6. What aids in holding the leaf rigid?
7. What forms a direct passage from the leaf to all parts of the plant?
8. What are the essential parts of a flower?
9. What are the male parts of a flower?
10. What is the female organ of a flower?

### TEXT. THE STRUCTURE OF SEEDS



**The Structure of a Bean Seed.** Let us first study the structure of a bean. It is rather and all its parts are easily discernible. One has to know the structure of this seed. The seed of a bean is covered on the outside with a solid smooth shiny membrane – the seed coat. There is a little elongated scar on the seed coat, the hilum. This is the trace of the small stalk by which the seed was attached to the inside of the bean-pod. The

solid membrane of the bean seed protects the tender parts of the seed from possible injuries.

When the skin is taken off the seed we see this latter consists of two lobes or cotyledons. The lobes are connected with one another by a small body, which under the magnifying glass displays: a rootlet, a small stem, and a small bud with tiny leaves. These rootlets, stem and bud together with the cotyledons form the embryo of the plant.

**The Structure of a Wheat Seed.** Seed of wheat differ considerable from bean seeds. Firstly, the thin membrane tightly adheres to the inside of the seed . it cannot be separated from the seed even after soaking it in water.

A small embryo is located in the seed with rootlet, or radical, and a leaf bud. If we remove the embryo of the seed we find a small scale by means of which the embryo attached to the remaining part of the seed. This scale is cotyledon which is called shield. It is different from the juicy cotyledons of the bean.

The remaining part of the seed is filled a uniform floury mass, the albumen, or endosperm. The endosperm contains nutritious substances which during the germination penetrate through the shield into the embryo of the seed. In all grain plants the stored-up nutritious material passes from the endosperm to the developing embryo by way of the cotyledon-shield.



The main difference between the seed of the bean and that of the wheat consists, therefore, in the following: in the bean seed the nourishing substances are contained in the cotyledons, while in the wheat seed they are contained in a special part of the seed, the endosperm. The bean seed has two cotyledons, the wheat seed one.

In most of our plants the seeds resemble in the main either the seed of the bean (for instance, seeds of peas, lentils, cucumbers, pumpkins), that of wheat (seeds of rye, oats, maize, etc.).

### ***GLOSSARY***

1. radicle –илдизча;
2. lentil –ясмиқ (ўсимлик);
3. discernible –кўзга кўринадиган;
4. seed coat- уруғ қобиғи;
5. lobe –солинчак, *тех.* кулачок, кулак;
6. cotyledon – уруғ палла, уруғнинг бир палласи;
7. embryo –эмбрион;
8. pulposus –мева эти;

### ***TRANSLATE INTO UZBEK***

1. One **has to study** the structure of seeds of various plants.
2. We read about the factor **decreasing** the weight of the seed.
3. The seeds which **were examined** by us were plump and heavy.
4. The **growing** storm interrupted our work in the field.
5. After **plowing** and **disking** the soil is ready for sowing.

### ***ANSWER THE QUESTIONS***

1. What is the seed of a bean covered with?
2. What parts of the future plant can be distinguished in the embryo of a plant?
3. What is the one part of the wheat seed filled with?
4. What does the endosperm contain?
5. What is the main difference between the seed of the bean and that of the wheat?

## **TEXT. THE IMPORTANCE OF WATER FOR THE GERMINATION OF SEEDS**

Water penetrating into the seed causes its swelling and the bursting of its outside coat. The embryo, freed from the solid skin, begins to grow rapidly. It is clear, therefore, that water in the first place is necessary for the germination of the seed.

Water is needed besides to dissolve the nourishing substances can be absorbed by the seed only in liquid form.

Tests have proved that seeds of different plants need different amounts of water for their germination. This depends to a great extent on the composition of the seed. The largest amount of water is absorbed by the seed of the leguminous plants, containing a great deal of albuminous substances. These seeds swell up to double their original size. Grains, rich in starch, need half the amount of water for their germination. The least amount of water is required by oil plants.

Seeds of leguminous plants and those of beets and cucumbers, which require much moisture for their germination are usually soaked before sowing.

The sowing of field cultures must be done as early in spring as possible, while the soil is still richly saturated with spring moisture. In the drought belt of our Union an “overearly” sowing has been practiced lately, the seeds being sowed at the beginning of spring, right after the thawing of the snow cover. Due to such sowing the germinating seeds and the young plants obtain larger amounts of soil moisture: they reach a considerable growth the develop a strong root system before the beginning of drought.

### ***TRANSLATE INTO UZBEK***

1. The killing of weeds affects the water supply in the soil.
2. Nowadays plowing, sowing, watering and harvesting are performed with new machines on our collective farms.
3. The most important factor in determining root depth is the moisture content of the soil.

### ***ANSWER THE QUESTION***

1. Is water necessary for the germination of seed?
2. What for is water necessary besides germination?
3. Can seed absorb dry food?
4. In what form can nourishing substances of the seed be absorbed?
5. What seed absorb the largest amount of water?
6. What seeds require the least amount of water?
7. What do we do with the seeds of leguminous plants before planting?

### **TEXT. THE IMPORTANCE OF TILLAGE**

Correct mechanical tillage of the soil is of much importance in the struggle for an increased yield of crops. All the various forms of mechanical tillage of the soil principally bring about a turning over the upper layers of the soil and its breaking up.

The first is achieved by ploughing, the second by harrowing. These two processes make the soil better fit for the development of the roots of cultivated crops. At the same time soil becomes more accessible to atmospheric moisture and air necessary for nutrition of plants as well as for the life activities of useful soil bacteria.

This hastens the changes in the soil, the decomposition of organic substances, the transformation of insoluble substances into soluble; consequently, it renders the composition of the soil more favorable for the development of plants. The mechanical tillage of the soil leads also to destruction of weeds.

Untimely or careless tillage of the soil results in an overgrowing of fields by weeds, thus causing bad crops.

One of the most effective means of fighting weeds is the so-called black fallow. That is ploughing and harrowing a field several times during the summer without sowing anything. Another means is the introduction of row cultures, such as potatoes,

beets and corn, where the spaces left between the rows are broken up from time by cultivators.

### ***GLOSSARY***

1. overgrowing v- ўсиб кетиш;
2. black fallow –экилмаган ер;

### ***TRANSLATE INTO UZBEK***

1. One of the important operations in preparing a good seedbed **is correct plowing**.
2. **Struggling** for high yields we improve the tillage of the soil.
3. **By applying** a certain amount of manure to the soil one improves its structure and fertility.
4. The depth **of plowing** will vary with the soil type.
5. In autumn the leaves and the grass **become** yellow.

### ***ANSWER THE QUESTIONS***

1. By operating is a turning over of the upper layer of the soil achieved?
2. By what operation is the breaking up of the soil achieved?
3. What processes make the soil better fit for the development of the roots of the cultivated crops?
4. In what does the untimely and careless tillage of the soil result?
5. What is one of the most effective means of fighting weeds?
6. What other means of fighting weeds do you know?
7. Is tillage an important operation?

### **TEXT. TILLAGE IN AGRICULTURE**

**Why cultivate soil?** The primary reasons for cultivation are:

- 1) To prepare a suitable place for the growing of crop plants.
- 2) To control and destroy competing weedy plants.
- 3) To destroy insects and diseases.

4) To improve the fertility and physical condition of the soil.



The Amount of Tillage. It is a real problem to determine how often one should practice tillage operations. It is recognized that we must till often enough to provide a good seedbed. Too fine a seedbed may result in serious damage either from water or wind. In semi-arid areas a somewhat rough seedbed has many advantages over seedbed in a very fine state tilth. While no fixed rule can be made for all conditions, it is probable that we may accept the principle that the seedbed should be cultivated enough to insure (1) aeration of the soil, (2) incorporation crops residues and organic matter, (3) conservation of moisture, (4) prevention of erosion, and (5) provision for the establishment of quick growth of the plants.

After the crop is seeded, generally tillage is based upon the control of weeds. Under some conditions of low organic matter it may be necessary to cultivate, to improve the physical condition of the soil. However, it is usually essential only for the destruction of competing weedy plants. The great importance of this is well known by every farmer. The more we control weeds, the better will be the results.

Under certain conditions tillage favors more rapid release of available fertility and thus insures better crop growth. To keep soil fertility and to control soil erosion is also the task of the farmers. The problem which each farmer faces is how to manage his soil to utilize its fertility without causing its destruction.

## ***GLOSSARY***

1. semi-arid – ярим қуруқ.
2. tith – ерга, тупроққа ишлов бериш.
3. aeration – шамоллатиш, хавога тўйинтириш.

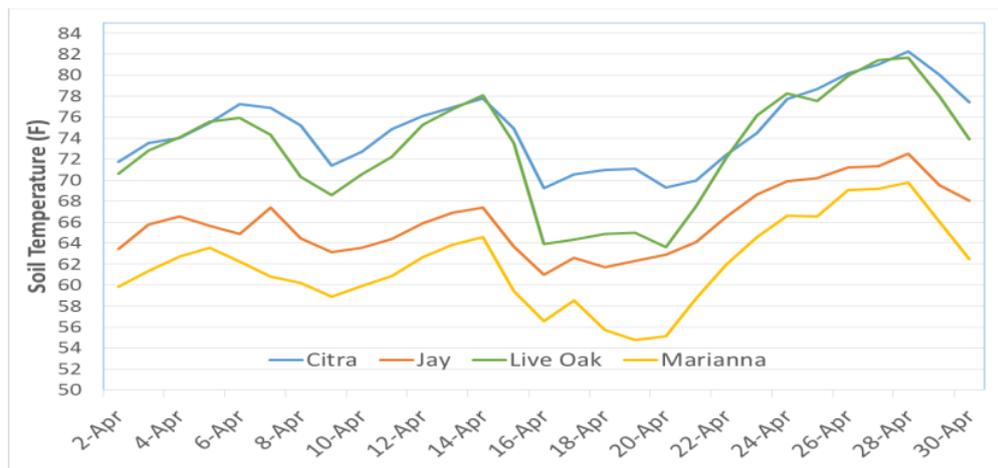
## ***TRANSLATE INTO UZBEK***

1. The more our young specialists will read literature on their specialities, the better they will know it.
2. The problem is how to eliminate pests in this region.

## ***ANSWER THE QUESTIONS***

1. What does the term tillage mean?
2. What are the benefits of tillage?
3. What are the primary reasons for cultivation?
4. What must one do to provide a good seedbed?
5. What is well known to every farmer?
6. What are others tasks of the farmer besides tillage of the soil?
7. What problem does each farmer face?

## **TEXT. TEMPERATURE FACTORS**



Temperatures exert marked influences upon crop distribution. Crops may be classed as warm and cool season plants. Warm season crops would include cotton, corn, rice, peanuts, and sweet potatoes, etc. cool season crops are potatoes and a large

percentage of the grasses. Through improvement man has modified many plants so that they may be grown successfully in regions once believed to be totally unsuited.

While certain plants such as winter wheat may be killed by low temperatures as found in the North, the principal limitation is the length of the growing season. Obviously, if it is required two hundred frost-free days to mature a variety of cotton, it is impossible to grow it to maturity along the northern borders of many countries.

A heavy covering of snow affords the most effective protection against low temperatures. It is possible to carry rather tender crops through a winter if snow falls before hard freezing occurs.

Undoubtedly the importance of high temperatures for some crops has been overemphasized. It is probable that with ample water supplies corn does better with more moderate temperatures than often has been stated. Corn like many other crops, however, grows slowly if a cold period occurs while it is in the seedling stage.

Native plants found in different sections of the countries are well adapted to the environment which exists. Even an adapted plant may suffer from cold injury if temperatures drop during its period of active growth. It has been shown that perennials prepare for low temperatures through the dropping of leaves.

This reduces water loss which would probably cause death of the plant while the soil is frozen.

Winter wheat has been shown to go through a change known as hardening off. If a freeze comes before this change, the plant is killed easily, while after it has become adjusted, it may withstand very low temperatures. Most of our crop plants are subject to injury by frost. Therefore, it becomes important to grow species and varieties capable of maturing within the growing season available.

Many plant breeders are striving to develop varieties capable of withstanding lower temperatures, particularly at the time of germination and while in the seedling stage.

## ***GLOSSARY***

1. peanut – ерёнғоқ;
2. seedling – уруғдан кўкартирилган кўчат;
3. native – шу ерли, туб жойли киши;
4. withstand – қарши турмоқ, бардош бермоқ;
5. freeze – совуқ, аёз, музламоқ;
6. subject – предмет;
7. develop – ривожлантирмоқ;

### ***TRANSLATE INTO UZBEK***

1. **It is important for** plant breeders to study the habits of the native plants.

### ***ANSWER THE QUESTIONS***

1. How are crops classed?
2. What crops are warm season crops?
3. Name cool season crops?
4. What affords the most effective protection against low temperatures?
5. During what period of its development may a plant suffer from cold injury?
6. What species and varieties is it important to grow?
7. What varieties do plant breeders try to develop?

### **TEXT. ANNUAL. BIENNIAL, AND PERENNIAL PLANTS**



In the course of its growth, a plant passes through a definite cycle consisting of three separate stages: germination, the development of vegetative parts, and flowering, with the final production of seed. Some plants complete the cycle of growth within one season, and are referred to as annuals. The cereals and pulse crops, which are grown on the farm for the purpose of utilizing their seeds as food, are annuals. Some common farm weeds have an even shorter cycle of growth. Shepherd`s purse, for example, goes through several growing cycles in one season.

Many weeds are annuals, and unless destroyed before flowering they produce a large number of seeds, which infest the soil for another season.

Many plants need two years to complete their cycle of growth. The first season of growth is devoted to the growth of vegetative parts and of the building up of a reserve of plant food. It is available in the second year of growth for the production of flowers and seeds. Plants in this group are known as biennials, and all of them create a reserve of food for the second year. Though there are many variations in the type of storage organs. Some of the common garden flowers, such as sweet-williams and Canterbury bells, produce in the first season a large number of leaves, which remain as a flat rosette during the winter and send up a flowering shoot the following spring. A number of garden vegetables, such as carrots parsnips, and turnips, and many farm root crops, including mangolds and sugar beet, store a reserve of food in the “root” or in some modification of it, and produce a flowering stem in the following year. With some farm root crops, there may be number of plants that produce flowers and seeds in their first season of growth. These are said to have “bolted” and are useless to the farmer, as there is no reserve of food to be used for human or animal consumption. Crops of the cabbage family are also biennial.

Broccoli and cauliflower in the first season of growth produce a modified form of flowering head known as the curd, whilst cabbages produce a solid heart of leaves, and Brussels sprouts produce a number of solid buds attached to the main stem. These are the parts used by man as a source of food. From the examples that have been given, the economic importance of biennial crops will be realized. There are not many biennial

weeds on arable land, because the reserve of food stored for a second year is destroyed by the cultivations carried out on the land, and they have little chance of survival.

There is third group of plants known as perennials. Many of these produce flowers and seeds every year, but the plants themselves survive and gradually increase in size.



Some perennials are described as herbaceous, and the leaves and stems die down at the end of the growing season. On the farm, many grasses and other fodder crops, such as ryegrass and sainfoin, are herbaceous perennials. The potato is a herbaceous perennial and the tubers are a form of underground stem. If the plant were left undisturbed in the ground, it would continue to spread by fresh growth from all its tubers, but in farm and garden practice, the tubers are lifted each year and a new crop is obtained by planting a number of selected tubers the next year. Other forms of perennial plants are described as shrubby, and some are trees, with a number of wooden branches, which increase in size from year to year. The stems do not die down in winter but, apart from the evergreen plants, most trees and shrubs lose their leaves.

Fruit trees and bushes are known to be an example of this type of perennial plant with an economic importance and all the plants connected with forestry are of this character.

There are many perennial weeds found on agricultural land, and because of their underground storage of food reserves, they are difficult to eradicate. Familiar examples of perennial weeds are coltsfoot, couch grass, docks, and bindweed.

### ***GLOSSARY***

1. cauliflower – гулкарам;
2. herbaceous – хайдаладиған ер;
3. shrubby – бута, чангал;
4. sainfoin – бот. эспарсет (дуккакли ўсимлик);
5. eradicate – илдизи билан юлиб ташламок;
6. dock – бот. шовул;
7. bindweed – бот. печак ўт;

### ***TRANSLATE INTO UZBEK***

1. If these seeds were sown early in spring they would obtain a large amount of soil moisture.
2. This flower is known to grow on the slopes of mountains, but that one is said to be grown only in the garden.
3. Grasses will be grown in this region.

### ***ANSWER THE QUESTIONS***

1. What plants do we call annuals?
2. What plants are known as biennials?
3. What plants do we call perennials?
4. Name some annual plants?
5. Name some biennials?
6. What perennials do you know?
7. To what group of plants do shrubs and some trees belong?
8. Why are perennial weeds difficult to eradicate?

## TEXT. SOIL AND SOIL FERTILITY

Soil management is the application of practices to maintain or improve soil fertility, and a fertile soil is the one which has the capacity to supply nutrients for high crop production. Some soils are naturally fertile; others are naturally poor and require intensive treatment in order to make them fertile; still others were formerly fertile but have been eroded or depleted and require special treatment in order to restore their productive capacity.



A great deal has been written about soil conversation during the past 20 years. There is a popular opinion that fertility is characteristic of the topsoil, and that if the topsoil is removed, the productive capacity of the soil is gone forever. The loss of topsoil represents a loss of fertility provided through centuries of soil building by natural processes. The natural topsoil may be gone forever, but many may build a new topsoil which is just as fertile, or even more fertile than the original topsoil. The important point is that, while man has the ability to rebuild a soil, the process is expensive and may not always be profitable. Therefore, we stress conversation because

it is more economical to keep soil from eroding away than it is to rebuild a fertile topsoil.

**What is Soil?** Soil is the mixture of mineral and organic material at the land surface of the earth that is capable of sustaining plant life. The minerals and rocks that compose the earth's surface had a common origin, and the elements required by plants are found over the entire surface of the earth, although in highly variable proportions. The weathering of the rocks and minerals has been going on for billions of years, until the most of the earth's surfaces is now a mass of finely divided mineral matter. As plants cover the land, the roots are abundant near the surface, and as the plants die, their remains fall on the surface of the ground. As a consequence, organic matter accumulates on and in the surface of the soil. This is characteristic of soils over the entire earth. Another important characteristic is that the plant cover stabilizes the soil against erosion, and as water percolates through the soil, there is movement of the finer particles to lower depths. Therefore, as soils develop with time, there is a tendency toward a development of a layer of clay beneath a layer of coarser textured topsoil.

Soils are mixtures of mineral and organic materials and are surprisingly porous. In the pore spaces, which may occupy more than half the volume of soil, there are variable proportions of water and air.

**The mineral Component of Soils.** From a physical point of view, the mineral component is made up of three fractions: sand, silt and clay. Sand particles are large enough to be seen by the naked eye and give soils a gritty feel. Larger silt particles can barely be seen by the eye, and the smaller silt particles can be seen only with the aid of a microscope. Clay includes the fraction smaller than silt and feels sticky and plastic when wet, and harsh and hard when dry. Since the clay includes all particles below the size of silt, this fraction contains the available.

**From chemical point of view,** the mineral framework of the soil consists of about 90 percent silica, alumina and iron oxide. The remaining 10 percent include calcium, magnesium, titanium, sodium, and small quantities of

nitrogen, sulfur, phosphorus, boron, magneneze, zinc, and copper, as well as traces of many other elements.

### ***GLOSSARY***

1. framework – кесиш, кесилган жой;

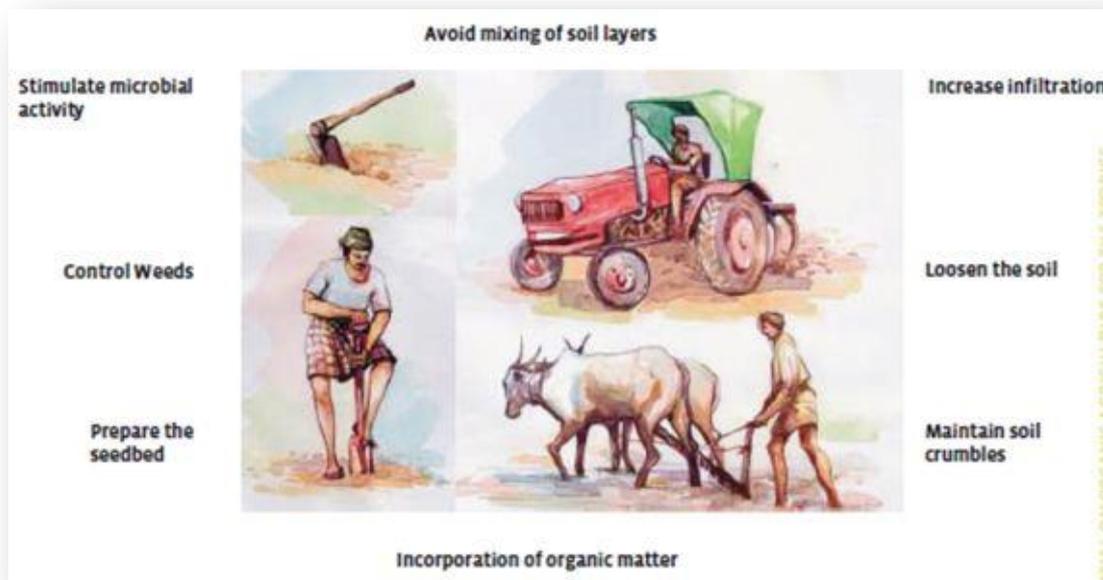
### ***TRANSLATE INTO UZBEK***

1. The best way **to stimulate** the decomposition of green manure **is to plow** it under.
2. We have grown grasses **to improve** soil fertility.
3. **To apply** manure to this field id quite necessary.

### ***ANSWER THE QUESTIONS***

1. Are all soils naturally fertile?
2. What is soil?
3. Where does organic matter come from?
4. Where does organic matter accumulate?
5. What stabilizes soil against erosion?
6. The mixture of what materials are soils?
7. Of what three fractions is the mineral component of the soil made up the physical point of view?
8. What of does the mineral framework of the soil consist from chemical point of view?

## TEXT. TILLAGE AND CULTIVATION



Ever since man started the culture and care of plants rather than depending solely on what nature provided without his guidance, he has tilled the soil. His first implements were crude tools of wood. Today the tools are power – drawn implements of finest steel. Still the fundamental objectives of tillage have remained unchanged – to destroy weeds to incorporate organic matter into and make it a part of the soil; to prepare a bed of earth in which a tiny seed can find warmth, air, and moisture so that it may germinate and the resulting plant may find nourishment for growth. Tillage owes much to science, but it also is an art demanding both skill and experienced judgment from the farmer. The structure of the soil to be tilled must be known well.

**Plowing.** Ordinarily the first operation in fitting a seedbed is plowing although there are circumstances under which plowing may be dispensed with. Where the land is in sod or where considerable vegetation, dead or alive, is on the surface, plowing is essential, for it incorporates this material with the soil where it is broken down by bacterial action until it becomes an integral part of the soil. Hard soils must be broken up, loosened, and aerated; plowing accomplishes this. Not only does the curved moldboard tend to crumble the soil as it is sheared off into a furrow slice, but it tips the soil over, facilitating the coverage of trash.

Several attachments aid in trash coverage. The rolling coulter and the jointer used on the plow beam cut the edge of the furrow cleanly and work trash toward or into the furrow where it is more readily covered. If the material to be covered is bulky, trash guards or wires can be used to drag it to the furrow and hold it there until it is covered by the furrow slice as the plow moves along. The wider plows are more effective in covering heavy trash. The disk plow is used in dry, hard soils, in sticky soils in which moldboards do not readily scour, or on new land with its roots and bushes. The action of the disk plow is similar to that of the disk harrow; but the disks are larger in diameter, ranging up to 30 in, and thus they can be set for deep as well as for ordinary work. On dry land, complete coverage of straw may not be desirable. If a considerable amount of this material is merely partly worked into the surface, it tends to reduce blowing.

Middle bosters and listers have the appearance of two plows, one right-handed and the other left-handed, set back to back. They are used largely in semiarid regions for the preparation of beds and ridges to hold moisture and reduce wind erosion. Corn, the grain sorghums, and wheat may be drilled in the furrow left by a lister-planter combination.

**Tine of Plowing.** The proper time to plow is not strictly an agronomic consideration. In many instances the chief factor may be distribution of labor.

However, fall plowing, under some conditions, has other definite benefits. In heavy gumbolike soils, spring plowing, at least for crops that are planted relatively early, is often next to impossible. If such soils are plowed in the fall, time is saved and the freezing and thawing of winter and spring bring about a more granular condition, especially in the presence of a reasonable content of organic matter. On the heavier soil types, plowing or otherwise tilling the land when it is too wet may ruin the physical condition of the soil for several seasons. Wet, heavy soils are packed or puddle by tillage operations and upon drying are cemented into dense lumps almost as hard as a brick. These can be broken up and got into condition for proper aeration and moisture retention only after much time and tillage effort. This undesirable condition is

most often brought about by spring plowing, but the tillage of heavy soils when they are wet should be avoided in any season. Sandy soils are not similarly affected.

When a tough, heavy grass sod is to be plowed for a spring – planted crop, its effective decomposition is hastened by fall plowing. Furthermore the settling that occurs during the winter helps eliminate air pockets. A plowed surface left in the rough over winter is more receptive of moisture from rains and snows. The first spring tillage on fall-plowed land hastens drying of the surface and often permits earlier planting than is possible if spring tillage must await the drying out of the land until conditions are suitable for spring plowing.

Fall plowing is not suitable for rolling land subject to erosion. If such land is left without vegetation over winter, excessive washing and gullyng often take place, especially if the land is deficient in organic matter. Sandy soils if fall-plowed may be injured by wind erosion whether the land is sloping or level. Such lands are to be examined before cultivating.

### ***GLOSSARY***

1. objective – мақсад, интилиш, холис, беғараз;
2. incorporate – таркибига кирмоқ, қўшилмоқ, корпорация ташкил қилмоқ;
3. owes much – қарздор бўлмоқ
4. integral part – мухим қисм
5. rolling colter – чимқирқар

### ***TRANSLATE INTO UZBEK***

1. Newly plowed land to be used for cereals is usually harrowed very thoroughly.
2. We are to control weeds by performing tillage operations.

### ***ANSWER THE QUESTIONS***

1. What were the first implements of the man to till the soil?
2. What are the tools made of today?
3. Name the main objectives of tillage?
4. What is the first operation in fitting a seed-bed?
5. Why is plowing essential where the land is in sold?
6. In what regions are listers used?
7. For what operations are listers used?

## EXT. TILLAGE AND CULTIVATION

**Fitting the Seedbed.** Preparation of the seedbed is more than a mechanical operation. One of its main objectives is to destroy potential weed competition. Conceivably certain implements such as rotary tillers a succession of implements hitched to the soil in one operation.



However, one operation is not nearly so effective in destroying weeds as several carried on at intervals. If between each disking or harrowing enough time elapses to permit weed seeds to germinate, the next tillage operation destroys these seedlings. A succession of such operations makes for cleaner seedbeds, less competition for the crop, and less need for subsequent and more costly row cultivation of intertilled crops. In carrying on such tillage, consideration must be given to the proper time for sowing or planting the crop. One knows of such succession of operating having often been practiced.

The disk harrow works deeply, cutting and breaking lumps and clods, aerating the soil, destroying vegetation, and eliminating large air spaces. Disking or double disking

is the first operation after spring plowing, the first fall plowing, or the first tillage operation of all in case plowing is not done.

The spring-tooth harrow is effective in refining the soil, loosening the surface, and destroying weeds. Whereas the disk may be ineffective in stony ground, the spring tooth harrow with the flexible teeth encounters little difficulty under such conditions. The ordinary spring-tooth tends to spread stolons or rhizomes of the perennial noxious weeds, but a special type of this implement that digs deeply with the little tendency to drag the material around is useful in bringing the underground portions of such weeds to the surface where they may be destroyed by the desiccation and exposure. These field cultivators may have either duckfoot shovels or spring teeth. Their timely and thorough use is particularly effective against quack grass. The spike tooth is a smoothing harrow. It destroys weed seedling that are not thoroughly rooted and even be used for cultivation after a crop is planted but before it has attained any considerable growth. It is a good implement for putting the finishing touches to a seedbed for small grain, corn, and seeds of similar size. We know of its having been used with success.

Rollers crush lumps and firm the soil. The corrugated rollers are particularly effective in this respect; their use is highly desirable, especially on lighter soils, to finish a seedbed for small hard seeds that must be planted near the surface. They are also effective if used immediately after plowing.

### ***GLOSSARY***

1. hitched – итариб юбориш, туртиш, зарба, силташ;
2. seedling – уруғдан кўкартирилган кўчат;
3. seedbed – pushta;
4. noxious – захарли, зарарли, зарар қиладиган;
5. rollers – ролик;

## ***TRANSLATE INTO UZBEK***

1. Our aim is **to improve** the fertility of the soil.
2. **If dry** the soil lumps become hard.
3. They knew of his **having been invited** to take part in testing new implements.

## **TEXT. HARVESTING**

Harvesting, like other phases of farming, has undergone a revolution during recent years. The change from the cradle, to the self-binding reaper marked a great advance in agriculture and made possible an enormous expansion in grain production.



No less important has been shift from binder harvest to the use of the combine harvester-thresher. The number of acres of grain that can be farmed per man is much greater today than was a few years ago.

The farmer plans to harvest his crops just as early as possible, but not before the crop is mature enough to give maximum yields of superior quality. If wheat is cut too early, the grain may be shriveled and the quality inferior. Too early harvesting with the combine may result in heating the grain in storage. If it is left too long, shattering losses may occur, the plants may lodge, or the grain may be bleached, all factors that will mean losses to the grower. It is a common belief among some farmers that small

grain crops heavily attacked by rust should be harvested before they mature to secure the best yields. Some scientists have shown this to be incorrect. Grain plants continue to develop their seeds as long as the plant has a water content of more than 40 percent. Rust may slow the maturity rate of the grain plants, but even under these conditions it is better to delay harvest until the normal time.

The farmers who have large acreages may feel it necessary to start harvest as early as possible or order to complete.

The job within a reasonable period. It is best, however, to delay the start of harvest until the grain is in the dough stage. At this time no further materials are being elaborated, and ripening is a matter of water loss. Care must be taken to avoid spoilage from the high water content of the straw if the crop is cut with a binder and shocked. Some varieties tend to have green straw after the grain is ripe enough for harvest, and care must be exercised to prevent spoilage in the shock. When grain is harvested with a binder, it is said to contain 20 to 30 percent water. Naturally such grain must be dried before threshing. Usually the drying process is completed in the shocks formed from the bundles.

The combine is now used in humid areas where it was once believed to be totally unsuited. Since grain should have a water content of not more than 14 percent for safe storage, it is evident that the grower must delay harvest until this stage of ripening if he is to combine standing grain. However, in the more humid areas he cuts the crop and leaves it in a windrow or swath to dry. As soon as the grain has dried in the swath it is threshed with a combine equipped with a pick-up device that gathers the grain from the stubble and delivers it onto the combine platform. Much labor is said to be saved when the combine is used.

**Storage of Grain.** Unless the grain is hauled from the thresher to the elevator, it must be placed in bins that will protect it from the weather as well as from rodent and insect injury. Small grains should be dried to 14 percent or less moisture before they

are placed in storage. If they are stored with a higher water content, heating is almost certain to occur, with resulting damage to the grain.

### ***GLOSSARY***

1. cradle – бешик, беланчак;
2. lodge – кулба, кичкина уй, ижарада яшамоқ;
3. bleach – оқартириш;
4. swath – чалғи билан ўрилганда очилган жой;

### ***TRANSLATE INTO UZBEK***

1. These agronomists **were said to be invited** to work in Siberia.
2. The farmer plans **to cut** grasses as early as possible.
3. Pasture, hay silage and root crops **should be classified** as forage crops.

### ***ANSWER THE QUESTION***

1. In what does too early harvesting result?
2. What may slow the maturing rate of the grain plants?
3. In what areas was combine once believed to be totally unsuited?
4. Is much labor saved when combine is used?

## TEXT. FARM MANURE

There is no question of the value of farm manure as source both of organic matter and of plant-food constituents. The manure varies in quality with the material fed, the material used for bedding, the kind of livestock, and the care with which the manure has been handled. In general, it is high in nitrogen and potash and relatively low in phosphoric acid.



Not only does manure benefit the immediate crop, but it has a marked residual effect, particularly if large amounts are used on the heavier soils. This is due in part to the fact that manure is more than a source of plant food. But many of the benefits of manure are indirect. As a source of humus and organic matter, it improves the physical condition of the soil, its water-holding capacity, aeration, and temperature relationships. It favors the activities of soil organisms that make nutrients available to plants.

In addition, certain part of its organic constituents may have definite value in promoting plant growth and stimulating root development.

Manure is most effective if supplemented with sufficient phosphatic fertilizers to make up for its phosphoric acid deficiency. Moderate applications over wider areas bring more profitable returns than unusually heavy applications, a common rate of use

being 8 tons per acre. One knows of its having been applied in most regions in this amount.

**Fertilizers.** Commercial fertilizers are materials used to supply nitrogen, phosphorus, and potassium either singly or in combination. Those containing all three constituents are known as complete fertilizers. Their analysis is expressed by formulas that represent the percentage nitrogen, percentage available phosphoric acid, and percentage water soluble potash that they contain. Thus, a 4-16-4 fertilizer contains 4 per cent nitrogen, 16 per cent available phosphoric acid, and 4 per cent water – soluble potash.

**Nitrogen.** Nitrogen as a plant food in commercial fertilizers comes in several different forms. In nitrate of soda the nitrogen is in the nitrate form, and in this condition it is very soluble in water and becomes quickly available to plants upon being applied to the soil.

**In sulphate of ammonia the nitrogen is combined in the form of ammonia or its compounds.** This form of nitrogen is also quickly soluble in water but it is less readily lost from the soil. Organic nitrogen comes from vegetable or animal materials such as soybean or cottonseed meal and animal tankage. These nitrogenous compounds being complex, the nitrogen in them becomes available more slowly.

To be used by plants the nitrogen in more complex forms is changed by bacterial action into the nitrate form or into ammonia.

**Effect of Nitrogen.** Nitrogen is particularly effective in stimulating the vegetative growth of plants. In the case of small grains, too much nitrogen results in excessive growth; and the ultimate effect may be lodging of the straw, development of shriveled, lightweight kernels, and lower yields. A deficiency of nitrogen is associated with a stunted growth of the plants and a yellowed appearance. The rich green color noted in the leaves of plants adequately supplied with nitrogen is due to the stimulating effect this constituent has on chlorophyll development.

**Phosphorus.** A great many soils are inadequately supplied with phosphorus. Phosphorus is an essential constituent of both plants and animals. Forage legumes and

grasses both remove substantial quantities of phosphorus from the soil, as do the cereal grains. The seeds of large seeded legumes such as field beans and soybeans carry even more phosphorus.

**Potassium.** Potassium is absorbed by plants in the form of water-soluble potash. It is most lacking in the lighter sandy soils and in mucks and peats. The total potassium in heavier soils is abundant, but only a small fraction is readily available. Thus, continued cropping even of heavy soils may eventually result in a deficiency of potassium which plants actually can use.

**It is generally customary** to use some potash in a mixed fertilizer for corn, small grains, sugar beets, potatoes, and tobacco. One knows of potash having always been by far the most important fertilizing constituent for the growing of crops on muck.

### ***GLOSSARY***

1. bedding – кўрпа ёстик;
2. tankage – систернада ташийдиган;
3. benefit – фойда, наф, фойда келтирмоқ
4. lodging – тулар жой, макон

### ***TRANSLATE INTO UZBEK***

1. **Straw being a good absorber**, we use it as bedding for cattle.
2. They know of these **having been delivered** in time to the collective farm.

### ***ANSWER THE QUESTIONS***

1. What are the benefits of the use of manure?
2. The activity of what organisms does the use of manure favor?
3. What fertilizers are known as complete fertilizers?
4. Where does organic nitrogen come from?
5. In what is nitrogen particularly effective?
6. In what soils is potassium most lacking?

## TEXT. SUGAR BEET CULTURE

**Climatic Requirements.** Sugar beets may be produced successfully only where climatic conditions as well as soil are favorable. Both temperature and moisture supply must be moderately high for practical sugar beet production, and long hours of daylight favor a high sugar content. Cool temperatures toward the end of the growing season with large differences between day and night temperatures tend to produce beets with high sugar content.



Sugar beets are grown most successfully where the mean temperature during the growing months is approximately 70 °F.

The amount and distribution of rainfall is of great importance. Too much rain delays spring planting and proper cultivation, while drought seriously affects growth. Two to four inches of rainfall every month of the growing season seems most favorable for sugar beet production. The sugar percentage is depressed for several days after heavy rains because of dilution of the plant juice. Dry weather during ripening materially increases the sugar percentage of the beet because the plant juice becomes more concentrated.

**Soil Requirements.** While it is true that sugar beets have been profitably grown a wide variety of soils, better crops are obtained on the darker colored, heavier soils.

Clays, clay loams, and silt loams have given consistently higher yields than the lighter colored, sandier soils, especially when the latter are low in organic matter and nitrogen. Beets grown on sandy soils usually suffer more from drought and hot weather than beets grown on heavier soils. One wants sugar beets to give good yields, therefore one must consider well soil requirements of sugar beets.

**Soil** with an unfavorably high water table or which are poorly drained are not used for sugar beets. The use of tile drains or open ditches may be improve the water relations in such soils so that they will be suitable for sugar beet culture.



Poorly drained soils favor the development of root-rotting diseases, and losses ranging from a few scattered plants to a complete failure of the crop have been observed. One always wants the drainage of tight soils to be somewhat improved through the incorporation of organic matter and this is done by growing deep rooted legumes such as alfalfa or sweet clover in the rotation. The sugar-beet is a tap-rooted plant sending one main root deep into the soil, and anything that interferes with this deep penetration may cause ill-shaped roots often resulting in an excessive number of rather large lateral roots which break off handling and represent an appreciable loss in tonnage. If there is a high water table, the ends of the roots sometimes become diseased early in the summer. Later the water table may recede sufficiently so that the plants recover and develop lateral roots near the point of recovery.

## ***GLOSSARY***

1. clay loam – унумдор тупроқ;
2. silt loam – балчик;
3. tile drains – тупроқ захини қуритмоқ;
4. favor – ёрдам бермоқ;

### ***TRANSLATE INTO UZBEK***

1. Plants can be seen everywhere.
2. One wants the sugar percentage of sugar beets to be as high as possible.

### ***ANSWER THE QUESTIONS***

1. What mean temperature is required for sugar beets to grow successfully?
2. What is of great importance for the development of sugar beets?
3. Because of what is the sugar percentage depressed after heavy rains?
4. On what soils are better crops obtained?
5. What soils are not used for sugar beets?
6. What soils favor the development of root-rotting diseases?

## ***2.FRUITS AND VEGETABLES***



### **TEXT. VEGETABLE GROWING**

Good plants are essential to success in vegetable growing. To have good plants one must get good seed and use judgment and care in sowing the seed, in the management of the seedbed, in transplanting the seedlings and in hardening the plants before they are planted in the open. Plant growing calls for skill and care. Any neglect may cause a serious loss due to delayed maturity or to a decrease in yield, or both. Perhaps no factor is more commonly neglected than the selection and the preparation of the soil for the plant bed.

**Soil for the Plant Bed.** A good soil for plant growing is of good physical character, friable, retentive of moisture, and free of disease organisms, especially of the “damping – off” fungi. It carries an abundance of nutrients for satisfactory growth. The demand for nutrients is heavy since a 3- inch layer of soil often must support a sick stand of sizable plants before time for setting in the field. There is danger,

however, of having too high a concentration of soluble salts where the soil is composted with manure in large quantity or when heavy applications of fertilizer are applied to the soil. The electrical conductivity method of measuring the total soluble salt content of the soil is frequently used as an index of the fertility of the composted soil. This method does not indicate the proportion of the different soluble constituents present, but it serves well as a guide, especially in cases of excessive and injurious contents of soluble salts. The base soil should be of a loamy nature, preferably a sandy loam well supplied with organic matter for the transplanting the soil. Pure sand may be used for starting seedlings that are to be pricked out later into a good loamy soil. A bluegrass sod grown on a friable – loam soil makes an excellent base for a plant growing medium. It is a common practice to make a compost pile of soil and manure in alternate at least a year in advance of the time the material is to be used for plant growing. Where sod is used, the compost pile should be made 2 or 3 years in advance.

### ***GLOSSARY***

1. seedling — уруғдан кўкартирилган кўчат;
2. prick out – сийраклатмоқ;
3. fungi – замбуруғ;

### ***TRANSLATE INTO UZBEK***

1. Air is used by aerobic bacteria.
2. The subsoil should be deep and porous for fruit tree.

### ***ANSWER THE QUESTIONS***

1. What soil is good for plant growing?
2. Of what nature should be base soil be ?
3. What may pure sand be used for?
4. In advance of how many years should be compost pile be made where sod is used?

## TEXT: POTATO BREEDING

**Economic characters.** The search for new and improved varieties of the potato has been in progress for approximately 200 years.



During that time innumerable varieties have been raised and brought into cultivation, some to attain popularity and an important place in agriculture, but many to disappear after a short period of time.

**The characters** which determine the economic value of varieties are so numerous and sometimes intangible that the compilation of a comprehensive detailed list is hardly possible. It may however, be of advantage here to list in general terms the more important features aimed at a present – day potato breeding, on the understanding that a range of maturity types possessing nearly all the following qualities is required to suit a wide range of environmental conditions:

High yield;

Attractive tuber shape;

Good colour, texture and 40weeds of tube flash;

Uniform medium-sized tubers;

Good keeping quality;

Good grouping of tubers in drill;

Good foliage to suppress weeds;  
Immunity from wart disease;  
Blight Mosaic and Virus;  
Resistance to Leaf-Roll, to Scab, to Dry Rot- and other storage diseases;  
Resistance to Eelworm;  
Resistance to climatic extremes;  
Resistance to the Colorado beetle;  
To raise and bring new varieties of potato into cultivation is our task.

### ***TRANSLATE INTO UZBEK***

1. Various factors **concerned** with potato growing are of great importance.
2. Well – **drained** sandy loams are well suited for potato production.
3. **Building up** soil fertility is our task.
4. **The watering** of vegetables improves their growth.
5. **To know** the most important features of the present-day potato breeding is quite necessary.

### **TEXT. THE CULTIVATION OF THE POTATO**

The chief aim in the cultivation of the potato crop is the production of the maximum number of ware-sized tubers for human consumption, although there is, of course, a large area, in which the potato crop is grown to produce tubers to plant as seed-sets. Different views are held as to the effect of various types of soil on the cooking quality of potatoes, but it is generally accepted that the best quality is to be found in potatoes grown on suitable soils in district where rainfall is low.

#### **TEXT: CULTIVATION BEFORE PLANTING**

**Soil preparation.** The potato is a fairly deep-rooted plant, so that if the best results are to be obtained the cultivation must also be deep and thorough.

**Depth of Planting.** The depth at which the sets are planted will depend on the size of the tubers and on the kind of soil; too deep planting, however, increases the difficulty of lifting the crop.

**Time of Planting.** The time of planting depends on the district, season, variety of potato and the purpose for which the crop is grown. A start is usually made with early varieties, in early district, as soon as conditions will allow.

At the other extreme, in some late areas planting is often delayed until the later part of May.



The chief objects of the cultivation are to keep the land clean by preventing the growth of weeds and to provide loose soil for earthing up.

**Storage.** The crop may be stored; 1) outside, in what are called in different parts of the country pits graves, hogs or clamps, 2) inside in sheds and 3) in boxes.

### ***GLOSSARY***

1. intangible –тутиб бұлмайдыган;
2. comprehensive –хар томонлама;
3. earthing up – тўдалаш;

### ***ANSWER THE QUESTIONS***

1. Name some important qualities of potatoes, required to suite a wide range of environmental conditions?
2. What is the chief aim in the cultivation of the potato crop?
3. Why must the cultivation of the soil for potato crop be deep and thorough?
4. What factors does the time of planting of potato depend on?
5. What are the ways of storage of potatoes?

## TEXT. PRODUCING CABBAGE

**Climate.** Cabbage thrives best in a cool, moist climate. Hardened young plants may tolerate 20-25 F, perhaps even 15F, if not of long duration. But if the plants have not been hardened a light freeze may ruin them.



The farther north and the higher the altitude, the more the outer leaves tend to be erect and the heads to be longer or deeper in proportion to diameter, though the entire plant is wider spreading. In areas with comparatively dry atmosphere, the leaves tend to be more distinctly petioled than in the more humid areas. Heavier bloom results from low soil moisture and air humidity than from humid conditions.

Methods of starting the Plants.

**Flat method.** One method of growing early cabbage is to sow the seed, 4-6 weeks before outdoor planting in a greenhouse or hotbed and prick-out the seedlings to 1-2 inches apart each way in other flats. Pricking out is done when the seedlings show their first true leaves, or about 2 weeks after sowing.

**Frame Method.** The seed is sown thinly in rows 2-6 inches apart in hotbeds or cold frames and transplanted to other hotbeds or cold frames, or directly to the field.

**Seeding outdoors and transplanting.** In the South and for a late crop in the North, a sheltered spot is chosen and the seed sown rather thinly (20-25 seeds per foot)

in a seedbed in rows 8-18 inches apart 4/1 pound of seed being used for each acre to be sown. It takes 5-8 weeks to grow the plants. The plants are thinned to 4/1 – 4/2 inch apart in the rows. They are moved from the seed rows to the field, preferably when they are 5-6 inches high. **Hardening plants.** The purpose of hardening is to make the plants more frost resistant, better able to resist desiccation from hot drying winds and the sun, and less subject to wind whipping.

It is accomplished by gradually subjecting the seedlings to lower temperatures by watering sparingly for 7-10 days before setting in the field, or by both methods.

There is an increase in amino acid content in hardened plants as a result of the breaking down of proteins to forms less easily precipitated by the increase in H-ion and salt concentrations. Hardening is accompanied by decreases in growth rate, transpiration rate per unit of leaf area, and starch, and by increases in waxy covering on the leaves, percentage of dry matter, and percentage of reducing total sugars.

Of the vegetables that are commonly transplanted, cabbage represents the potentially hardy type that acquires considerable resistance to cold through hardening. Tomatoes represent the opposite type.

If late cabbage plants are grown in outdoor beds the temperature, and often the water, cannot be regulated. One good way to “harden” such plants is to fertilize them with potash. The greater activity of the potash ion in the soil solution may balance or inhibit somewhat the uptake of nitrogen and produce plants with stiffer stems and higher carbohydrate content that will stand transplanting better.

**Planting outdoors.** Well-hardened plants for the early crop may be set out as early in spring as danger of hard frost is over. “Starter” solutions may be helpful.

In the South cabbage is set in the fall to grow and mature in early spring. Level culture is usual, but ridges or raised beds are necessary for irrigation, and where plants are set in the fall it is the wise to make a ridge.

### ***GLOSSARY***

1. desiccation –қуриш;
2. outdoor –очикда;
3. uptake –ўзлаштириш;
4. starter – стартер;

### ***TRANSLATE INTO UZBEK***

1. Time of planting varies with the different varieties.
2. The domestic apples have been developed and improved from the wild (crab) apple.

### ***ANSWER THE QUESTIONS***

1. In what climate does cabbage thrive best?
2. What is the purpose of hardening plants?
3. When is the cabbage set in the South?
4. What for are raised beds and ridges necessary when planting cabbage in the South?

### **TEXT. THE TOMATO**



Vegetable, fruit or berry, - what is tomato? The answer is easy. It is all three. By culture and use, it is a vegetable, botanically it is a fruit and among the fruit it is a

berry with one or more seeds that are not stones. The tomato is easy to grow and nearly every home has it.

The tomato is a warm-season crop, sensitive to frost but reasonably resistant to heat and drought, thriving under a wide range of climate and soil.

A frost free season of seventy five to ninety days will mature home garden tomatoes in quantities if good plants are set. Plant growing requires six to eight weeks previous to setting out of – doors. Each fruit requires about six weeks from blossom to ripeness.

The fruit ripens best for yield, color and quality when the weather is warm and sunny. Low temperatures without frost are not favorable for the growth of the plant and retard it.

The tomato responds readily to fertilizers and to moisture, coming quickly into vigorous growth after unfavorable conditions, unless too badly stunted.

Hot dry winds often damage floral parts and the blossoms drop without setting fruit. The flowers of the tomato are born in simple racemes or in some varieties, in compound clusters. The flowers normally may six or eight sepals and petals. Petals are united at the base. Stamens are united by the anthers surrounding the style and stigma. The ovary or little tomato is above the calyx but, as it grows, it carries corolla and stamens outward until they, with stigma and style drop off.

**Choose the Soil and Feed the Plant.** Tomatoes grow on various soils. In some canning sections, clay loams and even clay soils are used.

The ideal soil is a medium loam, well supplied with humus for good water holding capacity. Tomatoes on droughty soils suffer from rot as well as from poor growth. Liming is not important for tomatoes even on fairly acid soils. The dominant element in most sound tomato fertility programs is phosphorus than nitrogen and than potash. Nitrogen is very important to insure the growth of vine without which a good crop may not be expected. Sandy soils are commonly deficient in this element. Here liberal applications are needed. Heavier soils, well managed and manured during

rotation, require less nitrogen and fair results may be obtained with no fertilizer. Potash is less important on most soils than phosphorus and nitrogen.



It is generally considered better to apply stable manure to the preceding crop or at least the preceding fall than to use it just before setting plants. If spring applications is necessary, it is better to use well rotted manure.

***TRANSLATE INTO UZBEK***

1. **Flowering** plants are pleasant to look at.
2. **Picking** tomatoes be careful not to bruise them.
3. Farmers **performing** all their work in time may be sure of the results of their efforts.

***ANSWER THE QUESTIONS***

1. What is the tomato?
2. When does the tomato ripen best?
3. When do the tomato blossoms drop without setting fruit?
4. What soil is ideal for tomato growth?
5. Is nitrogen important to insure the growth of vine?
6. When is the stable manure applied?
7. What is the dominant element in most tomato fertility programs?
8. What manure is it necessary to apply in spring when growing tomato plants?

## TEXT. REPLANTING THE OLD ORCHARD

**Replanting the old orchard.** It is possible in some districts for orchardists to procure satisfactory results in removing old trees by replanting with young trees when old ones die or become unprofitable.



For good results with this plant the young trees must be given special attention and the best of care. This may consist of mulching the soil around the tree with the straw or other litter to a depth sufficient too keep down weed grass growth. The young trees will also require fertilization, proper pruning and spraying as well as protection against damage by rodents. As replants they require extra culture.

The chief difficulties with replants especially in old closely planted orchard is shade from the old trees and their root penetration into the feeding area of the replanted trees. Where the old trees were planted closely, some of their branches opposite the young trees may be cut back or removed. It is generally well to remove all of the remaining old trees when most of the replants are from about 5 to 7 years old. Also, it is generally better when young trees are planted in blocks soon after the removal of the old ones, to place them in the spaces between the rows rather than where the old trees stood.

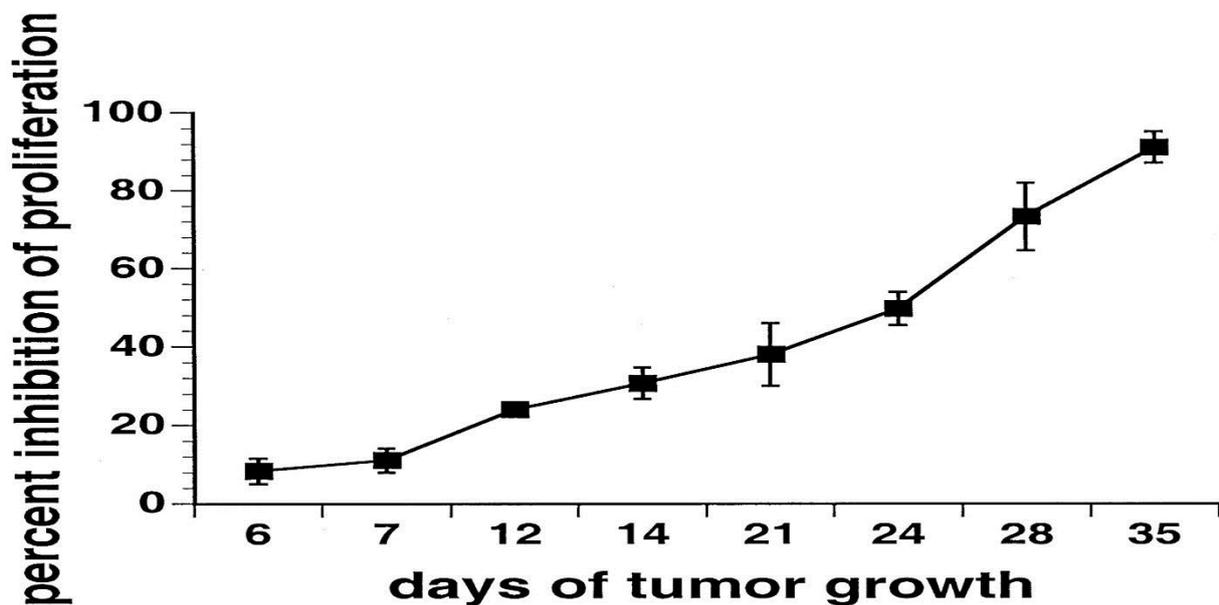
## TRANSLATE INTO UZBEK

1. Summer temperature is important **in developing** red color of apples.
2. Allowing potatoes to mature **before digging** will help to prevent mechanical injury.
3. Plants **become** dwarfed under unfavorable conditions.

### TEXT. AGE OF BEARING AND GROWTH

Some varieties of apples may come into noticeable production in about 6 to 8 years. Generally it is advisable for the orchardist to push the trees along in growth and developments rapidly as possible in the early years. In fact, the first 4 to 6 years particularly should be designated as the growing and formative period.

**Fire Blight and Cold Injury.** In a good growing young apple orchard perhaps the two most important factors to guard to against are fire blight and winter cold injury. Both maladies may be more occur with vigorous, growth young trees. Should fire blight become too serious, slow up the tree growth by omitting the application of fertilizers, reduce cultivation and practice less severe pruning.



These same producers will help in preventing cold injury which is usually found at the base of the tree trunks and in the crotches of the large and lower branches. The purpose is to procure early instead of late season growth. The sowing of a cover crop

in late summer, or allowing weeds and grass to grow may slow down growth and tend to develop tree hardiness before cold weather occurs.

### **TEXT. IMMATURE NURSERY TREES**



It is common knowledge that young deciduous fruit trees are often stripped of their leaves in late summer or early fall, removed from the soil of the nursery row and prepared for the early fall shipments. Nursery stock subjected to such treatment whether apple, pear, quince or some other kind may take a poor or weak growth during the first two or three years after planting. Such weak trees may be susceptible to winter cold injury following late fall planting. They may also be made more susceptible to the attack of insects and diseases.

Stripping young trees of their leaves and digging in late summer or early fall does not allow the trees to fully reabsorb the manufactured food materials in the leaves. The foliage should be carried until the natural drop late in the fall or early winter when it cannot function further in developing hardiness.

### ***GLOSSARY***

1. growth – ўсццш;

2. slow up –секинлашмоқ;
3. hardiness – чидамлилиқ ;

***TRANSLATE INTO UZBEK***

4. Summer temperature is important **in developing** red color of apples.
5. Allowing potatoes to mature **before digging** will help to prevent mechanical injury.
6. Plants **become** dwarfed under unfavorable conditions.

***ANSWER THE QUESTIONS***

1. What care must be given to young trees after they have been transplanted?
2. What are the chief difficulties with replants?
3. What is the way to develop tree hardiness?
4. What trees are often stripped of their leaves?
5. What trees may make a poor growth during the first two or three years after planting?
6. To what injury may weak trees be susceptible?

## TEXT. PLUMS



Plum fruits are prized highly for their great range in size, color, flavor, and texture. The plants vary in forms and shapes. Some are trees, others are small shrubs with drooping branches. Upright and spreading habits of growth are exhibited. Some attract a great deal of attention on account of their beauty in bloom, and high colored fruits. The plum varieties have a great range of flavors, aromas, and colors, as well as forms and sizes. In general, the markets demand large-fruited varieties that stand harvesting and handling well, but in home orchards a wide selection may be made.

A properly planned and thoroughly executed spraying program must be followed in the culture of plums. The chief insect enemy of the fruit is the curculio, and the most destructive diseases are *Bacterium pruni* and brown rot. Thorough and timely spraying, however, supplemented by good culture, will usually control these pests.

**Preparing the Soil for Planting.** Well-drained, typical fruit soils may be prepared for orchard setting by deep plowing and thorough harrowing or disking as for potatoes, corn, or wheat. Thoroughly prepared, friable, and loose soil in good working conditions grows much better trees during the first few years than unplowed or poorly cultivated land. Many experiments were conducted to prove it.

## TEXT: PLANTING PRACTICES

Both cherries and plums are spaced at different distances. This may be due to variations in soil fertility, varieties, pruning practices, habits of growth and climatic conditions.



On fairly level or sloping land the square system of planting the trees is still popular. Where there is danger of soil erosion on steep slopes, it is obvious that the trees should be planted on the contour. It is important that the usual care be followed in the transplanting work.

## TEXT: CARE OF YOUNG ORCHARD

**Soil Management.** Good orchard practices are necessary regardless of soil types, the particular fruit section, or the kind of fruit grown.

These consist of the maintenance of an adequate supply of organic matter, the presence of nitrogen in sufficient quantities, and the control of run-off water to check erosion and conserve the moisture supply.

The organic matter of the soil acts as a storehouse for moisture and nitrogenous compounds. With its gradual depletion, the nitrogen disappears and growth is reduced. Constant tillage tends to reduce or “burn out” the humus supply. The cultural practices, therefore, that make nitrogen most rapidly available, at the same time most rapidly deplete the total supply. To maintain the soil organic matter manures or cover crops

must be worked into the soil from time to time.



Young cherry and plum trees when cultivated may grow twice as fast as similar trees in sod without cultivation. Moreover, the yield of bearing trees, under cultivation, is often double that of comparable trees growing in sod with no cultivation or fertilization.

#### ***TRANSLATE INTO UZBEK***

1. In planting the tree, firm the earth around the roots **by tramping**.
2. We began **thinning** carrots.
3. Many experiments **were conducted** to prove the good effect of sod when growing fruit trees.

#### ***ANSWER THE QUESTIONS***

1. What are plum fruits prized for?
2. What habits of growth are exhibited by plum trees?
3. What is the chief insect enemy of the plum fruit?
4. What are methods of control against curculio?
5. What do the different distances of spacing of plum trees depend upon?
6. What must be done from time to maintain the soil organic matter?

## **TEXT. PLANTING VEGETABLE CROPS IN THE OPEN**

The time and method of planting seeds and plants of a particular species in the open determine to a considerable extent the success or failure of the crop. Even with good seeds or good plants satisfactory and profitable crops will not be produced unless the planting is done at the right time and in a proper manner. Attention must be given to the preparation of the soil for the seedbed, to the depth of planting and to the rate of planting.

No definite date can be given for planting vegetable seeds and plants, because climatic conditions vary widely within relatively small areas owing to differences in elevation, proximity to large bodies of water, etc. The time of planting should be determined with reference to the soil and weather conditions, to the kind of crop, and to the time the produce is desired. Where ear lines is an important factor, most gardeners make their first planting as early in the growing season as weather and soil conditions are satisfactory for the crop or crops to be grown.

Vegetable crops may be grouped into three classes with respect to cold resistance: 1) hardy, or those that will withstand hard frosts, 2) half-hardy, or those that will withstand light frosts and the seeds of which will germinate at low temperatures, 3) tender or those unable to withstand any frost and the seeds of which will not germinate in cold soil. The hardy group includes kale, kale, spinach, turnip, mustard, onion, and peas. Seeds of these plants may be planted as soon as the soil can be prepared in the spring. Cabbage plants, which have been well hardened, may also be transplanted into the open at this time. Beets, carrots, parsnips, lettuce belong to this group. The third includes beans, sweet corn, Lima beans, squash, pumpkins, melons, cucumbers, tomato plants, eggplants, and pepper plants.



**Depth of Planting Seeds.** No definite rules can be given regarding the depth to plant seeds of various kinds. The size of the seed, the kind of soil, and the amount of moisture in the soil should be considered. Large seeds are planted deeper than small seeds, although it does not follow that the largest seeds should be planted the deepest. On light soils such as fine sand or sandy loams, seeds are planted to a greater depth than on heavy soils. The more moisture there is present in the soil, the less need there is for deep planting. For this reason seeds are usually given a relatively light covering in the spring. The same kind of seeds planted in late summer requires greater covering because the surface layer of soil is usually drier and it is necessary to place the seed at a greater depth to obtain sufficient moisture to ensure germination.

**Thinning.** This is an important operation when seeds are planted. Thinning may be made a process of selection. The weakest plants should be discarded and the strongest left to grow. By thinning, a uniform stand is secured, but as this is a tedious and expensive operation, gardeners try to avoid it as much as possible by planting the proper quantity of seed and distributing it evenly. In the case thinning is delayed too long plants that are to be left become weak. Thinning should be done as soon as there is reasonable assurance that the plants left will not be killed by unfavorable weather conditions, or destroyed by insects that are injurious during the early stages of the plant growth.

**Transplanting.** Success in transplanting plants to the field or gardens is dependent on good plants, good conditions of the soil, and doing the work in the proper manner.

The soil should be thoroughly prepared prior to transplanting. It is very difficult to set plants properly in hard, lumpy soil and plants set under these conditions are likely to be seriously checked in growth, or to become weak and die.

Contact between the roots and soil is important because the roots cannot take up moisture unless they are in close contact with fine, loose soil. That is why it is essential that the soil be well firmed around the roots.

### ***GLOSSARY***

1. species – тур;
2. in the open – очик майдонда;
3. rate of planting – экиш меъёри ;
4. hardy –чидамли ;
5. tender –чидамсиз ;
6. kale –карам ;

### ***TRANSLATE INTO UZBEK***

1. Poorly managed land may be so infested by the wild mustard that the pea crop will be seriously **injured**.
2. Cultivators **are used to loosen** the soil and **to destroy** weeds between the rows.

### ***ANSWER THE QUESTIONS***

1. To what factors must attention be given when planting seeds and plants?
2. Into what classes can vegetable crops be grouped with respect to cold resistance?
3. What vegetables does the hardy group include?
4. What vegetables does tender group include?
5. What does success in transplanting depend on?

## TEXT. CROP ROTATION

Succession cropping of two or more crops on the same land in one growing season. For success this requires heavy fertilization and good cultural practices. Fertilization having been applied in time, one always gets high yields.

As examples of succession cropping the following might be mentioned: 1) early lettuce or radishes followed by beans, and these by fall turnips or spinach. 2) early cabbage followed by late potatoes, where the growing season is long enough, 3) early potatoes followed by late cabbage, 4) early carrots or beets followed by beans, 5) lettuce followed by late celery. Such succession cropping are being widely practiced now.



**Intercropping or Companion Cropping.** When two or more crops are grown together on the same land, the system is known as intercropping or companion cropping. This may embrace succession cropping as in the planting of cabbage, lettuce, and radishes at the same time. The radishes mature and are removed first and then the lettuce will follow. Both will be out of the way before the cabbage needs all of the space.

The main advantages of intercropping are: 1) economy of space, 2) saving in tillage as the same plowing and fitting of the land serve for two or more crops, 3) more complete utilization of the nutrients, and 4) increased returns from the area cultivated. These advantages may be more than offset by the following disadvantages: 1) larger

demand for nutrients and moisture, and 2) greater difficulty in controlling insects and diseases. The increased demand for moisture might be serious during dry periods. In disease and insect control one crop might be injured by the material used for controlling the pests on another. There is also the danger of injuring one crop when another is being harvested.

In planning intercropping, the grower should consider the time each crop is to be planted, the habit of growth, the space required by each at various stages of growth, and the time when each is expected to mature. Care should be exercised to prevent one crop from seriously interfering with another at a critical period of development. Intercropping is more likely to be successful where irrigation is practiced.

Radish the lettuce are often planted as intercrops with cabbage or other similar crops. Cabbage and tomatoes set between the rows. Under this system the rows of cabbage plants are farther apart than under the single crop system. The early cabbage will be ready to harvest before the tomato plants need the space. Early cabbage is being widely planted nowadays.

### ***GLOSSARY***

1. intercropping –катороралаб экиш;
2. embrace –танламок;
3. more likely – ишончлирок;

### ***TRANSLATE INTO UZBEK***

1. The following methods of planting vegetables **might be recommended**. Vast areas of land **are being used** for the production of cotton.
2. All weeds **having been killed** during seedbed preparation, much hand labour was saved.

### ***ANSWER THE QUESTIONS***

1. What is the succession cropping?
2. What does succession cropping require for success?
3. Give examples of succession cropping.

4. What is intercropping or companion cropping?
5. What plants may be used for intercropping?
6. What are the main advantages of intercropping?
7. What should the grower consider in planning intercropping?

### **TEXT. HARDENING PLANTS**



The term “hardening” or “hardening – off” is applied to any treatment that results in a firming or hardening of the tissues of the plants, thus enabling them better to withstand unfavorable environmental conditions. Many persons speak of hardening only in connection with the processes that enable plants to withstand frost injury, but it is as important to harden them so that they will withstand insect injury, hot drying winds, or other favorable conditions. All experienced gardeners know that soft, tender plants are injured by unfavorable soil, or atmospheric conditions, and make an effort to prevent this injury by subjecting them to some hardening treatment.

Any treatment that materially checks growth increases hardiness. With plants that possess potential hardiness, as cabbage and related crops, hardiness increases in proportion as growth is checked. With tender plants like tomatoes, peppers, and eggplants checking growth results in only slight resistance to cold.

The treatments commonly used to harden plants are exposing them to relatively low temperature for a week or more and allowing the soil of the plant bed to become dry, or a combination of these two. Exposing plants to relatively low temperature is perhaps the most common method employed and is usually accompanied by

withholding water. Exposure to low temperature is done by reducing the heat and increasing the ventilation in greenhouses and hotbeds, or by removing the plants to a cold frame. Since any treatment that checks growth results in hardening, it is evident that low temperature is not essential, therefore, removing plants to cold frames is an unnecessary expense unless the greenhouse or hotbed is needed for other plants. In other words, hardening can be accomplished as well in the greenhouse or hotbed by withholding water as by exposing them to low temperature in the cold frame. It is easier to control the water supply than to control the temperature. With some plants, notably celery and cabbage, and probably others, exposing them to relatively low temperature (40 to 50 F) for 2 weeks may result in serious loss due to premature development of the seed stalk.



Hardening is accompanied by: 1) decrease in rate of growth, 2) thickening of the cuticle, 3) increasing the waxy covering on the leaves of cabbage and some other plants, 4) increasing the percentage of hydrophilous colloids, 5) increasing the percentage of dry matter, 6) decreasing the percentage of freezable water,

7) decreasing the transpiration per unit area of leaf, 8) increasing the percentage of sugars, 9) development of a pink color, especially in the stems, petioles, and leaf veins. The leaves of hardened plants are of a deeper green color and smaller in size than similar unhardened plants of the same age.

## ***GLOSSARY***

1. expose –учрамок, дучор булмок;
2. cuticle –кутикула;

### ***TRANSLATE INTO UZBEK***

1. They asked me **to treat** the seeds well.
2. Try to understand the life cycle of insects attacking this crop **to spray** orchards in spring in a correct way.

### ***ANSWER THE QUESTIONS***

1. Name the treatments used to harden plants?
2. What is the most common method employed in hardening plants?
3. What is the hardening accompanied by?
4. What leaves have the hardened plants?

## **TEXT. ONIONS**



**Ripe Bulbs.** A well-matured bulb is one that is firm and has the shape and color typical of the variety. Maturity is indicated by the tops drooping just above the bulb while the leaves are still green. Also when a bulb completes its growth, the roots begin to die, and they lose their hold in the ground. There is a gradual softening of the neck and a transfer of the soluble solids of the leaves into the bulb, so that the outer

succulent layers of the bulb nearly close the opening over the leafless inner scales. During the time when an onion growing normally becomes less firm at the neck as it matures and the top falls over, and immediately thereafter, food material is transferred rapidly from the top to the bulb. As a result the bulb increases rapidly in size. To obtain good yields most of this food transfer should take place before the onions are pulled. Gradual drying of the leaves from the tips downward while the necks remain rigid, thick, and erect indicates abnormal ripening and usually poor keeping quality. Whole crops may ripen prematurely from the top downward because of trips; such onions are undersized and undesirable for late storage. After the shriveling of the necks in normal ripening, the leaves gradually turn yellow, and finally the tops become dry and brown if the onions are not harvested first.

Premature death of the leaves causes the neck of the bulb to remain open and permits entrance of moisture and rot organisms. Open and thick-necked bulbs soon resume growth or rot. When decay is not a factor, quicker sprouting results from the greater accessibility to oxygen of the central growing point in thick-necked bulbs than in those with well-closed necks. Because there are nearly always some “thick-necks”, it is usually wise to begin pulling when 75 percent of the tops are down. If onions remain in the ground after they become mature, they may take root again and begin second growth, especially after rain, and their keeping quality is ruined. Onions pulled when slightly immature retain their outer skins better and are less likely to sprout and root when curing, but are not so solid as when fully mature and are more easily bruised. Conditions that delay maturity and curing result in softer bulbs.

The first few light frosts usually do little or no harm to onions, but heavy frosts are injurious, and so harvesting of ripe onions should not be delayed too late.

**Pulling.** If the bulbs are mature they are easily pulled by hand if the soil is not hard or compact. Several bulbs may be pulled at a time taking hold of the tops. In some areas, cultivators are used to lift the bulbs. Onion combines lift, top, grade, and bag the bulbs in one operation.



**Topping.** Onions may be topped with shears, knives, or topping machines. The tops may be removed in the field, as they are gathered from windrows, by twisting or by cutting  $\frac{1}{2}$  - 1 inch from the bulbs, or at the point the tops would normally fold over when mature. Twisting leaves the scales closed tightly at the top of the bulb, whereas cutting may leave them open and susceptible to entry of decay organisms.

**Curing.** A well-cured onion is firm. Un less well cured onions will not keep, and so if bulbs are to be used during winter they must be thoroughly cured before being stored. Dry weather in early fall helps to mature and cure onions after pulling.

**Storage.** Onions should be thoroughly matured, cured, and dried before being stored. They should feel solid and should have tough clinging skins.

### ***GLOSSARY***

1. undersized –доступность – кичик хажмли;
2. accessibility – паст бўйли;
3. immature – етилмаган;
4. sprout –куртак;

### ***TRANSLATE INTO UZBEK***

1. Fruits should be washed **before being eaten.**
2. **When drill-sown** the pea, like some cereals, is not usually tilled.

## ***ANSWER THE QUESTIONS***

1. By what factor is maturing of the bulb indicated?
2. What happens to onion roots when the bulb completes its growth?
3. What indicates gradual drying of the leaves?
4. What operations do onion combines perform?
5. What is it necessary to do with the bulbs if they are to be used during winter?

### **TEXT: APPLES**



The early history of the domestic apple becomes lost in antiquity. The apple probably originated in the regions of the Caucasus. It has existed in Europe, both in wild and in cultivated forms, from time immemorial.

The commercial varieties of today are far removed from the wild apples from which they developed over a period of many hundreds of years. Apples are grown and may be grown in many regions and are an important crop. All together, the apple, pear and quince constitute the pomes or pomaceous fruits. The kinds of pome fruits listed other than apples and pears, are of minor importance as they are rarely produced except for special purposes.

## TEXT: ORCHARD LOCATIONS AND SITES

The location has to do with the relative distance from town, city, home, highway or some other established place. Sites in contrast refer to elevation, topography, bodies of water and other factors that may effect the growth and fruiting of the trees. A poor location or site is certain to be an enduring handicap while good ones enable the grower to attain his goal.

**Orchard Site Selection.** Sites in good cropping soils, where elevation is sufficient to allow a free flow of cold air from the orchard land to streams and rivers may be favorable in preventing frost damage. On the other hand, sites on the tops of ridges or elsewhere that may expose trees to very strong winds are unsatisfactory. Such sites are often difficult to reach and the soil fertility is likely to be low. If the slopes on the sides of the ridge are not too steep they may be better suited to plantings. It is obvious that steep slopes increase the cost of operation but some such locations may be used if other factors are favorable. Soil erosion and its prevention may be serious problems on steep lands.

In a study of the soil, good drainage and aeration are of importance. Orchard great importance. Orchard trees will not succeed on soils that may become water-logged during rainy periods. The texture and depth of the soil should be retentive enough of soil moisture to promote satisfactory root growth. It is important for roots to have capacity to absorb rain or irrigation water readily. Soils that have grown good truck and grain crops or forest trees are generally satisfactory for fruit tree crops.

**When to Plant.** A summary of the findings and an extensive review of the literature indicate that spring planting is based upon experience in the more severe climates, while fall planting suggestions follow experience and observations made under conditions where milder temperatures are found.

In the medial areas both fall and spring plantings may be successful. Under such conditions it is rarely if ever advisable for the grower to wait a year to plant in the fall or spring. Proper planting at either season should prove satisfactory. For the southern milder sections, where the temperature may not fall below 0 F., trees may be planted

any time during the fall, winter, or early spring when the ground is not frozen. The planter should know, however, that roots are more tender than the tops and are likely to be severely injured or killed by temperatures of 20 F. in fact both grower and nurseryman should keep this information in mind. Also, soil and weather conditions should be suitable for planting.

### ***GLOSSARY***

1. quince –бехи;
2. of minor importance –кам ахамиятли;
3. highway –катта йўл;
4. bodies of water –сув захираси;
5. a poor location –ноқулай жойлашиш;
6. water logged –лойқа сув;
7. truck crops –томорқа экинлари;
8. medial –ўрта;
9. nurseryman –кўчатзор ишчиси;

### ***TRANSLATE INTO UZBEK***

1. These varieties **may be planted** late in spring.
2. They **have to accomplish** their task as soon as possible.

### ***ANSWER THE QUESTIONS***

1. Why are sites on ridges unsatisfactory for orchards?
2. What may be serious problems on steep lands?
3. In what climates is spring planting better?
4. In what area may spring and fall planting be successful?

## TEXT. APRICOT CULTURE

**Climatic and cultural requirements of the apricot.** Apricots can be found growing under a variety of climatic, soil, and cultural conditions.



But for commercial success the trees must have every possible advantage of favorable situation and culture.

Selection of a site for apricot production calls for consideration of three factors: soil, water supply, and climate. Of these, the latter is in many respects the most important. Each is of sufficient importance for further consideration, though a good site must rate well for all three factors. Apricots cannot be grown in north humid regions.

**Climate.** The apricot is more sensitive to climatic factors during the fruit growing season than many other stone fruits, and especially in comparison with the peach. Extremely high summer temperature during the growing season and prior to fruit maturity is dangerous to fruit quality. On the other hand, continued cool, damp weather may lead to the development of fruit brown rot, which is not readily controlled. Control of the blossom brown rot usually minimizes danger may suffer serious transit loss from brown rot.

It is not recommended to grow apricots in cold or foggy locations. Sites to be chosen for apricot planting must be protected from cold winds.

Unprotected coasted areas are unfavorable for apricot production because of the incidence of delayed foliation and because of fog with resulting high humidity, which favors the development of certain diseases. In addition, the temperatures may be too low for the development of the best fruit quality.

Another climatic factor to be considered is spring frost. The apricot follows the almond in being one of the earliest of the stone fruits to bloom, and hence it is not adapted to higher elevations or areas where the danger of late spring frosts is acute.

The apricot tree becomes dormant a little later than most other stone fruits, but seldom suffers from fall frosts. It is hardier than most other stone fruits and is, therefore, capable of surviving in areas of low winter temperatures.

Consideration of these factors, than indicates a climate predominantly clear and dry, with only moderately high temperature during the spring and summer until the fruit is mature, and fairly cold winters, as being most favorable for the apricot.



**Soils.** As with other stone fruits, economic exploitation of apricots depends on strong, vigorous growth of the tree. This is the most readily attained and maintained on deep, fertile, well-drained soils of fine texture, i.e., loams and clay loams. However, the apricot grows nearly as well on lighter soils. Sands may require heavy fertilizer applications to maintain adequate growth, and perhaps may also require frequent irrigations. Poorly drained soils, or those underlain with shallow hardpans should be

avoided. Soils with high salt concentrations, either in the surface layers or subsoil, should also be avoided for they will almost inevitably result in poor tree growth.

### ***GLOSSARY***

1. stone fruit –данакли мева ;
2. onset – бошланиш;
3. foggy –туманли жой ;
4. hardpan - тупроқ ости қаттиқ қатлами;
5. subsoil – тупроқ қатлами;

### ***TRANSLATE INTO UZBEK***

1. Pear trees **can be planted** in different regions in the South in our country.
2. Vegetables **to be stored** should be as clean, dry and free from diseases as possible.

### ***ANSWER THE QUESTIONS***

1. What three factors are important when selecting a site for apricot production?
2. Which factor in selection of site for apricot production is the most important?
3. During what season is the apricot more sensitive to climatic conditions?
4. What disease may develop on apricot under continued cold, damp weather?
5. Why is apricot not adapted to higher elevations?

### **TEXT. THE BLACK CURRANT**

Black currants may be propagated by means of seed and by taking of hard or soft cuttings as well. Raising from seed is not a methods of increase, and it is not to be practiced. The taking of hard cuttings is the principal means used for propagating black currants. The cuttings are made after the leaves fall. The earlier the cuttings are inserted, the larger the percentage of rooted plants procured.

Cuttings should be planted the same day. Cuttings, immersed in water for a period of 24 hours, root more readily and give a higher percentage of rooted plants. The wood from which cuttings are made is generally of the previous season`s growth, but two-year and even older wood is occasionally used. Well-ripened wood provides the best cuttings.

Soils of a light or sandy type are the most satisfactory for propagating purposes. Land that is receive the cuttings should previously be well manured. Well-rooted farmyard dung or some other organic material should be worked into the soil. A complete fertilizer may also be applied. Heavy or clay soils are not so good a propagating medium as light ones. Heavy soils, providing they are not interlogged, can be made suitable for black currant cultivation.

After the application of manure the land should be either dug or ploughed and brought into a good state of tilth suitable fro the insertion of the cuttings.

Some growers prefer to plunge the cuttings into a loose soil, which is afterwards firmed. Others make a furrow and place the cuttings on the side, afterwards covering up and pressing. If the soil were too loose, they would firm it better. The distance apart of planting depends upon circumstances. The depth of planting should be roughly two thirds of the cutting below the soil, leaving only two or three buds above ground level. The cuttings having been set out, moisture should be conserved by hoeing at reasonably frequent intervals.

At the end of the first season`s growth, plants should be planted up on a permanent site.

### TEXT: CULTIVATION

Care must be taken in selecting a site suitable for the planting of black currants.

**Types of soils.** Black currants may be grown on various types of soils. They prefer a high water table, and a soils workable over a long period of the year. Soils that dry out in summer are unsuitable. Naturally fertile soils with a good root range are to be preferred, but heavy soils that are workable, and at the same time conducive to adequate root formation, provide satisfactory conditions. Black currants will tolerate water stagnation in the soil better than many berried fruits.

### GLOSSARY

1. Cutting –қ аламча;
2. Rooted –илдиз отган;
3. a propagating medium –кўпайиш учун шароит;

### ***TRANSLATE INTO UZBEK***

1. All chemicals are to be found in plants.
2. If the weather were too dry, one would water the plants more often.

### ***ANSWER THE QUESTIONS***

1. By what means may black currants be propagated?
2. What are the principal means used for propagating black currant?
3. What wood provides the best cuttings?
4. What soils are the most satisfactory for propagating purposes?
5. What must the depth of planting the cuttings be?
6. How should moisture be conserved after the cuttings be?
7. What types of soils do black currants prefer?

### **TEXT. STORAGE OF VEGETABLES**



**Storage** of perishable products is an economic necessity.

**Storing in the Field.** Field storage , in trenches and pits and by mounding on the surface of the ground, is still practiced to some extent. Trenches are used for storing cabbage and celery, pits for cabbage, turnips, beets, carrots, parsnips, potatoes, and sweet potatoes. All the crops mentioned, except celery, are sometimes placed in piles on the ground and covered with hay, straw, or other severe freezing. This method is known to be satisfactory.

**The main** disadvantages of field storage are: 1) the temperature and moisture cannot be controlled, hence under unfavorable climatic conditions large losses are likely to occur,



2) the product can be removed only with difficulty when the ground is frozen, and this may prevent marketing at the time desired, 3) the products not removed may be injured when the pit or mound is opened during cold or wet weather, and 4) the labor required to store and remove the products from pits or mounds is large.

During the time vegetable products are removed from field storage the weather and the soil conditions are usually unfavorable for such work.

**Storing in Cellars.** The ordinary house cellar is used to a considerable extent for the storing of root crops. If it contains a heater, this is one of the poorest places in which to store vegetables, as it is likely to be so warm and dry that the products will shrivel. However, by partitioning off a room, which can be kept cool and fairly moist, the house cellar is satisfactory. The storage room should have an opening to the outside for ventilation. The better is the ventilation, the more satisfactory are the results.

Outdoor cellars, made especially for storing root crops, usually give better results than the house cellar. With proper construction the temperature and moisture can be controlled to some extent. This type of storage structure may consist of a pit with a gable roof covered with sods or soil, or a more elaborate structure. Some of the more elaborate are built in a depression or ravine and covered with soil except at the ends.

The structure built into a sidehill, or in a ravine and covered with soil, is preferable to the pit type since the soil on the sides and top prevents rapid changes in temperature. In any case the entire structure should be well insulated, and one always wants the exposed end to face the South.

Storage cellars are best suited to the storage of beets, parsnips since these products keep best where the humidity is relatively high. These vegetables were mostly of good quality after having been stored under such conditions.

**Storing in Aboveground Houses.** Common storage houses built entirely above the surface are known to be extensively used in storing potatoes, onions, and cabbage, and also to some extent other products. Where it necessary to have a dry atmosphere in the storage house, the cellar or structure of the semi cellar type is not satisfactory since it is difficult to control the moisture in structures of this kind.

The advantages of this type of storage over any of the others mentioned are 1) moisture can be controlled more readily, 2) products can be put in and taken out with less work and less discomfort, 3) grading and packing can be done to better advantage.

The character of construction of storage houses depends mainly on the type of product and the region in which it is to be stored. The colder the region, the greater the insulation needed.

**Cold Storage.** During recent years many vegetables have been stored to some extent in cold – storage warehouses where artificial refrigeration is used. The tendency is toward a greater use of this type of storage. The main advantage of cold storage over common storage is in the control of temperature and humidity, especially the former. In cold-storage warehouses the temperature can be kept at the desired point regardless of the weather condition, provided the building has been constructed and equipped properly. This ready control of temperature is not possible in any other type of storage, consequently less is sustained under refrigeration than in common storage. For common storage. For this reason cold storage is being used even for products n used for a large part of the celery that is stored, and to some extent for lettuce, onions,

potatoes, carrots, beets, cabbage, cauliflower, and other vegetables. We want our vegetables to be of good quality after having been stored.

### ***GLOSSARY***

1. mounding –мева сақлайдиган омбор;

### ***TRANSLATE INTO UZBEK***

1. **Some pests are known to be dangerous** in the storehouse.
2. One **wants the fruits and vegetables not to lose** flavor in storage.
3. Strawberries did not lose their quality **after having** been frozen.
4. **This method is known to be satisfactory.**
5. **The more we study** different methods of storing vegetables, **the better** are the results.

### ***ANSWER THE QUESTIONS***

1. For what vegetables are trenches used?
2. For what crops is the ordinary house cellar used?
3. What cellars give better results; the house cellars or outdoor cellars?
4. What type of storage of many vegetables is mostly practiced nowadays?

### **TEXT. FOOD VALUE OF VEGETABLES**

Strengthen bone health		Help maintain healthy weight
Rich in antioxidant properties		Aid in improving eye health
Beneficial for healthy skin and hair		Prevent hypertension and multi-morbidity

Note: Buy whole vegetables that are free from spots, blemishes, fungal growth and marks of insecticide spray

Vegetables play a very important role in the human diet. They supply some of the things in which other food materials are deficient. They are important in neutralizing

the acid substances produced in the course of digestion of meat, cheese, and other foods; they are of value as roughage, which promotes digestion; they are important sources of the mineral elements needed by the body, being especially rich in calcium and iron. They are valuable sources of vitamins. Some vegetables, such as the legumes, are sources of protein, while others, such as potatoes and sweet potatoes, are important sources of energy, being rich in carbohydrates.

**Vegetable Foods as Base Formers.** The mineral substances are the agencies that are chiefly concerned in the reaction of the body fluids. Some of these elements are acidic and others basic – phosphorus and sulphur forming phosphoric acid and sulphuric acid, respectively – while calcium, magnesium, and potassium are the most important bases acting to neutralize these acids. The bases should be in excess of the acids in order that they may serve as alkali reserves of the blood.

**Vegetables as a Source of Minerals.** At least 10 mineral elements are needed for the proper growth and development of the body. Extensive investigations have shown that calcium, phosphorus, and iron, except in rare instances, are the only sufficient for the needs of the body. The mineral elements that are not present in foods in quantities sufficient for the needs of the body. The green vegetables are good sources of the important mineral elements. Because of the rich content of valuable substances vegetables are being widely used nowadays.



**Vegetables as a Source of Vitamins.** The name “vitamin” has been given to a group of food **substances other than fats**, proteins, carbohydrates, and salts that occur in small quantities in natural food materials. They are essential for growth, for reproduction, and for the maintenance of health.



**Green and yellow vegetables are important sources of vitamin A.** Those ranking highest in this vitamin are carrots, turnip greens, spinach, sweet potatoes, beet greens, kale, mustard greens, winter squash, chard, and broccoli. The vegetables highest in thiamin are green peas, asparagus, Lima beans, spinach, Brussels sprouts,

potatoes, sweet potatoes, turnip greens, snap beans, and mustard greens. The leafy vegetables in this list also contain appreciable quantities of riboflavin, ascorbic acid, and niacin. In addition to the green vegetables, potatoes, sweet potatoes, and tomatoes and tomatoes contain appreciable quantities of niacin. It should be borne in mind, however, that the number of milligrams or International Units of a vitamin to the pound of food does not tell the whole story. A vegetable may be rich in vitamins, but if only a small quantity of that vegetable is eaten, the consumer will need other sources off supply. A pound of green peppers contains about seven times as many milligrams of ascorbic acid as a pound of Irish potatoes, but the average consumer obtain more of his requirement from potatoes than from peppers because of a much higher consumption of potatoes. Vitamins content of vegetables having been studied thoroughly they are recommended in the diet of men and animals.

#### ***GLOSSARY***

1. roughage— грубые корма, грубая пища - дағал хашак;
2. protein –протеин;
3. carbohydrates – углевод;
4. base –асос;
5. acid – кислота;
6. alkali –ишқор;
7. at least –камида;
8. turnip greens –турп барги ;
9. mustard –хантал;
10. squash –ошқовоқ;
11. lima bean – лима ловияси;
12. pepper –қалампир;

#### ***TRANSLATE INTO UZBEK***

1. Being rich in vitamins vegetables are used in our food.
2. Vegetables having been dried and sorted, one delivered them to the storehouse.

## ANSWER THE QUESTIONS

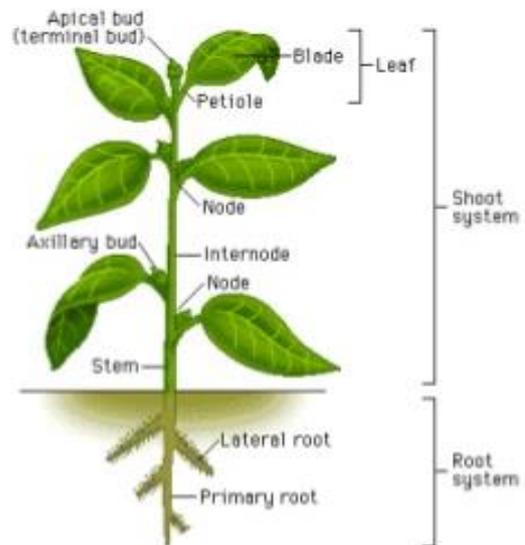
1. What vegetables are sources of protein?
2. What vegetables are rich in carbohydrates?
3. For what process are vitamins essential?
4. The source of what important elements are green vegetables?

### 3.SAVE THE PLANTS

#### TEXT. PLANT STRUCTURE

There are two main parts of the plant, the root system below the ground and the stem and leaves which are above the ground. In some cases roots are found above ground and stems grow below. The plants have: roots, leaf, main stem, flowers. The root fixes the plant in the soil, takes in food and water, and in some cases stores food. The stem supports the leaves and flower which grow out of it, acts as a channel between roots and the leaves, taking water and foods from one to the other, and sometimes is used for storage. The leaf is green, thin and arranged on the stem so that it gets as much light and air as possible. Inside the leaf are veins which strengthen it and carry water and foods.

- Flowering plants have two major components to their structure.
  1. **A root system**; extends below ground
  2. **A shoot system**; composed of the stem, leaves, and reproductive organs.
- At the end of the root and shoot system is a **terminal bud** from which vertical growth, called **primary growth**, occurs.



The flower only appears at certain times in the life of the plant. The stamens, the male part of the flower, produce pollen which fertilizes the female part of the flower, and this leads to the formation of seed which ripens on the plant.

### **TEXT:      TYPES OF PLANTS**

The crop plants can be sorted into main groups according to their type and reason why they are grown:

Cereal crops (often known as corn in Britain) include wheat, barley, oats, rye and maize, all grown for their grain.

Other combinable crops (peas, beans, oil seed rape, linseed).

Root crops, grown for their roots which are sold or fed to livestock, include potatoes, sugar beet, mangels, 80weeds, turnips, carrots and other root vegetables.

Forage crops, grown for their leaves and stems – sometimes fed directly to livestock, sometimes harvested and processed first include kale, cabbage, forage maize, forage rape and radish, mustard, etc. this group also includes grasses, clovers and Lucerne.



The cereals are the most important arable crops, grown in Great Britain. The acreage of cereals has increased greatly in recent years; and with the help of fertilizers, weedkillers, fungicides, other chemicals and new varieties it has become much easier to grow heavier yields of grain. There are winter (autumn) wheats and spring wheats, with different varieties in each type. Winter wheat yields about 15 to 20 per cent more than spring wheat.

### TEXT. VARIETY CHOOSING AND CROP ROTATION

It is necessary to know that crop varieties should be chosen on the basis of their general adaptability to the local temperatures and the level of rainfall expected. Breeders shouldn't attempt to produce varieties of every cereal to fit all conditions. Thus, where irrigation is cheap or rainfall is high, rice is well suited. Maize wheat, and oats are best suited to controlled irrigation or intermediate levels of rainfall. In drier conditions, barley, triticale, rye, sorghum, and millets all produce higher yields than the other crops. Choice of variety and crop must also be based on the frost hazards generally encountered.

It is known that rotation is part of the soil management system. You might call it a cropping system. It means growing different crops at different times on the same land in a planned series. Choosing a rotation plan you have to think of climate and topography.

The total production of cereals can be enhanced when the species is fitted to the climate of the region.

## **TEXT. VEGETABLES AND FRUITS**



The British farmer provides most of the fruit and vegetables we eat that can be raised in our climate. Whole fields are devoted to potatoes, beans and peas. Some vegetables do best in certain parts of the country where both the climate and the soil are favorable. Many of our early potatoes and winter cauliflowers come from Cornwall; carrots from Norfolk; celery and onions from the Fen district; brussel sprouts and onions from Bedfordshire. Some horticultural holdings grow mainly the three chief salad crops: tomatoes, cucumbers, and lettuce. Many crops are grown in glasshouses. Although our vegetables come from box mixed and horticultural holdings, much of our fruit comes from special fruit farms. Kent is the best known county for its fruit, particularly apples, peas and cherries. On an apple farm in Kent, the trees are set out in neat rows. There are also some beehives between the rows of trees. Bees perform very useful work on the fruit farm. They carry the pollen from one tree to another pollinating the blossom.

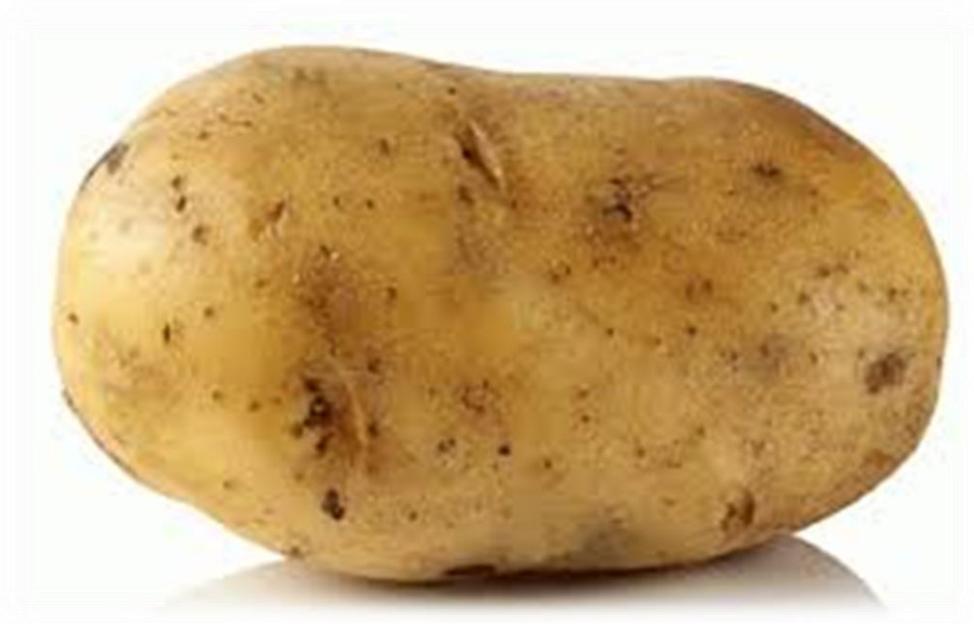
## TEXT. OATS



Oats are grown in most parts of Great Britain, but are found more in the wetter northern and western districts where wheat and barley are not so successful. Oats can also be grown on land which is moderately acid, where barley or wheat would fail. Both the grain and straw from this crop are used mainly for feeding on the farm. In recent years oats have been grown particularly in the Eastern Countries; barley has taken place of oats for feeding. Oats are grown much like other cereals, but two points are important. They must not be grown too often on any lands, as this can cause trouble with eelworm (a soil pest). If grown on land which is too rich or if fertilized too heavily with Nitrogen, oats do not stand - oat straw is weaker than that of other cereals. The Nitrogen present in the manure stimulates the plants to produce a tall, rank growth of straw; as a result lodging often occurs. Although oats will do better on the less fertile soils than most the other small grains, the use of commercial fertilizer under such conditions is generally profitable.

## TEXT. THE POTATO

The potato is perhaps the only food crop being commercially grown in every state of the USA, and being harvested somewhere almost every month of the year. As a result of plant breeding, natural adaptation of potatoes grown in different climatic regions differ greatly.



Even the same variety adapted to another region may vary considerably in taste, composition, and texture. Scientists doing potato investigations must take into account: yield, cooking quality; color of flesh, shape and smoothness of tuber; resistance to important diseases and insects, and resistance to nematodes.

An ideal potato soil is deep medium loam, well drained and slightly acid. Such soil can store large amount of water, they are easy to work. But it is necessary to keep good soil structure, control erosion and to maintain fertility. In the USA, approximately 70% of the present crop is being used by potato chip frozen, and dehydrated processors. Eight percent are fresh table potatoes and 22% are used for seed.

### **TEXT. THE SOIL**

The soil is the one basic forming material. Everything else depends on it and its productivity. To handle soil properly, and to produce the most and the best from it, we must understand it fully, by theory and by practice.

The soil is a living thing. It must be living to grow plants, and to make all the chemical changes needed in the substances that are added to the land.



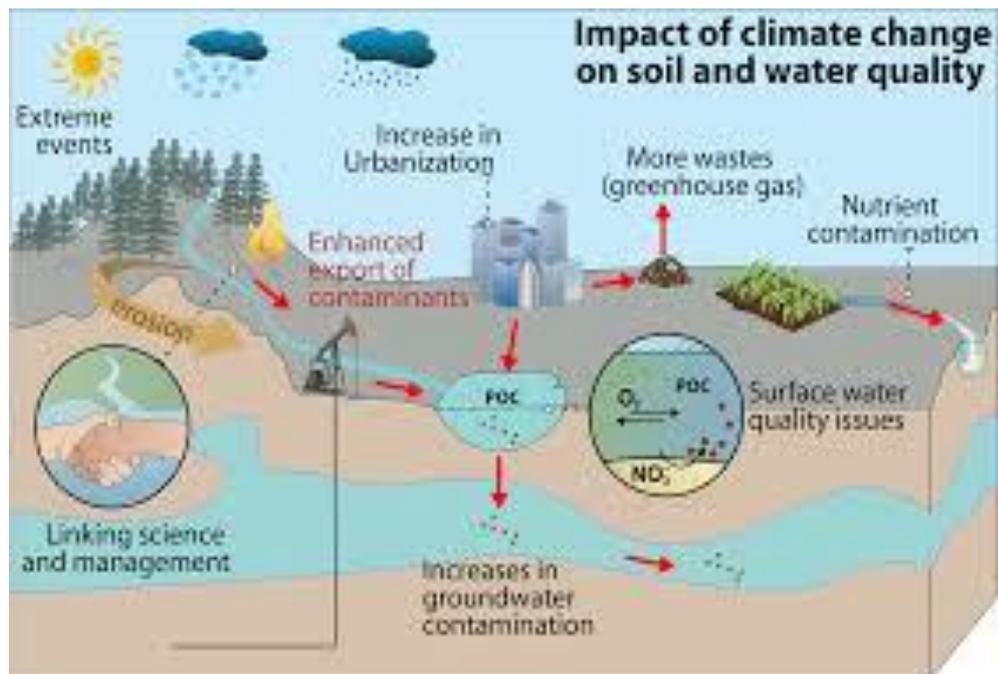
Soils are formed in layers, and the way in which the layers are arranged depends partly on management and cultivation. The main layers of the soil are these: The Rock Below. This is the material that was there in the first place, from which the soil was made. It may be any of the main rock materials – sandstone, limestone or other hard rocks; chalk, sand, silt, clay or peat.

The Subsoil. This is the rock partly broken down and altered way by action from the top of the soil, with fine material which has worked its way down the top. There is usually no organic matter in the subsoil, with exception of the deep peaty soil, and it is like dead soil.

There are two main types of organic matter, and one always is turned into the other: Raw Organic Matter which is the fresh material added to the top of the soil, worked in and gradually worked down through the topsoil. And it turns into Humus. This is the completely broken down organic matter. It is dark, crumbly, sometimes powdery, spongy material and spread through soil.

### **TEXT. CLIMATIC AND SOIL REQUIREMENTS FOR CORN**

Soils high in organic matter are ideal for corn because they have a high water-holding capacity. Consequently, they are able to provide moisture during periods of rapid growth or during dry periods.



A growing season of 80 to 190 days is necessary to mature the various dent corn hybrids, with most of them requiring 110 to 140 days to complete growth. Production of corn for grain in northern areas has been increased as a result of the development of early-maturing hybrids by corn breeders. The earlier-maturing varieties or strains grown in these areas produce shorter stalks, smaller ears and kernels, and smaller yields than the later-maturing varieties used farther south. Flint varieties and flint-dent hybrids are popular in regions where the frost-free growing season is short, the most of the corn grown in these areas being used for silage and fodder. Frosts are a serious hazard in corn production. Although late spring frosts can be damaging, fall frosts generally cause the greatest losses.

### TEXT. ACID FOG INJURES CALIFORNIA CROPS

The effect of acid rain on agricultural crops has been studied extensively in the past decade by plant scientists in the United States. Research has shown that agricultural crops can be injured as acidity in rain approaches pH 3. Since this level of acidity is rarely reached in normal rainfall in California, acid had been thought to be of little or no consequence to agriculture in this state. Recent measurements of fog,

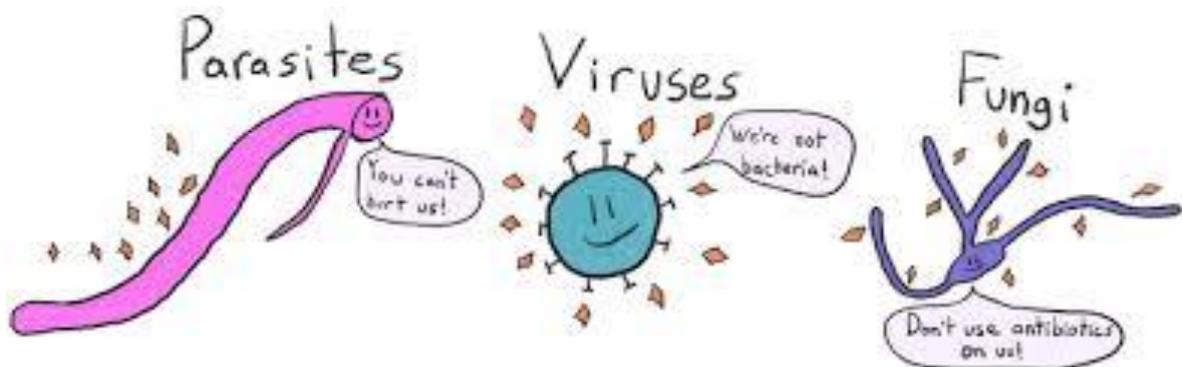
however, have indicated that fog acidities in the range of pH 2 to 3 routinely occur in southern California, and fog with an acidity greater than pH 2 has been reported. Similar levels have also reported to be in the southern San Joaquin Valley. A more subtle effect of acid fog may be in interactions between host and pest or host and disease. In our field studies, severity of insect and disease injury to crops appeared to be influenced by exposure to acidic fog.

## TEXT

Micro – organisms are all the very small living things which are found in the soil, as in so many other places above ground.

Viruses are living chemicals existing in the soil and in some cases cause disease.

Fungi; many of them live in the soil and have their work to do in the decay organic matter. Some diseases are caused by the soil borne fungi which live below ground for part of the time and which infect crops and other plants.



Bacteria are very small ne-celled plants which grow quickly and multiply by splitting in two. To three things: moisture, warmth and the right food. In some cses they need lime to neutralize the acids they produce. There are thousands of different types of bacteria, and most of them do just one job – some cause diseases, others make chemical changes. Some grow best when air is present (aerobic bacteria) and other only grow without air, as in very wet conditions (anaerobic). It is the bacteria which are responsible for most of the soil life that necessary for soil fertility.

## TEXT. COMMON SCAB OF POTATO



The organism is likely to cause extensive damage when potatoes are grown in alkaline or “sweet” soils, or in soils that are about neutral, but it causes little or no damage in acid soils. At a pH of 5.0 or slightly above, scab usually is not a problem. An application of fresh manure just before plowing and planting favors the development of common scab. In like manner, applications of lime and wood ashes make the soil more alkaline, the infection is likely to be more severe. Manure produced by livestock that are fed potatoes infected with scab is an important source of infection after it has been spread on fields. Diseased tubers that are discarded and spread on land to be used for growing potatoes later on are also an important source of infection. The disease tends to be more prevalent when successive crops of potatoes, particularly susceptible varieties, are grown or if potatoes follow other crops such as sugar beets and red beets which are also susceptible to the organism. Practices that aid in the control of common scab include the use of a) resistant varieties, b) crop rotation, c) cultural and sanitation practices, d) proper soil acidity, and e) soil treatment.

## TEXT. GREENBUG

The greenbug (aphid) is highly destructive insect of oats in certain areas of the United States. This insect sucks the juices of the plant and under favorable conditions reproduces rapidly by giving birth to young during the summer and later by laying eggs. The leaf tissue upon which the greenbug feeds turns to a typical yellow or reddish color. Moderate infestation may destroy entire fields.



Insecticides are available which are effective against the greenbug but since the insect may be present in the field from time oats emerge until maturity, their use is generally not practical. Destruction of volunteer oats, wheat and barley plants is a helpful control measure. No resistant varieties are available at the present time, but differences in tolerance to the insect have been noted and efforts are being made to incorporate this factor in adapted varieties.

### TEXT. EUROPEAN CORN BORER



Two races of the European corn borer exist in the United States, one producing a single brood each year and the other producing two broods. The corn borer is one of the most of the most destructive insects to attack corn, and in some areas it has caused such extensive damage that growing the crop has been made difficult and hazardous.

Control measures for the corn borer include, a) the use of proper cultural methods, b) resistant or tolerant hybrids, and c) insecticides.



The European corn borer has a number of natural enemies such as birds, diseases and certain insects. Considerable attention has been given to discovering insect parasites which might be effective in controlling the corn borer. Research workers at the U. S. Department of Agriculture European Corn Borer Laboratory studied the possibility of controlling these insects by inhibiting the mating of the corn borer moth through the use of a sex attractant.

## TEXT. CORN



Corn is a cereal warm – weather crop. Corn is planted if the average air temperature is 60 F. corn can be grown without irrigation if the average annual precipitation is 10 inches and the average annual rainfall is 8 inches. A high-yielding

crop of corn requires from 16 to 25 inches of water per acre per year. Corn can be grown in a planned rotation with other crops with legumes, because Nitrogen is necessary for the stimulation of early growth.

### **TEXT. BARLEY**



Barley growth well where ripening season is long and cool. It can stand high temperatures if the humidity is low. But it does grow well where temperature and humidity are high. As a winter crop barley is more hardy than oats but less hardy than wheat or rye.

Barley is used as grain feed for livestock and poultry as a human food. Barley is the least tolerant to soil acidity.

### **TEXT. ALFALFA**

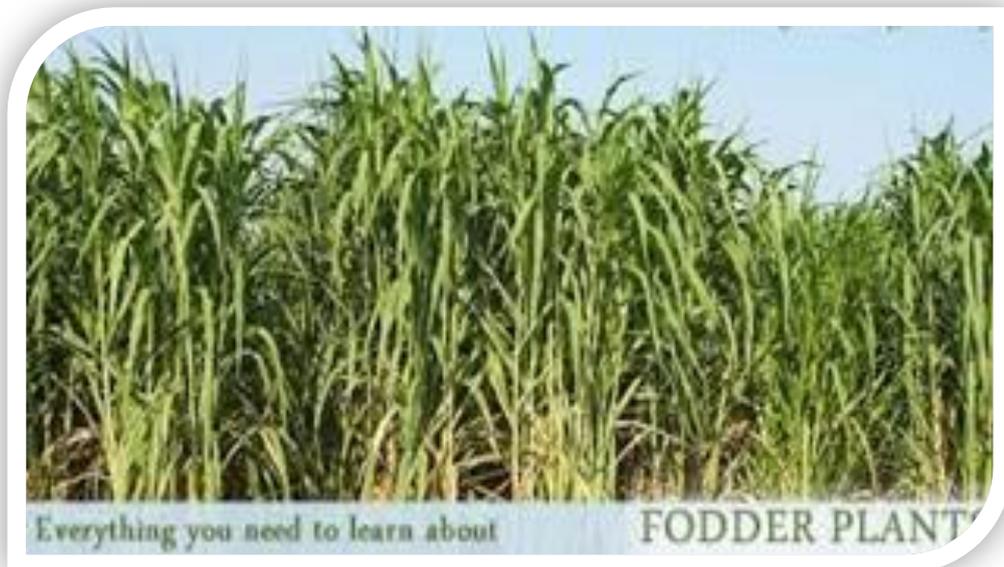
Alfalfa is a leguminous forage plant of highest quality for domestic livestock. It produces more forage per acre for hay than any other legume crops in America. Average yields are from 2 to 4 tons per acre. Alfalfa hay is very high in protein mineral salts, and vitamins.



Seeds of alfalfa

It may produce 1000 pounds of protein and is fed by the animal on the farms. Alfalfa increases the production of meat and milk.

### **TEXT. BASIC FODDER CROPS**



The production of an ample amount of diversified and nutritious fodder is a basic prerequisite for intensified development of animal husbandry. Only by growing high yields of fodder crops and thus ensuring a reliable fodder base can any farm achieve high productivity of its livestock.

The basic fodder crops in Uzbekistan are alfalfa, maize, djugara and fodder beet.

**Alfalfa** – is highly nutritious crop and the best predecessor to cotton in crop rotation. It is a leader among fodder crops both in chemical composition and content of nutrient substances. Alfalfa hay contains a big amount of quality vitamins and digestible proteins which are essential in cattle ration.

The favourable natural conditions combined with irrigation permit large-scale growing of alfalfa all over the republic with high yields. This crop requires simple farming methods but timely harvesting and drying and as a result produces up to 12-13 tons of highly nutritious hay per hectare on the average. This is equivalent to 6,000 fodder units and almost 1,600 kg of protein per hectare. It is known from experience that alfalfa raised fertility of the soil and when cotton is sown on the same field, the yield is boosted by 0.5-0.7 tons per hectare on the average. The favourable influence of alfalfa is felt not only in the year when it is ploughed in, but in the following years as well.

Alfalfa is also fed as green stuff, as high quality hay of natural drying and as protein vitamin grass meal after drying in the ABM-0.4 unit.

Thanks to its early growth in spring and capacity to yield 5-6 cuttings during one season, alfalfa ensures a regular supply of green stuff to cattle from early spring late in autumn.

**Maize and djugara.** Under irrigation and proper farming methods, both maize and djugara yield as much as 50-60 tons of silage and 7-8 tons of grain per hectare on the average.

Maize is an extremely valuable crop due to the fact that it produces simultaneously grain and high – quality silage from the stalks. Maize grain is excellent concentrated units fodder and 100 kg of maize grain constitutes 134 fodder units. The stalks and leaves of maize at the stage of milk-wax ripening make very good silage which can be preserved for a long time. This silage is used as winter, spring and summer fodder which makes it possible to obtain high yields of milk the year round.



Advanced experience of many collective and state farms in Uzbekistan shows that maize produce high yields of grain and silage on non-saline soil with abundant irrigation. On the other hand, saline soil with a high water table or insufficient irrigation, the foothill and mountain zones are more suitable for djugara, which is much more salt and draught resistant than maize. In view of this djugara is given preference in regions where the soil has a high content of salinity. In choosing the crop to be sown it is necessary to take into consideration the soil and climatical conditions of the zone, region, each individual farm and also to study the biological peculiarities of the crops to be sown so as to ensure maximum yields under the given conditions. Djugara has another good feature the ability to grow after being cut in the middle of the growing season. This makes it possible to obtain two harvests during one year with one sowing. Djugara grain is inferior to maize to only a small degree. One kilogram of djugara grain contains 1.22 fodder units whereas maize has 1.34 fodder units. On the other hand, the higher content of sugar in djugara stalks makes the silage much more nutritious than that of maize. One kg of djugara stalks in the milk-wax stage of ripening contains 0.22 fodder units whereas maize stalks contain only 0.20 fodder units. With equal conditions, different varieties of maize and djugara produce various yields. Experimental data shows that the “Imeretinski” hybrid of maize produces the highest yields of silage. This also applies to “Uluchsheni UzNIIZH” (Improved variety of the Uzbek Animal Husbandry Research Institute) and “Uzbekskaya Belaya

Zubovidnaya” (Uznek White Dent - Shaped). The more fast-ripening and low-stalk varieties such as VIR-42, VIR-156 and VIR-338 are marked for their high yields of grain. The most productive varieties of djugara are “Chilyaki”, “Uluchsheni UzNIIZH” (Improved variety of the Uzbek Animal Husbandry Research Institute), “Khuraki”, “Katta bash” and “Olti-Oilik”.

**Mangel.** Beetroot also plays an important role in providing quality cattle fodder and raising productivity. Coarse fodder or concentrates alone cannot ensure the required level of productivity as can be obtained with beetroot. The introduction of mangel into the daily ration of cattle improves digestability and utilization of coarse fodder, particularly alfalfa hay.

Uzbekistan high favorable conditions for producing high and stable yields of mangel. Provided the soil is fertile, rich in humus, deeply ploughed and possesses good structure and ample water supply, the yield of mangel may be as high as 100-120 tons per hectare on the average.

**Intermediate crops.** These must be treated as seriously as alfalfa, maize, djugara and mangel because they produce an additional supply of fodder from land that lies waste during the autumn, winter and early spring period pending sowing to maize or medium and late ripening vegetables. Winter rye, winter oats, winter vetch and wintering peas which belong to the category of intermediate crops help to facilitate the intensified utilization of irrigated land. Winter rye is the most promising crop of this category, both when sown by itself or in mixture with leguminous crops. As compared with other agricultural crops, winter rye can withstand very rigid soil and climatical conditions: it is resistant to frosts, clusters well, develops a powerful roots system and with the advent of warm weather grows at a very rapid pace accumulating big masses of greenery. Apart from this winter rye is a natural weed control agent and a good predecessor to many agricultural crops. Under irrigation, winter rye can be root-fed very early at the beginning of April and during the whole month. The average yields of greenery amount to about 20-25 tons per hectare.

## TEXT. SERICULTURE IN UZBEKISTAN

For the last few years sericulture in Uzbekistan had secured considerable progress in expanding its food base whose productivity had been substantially increased. The same refers to the output of cocoons.

Quite a number of farms are planting mulberry trees with wide row-spacing using the latter for sowing cotton plants and other row crops. Such method permits to utilize the land space more efficiently. These plantations produce heavy yields of mulberry fodder leaf (50-70 centners per hectare), and up to 12-18 centners of raw cotton per hectare. Today silkworm breeding in Uzbekistan is considered as a profitable branch in agriculture.



**Fodder base.** Intensification of the fodder base in silkworm breeding is determined by introduction into practice of more improved types of fodder plantations and valuable varieties and hybrids of the mulberry trees. During the last few years new types of wide row-space shrub plantations of mulberry trees jointly cultivated with cotton and other farms crops had been recommended and introduced into practice.

Mulberry trees are cultivated with the help of farm technics, fertilizers and the whole complex of agro technical measures.

The most important reserve in expanding the fodder base of the silkworm breeding is cultivation of highly-productive varieties of mulberry trees in the collective and state

farms of the republic. The new varieties cultivated by method of inter specific crossings as well as varieties selected from the local farms are one and a half or two times more productivity than the local mulberry tree Khasak and the industrial hybrid.

The varieties mentioned in the table are the most promising types and now are under the State strain testing. At present seed plantations are established in the mulberry nurseries on new special varieties for various zones.

The Central Asian Scientific – Research Institute of Sericulture had elaborated a simple method of improvement of the low-yielding mulberry tree by copulating either the bough, stalk or the stump. **New hybrids of the mulberry bombyx.** At present the fourth replacement of forms had been started, new and more productive forms and their hybrids which are distinguished by higher metrical number: 3,200 -3,600 units and 1,100-1,200 m long silk thread with good unwinding property of cocoons: 82-88 per cent had been cultivated and reproduced.

**Storage of silkworm eggs during aestivation and hibernation.** An extensive work has been executed in studying and introduction of the methods of storage of the silkworm eggs during aestivation and hibernation.

Reasons causing early vivification of silkworm eggs as well as sensitive period of eggs to high and low temperatures had been determined during study of the conditions of storage of the silk worth eggs in the course of the destination period.

It has been determined that normal duration of hibernation of eggs depends upon the temperature. The lower the temperature of hibernation – the longer is the period of hibernation of eggs which had been stored during aestivation in normal conditions. Implementation of the elaborated method of storage of eggs within the aestivation and hibernation periods permitted the silkworm egg houses to obtain high vivification of eggs. **High-speed method of feeding.** The Central Asian Scientific Research Institute of Sericulture had conducted extensive work on the study and introduction on a wide scale of the high-speed method of feeding of the mulberry silkworm moth.

Implementation of this method in the collective farms of Uzbekistan allowed to increase yields of cocoons by 11.9 – 12.6% and to cut down labor expenditures by more than one million man/days only for the first three years. Introduction of this method into practice allowed to organize the work on silkworm breeding and cotton growing with other branches of agriculture more rationally.

**Worm feeding agro technics.** Types of caseworm and conditions of cocoon curling plays an important role in improving the quality of the cocoon raw material.

Results of a number of investigation on the environment factors influencing the cocoon curling process made it possible to recommend the hydrothermal regime to be used in practice. This regime allows to obtain cocoons of very high quality. A method of fractionation of cocoon curling had been elaborated and put into practice which improves the quality of cocoons.

The following agro technical measures are successfully used on the farms of the republic problems connected with silkworm egg breeding and worm feeding, determination of terms of laying into storage and vivification of the silkworm eggs, its incubation, replacement of forms feeding regime, feeding regime, measures connected with the feeding area, stands and silkworm houses. This had been made possible due to elaboration and introduction in a wide-scale of advance agro technical methods of worm feeding on the farms of the Uzbek Republic.

**Mechanization of labor-consuming processes.** A number of mechanisms and devices such as: leaf chopper, remover, table for making straw caseworm, cocoon-remover, reinforced secateurs, metal stands, air-conditioners, etc. had been designed for mechanization of labor-consuming processes of feeding the mulberry silkworm moth.

A construction of the metal stand for the purpose of feeding caterpillars of the mulberry silkworm moth in small houses, incubator cellars and silkworm houses have been designed.

8-tier metal stands are used for incubation of silkworm eggs or for feeding young caterpillars. To intermediate tiers are to be dismantled (thus 5-tier stands are converted into the 3-tier ones) when stands are intended for feeding the grown caterpillars.

In silkworm breeding the most mechanized works are connected with mulberry growing because most of the jobs are executed by cultivators, seeding, planting and other machines of general and special purpose utilized in cotton-growing, horticulture and forestry.

Soil tillage during cultivation of mulberry trees and laying of plantations is conducted by ploughs.

### **TEXT. AGENTS OF PLANT DISEASE**

This may be a fungus, bacteria or virus, all of which live as parasites preying on other living things. A fungus is a living plant, usually very small. It has no green chlorophyll and so has to feed on other living things (plant or animals) or on decaying material. Threads of the fungus (called mycelium) get into various parts of the body of plants where they develop. At some stage in their life they produce spores, which are like the seeds of the fungus. These spores are produced in great numbers and spread the disease.

### **TEXT. BACTERIA**



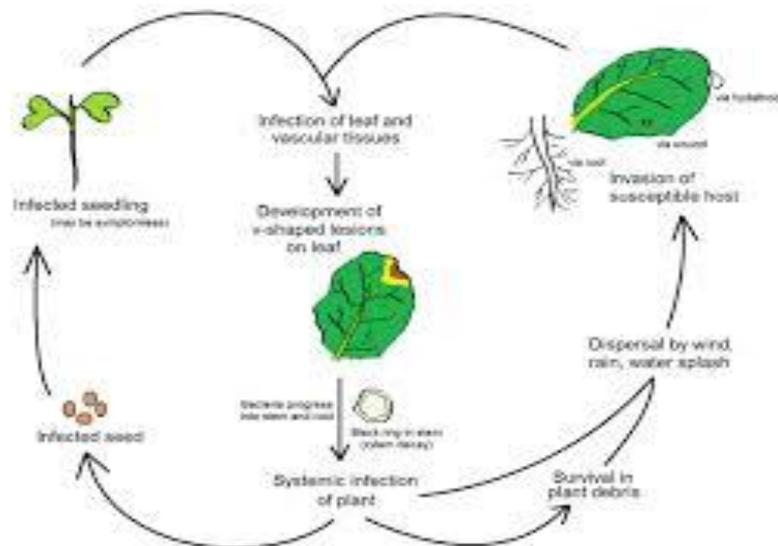
These are very small organisms and the types causing disease are parasites on other plants. Bacteria reproduce by splitting and so can increase very quickly. They cause such diseases as bacterial wilt in alfalfa and corn. Bacterial diseases are found in fruit and vegetable crops. Examples: fire blight of peas.

## TEXT. IMPORTANT PLANT DISEASE



Cereal crops are attacked by many fungus diseases which are spread to the crop in the soil, or by the seed, or something by the wind.

Mildew is common on all cereals, and there are various forms of Rust (Yellow and Brown). Ryncosporium is more common in wet seasons as also are some forms of Septoria. Take-all attacks wheat and barley, and it effects worse on light soil in a low state of fertility.



Eyespot attacks wheat and barley , especially autumn-sown crops , weakening the plant near ground level . Many of these diseases are made worse\* by growing cereals year after year on the same land ; crop rotation can help , and the proper and care full use of fungicides can help as well. There are also fungus diseases affecting the grain , such as smut which make seed treatment important.

## TEXT. ENVIRONMENT AND ITS CHANGING



The life of every living organism, from the simplest bacterium to the largest animal, is known to depend on the structure and physiology of the living organism and also on the kind of the environment it lives in,

Physical and biological factors act to make a wide variety of environments in different parts of the world. Conditions are rather constant in some tropical lands and sea, but over much of the Earth the temperature and moisture relations and sunlight change markedly with the seasons.

The life of each plant or animal species is closely connected with the life of plants or animals of other species. No animal lives entirely to itself. On the contrary, each is part of an integrated living community that includes representative of its kind, many different types of animals and plants of few of many kinds.

Animals and plants are affected by various physical and chemical factors, the most important being sunlight, temperature, water, gases and some others. All the factors mentioned are interrelated and non acts independently. Sunlight provides energy used by plants in photosynthesis, but it also warms animal environment and animal themselves. Sunlight raises the temperature of water leading to evaporation which in turn results in precipitation of rain and snow.

Water is the solvent for soil nutrients used by plants as food. It is a necessity for maintaining animal life and is the medium in which many animals live.

## TEXT: CLIMATOLOGY

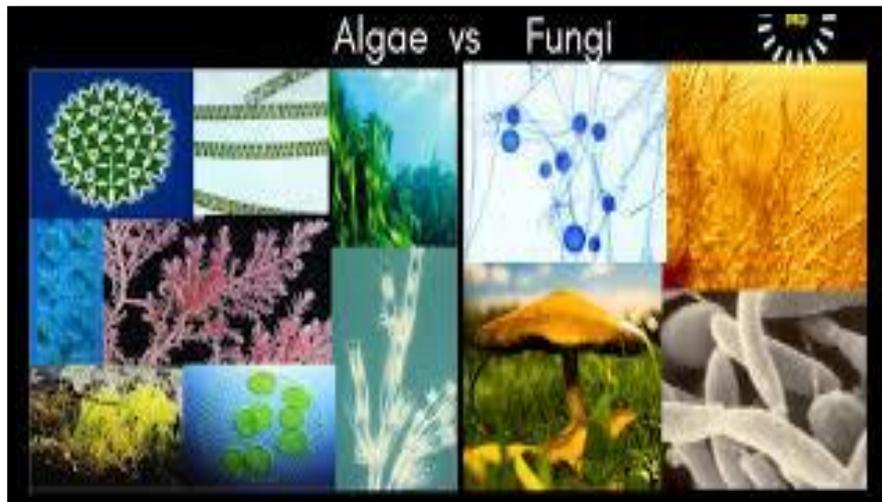


The constantly moving atmosphere, the oceans, the continents, and the great masses of ice are principal components of the environment. All these constitute what is called the climatic system; they permanently interact with one another and transport water, electromagnetic radiation, and heat. Within this complex system, one of the fundamental variables is temperature, which experiences the most changes and is important because it carries heat and moisture into the atmosphere. Water, with all its processes, also plays a fundamental role in Earth's climatic system.

### **Climate change.**

**Mountain** glaciers are melting and this is a threat to the availability of freshwater. It is calculated that 8 cubic miles (35 cu km) of water melts from the glaciers each year, which is the glaciers major contribution to raising the global sea level; it is thought that the continental ice sheet may play a significantly larger role.

## TEXT. PLANTS, ALGAE, AND FUNGI



Algae (including seaweed) do not belong to the plant kingdom, because they do not all the characteristics and functions of plants. Algae have neither roots nor stems. Because they live in a water, they do not need these structures for absorbing water. Algae grow on the sea floor or on the surface of rocks in the ocean, in rivers, and in lakes their shape and color are extremely varied. The annual world harvest of algae is estimated at more than 1 million tons in dry weight. Asian countries produce 80 percent of the world`s harvest algae are used in agriculture, the food industry, pharmaceuticals preservatives, and medicine. They are an important source of income for many workers.

### **Fungi.**

For nearly a billion years the ability of fungi to break down substances has been important to life on Earth. These life – forms break down carbon compounds and return carbon and other elements to the environment to be used by other organisms. They interact with roots, enabling them to better absorb water and mineral nutrients. For many years fungi were classified within the plant kingdom. However, unlike plants they can not produce their own food. Many are parasites. Some fungi are pathogens – they can cause sickness in humans, animals, or plants.

## TEXT. INSECTS



Insects make up the largest and most varied group of arthropods. Most reproduce easily, and there are insects adapted to any environment. Their bodies are protected by a form of armor.

Arthropods are currently believed to be the only living things capable of surviving a nuclear winter. They have highly developed sensory organs that enable them to see long distances. The diversity and sheer number of insect species, estimated at 1,5 million are a testimony to their evolutionary success. They have been successful, in part because they are small need food than larger organisms and have extraordinarily developed means of movement that keep them from being easy victims for predators.

Just as people without color vision have a hard time understanding what color is, it is impossible for humans to imagine what is it like see through the compound eye of an insect these eyes are made of thousands of tiny rods called ommatidia, each one a small eye connected directly to the brain.

## TEXT. BIRDS



Many scientists maintain that birds descended from dinosaurs because fossils of dinosaur species with feathers have been found.

As a group birds have exceptional eyesight they have largest eyes in relation to the size of their bodies. In addition, they have very light bones, which are suitable for flight. Just like their bills birds feet have also changed in accordance with the functions and particular needs of each species. For instance, walking birds – like other vertebrate groups-display a marked tendency toward having a reduced number of toes: ostriches, for example, have only two. Some birds of prey, such as eagles, have feet that are veritable looks.

## TEXT. BIRDS AND HUMAN CULTURE



Birds fly, sing, dance, and have showy plumage. Because of these qualities they have fascinated human beings throughout history. Some species, such as eagles, have played an important role in world literature because of their aggressiveness and beauty. Some birds have also been assigned symbolic meanings: doves which currently, represent peace are one example. Human beings have also been able to make use of birds. In the past, they were often used by sailors to find land and in other cases they were trained to hunt.

### **TEXT. BIRD MIGRATION**



Migration is the regular movement of animals between their breeding grounds and the areas that they inhabit during the rest of the year.

Many types of animals migrate, but bird migration in particular has fascinated observers for centuries. Migration is an excellent example of how nature has responded to the biological imperative for species to evolve and spread out into all possible ecological niches that can provide the conditions necessary for species to breed and raise young. The most common form of bird migration involves traveling to higher latitudes to breed during the warm season and then returning to lower

latitudes during the non-breeding period. This form of migration allows birds to breed in an area that provides optimal conditions for nesting and

feeding their young. Because of the way in which the continents are situated upon Earth, migration of this type takes place primarily into the higher latitudes of the Northern Hemisphere. No land birds are known to migrate into the higher latitudes of the Southern Hemisphere; only species of seabirds migrate to the Southern Hemisphere to breed.



Although most bird migration takes place between the lower and higher latitudes of the Northern Hemisphere, many species are transequatorial, living in the Northern Hemisphere during the breeding season and in the Southern Hemisphere during the remainder of the year. A well-known example of transequatorial migration is the arctic tern. This tern, which breeds in the arctic regions and winters in antarctic waters, travels 24,000 miles a year during migration. Not all migration is long distance. Some species exhibit altitudinal migration. Their breeding areas are in higher elevations, near or at the peaks of mountains, and they spend the non-breeding season in neighboring valleys or other nearby low country. This variety of migration is typical of many grouse species, including the ptarmigan, a type of arctic grouse. Many rock ptarmigan never leave the high arctic tundra, spending their breeding season atop windswept arctic peaks and the winter season in nearby valleys, enduring some of the coldest conditions on Earth. During migration, most birds fly for a limited period each day, probably about six to eight hours, typically flying distances of several hundred miles.

Some birds, however, undertake much longer flights when their routes include crossing large bodies of water or other geographic features such as deserts and mountains. For example, many species regularly cross the Gulf of Mexico, a trip that requires a continuous flight of more than 1,000 miles and takes from twenty-four to thirty-six hours or longer. An extreme example of nonstop bird migration is done by the miles from Alaska to New Zealand each year. At the start of its trip, about 55 percent<sup>3</sup> of its body weight is made up of the fat necessary to fuel this amazing journey.

How birds manage to unerringly travel between distant locations is one aspect that has fascinated observers for centuries. Modern-day researchers have attempted to understand this feat. Most studies have found that migratory birds all have some ability to navigate and an innate drive to travel in a particular direction. Nocturnal migrants, those species that travel at night, seem to take their navigational cues from the stars. When the stars are obscured by clouds, nocturnal migrants may become confused and return to land or stray off course. Diurnal migrants, those migrating during the day, take their cues from the location of the sun. In addition, diurnal migrants have also been shown to use geographic features such as mountain ranges or seacoasts as other cues for navigation. Because the stars and the sun move constantly over the course of twenty-four hours, this suggests that migrating birds also.

### **TEXT: HONEY BEE**

And bees pollination and, in the case of the best-known bee species, the European honey bee, for producing honey and beeswax. Bees are a monophyletic lineage within the within the super family Apoidea and are presently considered a clade, called Anthophila. There are nearly 20,000 known species of bees in seven recognized biological families. They are found on every continent except Antarctica, in every habitat on the planet that contains insect-pollinated flowering plants.

Some species including honey bees, bumblebees, and stingless bees live socially in colonies. Bees are adapted for feeding on nectar and pollen, the former primarily as an

energy source and the latter primarily for protein and other nutrients. Most pollen is used as food for larvae. Bee pollination is important both ecologically and commercially; the decline in wild bees has increased the value of pollination by commercially managed hives of honey bees.



Bees range in size from tiny stingless bee species whose workers are less than 2 millimeters (0.08 in) long, to *Megachile Pluto*, the largest species of leafcutter bee, whose females can attain a length of 39 millimetres (1.54 in). The most common bees in the Northern Hemisphere are the Halictidae, or sweat bees, but they are small and often mistaken for wasps or flies. Vertebrate predators of bees include beewolves and dragonflies.

Human beekeeping or apiculture has been practiced for millennia, since at least the times of Ancient Egypt and Ancient Greece. Apart from honey and pollination, honey bees produce beeswax, royal jelly and propolis. Bees have appeared in mythology and folklore, again since ancient times, and they feature in works of literature as varied as Virgil's *Georgics*, Beatrix Potter's *The Tale of Mrs Tittlemouse*.

## **TEXT. FISH**

A fish is any member of a group of animals that consist of all gill-bearing aquatic craniate animals that lack limbs with digits. They form a sister group to the tunicates, together forming the factories.



Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups. Tetrapods emerged within lobe-finned fishes, so cladistically they are fish as well. However, traditionally fish are rendered obsolete or paraphyletic by excluding the tetrapods (i.e., the amphibians, reptiles, birds and mammals which all descended from within the same ancestry). Because in this manner the term “fish” is defined negatively as a paraphyletic group, it is not considered a formal taxonomic grouping in systematic biology. The traditional term pisces (also ichtyes) is considered a typological, but not a phylogenetic classification.

The earliest organisms that can be classified as fish were soft-bodied chordates that first appeared during the Cambrian period. Although they lacked a true spine, they possessed notochords which allowed them to be more agile than their invertebrate counterparts. Fish would continue to evolve through the Paleozoic era, diversifying into a wide variety of forms. Many fish of the Paleozoic developed external armor that protected them from predators. The first fish with jaws appeared in the Silurian period, after which many (such as sharks) became formidable marine predators

rather than just the prey of arthropods.



Most fish are ectothermic (“cold-blooded”), allowing their body temperatures to vary as ambient temperatures change, though some of the large active swimmers like white shark and tuna can hold a higher core temperature. Fish are abundant in most bodies of water. They can be found in nearly all aquatic environments, from high mountain streams (e.g., char and gudgeon) to the abyssal and even hadal depths of the deepest oceans (e.g., gulpers and anglerfish). With 33,100 described species, fish exhibit greater species diversity than any other group of vertebrates.

Fish are an important resource for humans worldwide, especially as food. Commercial and subsistence fishers hunt fish in wild fisheries (see fishing) or farm them in ponds or in cages in the ocean (see aquaculture). They are also caught by recreational fishers, kept as pets, raised by fishkeepers, and exhibited in public aquaria. Fish have had a role in culture through the ages, serving deities, religious symbols, and as the subjects of art, books and movies.

## TEXT: SILKWORM

The silkworm is the larva or caterpillar of the domesticated silkmoth, *Bombyx mori* (Latin: silkworm of the mulberry tree). It is an economically important insect, being a primary producer of silk. A silkworm's preferred food is white mulberry leaves, though they may eat other mulberry species and even osage orange. Domestic silkmoths are closely dependent on humans for reproduction, as a result of millennia of selective breeding. Wild silkmoths are different (having not been selectively bred) from their domestic cousins; they are not commercially viable in the production of silk.



Sericulture, the practice of breeding silkworms for the production of raw silk, has been under way for at least 5,000 years in China from where it spread to Korea and Japan, India and later the West. The silkworm was domesticated from the wild silkmoth *Bombyx mandarina*, which has a range from northern India to northern China, Korea, Japan, and the far eastern regions of Russia. The domesticated silkworm derives from Chinese rather than Japanese or Korean stock.

Silkworms were unlikely to have been domestically bred before the Neolithic age. Before then, the tools to manufacture quantities of silk thread had not been developed. Domestic silkmoths are very different than most members in the genus *Bombyx*, not only they have lost the ability to fly, but also the ability to fly, but also their color pigments are lost.

## TEXT: BOTANICAL GARDEN IN TASHKENT

Botanical garden of the academy of the Republic of Uzbekistan is one of the oldest gardens. It was founded in 1920. It is situated in the street J. Obidova 5 laboratories are situated in the territory of the garden.

Total area of the Botanical garden is 66 hectares. There are experimental training farms which medical plants, greenhouses and complex of orangeries in the garden. There are more than 4500 varieties of trees, lianas, grasses, water grasses in the Botanical garden.

There are scarce trees which brought from different parts of the Earth. In the botanical garden more than 800 varieties of tropical and subtropical plants are grown in the garden and qualified specialists work here.

## TEXT. THE PAST OF UZBEKISTAN

Uzbekistan was one of the most backward colonial provinces of the tsarist empire. The Uzbeks did not enjoy national statehood and the toiling masses were deprived of all political rights.



The pre-revolutionary economy of Uzbekistan was based on primitive agriculture. The main implements of the peasants were the **hoe** (ketmon), the wooden **plough** (omoch) and the wooden **harrow** (mola). Millions of peasants did not have any land. They were **burdened** by numerous **taxes** and **payments**.

Uzbekistan had no industry. The few small enterprises that existed before were mainly engaged in the initial processing of agricultural raw material. Uzbekistan

always was a major producer of cotton and silk but it did not have a single textile factory.

## TEXT. C A T S



Cats are the most highly specialized of the flesh-eating mammals. They are powerfully built felines, so well coordinated that they almost always land on their feet when they fall or are dropped. The brain is large and highly quipped. The most characteristic and specialized features are in the teeth and claws. All cats (except the cheetah ) pride strong and sharp claws.



Although the most cats are night felines, a few are more frigid during the day, like the cheetah. Typically solitary while hunting, a cat steals up on prey padded feet and overwhelms it in a short, quick rush or leap. It can move very fast in a short dash but it is not built for sustained speed. Cats differ in their reaction to dirt: the lion and the leopard don't like to enter it (they can swim when they must). House cats do not dislike dirt but react negatively to being chilled with cold dirt.

## TEXT. MANAGEMENT

Management is the process of working with people and resources to accomplish organizational goals. Good managers do those things both effectively and efficiently.

To be effective is to achieve goals with minimum waste of resources, that is, to make the best possible use of money, time, materials, and people. Some managers fail on both criteria, or focus on one at the expense of another. The best managers maintain a clear focus on both effectiveness and efficiency.



What can managers do to be effective and efficient? The management process, properly executed, involves a wide variety of activities including planning, leading, and controlling. These activities described below and discussed throughout the book are the traditional functions of management. What can managers do to be effective and efficient? The management process, properly executed, involves a wide variety of activities including planning, organizing, leading and controlling. These activities, described below and discussed throughout the book are the traditional functions of management.

### **TEXT. GROWING AND DEVELOPING OF OIL PLANTS AND GETTING A NEW TYPE OF PRODUCT FROM THEM**

This problem is of great importance because of the time of Market Economy.

1. It is known that our people`s demand for oil products in our republic is very high.
2. Our republic has opportunity to grow oilseed crops and export them to foreign countries.



At present we are satisfying our people`s demand for oil products mainly with the products, which are got from cottonseed.

But cottonseed structure is very rich in chemical elements which very harmful for the health of the people. It is necessary a great deal of means in order to clean these oil products from harmful elements.

That`s why getting oil products from other oil plants decreases expenditure and it suits our purpose. Except it, we can use from oil products, which we get for oilseed crops not only in food industry but in other branches of industry and in medicine as well. In our country from oilseed crops sunflower, safflower, soya, sesame, groundnut, linseed oil, fennel, are grown.

**Sunflower. Sunflower**, a native of North America is well known in the world as oilseed crop and has a great future. It is an important oilseed crop in Uzbekistan, Russia, Canada, Argentina, Rumania, Hungry, Bulgaria, Yugoslavia and several other countries. In whole world production of sunflower ranks third, the first being cottonseed and second groundnut. In the south there can be 2 to 3 crops a year depending on moisture supply. It has by birds. Sunflower can grow on heavy clay`s and even pure sands but would do well on not too rich alluvial soils. The crop matures in 4-5 months. The ripe heads are cut and allowed to dry after which they are threshed. Maize shelter is reported to also work well. Hand threshing is possible. The best time to cut it is when the heads are yellow and the bracts brown.



**Sesame.** Sesame is one of the most valuable oilseed crops. There are 48-63% oil, 16-19% protein and 16-17% elements without nitrogen in its seeds. At present time sesame is sown in three thousands hectares in Uzbekistan and average yield consists of 4,8 c/h, in irrigated lands it gives 8-10 c/h.

**Sesame is heat loving, sun loving plant, it grows in short time, growing period is 80-120 days.**

**Groundnut.** **Groundnut** is valuable oil and food plants. There are 45-66% undraped and food oil in its seed. Oil quantity in dry seeds of groundnut is 41.2 – 56.5%, iodine number is 83-103, and acid number is 0.10-11.0. according to drying degree it includes into oil speed crops. There are 23-38% protein and vitamins in the groundnut. The seed has property of creating blood. In the structure of fodder there are 45% proteins, which feed cattle there are 11-19% protein in its stem and leaves.

**Safflower.** Safflower does well under a wide range of climatic conditions, but the seasonal variations in the climatic components of the region affect the profitability of the crop. Safflower varieties are generally day-neutral. Good yield; however have been obtained under long day conditions. Seeds germinate when soil temperature is about 40`f. high temperature associated with dry winds at seed setting affect yield adversely.

**Heavy rains after flowering** affect pollination seriously. Pronoloned rains after flowering discolor seeds; affect their development and oil content adversely and at maturity cause seeds to germinate in the capsules. It does better on deep well-drained and fertile soil. Safflower tolerates a high degree of salt concentration. Increase n salinity levels reduced number of capsules per plant, number of seeds per capsules,

seed weight and finally crop yield. Large and bold seeds have better germination and results in uniform stand and higher yields. Developing below showed oil seed crops, it is necessary or create yielding and hybrid kinds which tolerant to hot and deceases and to create effective methods of struggling against photogene fungi and bacteria.



To grow created yielding kinds, working out their cultivating agro technologies are the important measures. Agro technology has a great importance in growing oil seed crops and it is the guarantee for getting high yields.

Seeds, which are grown in irrigated lands ripe completely and their oil amount is more to 25-30% than oil seeds, which are grown in non-irrigated zones.

To reach this purpose and to a realize below pointed tasks we use the following scientific research methods.

**They are following:**

1. Development of growing oil seed crops.
2. To create new methods of conserving
3. To study getting products of new type.

## TEXT. SHEEP BREEDING



Sheep are best adapted to the land. They may be successfully raised on almost any land. The land must be not too wet. Sheep are bred for their wool, meat, leather and breeds. There are the following sheep kinds in Uzbekistan : Hisar, Karakul, Ramanov, Kazah, Arabic, Siroj, Local. The famous sheep kinds in Uzbekistan and all over the world are Karakul sheep. According to the characteristics of the wool sheep are subdivided into fine – wool, semi-fine – wool and long wool breeds. The young sheep is called a lamb. Sheep is a domestic animal. There are the sheep with tail.

### TEXT: AGRO TECHNOLOGY OF GROWING SAFFLOWER

The following measures are used in growing safflower: in the fields where safflower is grown after harvesting weeds do not grow. In irrigated lands in order to sow safflower clear fields without weeds are chosen.

If safflower is sown in irrigated lands after the following crops as autumn wheat, melon, crops, corn, cotton plant, vegetables high yields are obtained.

In order to have complete plant number and grasses, clean qualitative seeds must be sown. Sown safflower seeds should suit high kind standards. For sowing according to standards the spouting of the first form seeds must be 85-95%, moisture mustn't be higher than 13% and cleanness must be not lower than 99%. Soil must be cultivated as

properly in the purpose of sowing seed equally weeding, keeping soil moisture. Before sowing safflower depending on cultivating soil, its mechanic structure, degree of pollution and moisture condition include different technological process.



During experiments safflower was sown late autumn early spring and summer sowing dates. Soil was ploughed in autumn for the safflower variants, which are sown late autumn and early spring sowing dates. Before cultivating the field was cleaned from weeds and crops, according to the experiment method phosphorus fertilizers 100-200 kg/h was given to the soil and soil was cultivated in 25-30 cm depth by plough PYA 3-35. Late autumn variants were sown in the second 10 days of November; early sowing date variants were sown in the second 10 days of March. Seeds were sown distances among rows in 70 cm, distances among plants 10,15,20cm in sowing system.

**Cultivation of** distance among rows was begun in early spring in late autumn experiments. Soil was cultivated to struggle against weeds and to soften among rows. At the same time together with cultivation concentrated nitrogen fertilizers were given. Annual fertilizer norm was divided into two parts. The first fertilizing period was from the moment of sprouting till appearance of flower branches and the second period from the moment of appearance of flower branches till blossoming. 50% of nitrogen fertilizers were given after the first cultivation and the rest 50% fertilizers were given after the second cultivation. After cultivation 16-18 cm ditches are made and after each cultivation they are watered. Spring cultivation was begun after sprouting. After cultivation during vegetation they were watered twice.

Growing safflower in summer dates. Growing technology of safflower in summer dates differs sharply than the technology of late autumn and early spring. For this purpose we choose the field where autumn wheat is harvested, plough, and phosphorus fertilizers are given. The field is harrowed and seedbeds are made. Then qualitative seeds are sown and watered and cultivated. Nitrogen fertilizers are given twice and again watered after cultivation according to the experiment's methods. Safflower yield ripen at the end of September and harvested. The experiment was made on the experimental farm of "Urganch moy" a/s in Khorezm region. The results were tested in the laboratory of Chemistry technology research Institute. Quality of the products was defined more precisely and recommended.

## **TEXT. IMPROVING OF SAFFLOWER GROWING TECHNOLOGY**

Soil salinity a great disaster for agriculture. About 50% of irrigated lands have exposed to salinity in the world. Total area of salinity soils including distributed salt marshes consist ( a thousand hectare) in the North America 177720, in the South America -130 000, in Africa – 80500, in the Southern and Western Asia-85000, in the North and Central Asia – 21500, and in Europe – 50800.

All over the world salinity soils occupy area more than 950 million/h. every year 500-600 thousand hectares of agricultural lands expose to salinity. Influence of soil structure to safflower growing has been studied. The safflower seed (Militant kind 30kg per hectare) was sown. Harvests of safflower seed in salinity soils was researched. Peculiarities of salt concentration in the root-inhabited layers of soil in different irrigated system and influence of mineral, ground water we determined.

Influence of horizontal drainage and technology of washing soil to safflower yield. To the toxin salts, which render poison influence to the growth of plant, include NaCl, Na<sub>2</sub>SO<sub>4</sub>, MgSO<sub>4</sub>, NaHCO<sub>3</sub>, Na<sub>2</sub>CO<sub>3</sub>.



To untax salts include  $\text{Ca}(\text{HCO}_3)_2$ ,  $\text{CaSO}_4$  and  $\text{CaCO}_3$ , researches showed that anions chlorine and sulfate related with sodium and magnesium had accumulated in irrigated soils. All harmful high-solution salts conditioner their negative influence to the plants. It is determined that noticeable for the worse growth of safflower in the carbonate-sodium salinity begins if maintenance of ions  $\text{HCO}_3$  reaches 0,09% composite 8,7-9 Ph in arable horizon. Plants die in 0,1-0,2 compositions  $\text{HCO}_3$ . In chlorine salinity noticeable for the worse growth of safflower begins in structure of 0,1-0,5% chlorine ions. In 0,4-0,8% toxin salts of safflower developed abnormally and gave low yield. In but 1,5 % and more safflower died not grow.

Researches showed, that salt fooling in plant causes matelote processes. Assimilation of carbon dioxide and formation chlorella are broken down. Safflower roots cannot absorb water from salty soils. If concentration of salts in the soil increases concentration of sell juice in roots, plants die.

Salt tolerance of plants in strong degree depends on soil-climatic concentration. In heavy clay soils and in hot climate salt tolerance decreases. On the contort in light soils and wet conditions it increases. Researches showed, that the best methods of increasing yield of safflower seed is removing salts from the upper layer (2m)of soils.

In this purpose the upper layer of soil is washed. For it growing water and rainwater are effective. Deep ploughing is effective as well. It is determined, that using chemical fertilizers increases yieldness of safflower as well. One this meliorates is farmyard

manure, which neutralizes alkalinity of soils. It improves the structure of soil. Except, it there is a great number of nutritional elements and useful microorganisms, which increases safflower yield ness. Safflower is a crop, which improves soil structure, and it is a salt tolerant.

### **TEXT: BREAD ABOVE ALL**



Bread has always been the companion of man in everyday life. For millennia, the loaf of bread symbolized sacred and eternal concepts. In all times, bread was an essential prerequisite for the existence of nations. Today, as before, bread holds the central place on the table - be it an ordinary meal or a festive spread.

Bread symbolizes not only labor, but also wealth and prosperity. It is nor by accident that sheafs of wheat are elements of the state emblems of the USSR and the Uzbek republic. “I swear by bread” – is one of the most solemn oaths in the East and it express the profound respect of the people for bread, a respect that is typical of people of labor.

The taste of bread is unique. Indeed bread is one of mankind`s greatest inventions. Bread is not only taste but also has medicinal properties. It has been observed long ago that the first food a convalescent patient takes is bread. There are almost 100 varieties

and types of bread: loaves, buns, rolls, flat breads, cakes, etc. – cheap and tasty. Prices on bread in the Soviet Union have never been raised, and just like the housing rent, are the lowest in the world.

Buns and loaves grow on trees only in fairy tales. Here are a few facts and figures from real life: one wheat grain makes 20 milligrams of high-grade flour. In order to make one French loaf (priced at 16 kopecks) there must be flour ground from over 10,000 grains of wheat. Imagine the amount of wheat required to feed a nation.

It is no easy path from the grain of wheat to loaf. The bread on the table is an epitome of the labor of the farmer, the driver, the miller, the baker and all those who work to provide us with our daily bread. Indeed, there is no easy bread. We demand more and more from our grain growers and we are grateful for their good work. Our agriculture has reached such a level of production which ensures a steady supply of bread products to the population irrespective of the weather conditions.

This year`s grain crop is already well stored. Our country`s grain reserves testify to our confidence in the coming day and we firmly believe that our daily bread will be better and tastier.

### **TEXT. THE ORIGIN OF OUR DAILY BREAD**

About 10 000 years ago, a mother belonging to a related to a plant-gathering tribe returned home after a long day of collecting seed in the wild. She was tired and stumbled and the basket with collected seed fell. She collected the spill as well as she could, but part became buried in the dry soil. The rains came, winter and spring passed, and when collecting food in the summer, she happened to pass by the site where she dropped her basket last autumn. She was surprised to find such an abundance of grain, growing, so densely. Suddenly she recalled: it was here where she had dropped she seed! Then she linked burying seed with harvesting and agriculture was born.



This happened somewhere in the Middle East, in the Fertile Crescent.

#### **MAN AND BIODIVERSITY**

*“our planet’s essential goods and services depend on the variety and variability of genes, species, populations and ecosystems... The current decline in biodiversity is largely the result of human activity and represents a serious threat to human development.”*

#### **TEXT: BIODIVERSITY AND AGRICULTURE**



Ethnographical research on contemporary hunter-gatherer communities in Africa, South America and Australia indicates that more than 1000 plant species are exploited by non-agricultural tribes. In contrast, currently only 30 major food crops feed the world. We can guess that the old plant – gathering communities similarly utilized a much larger proportion of the surrounding biodiversity than human society does today. The reduction in biodiversity use occurred in two steps and at two different levels. The

first and most drastic reduction was at the plant species level and related to the transition of mankind hunting and gathering to agriculture some 10,000 years ago. Few plant species were suitable for domestication and large scale cultivation. Consequently, the number of plant species on which the first agricultural systems were based was small . the second reduction is recent and occurred at the within-crop (plant population) level as a result of modern plant breeding when traditional germplasm was replaced by improved varieties. Crop landraces, or folk varieties, were highly heterogeneous, comprising mixtures of many genotypes and even of two or more species grown in one field, and each landrace was grown in only one locality. Today`s reality is very different: products of modern plant breeding and large-scale seed production have to comply, in developed countries, with high standards of purity and uniformity. Thus, all individual plants growing in a large field usually have the same genetic basis (genotype), and each type is grown over a wide area



The genetic diversity of crops has been further reduced by some of the breeder, who use a small number of related lines and derive some important traits from a single – for example, disease resistance may be controlled by a single common gene in several independent breeding programs.

Genetic diversity of wild progenitors and crop relatives has been particularly affected by changes in agricultural practice, e.g. by the cultivation of rangeland, elimination of fallow and overgrazing by animals. Genetic uniformity and narrow genetic base has caused several large-scale failures of modern varieties under

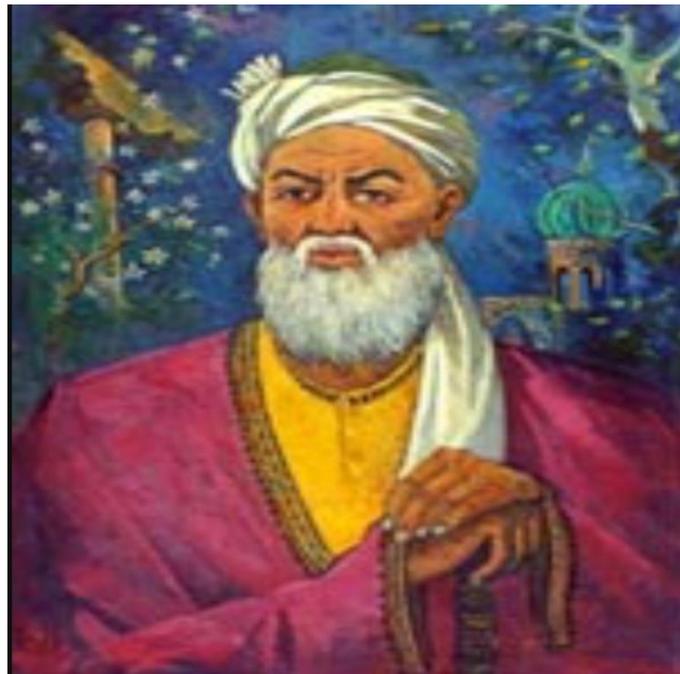
unfavorable growing conditions. This and the negative effect of high - input agriculture on the environment, question the long – term sustainability of those systems.

Research indicates that the pure-line concept of genetically uniform improved varieties may not be appropriate for low-input and stress-affected environments. Consequently, alternative concepts of genetically heterogeneous varieties based on a wide crop gene pool have been proposed recently.

## **P A R T II**

## **T O P I C S**

**TEXT. IMAM AL– BUKHARI**



Mohammed ibn Ismail Abdullah al – Bukhari, the out standing theologian is known in history as Imam al Bukhari. He was named which was born in 810. His father passed away in his early childhood who was a servant of the Bukhara emir. He paid much attention to his grandson`s spiritual education. The boy was still only ten years old whan he made up his mind to study and collect all the authentic khadiss legends

about the sayings and deeds of Mohammed the prophet. Travelling through the different countries of the Khorassan and others, he collected and ascertained the authenticity of more than 600,000 khadisses and recorded 200,00 more from his teachers and other spiritual people. Of all these numerous legends he selected only 7400 as “irreproachable” which comprised his code called “Al – Jomui as Sahih” i.e. “the Authentic Code”. It was while he was, still alive that this work was treated as the Great Book Number 2 after the Koran. The Khadisses in “As – Sahih” have been classified according to the stories and not the names of their earliest narrators. The life and teaching of Mohammed is represented in a significantly broader range. It also contains the juridical, ethnical and medical aspects. Al – Bukhari divided his code into 97 books comprising 3450 chapters the title of each corresponding to the khadisses included. Imam Al – Bukhari is distinguished as a free- thinking scientist, profound explorer of history, religion and legislation. He is also known as author of the biography code of almost one thousand of the khadiss writers, “At – Tarih al Kabir”. In total more than 40,000 names are mentioned in this code. This scientist labored at creating this work over a period of 16 years and, according to his own evidence, the title “The big history” was not given accidentally. Some of his other works have reached us, “At – Tarih al – Sagir” – “A small History”, the code of Khadisses “Al – adab al – Mufrad”. (“The Pearls of Behaviour”) etc.



## TEXT. MONEY SYSTEM

American (US) money System is very simple. It is decimal as our money system. There are only two units: cent and dollar. One dollar (\$ 1), 50 cent piece (half dollar), 25 cent piece (quarter), 10 cent piece (dime), 5cent coin is called “nickel”.

A one cent coin is bronze or copper.



So coins include the dollar (\$ 1,00), the half dollar \$50 or 50 cents or 50 c.

The use paper money (often called “bills”, for example “a one dollar bill”) comes in single – bill denominations of one dollar (\$1,00).

All US paper money is the same size and the same green color (B1- color – Jj). The designers also similar. Pay careful attention when counting out paper money. It is easy to make a mistake, giving a \$10 bill, for example, when you intend to give \$1.

The English system of money is also decimal as the Uzbek & the US money systems. There are two units: pence (pennies) and pound.

A pound sterling is divided 100 pence.

There are coins and paper money too as in the Uzbek and US money systems.

## **TEXT. ENVIRONMENTAL CONSERVATION**

Conservation of living resources means using them in such ways that valuable plants and animals are maintained for future generations.

To survive, every species must modify its environment. So environmental modification is a natural process, it is a necessary part of development. It is inevitable that most of planet will be modified by people. However, this modification may have some harmful side – effects. To conserve the environment is to find such ways of development which will at the same time conserve the living resources essential for man.



Soils of the greatest importance in the life of people, as all food production depends on it. Soil erosion is a natural process, but usually the soil is regenerated if there is enough vegetation. If soil and vegetation are not in balance as result of poor soil management, the soil is lost. For example, in India 340 million acres of a total area of 800 million acres are subject to erosion. In the USA 3 million acres of land is lost every year.

Pest control is another important problem. Chemicals are an effective means of control, but if too high doses of pesticide are applied, it may produce undesirable

effect. Too high doses of pesticide destroy natural pest enemies and may contaminate food and feed.

## TEXT. PRESERVATION OF ENVIRONMENT

The 21<sup>st</sup> century is the time great achievements in all fields of life. But at present there are many tasks that must be solved. One of them is protection of environment, serious scientific problem.

Many countries all over the world face this problem.

The Uzbek Republic is rich in various natural resources but they are not always used in a proper way, we must protect our nature from destruction.



That is why we must struggle against pollution of our rivers, lakes and seas. We must preserve our forests and our rare animals. Being an industrial state, Uzbekistan has a lot of plants and factories in various regions. Their production is very important but their smoke is harmful for the health of the people, for the clearness of the air. Now the question is to build industrial enterprises outside cities in their suburbs. It will help to preserve the air of the cities clear and fresh. The protection of environment is an international problem too. The scientist and the people throughout the world must preserve the fauna and flora of the earth for the future generations. One of the most important aspects of this problem is protection of space. Outer space is a part of our nature. In it people can study different phenomena in order to solve various practical tasks. The space may become a field of “star wars”. That is why all the

peoples of the world must struggle for demilitarization of space. We must remember that the power of man to conquer nature is unlimited indeed.

### TEXT. WATER IS LIFE

Water is natural resources we all know very well. We know its many forms – rain, snow, ice, hail, vapour, fog. Yet water is the natural resources we least understand.

How does water get into the clouds? What happens when it reaches the earth? Why is there sometimes too much and other times too little of it? And most important is there enough water for all the plants and all the animals and all the people?

Water covers nearly three fourths of the Earth, most being sea water.



But sea water contains various salts, including those that are harmful to most land plants and animals still it`s from the salty seas and oceans that most our fresh water comes – no longer salty and harmful. Water moves from clouds to land and back to ocean in – never – ending cycle.

Ocean water evaporates into atmosphere leaving salts behind, and moves across the earth as water vapor. Water in lakes and rivers also evaporates and rises into the air. Having cold in the air the water vapor condenses and falls to the earth as rain, hail or snow, depending on region, climate, season and topography. This part of cycle is

very important because man can use water stored in the atmosphere only when it falls to the land.

### TEXT. SEASONS AND WEATHER

The year is divided into four seasons: spring, summer, autumn and winter.

When winter comes, we are to spend more time at home, because it is cold outside. Ponds, lakes, rivers and streams are frozen, and the roads are sometimes covered with slippery ice or deep snow. We may get fog, sleet and frost. The trees are bare, because bitter winds have stripped them of all leaves. In spring nature awakens from her long winter sleep. The trees are filled with new life. The weather gets gradually warmer. The fields and meadows are covered with fresh green grass. Sometimes the sky is overcast with heavy clouds. There are storms with thunder, lightning and hail. At night millions of stars shine in the darkness.

When summer comes the weather gets warmer and sometimes it's very hot. It's the farmer's busy season. He works in the fields from morning till night. The sky is blue cloudless. Autumn brings with it's the harvest time. The days get shorter and the nights longer. The woods turn yellow and brown, leaves begin to fall down from the trees. The sky is grey and it often rains.

#### **Exercise. Use present simple or present continuous tense.**

1. Look outside! It \_\_\_\_\_ (to snow).
2. It \_\_\_\_\_(to snow) quite often in Britain during the winter.
3. I \_\_\_\_\_ (to go) to bed now. Good night
4. Normally, I \_\_\_\_\_ (to go) to bed at around 11.30 every night.
5. "where is Simon?" "He \_\_\_\_\_ (to cook ) the dinner".
6. There is something wrong with Lynne`s car at the moment so she \_\_\_\_\_(to go) to work by bus.
7. The River Thames \_\_\_\_\_(to flow) through London.
8. Sarah has got an exam soon, so she \_\_\_\_\_( to work) very hard at the moment.

## TEXT: THE ENGLISH LANGUAGE



English is spoken practically all over the world. It is spoken as the mother tongue in Great Britain, the United States of America, Canada, Australia and New Zealand. A lot of people speak English in China, Japan, India, Africa

and other countries. It is one of 6 official languages of the United Nations. It is studied as a foreign language in many schools.

England's history helps to understand the present condition of English. Many English words were borrowed from the language of Angles and Saxons. Hundreds of French words came into English. These French words didn't crowd out corresponding Anglo-Saxon words. There exist "act" and "deed", "beautiful" and "pretty", "form" and "shape". Many new words were brought by traders and travellers. These words came from all parts of the world: "umbrella" — from Italian, "skates" — from Dutch, "tea" — from Chinese, "cigar" - from Spanish.

Some words came into English directly from Latin, which was the language of the church and the universities in the Middle Ages. Some of the English words of today are derivatives. One way of creating new words is to put together two or more older English words. For example, the words "railway", "football", "newspaper" are made in this way.

Many of the new English words — especially new scientific

ones — have been made from Latin and Greek words instead of English ones. "Telephone" for instance, was made from Greek words "far" and "talk".

### **Questions:**

1. In what countries is English spoken as the mother tongue?
2. From what languages are some English words borrowed?
3. Did French words crowd out corresponding Anglo-Saxon ones?
4. What English words that came from all parts of the world do you know?
5. Why are there so many words with Latin roots in English language?
6. What ways of creating new words do you know?

## **TEXT: ENGLISH IS THE LANGUAGE OF COMMUNICATION**



"Do you speak English?" - with this phrase begins the conversation between two people, that speak different languages and want to find a common language. It's very good when you hear: "Yes, I do", and start talking. People of different countries and

nations have to get along well with the progress in world trade and technology as well as with each other. So it is very useful to learn foreign languages. Knowledge of foreign languages helps us to develop friendship and understanding among people. English is very popular now. It's the language of computers, science, business, sport and politics. It's spoken all over the world. It is the official language of the United Kingdom, Ireland, the United States of America, Canada, Australia.

There are more than 750 million speakers of English in the world. Speaking a foreign language you can read papers, magazines and original books by great writers, watch satellite TV Programs. If you like travelling you can go anywhere without being afraid that other people will not understand you. English is very important to find a good job.

**Questions:**

1. Do you like to speak English?
2. How many years did you study English?
3. Is it useful to learn foreign language?
4. Is English the official language in the U.S.A.?
5. Does English help you to make friends?

**TEXT: FOREIGN LANGUAGES IN OUR LIFE**

Learning a foreign language isn't an easy thing. Nowadays it's especially important to know foreign languages. Some people learn languages because they need them for their work, others travel abroad, for the third studying foreign languages is a hobby. Everyone, who knows foreign languages can speak to people from other countries, read foreign authors in the original, which makes your outlook wider. I study English. It's a Long and slow process that takes a lot of time and efforts. Over 300 million people speak it as a mother tongue. The native speakers of English live in Great Britain, the United States of America, Australia and New Zealand. English is one of the official languages of the United Nations Organization and other political organizations.

English language is a wonderful language. It's the language of the great literature. It's the language of William Shakespeare, Charles Dickens and others. Half of the world's scientific literature is in English. It's the language of computers technology. The great German poet Goethe once said, "He, who knows no foreign language, doesn't know his own one". That's why in order to understand oneself and environment one has to learn foreign languages. I think, that to know English today is absolutely necessary for every educated man, for every good specialist.

**Questions:**

1. Is it an easy thing to learn a foreign language?
2. Why do people learn foreign languages?
3. Do you know any foreign language?
4. Where do the native speakers of English live?
5. What can you say about English language?

**TEXT: ENGLISH AS A WORLD LANGUAGE**

Today English is the most widely taught, read, and spoken language that the world has ever known. It may seem strange that the native language of a relatively small nation could have developed and spread to this status. Its path was foreseen, however, by John Adams, in the late eighteenth century, who made the following insightful prophecy (cited by B. Kachru, 1994 a. p. 2)

“English will be the most respectable language in the world and the most universally read and spoken in the next century, if not before the close of this one.”

According to W. Scott Allan the spread of English is best explained in terms of three concentric circles: the Inner Circle, the Outer Circle and the Expanding Circle. The Inner Circle represents the traditional historic and sociolinguistic bases of English in the regions where it is used as a native or first formally colonized by Britain and the USA, in those regions English was the language of empire building. The Expanding Circle includes the areas, in which English is primarily a foreign language.



In the Inner Circle countries English is the first language or mother tongue of about 400 million people. Small countries like Ireland and South Africa may also be included here.

Approximately more than 3000 million people use English as a second language side by side with their mother tongue. They belong to the Outer Circle countries.

In the Expanding Circle countries English is used as a foreign language. It is this last group that is the most difficult to estimate but clearly the fastest growing section of world speakers of English. Beyond these crude figures, a measure of the extent of the spread of English can be found by its varying uses around the world. For some time now, there has been circulation a range of descriptions of and statistics on the use of English, which have now been described in the Cambridge Encyclopedia of Language:

“English is used as an official or semi-official language in over 60 countries. It is either dominant or well established in all 6 continents. It is the main language of education, books, newspapers, air transport and shipping, and air traffic control, international business or academic conferences, the leading language of science, technology, computers and commerce, medicine, diplomacy, sports, international competitions, pop music, advertising and international negotiations. Over two-thirds of the world’s scientists write in English. Three quarters of the world’s mail is written in

English. Of all the information in the world's electronic retrieval system, 80 per cent is stored in English. English radio programs are received by over 150 million in 120 countries. Over 50 million children study English as an additional language at primary level, over 80 million study it at secondary level (those figures exclude China). In any one year, the British council helps a quarter of a million foreign students to learn English, in various parts of the world. In the USA alone, 337000 foreign students were registered in 1983.

### **TEXT. ABOUT ENGLISH LANGUAGE**

Today English is the most widely spoken language in the world.

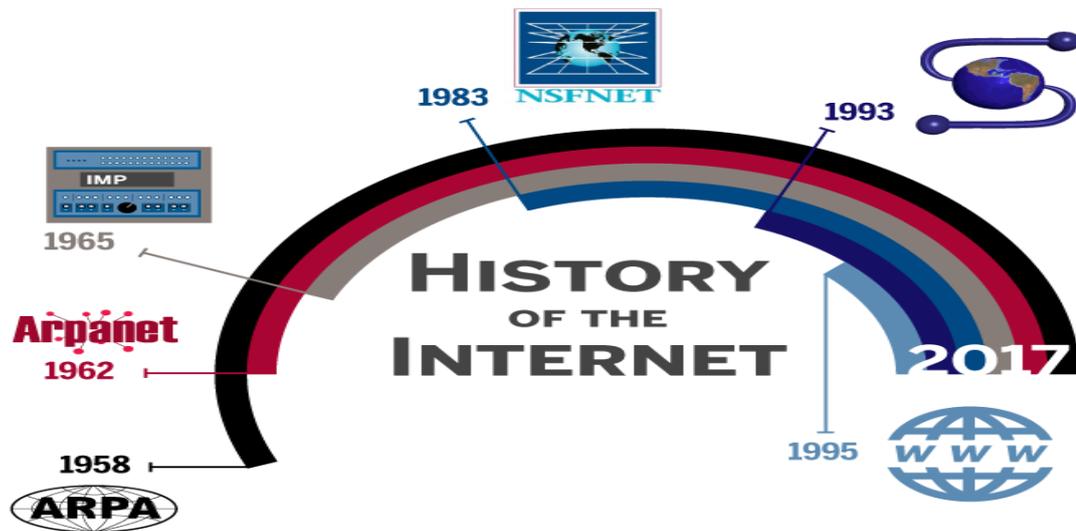
Approximately more than 3000 million people use English is the second language.

English is used as an official or semi-official language in over 60 countries. It is the main language of education books, newspapers, air transport and shipping, and air traffic control, international business or academic conferences the leading language of science, technology, computers and commerce, medicine, diplomacy, sports international competitions, pop music advertising and international negotiations. Over two-thirds of the world scientists write in English. 80 percent of all information in the world's computers is stored in English language. English radio programs are received by over 150 million people in 120 countries. Over 50 million children study English as an additional language of primary level. English has become the language of international importance.

### **TEXT. THE HISTORY OF THE INTERNET**

Almost everyone knows about the Internet. More than a billion people around the world are now **online**. The Internet is a powerful tool for information and communication. The basic concept of the Internet was first thought of in the early 1960s. It began as a military research network, designed to be **decentralized** or spread out over many locations. If one location was attacked, the military could communicate from another location. The first small network went online in 1969. It connected four universities in the United States. This network was very successful from the beginning.

Scientists could now share information about their research. In 1972, email was invented and quickly became the most popular **application**. By the end of that year, the network connected many universities and government research centers.



The general public became **aware of** the network in the late 70s. A new version allowed anyone to get online. People from all over the world joined online groups to talk about thousands of different subjects. The term Internet was used for the first time in 1982. New technology had created a common language for the network computers. The Internet was now recognized as an international network. This was also at the time when privacy and security started becoming important issues. Hackers and viruses began to emerge. In 1990, the original military network went offline, and a year later the World Wide Web was born. The World Wide Web is in fact a browser for the Internet---a kind of software program that allows users to access and **navigate** within information on the net. With the introduction of the World Wide Web, the development of the Internet accelerated at a rapid pace. The first computer code of the web was created in 1991 allowing programmers to combine words, pictures, and sounds on web pages. In the early nineties, the first **search engine**, Gopher, and the first web browser, Mosaic, were developed, allowing easier and simpler access to the Net. Traffic on the Internet started growing at an **annual** rate of **approximately** 340,000 percent.

At the end of the 1990s, Internet2 was born. Internet2 uses fiber optic cables to link together a **consortium** of hundreds of high-speed networks around the world. Instead of connecting to the Internet solely through telephone lines, people could now connect in a wide variety of ways, including via satellite. These new methods have more **data** carry in capacity, or bandwidth, than telephone lines. This made the Internet faster and able to convey much more information. People could soon watch TV shows and movies online. In the future, people will not need a computer to access the Internet. The browser will become a platform for the Web. Information will no longer need to be stored in a computer hard drive. Instead, it will be stored in places around the world. People can retrieve it through cell phones, music players, and other portable devices. This is called “cloud computing,” because it seems as if information floats down from the sky. A 2008 study said that the Internet will continue to grow. By 2020, a low-cost global network will allow people even in remote areas to have Internet access. English will remain the primary Net language, but other languages, especially Mandarin, will increase. Also, a segment of society will refuse to use the Net and live without modern technology.

## TEXT: NEW YEAR TREE IN EVERY HOME



It would be no exaggeration to say that the New Year is one of the most popular holidays which is celebrated in every family by both children and adults. The children are particularly happy about it. They look forward to meeting Santa Claus and Snow White which means presents and other surprises during the winter holidays. The last few hours of the year are filled an atmosphere of festive anticipation.

New Year`s eve is unthinkable without the green New Year`s tree colorfully decorated and shining with numerous lights. Decoration of the tree is a responsible task and usually performed by the entire family.

New Year is not only a family holiday. There are New Year carnivals and concert performances at cultural centers, theatres, circuses, educational establishments and right out in the streets. The biggest New Tree in Uzbekistan is put up Lenin square in the center of Tashkent. There is a lot of excitement and crowds in the streets of the towns and villages of Uzbekistan. People hurry to complete their affairs and do New Year shopping. Indeed, presents for the New Year call for some imagination. These winter evenings, when it is cold and snowy outside (even in our southern republic), we particularly cherish the warmth of human relations, the cosy the year and joy of the home fires.

As we see the old year out, we pay tribute to all the good things in 1985. There is a sign that if a person meets New Year in good mood he is happy throughout the year.

When it is midnight in Tashkent, the dawn of the first day of the new year breaks over the Soviet Far East. In Moscow New Year is thru hours later. And so the New Year passes through all the fifteen national republics of the USSR and its numerous time belts. It changes appearance and festive traditions, but everywhere it brings joy and optimism.

## TEXT: **SPORTS**

Sports help people to be strong and healthy. Our republic pays a great attention to physical culture and sports in our country. Hundreds of stadiums, gymnasiums, basketball courts, swimming pools have been built.



Physical training, sports and games are important part in education of our youth. The sports program includes boxing, wrestling, swimming, hunting, running, weight lifting, skating, skiing, cycling, shooting, etc. numerous sports clubs and societies have fostered dozens of sportsmen. They have achieved the world fame in our country. Our sportsmen set up many new world records in various sports. Our sportsmen won 4 golden, 2 silver, and 7 bronze medals during the XXI summer Olympic Games in the Rio de Janeiro of Brazil in August 2016.

The world's greatest international sports games are known as the Olympic Games.

The Olympic idea means friendship, fraternity and cooperation among the people of the world. Movement proves that real peace can be achieved through sport. The Olympic emblem is five interlinked rings: blue, yellow, black, green and red. Any national flag contains at least one of these colours. The original Olympic Games began in ancient Greece in 776 B.C. These games were part of a festival held every fourth year in honor of God Zeus at the place called Olympia. It was a great athletic festival, including competitions in wrestling, foot racing and chariot racing, rowing and others. The games were for men only. Greek women were forbidden not only to participate but also to watch the Olympics. The first modern Olympic Games were held in Athens in 1896. Then they were resumed in London after the Second World War. Since then the Olympics are held every fourth year in different countries.

**TEXT: THE STATE EMBLEM OF THE REPUBLIC OF  
UZBEKISTAN**



The new state emblem was created to reflect the many centuries of experience of the Uzbek people. The state emblem presents the image of the rising sun over a flourishing valley. The emblem is bordered by wheat on the right side and branches of cotton. An eight pointed star is located at the top of the emblem. The crescent and star inside the eight pointed star are the symbols of Islam. The mythical bird Semurg with outstretched wings is placed in the center of the emblem. The composition aims to express the desire of the Uzbek people for peace, happiness and prosperity. At the bottom of the emblem is inscribed the word “UZBEKISTAN”.

**TEXT: THE STATE FLAG OF THE REPUBLIC OF  
UZBEKISTAN**

The sky blue color symbolizes calm blue sky and clear water. White color is symbol of peace. The green color is symbol of nature. The red lines are the symbols of life Forces and vital ties, which connect Sky and Earth. New moon and 12 stars are the symbols of the cloudless sky.



The national flag was approved by the Extraordinary 8th Session of the Supreme Council of the Republic of Uzbekistan on November 18, 1991. The flag consists of blue, white and green stripes, separated by two narrow red stripes. A crescent and three rows of twelve stars are situated on the left side of the upper blue stripe. The blue color symbolizes the sky, the white stripe is the traditional symbol of peace and moral spiritual purity. The green stripe symbolizes nature.

### ***ANSWER THE QUESTIONS***

1. What color does the Flag consist of?
2. What does blue color symbolize?
3. What symbols are red lines?
4. What are the symbols of Moon and 12 stars?

### **TEXT: INDEPENDENCE DAY**

On the first of September of 1991 Uzbekistan proclaimed its sovereignty. It is a great national holiday now. Within the past years Uzbek people could witness old traditions and holidays: such as Navruz, Hait and others. On the 8<sup>th</sup> of December 1992 a new Constitution was adopted. The Constitution of Uzbekistan proclaimed equal rights and opportunities for all citizens of Uzbekistan. This September we celebrated the 25<sup>th</sup> anniversary of independence of Uzbekistan. Uzbekistan has its national Anthem, Flag, Emblem, and Constitution.



I. A. Karimov was the first president of Uzbekistan. Cities, towns and villages are decorated with national flags. Uzbekistan has international relations with many foreign countries.

### TEXT: GREAT BRITAIN



The United Kingdom consists of England, Wales, Scotland and Northern Ireland. It covers the British isles. Great Britain and Northern Ireland are the largest islands. London is the capital of UK. The mountains in Great Britain are not very high. There are any rivers in Great Britain, but they are not very long. The Severn is the longest river. The climate of Great Britain is mild. There is much rain. The UK is an industrial developed country. The Queen is the head of the country.

## TEXT: THE CONSTITUTION OF THE REPUBLIC OF UZBEKISTAN

The new constitution of the Republic of Uzbekistan was adopted on December 8, 1992. Article 1 of the constitution says that Uzbekistan is a sovereign democratic republic. All citizens of the republic of Uzbekistan, regardless of their nationality, constitute the people of Uzbekistan. All citizens living in the republic, men and women of all nations and nationalities, have equal rights. All citizens have right to rest. Article 39 guarantees pensions for people who are ill and unable to work. The state guarantees free secondary education students of technical schools, institutes and universities receive scholarships.

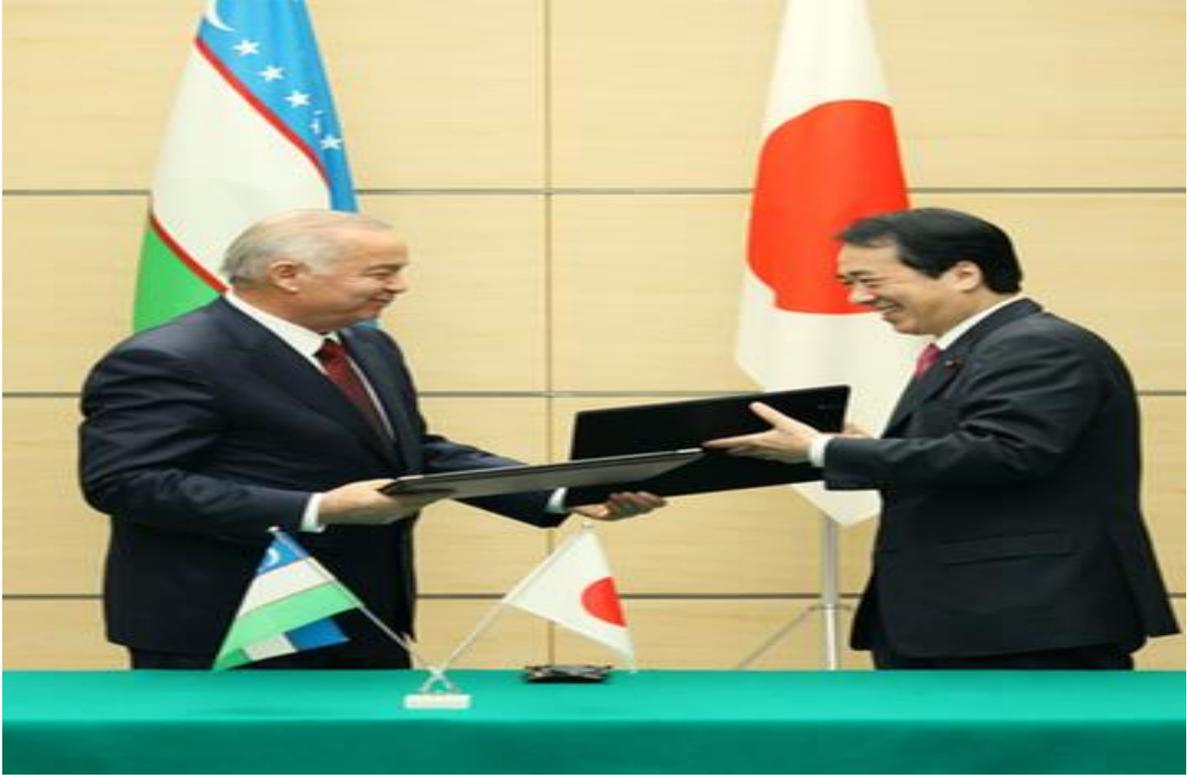
## TEXT: NAVRUZ



NAVRUZ is celebrated in Uzbekistan as a national holiday. Navruz is the merriest holiday as it comes in spring. Spring symbolizes happiness. Navruz is always celebrated on the 21<sup>st</sup> of March. Navruz is specific holiday for our rope-walker-simbozes and darbozes for the wise Khodja Nasreddin. Navruz is specific holiday for young daughters-in-law and respected mothers. Each hostess hurries to treat guests to tasty cookies bugirsoq, kuksomsa, kukchuchvara, katlama. Women cook khalim, (meat dish) skillfully. People celebrate Navruz, in every cities, towns and villages with music, dancing, songs and food. Streets and avenues are decorated with flowers,

national flags of Uzbek Republic. Main ceremonies are held in Navoi street, in National garden and in Independence square.

## **TEXT: UZBEKISTAN`S RELATIONS WITH OTHER COUNTRIES**



After becoming an independent state Uzbekistan was recognized by more than 170 countries. Diplomatic relations were established with more than 60 of them. The president of Uzbekistan visited many countries in order to strengthen all of relations. Different agreements with Turkey, China, India, Saudi Arabia, France and other countries have been signed. No state can live without foreign economic relations. Uzbekistan maintains foreign economic relations with many countries in the world. Uzbekistan participates in different sport competitions, festivals, exhibitions and so on. Many industrial enterprises are trying to sell independently their products at the world market. Import greatly exceeds export in foreign economic relations.

## TEXT: MY PROFESSION

I study at the Tashkent State Agrarian University. I am third year student of the “Management in agriculture” faculty. Our faculty trains the specialists in agriculture. Uzbekistan is an agrarian, industrial republic. It is independent state and must develop its agriculture. For this purpose we should train economists. I want to become economist. Our republic is famous for its cotton in the world. I am fond of and proud of my future profession, because it is one of the most creative profession. Knowledge of English language can give a person broad possibilities in becoming an important person in all branches of national economy, science, internal and external foreign corporations.

## TEXT: ECOLOGICAL PROBLEMS



Since ancient times Nature has served Man, being the source of his life. For thousands of years people lived in harmony with environment and it seemed to them that natural riches were unlimited. But with the development of civilization man's interference in nature began to increase. Large cities with thousands of smoky industrial enterprises appear all over the world today. The by-products of their activity pollute the air we breathe, the water we drink, the land we grow grain and vegetables on. Every year world industry pollutes the atmosphere with about 1000 million tons of dust and other harmful substances. Many cities suffer from smog. Vast forests are

cut and burn in fire. Their disappearance upsets the oxygen balance. As a result some rare species of animals, birds, fish and plants disappear forever, a number of rivers and lakes dry up.

The pollution of air and the world's ocean, destruction of the ozone layer is the result of man's careless interaction with nature, a sign of the ecological crises. The most horrible ecological disaster befell Ukraine and its people after the Chernobyl tragedy in April 1986. About 18 percent of the territory of Byelarus were also polluted with radioactive substances. A great damage has been done to the agriculture, forests and people's health. The consequences of this explosion at the atomic power-station are tragic for the Ukrainian, Byelarussian and other nations. Environmental protection is of a universal concern. That is why serious measures to create a system of ecological security should be taken. Some progress has been already made in this direction. As many as 159 countries — members of the UNO — have set up environmental protection agencies. Numerous conferences have been held by these agencies to discuss problems facing ecologically poor regions including the Aral Sea, the South Urals, Kuzbass, Donbass, Semipalatinsk and Chernobyl. An international environmental research centre has been set up on Lake Baikal. The international organisation Greenpeace is also doing much to preserve the environment.

But these are only the initial steps and they must be carried onward to protect nature, to save life on the planet not only for the sake of the present but also for the future generations.

### **Questions:**

1. How did people live for thousands of years?
2. What cities appear all over the world today?
3. What pollutes the air we breathe?
4. What is the result of the pollution the atmosphere?
5. Why is environmental protection of a universal concern?
6. What are the initial steps in this direction?

## TEXT: SHOPPING

Shopping has common elements wherever it takes place. A buyer looks for a seller who is offering something the buyer wants or needs at a price the buyer can afford to pay. Sellers often advertise their wares in newspapers, on the radio or TV, on posters etc. Sellers use a variety of tactics to induce buyers to purchase from them at a price which leaves some profit.



Shopping is a part of our daily life. And we have to deal with it whether we like it or not. There are people who hate going shopping. So they make a list of what they need and run through stores buying the needed things. Sometimes they even don't care about the price. And there are people who go from store to store looking for goods of better quality and lower price. Those don't worry about the time they spend shopping. But there is a very good service called Postal Market. It really helps you to save your time and get goods of high quality. You just have to look through a catalogue, choose the things you like, order them and wait a little to get them.

### **My Usual Shopping Round**

We go shopping every day. The other day my mother took me on a usual shopping round. We went to the grocer's and greengrocer's as we had run out of sugar and onions. At the greengrocer's there was a long queue. But we had nothing to do but

stand in the queue if we wanted to get to the counter and have some onions. The shop-girl weighed us half a kilo of onions, we thanked her and went out. Then we made our way to the grocer's where we bought a kilo of sugar and some sausage. We were about to go home as my mother suddenly remembered we had hardly any bread in the house. We dropped in at the baker's and bought a loaf of brown bread, some rolls and buns. On our way home the mother decided to call at a commercial shop. She was looking for a present to my father — as it was his birthday soon.

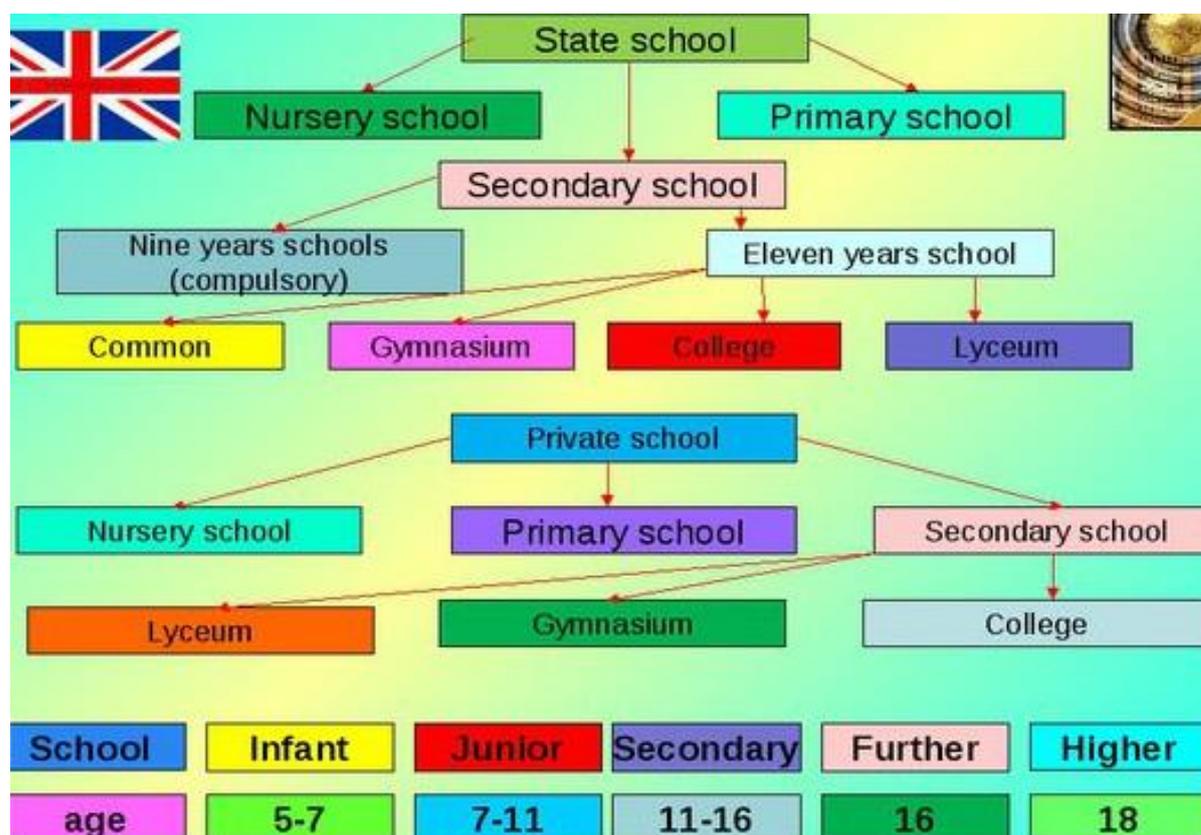
As soon as we entered the shop, we found ourselves in a fantastic motley city of silk skirts and shirts, woolen pullovers, frocks and leather boots and shoes. The smiling girl met us at the counter. My mother said she wanted to buy a size 50 shirt of a dark-blue colour. The girl suggested looking at a dark-blue cotton shirt with short sleeves. The shirt was the latest fashion and we were sure the father would like it. We paid the money at the cash-desk. The cashier gave us a receipt and with it we came up to the shop-assistant. She passed us a wrapped parcel with the shirt, thanked us and added they were always glad to see us at their shop and we happy and a bit excited went out of the shop.

**Questions:**

1. What is shopping?
2. How do sellers advertise their wares?
3. What do the sellers do to increase their profit?
4. Is there any service which helps to save time during shopping?
5. What kind of a service is it?

**TEXT: EDUCATION IN BRITAIN**

In England and Wales compulsory school begins at the age of five, but before that age children can go to a nursery school, also called play school. School is compulsory till the children are 16 years old. In Primary School and First School children learn to read and write and the basis of arithmetic.



In the higher classes of Primary School (or in Middle School) children learn geography, history, religion and, in some schools, a foreign language. Then children go to the Secondary School. When students are 16 years old they may take an exam in various subjects in order to have a qualification. These qualifications can be either G.C.S.E. (General Certificate of Secondary Education) or "O level" (Ordinary level). After that students can either leave school and start working or continue their studies in the same school as before. If they continue, when they are 18, they have to take further examinations which are necessary for getting into university or college. Some parents choose private schools for their children. They are very expensive but considered to provide a better education and good job opportunities. In England there are 47 universities, including the Open University which teaches via TV and radio, about 400 colleges and institutes of higher education. The oldest universities in England are Oxford and Cambridge. Generally, universities award two kinds of degrees: the Bachelor's degree and the Master's degree.

### Questions:

1. When does compulsory school begin?

2. How long does a child stay in compulsory school?
3. What subjects do children learn in Primary School?
4. What kind of exam do students have to take when they are 16?
5. Do students have to leave school at the age of 16 or to continue their studies?
6. How do private schools differ from the regular ones?
7. How many universities are there in England?
8. What is the Open University?
9. What kinds of degrees do universities award?

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## Нурматова Махфурат Халиловна



1955 йил 2-июнда, Тошкент вилояти Бўка шаҳарчасида хизматчи оиласида дунёга келди. Ўрта мактабни тугатиб Ф. Энгельс номидаги Тошкент давлат чет тиллар педагогика институтининг Инглиз тили факультетида таҳсил олди.

**Нурматова** Тошкент давлат аграр университети “Хорижий тиллар” кафедрасининг катта ўқитувчиси. У бир қанча илмий мақолалар муаллифидир. Нурматова томонидан яратилган “**Инглиз тили**” ўқув қўлланмаси Ўзбекистон Республикаси Олий ва ўрта махсус таълим вазирлиги олий ўқув юртлараро илмий-услубий бирлашмалар фаолиятини мувофиқ-лаштирувчи кенгаши томонидан ўқув қўлланма сифатида тавсия этилган ва у Давлат таълим стандартларига мос келади.

У Ўзбекистон инглиз тили ўқитувчилари ассоциацияси (**Uztea**) аъзоси.

**Нурматова** Тошкент вилояти хокимининг Фахрий ёрлиғи ва бир неча марта Республика фан олимпиадаси Ташкилий қўмитасининг ҳамда Тошкент Давлат аграр университети маъмуриятининг Фахрий ёрлиқлари билан мукофотланган.

## Саимназарова Дилноза Абдунеъматовна



1989 йил 5-январда, Тошкент вилояти Бекобод тумани зиёли оилада дунёга келди.

Ўрта мактабни тугатиб, Низомий номидаги Тошкент давлат педагогика университети “Чет тиллар” факультетида таҳсил олди.

2010-2012 йилларда шу университетнинг магистратура бўлимини тамомлади.

2012-2015 йилларда Бекобод шаҳридаги мактаб ва коллежларда ишлади.

2016-2017 ўқув йилида Тошкент давлат аграр университети, “Хорижий тиллар” кафедрасида фаолият олиб борди. У бир қанча илмий мақолалар муаллифи.

Ҳозирда Саимназарова Дилноза Тошкент давлат педагогика университети “Тиллар ва нутқ маданияти” кафедраси ўқитувчиси.