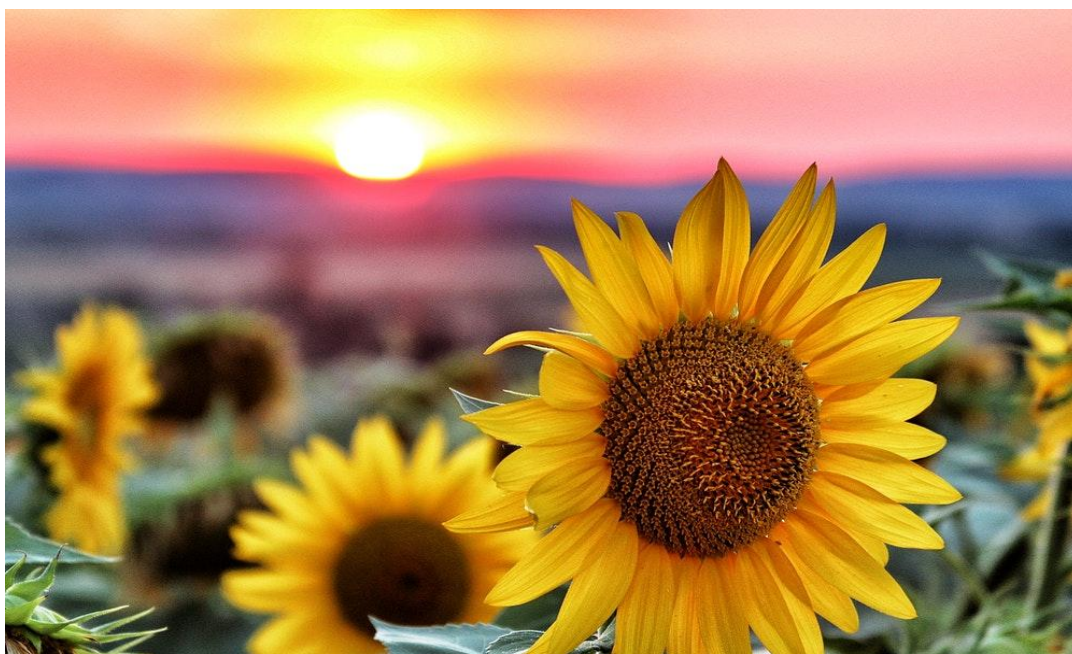


**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
ЧЕРНІГІВСЬКИЙ НАЦІОНАЛЬНИЙ ТЕХНОЛОГІЧНИЙ УНІВЕРСИТЕТ**

**English for Agriculture**

**Методичні вказівки з англійської мови за професійним  
спрямуванням для самостійної роботи студентів спеціальності 201 –  
Агрономія**



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на засіданні кафедри  
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**English for Agriculture.** Методичні вказівки з англійської мови за професійним спрямуванням для самостійної роботи студентів спеціальності 201 – Агронімія / Укл. : Н. М. Лашук, О.В. Ніколаєнко, Т.О. Ушата. Чернігів : ЧНТУ, 2019. – 72 с.

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Методичні вказівки з англійської мови за професійним спрямуванням призначено для самостійної роботи студентів спеціальності 201 «Агрономія». Видання охоплює збалансоване висвітлення тем, що корелюють з сільськогосподарською діяльністю, та сприяє розвитку іншомовної комунікативної компетентності. Укладені вказівки складаються з 8 розділів, кожен з яких включає текст для вивчаючого читання та післятекстових вправ, що дозволяють ознайомитися з професійною термінологією, поглибити знання з фаху. Тематика запропонованих текстів: землеробство, сільськогосподарські системи, розвиток землеробства, зміни, що відбуваються у сільському господарстві, різновиди сільськогосподарських систем, рослини майбутнього, проблема використання хімікатів і вирощування генетично модифікованих культур, органічне землеробство. У методичних вказівках виділено окремо розділ для розвитку умінь аудіювання засобами залучення ІКТ та перегляду/прослуховування подкастів, а також розділ, який включає тестові завдання, призначені для самостійної перевірки студентами опрацьованої професійної лексики.

Правильність виконання завдань та сформованість комунікативних умінь може оцінюватися викладачем на практичних заняттях, консультаціях або дистанційно із залученням університетської платформи Moodle.

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## Unit 1

### AGRICULTURAL LAND USE

*Humans are not above nature but a part of it. Nature is not for humans to subdue but is sacred and should be preserved not simply for economic use but for its own sake (John Muir, Aldo Leopold).*

**1.1. Scan the text and formulate the main ideas. Read the text again carefully and memorize it, then retell the text close to the original.**



**Agriculture** is an important economic activity. It includes growing crops and rearing animals. Agriculture produces a wide range of products for manufacturing industries as well as food. Unlike manufacturing and services, agriculture relies heavily on the **pollution** of the environment, especially climate, and the life cycles of plant and animals. Both are largely outside the control of farmers. Agriculture also uses a larger proportion of **the Earth's surface** (about 37 per cent of the land area) and provides more employment world wide than any other economic activity.

**Factors involved in land use.** The way in which people use their land and organize their agricultural activities varies greatly. Physical, economic and human factors all exert an influence upon agriculture, although the importance of each varies from place to place. These factors are also **interrelated**.

At the global scale the distribution of agriculture is most influenced by climate. Large parts of the planet are **unsuitable** for farming because they are either too cold

or too dry. All crops have minimum **requirements for heat**. Growth usually begins when the daily air temperature rises above 6°C. Moreover, temperatures have to be above this critical level for at least 120 days. As you go nearer to the poles, temperatures fall and the growing season shorten, until **cultivation** is impossible. This is the main reason why cultivation rarely extends **beyond latitude 60°** in the northern **hemisphere**. Crops also have minimum **moisture requirements**. The world's hot deserts, such as the Saharan, Arabian and Australian deserts, are too dry for cultivation unless water is available for **irrigation**. High mountains such as the Himalayas and Andes support few farming activities. As well as severe climates they also have **steep slopes** and **thin soils**.

In the more developed countries of the world, where scientific knowledge is applied to farming, economic and human factors tend to play a particularly important role. Physical problems can, **to some extent**, be overcome. In Holland, for example, a lot of the present farming land has in fact been reclaimed from beneath the sea. In Australia, water from the Snowy river has been diverted to irrigate land in the southeastern Australia, so making it possible to increase crop fields there. In Canada and the USA scientific **plant rearing** has made it possible to extend the cultivation of **wheat** into areas which were previously thought to have been too dry or too cold.

### Vocabulary

**pollution** – забруднення

**the Earth's surface** – поверхня Землі

**interrelated** – взаємопов'язані

**unsuitable** – непридатна

**requirements for heat** – температурна межа

**moisture requirements** – фактори вологості

**cultivation** – культивування

**beyond the latitude** – за широту

**hemisphere** – півкуля

**irrigation** – зрошення

**steep slopes** – стрімкі схили

**thin soils** – бідні ґрунти

**to some extent** – в деякій мірі

**plant rearing** – вирощування рослин

**wheat** – пшениця

## **1.2. Answer the question:**

1. What does agriculture produce?
2. What factors influence distribution of agriculture and agricultural activities?
3. Give examples how physical problems can be overcome.

## **1.3. Complete the sentences using one of these verbs in the correct form:**

can/replenish/renew, should/make, deplete, teach, develop, cause

Natural resources \_\_\_\_\_ at unsustainable rates. Damage to agriculture \_\_\_\_\_ by destructive practices of present agricultural systems. Agriculture \_\_\_\_\_ compatible with sustainable ecological and social systems. Soil \_\_\_\_\_ with careful husbandry. Some alternative methods \_\_\_\_\_ through scientific research. A personal experience \_\_\_\_\_ us about being responsible not only for making decisions but also for accepting the consequences of these decisions.

## **1.4. Do, does, did? Make yes/no questions for the following statements.**

We take soil for granted.

We had the dramatic gains in agricultural productivity over the past century.

Sustaining agricultural productivity depends on healthy soil, water, fertilizer, energy to run equipment, pest control, and stable ecological systems that maintain biological and genetic diversity.

They discussed the most essential problems.

Modern agriculture faces many problems.

Scientists suggested ways to overcome some problems in agriculture.

**1.5. Translate the following words and phrases into English:** вирощування рослин і розведення тварин, різноманітний ряд продуктів, залежати від забруднення середовища, надавати більше робочих місць, відрізнитися способом організації с/г, розподіл с/г на земній кулі, обробіток землі, наявний для зрошення, розвинені країни, зрошувати землю, збільшити території під посіви.

**1.6. Match the words expressions on the left with the definition on the right:**

- |                       |  |
|-----------------------|--|
| <b>A) agriculture</b> | 1) the planting, tending, improving, or harvesting of crops or plants  |
| <b>B) pollution</b>   | 2) the science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products |
| <b>C) crop</b>        | 3) a cultivated plant that is grown as food, esp. a grain,   |
| <b>D) irrigation</b>  | 4) the process of polluting water, air, or land, especially with poisonous chemicals.  |
| <b>E) cultivation</b> | 5) something demanded or imposed as an obligation  |
| <b>F) requirement</b> | 6) The use of water pumped from boreholes or diverted from rivers to assist agriculture  |

**1.7. Translate the following noun + noun combinations.**

Pest control, food production, land degradation, soil erosion, nutrient depletion, soil fertility, wind erosion, water erosion, crop production.

**1.8. Explain the meaning of the following words and phrases in English:**

agriculture, pollution of the environment, cultivation, irrigation, requirements for heat, moisture requirements.

**1.9. Write a clear well-structured description of vegetable farm or poultry farm from variety of information sources. Give detailed information about the farm's history, its annual yields, machinery fleet and human resources used on it, and about its profits.**



## Unit 2

### Agricultural systems



In the economically developed world, most all farming is commercial. Farmers produce crops and **livestock** products for sale to make a profit. In the economically developing world farmers and their

families grow crops mainly for their own consumption. What's left may be sold or traded for other products in local markets. We often call this type of **self-sufficient** farming - **subsistence agriculture**.

Farmers practice different kinds of subsistence farming, based upon their needs and locations. Farmers in the densely populated river alleys of India, the People's Republic of China, and Southeast Asia use **intensive subsistence farming**, planting as much food as possible on any lands that will support crops. **Shifting cultivation** is the traditional method of farming in the tropical rainforest. It is a form of subsistence agriculture, often combined with **hunting and gathering** practiced by small **tribal groups**. The rainforest has very poor soils – so poor that permanent cultivation is impossible. Shifting cultivators make **temporary clearings** in the forest. The **ash** from the burnt vegetation **fertilizes** the soil and allows cultivation for up to two years. Initially **yields** are good. However, **cropping** (farming without **rotating crops**) and heavy rainfall quickly remove plant **nutrients** from the soil, and it loses **fertility**. After two years, cultivation is no longer worthwhile; the **plots** are abandoned and fresh clearings are made in the forest. Shifting cultivation is a **sustainable type** of farming. This means that it does no long-term damage to the environment, if the intervals between cultivation are long enough to allow the forest trees to regenerate and the soil to recover its fertility.

**Commercial farming** differs in many ways from subsistence farming. Commercial farming can be either **mixed or specialized**. Between 5 and 10 percent of the commercial farmers practice mixed farming, raising several different crops and animals for income. Mixed farming has several important benefits. Growing different crops allows farmers to alternate (rotate) crops in the fields. This practice of crop rotation replaces nutrients that in-previous crops took from the soil. Economically, growing different crops makes farmers less vulnerable to falling prices for farming products.

Most commercial farmers practice **specialized farming**, raising a single cash crop or kind of animal for income. Specialized commercial farmers on plantations and very large farms raise most of the world's cotton, wheat, cattle, sheep, **dairy products**, poultry, rice, sugarcane, pineapples, bananas, tobacco, coffee and tea.

### Vocabulary

**livestock** – домашня худоба

**self-sufficient** – самодостатній

**subsistence agriculture** – натуральне господарство, що виробляє товари для власного споживання, а не для продажу

**intensive subsistence farming** - бідне, малопробуткове господарство

**shifting cultivation** – сівозміни

**temporary clearing** – тимчасова ділянка лісу, розчищена під оранку

**fertilize** --удобрити

**fertility** -- родючість

**yields** — урожай

**cropping** – урожай, жнива, посів

**nutrients** — поживні речовини

**plot** – ділянка землі

**commercial farming** – комерційне господарство

**mixed or specialized farming** – змішане або спеціалізоване господарство

**dairy products** – молочні продукти

**poultry** – домашня птиця

**crop rotation** – сівозміни

**hunting and gathering** – мисливство і збиральництво

**tribal groups** – племена

**ash** - попіл

### 2.1. Answer the following questions:

1. Can you think of examples when people continue to practice the hunting and

gathering way of life?

2. What factors determine what can and will be grown in a given place?

3. How do farming activities differ between industrialized non-industrialized countries?

4. What are the advantages and disadvantages of (a) shifting cultivation; (b) mixed farming?

5. What types of agriculture take place in Ukraine?

6.

## **2.2. Which form fits where?**

### **reduce, reduced, reduction**

The aim of the liquid manure recycling system is profitable electrical power generation plus the ... of residue volume.

Benefit from the ... investment costs and permanently more efficient process controls of Farmer Automatic.

The aim of any farmer is to ... production costs.

### **compare, comparable**

To this end manure is first dried and converted into a high-grade fuel with a ... calorific value to lignite.

The farmers have an opportunity to ... these two systems.

### **save, safety**

With Farmer Automatic Complete Liquid Manure Recycling System you don't just ... money, you make it!

The Farmer Automatic guarantees your process ... via controls and sensor monitoring of all important parameters.

### **adjusts, adjustable**

This system is ... .

The Farmer Automatic Power System automatically ... to the type of fuel, which is automatically brought into the system for gasification.

## **2.3. Use the correct verb form.**

In Great Britain farmers (apply) fertilizers in spring. Fertilizers (apply) early in spring. Sheep (breed) mainly for their meat. Farmers (breed) pedigree livestock: cattle, sheep, pigs, horses. Plums, strawberries, blackcurrants (grow) in many counties. Farmers (grow) barley, rye, oats and different varieties of wheat. Many chemicals (buy) to get rid of pests. They (buy) some milk, eggs, cheese and meat on Saturday. Hops (harvest) in early autumn. The farmer (harvest) rich yields of crops last year.

**2.4. Translate the following words and phrases into English:** худоба, отримати, прибуток, країни, що розвиваються, для власного споживання, натуральне с/г, густо населені річкові долини, інтенсивне с/г, мисливство, збиральництво.

**FOCUS ON WORD FORMATION**

**2.5. Complete the table:**

noun	adjective	verb
development	agricultural	hunt
irrigation		fertilize
requirement		cultivate

**6. Put each of the following words or phrases in its correct place in the passage below:** drought, famine, starve, starvation, cut off, helicopters, drop, flood

**Natural disasters: Famine and flood**

If a country has no rain for a long time, this dry period is called a \_\_\_\_ . In countries dependent on their agriculture, this can lead to a period of \_\_\_\_, when there is not enough food and people actually \_\_\_\_ (die of hunger). They die of \_\_\_\_ . When it

rains very heavily and the land is under water, this is called a \_\_\_\_ . Sometimes \_\_\_\_ have to \_\_\_\_\_ food supplies to people in areas which are \_\_\_\_\_ .

**2.7. Can you re-group the following words according to families of meaning?**

Vegetables, Livestock, Poultry, Grains

Rabbit, wheat, sheep, tomato, hen, cow, cucumber, cabbage, rye, chicken, pig, barley, millet, turkey, sorghum, carrot, oat, potato, goose, horse, onion, goat, garlic.

**2.8. Use the correct verb form.**

Productivity in agriculture constantly (grow). The United States (play) a major role in modernization of agriculture. Irrigation (benefit) to rapid seed germination, seedling survival, and optimal product quality and yield. The transplants (purchase) from southern areas or (grow) in greenhouses, cold frames, etc. Vegetables (grow) in rows to simplify the operations involved from seeding to harvest. The vast majority of vegetable crops (seed) directly in the field with various types of planters.

**2.9. Explain the meaning of the following words and phrases in English:** self-sufficient farming, subsistence agriculture, intensive subsistence farming, shifting cultivation, temporary clearing, sustainable type of farming, commercial farming, mixed or specialized farming.

### Unit 3

## DEVELOPMENT OF AGRICULTURE



**3.1. Read the text and decide which paragraphs are about these subjects:**

- the green revolution

- agribusiness
- crops for the future
- nomadic way of life

1.\_\_\_\_\_ In very early times people did not know how to grow crops nor did they have domestic animals. They lived entirely by hunting and gathering. This meant they gathered wild plants they found to be safe to eat, and also hunted wild animals including birds and fish for food. As the edible (good to eat) wild plantations of an area was quickly used up, and as the wild animal life was soon either killed off or frightened away, early people had to move around in order to get their food supply. Such a way of life is described as nomadic.

As time went by, people learned how to domesticate wild animals, and so became livestock breeders. They also learned to cultivate plants, and so became crop-growers. In only a few remote and difficult environments people continue to practice the hunting and gathering way of life.

2.\_\_\_\_\_ To produce food, people have long depended on the natural resources of their environments. But during the 1960's, scientists in Mexico and the USA developed new varieties of wheat, while scientists in Japan, Taiwan and Philippines developed new varieties of rice. These new varieties were better able to survive poor weather conditions. They also produced higher yields. Most important they grew more quickly making it possible for farmers to grow at least one extra crop during the growing season. This was the beginning of the green revolution. The new "miracle seeds" made it possible for the supply of food to grow at a faster rate than the number of people. For example, India, which until the 1960s had suffered frequent food shortages, became self-sufficient in cereals.

Despite its successes, the green revolution has not benefited everyone. The new seeds required a great deal of fertilizers to get the best results. Chemical fertilizers are expensive, and many farmers could not afford them. One more drawback (disadvantage) of the new varieties of rice is that they need irrigation. This is a problem because many of the poorest parts of the world, such as Ethiopia, depend on rain-fed agriculture. Finally, farmers must buy seeds every year as the

seeds from these cereals are infertile. Feeding more than 6 billion people on the earth is no easy task. In many parts of the world food still remain a problem. Some people believe that the world population eventually will outgrow the food supply. Others are more hopeful pointing to scientific research currently under way to find ways of growing more food.

3. \_\_\_\_\_ Another way to raise farm production is to expand the use of crops grown today and to cultivate new crops. Soybeans, for example, may become an important source of protein in the future.

Farmers also are experimenting with other new crops. Channel millet is a grain found in the Australian desert that needs only one watering to produce a crop. The high-protein winged bean, which grows wild in Southeast Asia, grows easily and improves soil fertility. The prickly pear, a nutritious cactus, grows in desert regions.

Aquaculture also is a kind of agriculture. Aquaculture consists of raising fish in ponds and coastal areas. Farmers raise catfish, trout, and salmon in artificial ponds and lakes. Oysters and shellfish develop in special beds built in shallow coastal water. Aquaculture already has succeeded in increasing the supply of fish. Farmers in the People's Republic of China, for example, have large numbers of fish from artificial ponds each year.

Many scientists also believe that world food supplies can be increased through genetic engineering. Using genetic engineering scientists transfer certain genes from one plant or animal to another. Scientists foresee a time in the near future when plants can be specially “designed” to be high in protein and other nutrients and to resist frost or repel damaging insects.

4. \_\_\_\_\_ In addition to local climatic and soil conditions, crops grown or animals reared are influenced by local market opportunities and government policies. Modern large-scale highly efficient farming, based on scientific and business principles, known as agribusiness. It is a part of an integrated food system which extends all the way from agricultural suppliers to food manufacturers and supermarkets. Usually several farms belong to a single family business, though each one is run separately. Being part of a large business enterprise can reduce the costs.

For instance buying fertilizer and pesticides in bulk (in large amounts) is cheaper; machinery can be shared between several farms. Crop yields are high because inputs of agrochemicals (fertilizers and pesticide and capital equipment) are high.

### Vocabulary

<b>edible</b> - їстівний	<b>salmon</b> - лосось
<b>nomadic</b> – кочовий	<b>oysters and shellfish</b> – устриці та молюски
<b>domesticate</b> - приручати	<b>foresee</b> - передбачити
<b>"miracle seeds"</b> – чудо-насіння	<b>genetic engineering</b> – генетична інженерія
<b>food shortage</b> – недостатня кількість продуктів харчування	<b>insects</b> - комахи
<b>cereals</b> – хлібні злаки	<b>market opportunities</b> – можливості ринку
<b>irrigation</b> - зрошення	<b>government policies</b> – політика уряду
<b>rain-fed agriculture</b> – с/г, що залежить від опадів	<b>agribusiness</b> - агробізнес
<b>soybeans</b> - соя	<b>pesticides</b> – пестициди
<b>channel millet</b> - просо	
<b>winged bean</b> – квасоля (боби)	
<b>prickly pear</b> - опунція (рід кактуса)	
<b>nutritious cactus</b> – поживний кактус	
<b>catfish</b> – сом	
<b>trout</b> - форель	

### 3.2. Answer the following questions.

1. In what ways can farmers increase the food supply?
2. What are some of the scientific innovations that have helped increase food supplies?
3. What is green revolution?
4. What are the main differences between plantation agriculture and peasant farming? Which is the better system?
5. What are the major features of agribusiness?



6.

**3.3. Match the words expressions on the left with the definition on the right:**

- |                       |  |
|-----------------------|--|
| A) Cereals            | 1) substance used for destroying insects or other organisms harmful to cultivated plants or to animals     |
| B) Irrigation         | 2)the various businesses collectively that process, distribute, and support farm products;                 |
| C) Pesticides         | 3) a grain used for food, for example wheat, maize, or rye;  |
| D) Aquaculture        | 4)the deliberate modification of the characteristics of an organism by manipulating its genetic material   |
| E)Genetic engineering | 5) the use of water pumped from boreholes or diverted from rivers to assist agriculture;                   |
| F) Agribusiness       | 6) the cultivation of freshwater and marine resources, both plant and animal, for human consumption or use |

**3.4. Translate the following words and phrases into English:** вирощувати зернові, домашні тварини, мисливство і збиральництво, кочовий спосіб життя, обробляти поля, добрива, вищі врожаї, приносити користь, джерело білка, пропозиція, відганяти шкідників, удобрювати ґрунт, вирощувати рибу у штучних ставках, зрошення, насіння, політика уряду, погодні умови, зменшити витрати, у великій кількості, виводити нові сорти пшениці.

**3.5. Complete the following text using the given words below: stems, wheats, cereals, legumes, roots, protein**

**The Clovers**

The cereals belong to the grass family of plants. The grasses have fibrous 1.\_\_\_\_\_, hollow, jointed 2.\_\_\_\_\_ and narrow, long leaves. The legumes of the field and garden have long tap-roots, their stems are not jointed nor hollow, and their leaves are oblong and trifoliate. Corn, oats and 3.\_\_\_\_\_ as well as most of the cereals, are comparatively rich in starches and fats, and hence are carbonaceous. They yield heat

energy. The clovers, alfalfa, soy beans and cowpeas are richer in 4.\_\_\_\_\_ in comparison to the cereals, and are therefore nitrogenous. They yield relatively less heat energy, but more physical energy. The 5.\_\_\_\_\_ as a feed keep animals warm; the 6.\_\_\_\_\_ give them physical strength. The cereals have the finest fattening qualities among feeds that come from the vegetable kingdom; while the legumes have the power of producing the greatest amount of growth of bone, muscle and tissue. The leading legumes of agricultural importance are red clover, white clover, sweet clover, alsike clover, crimson clover, alfalfa, soy beans and cowpeas.

**3.6. Explain the meaning of the following word combinations in English:** green revolution, genetic engineering, nomadic way of life, aquaculture, agribusiness, pesticides.

**3.7. Use: a) the correct verb:**

#### **Garden Tools**

A **hand trowel** (use) for planting, scooping soil, and remove weeds.

We (use) **shovels** to dig, mix and lift soil.

**Hoe** (be necessary) to break up crusted soil and to dig up weeds.

**Rakes** (use) for various purposes, such as working around shrubs, raking leaves, and cleaning up grass cuttings.

**Weeder** – I never (find) the perfect weeder. The palm of your hand and your fingers (be) still the best one available.

**b) use the correct preposition:** with, among, or

Use **shares** to prune plants, either the scissors type \_\_\_\_\_ anvil type (more durable).

After using tools, scrape off the dirt \_\_\_\_\_ a flat stick or a putty knife. Dirty tools can rust or spread diseases \_\_\_\_\_ your plants.

**3.8. Writing a composition:**

1. The green revolution.

2. Crops for the future.
3. Genetic engineering.

## Unit 4

### AGRICULTURAL CHANGE



Over the last thirty years agricultural change in the economically developing world has been closely related to **population growth**. There has been an **urgent need to increase** food production to feed the increasing population. Some countries have responded with **high-tech solutions**; others have preferred a **low-tech approach**. Whatever the approach, the pressure to produce more food has often caused serious **damage to the environment**.

In the economically developed world, recent agricultural change has most often been due to **government policies**. In the 1970s and 1980s the European Union (EU) policies **favoured** expanding food production. This caused huge economic problems through **overproduction** and it was also ruinous for the environment. As a result, policies in the 1990s have shifted. Now, the emphasis is put on **reducing food production** and **protecting the environment**.

The EU has **made great efforts** to reduce the output of farming. Indirectly this will also **benefit the environment**. In 1984 milk quotas were introduced **to limit production in dairy farming**, and since 1988 arable farmers have been paid to grow nothing! By taking 15 to 18 per cent of their **arable land** out of production for at least 5 years, they receive compensation of around £250 per hectare per year. By 1995, 13 per cent of all arable land in the UK lay unused and the EU's food mountains were drastically reduced.

Since 1992 the level of price support per tone for crops has been reduced.

Gradually price support is being replaced by fixed payments for each hectare cultivated. This should make it less attractive for farmers to get more from each hectare cultivated. The result - lower **inputs** of fertilizers and pesticides - should benefit the environment.

Various schemes, **providing grants** to farmers, have been **devised** to improve the countryside. In the UK, for example, local authorities pay farmers to plant new **hedges** and improve existing ones. A farm woodland scheme gives **annual payments** for planting trees on arable and **grassland**. In these areas farmers are paid to farm using traditional methods. They are not allowed to use chemical fertilizers; they can cut **hay** or **silage** only after certain dates each year. In return, farmers are paid up to \$600 per hectare per year.

In some areas farmers are paid compensation by the British government for farming with lower levels of nitrates. Again this reduces farming intensity. Grants are also available to help farmers convert farmland to other activities such as golf courses, camp sites, theme parks and so on.

Some farmers have turned to **organic farming**. It is farming without using any **artificial** fertilizers or pesticides. The result is that each hectare produces less and the products cost more for the consumer to buy. Although the products of organic farming are more expensive, many customers will pay more for them because they contain no harmful chemicals. Organically grown crops are also attractive because they are produced by a sustainable system, which does not **damage the environment**.

### Vocabulary

**Population growth** - ріст населення

**Urgent need** – нагальна потреба

**High-tech solutions** – високо технологічні рішення

**A low-tech approach** – низько технологічний підхід

**Favor** – сприяти, підтримувати

**reducing food production** – скорочення виробництва продуктів харчування

**Providing grants** - надання субсидій, дотацій

**Devised** – розроблений

**Hedge** – живопліт

<b>Hay</b> – сіно	<b>to limit production</b> – обмежувати виробництво
<b>Silage</b> – силос	<b>arable land</b> – орні землі
<b>Organic farming</b> – органічне с\г	<b>inputs</b> - вклад, внесок, затрати
<b>to increase</b> – підвищувати	<b>dairy farming</b> – молочна ферма
<b>overproduction</b> – перевиробництво	<b>annual payments</b> – щорічні виплати
<b>government policies</b> – політика уряду	<b>grassland</b> - пасовище
<b>make great efforts</b> – докладати зусилля	<b>damage the environment</b> – наносити шкоду навколишньому середовищу
<b>benefit</b> – приносити користь	<b>expand production</b> – розширювати виробництво

#### **4.1. Answer the following questions.**

1. What were the consequences of the overproduction of food?
2. What made the EU farmers reduce the output of farming? How did they do this?
3. Why is organic farming attractive for farmers, customers and governments?

#### **4.2. Translation. Render it in Ukrainian.**

1. Farmers use natural resources, such as soil and water, to produce a variety of foods and other agricultural resources.
2. Commercial farmers raise crops or livestock for income. Most commercial farms are specialized, growing a single cash crop. A smaller but growing number are mixed farms.
3. Several types of subsistence agriculture are practiced in the non-industrialized countries of the world.
4. Several scientific and farming techniques to increase the world's food supply are currently being explored.
5. Because of varying natural conditions, only about a third of the world's land area is suitable for agricultural production.
6. In developing nations, most people directly involved in farming practice a

subsistence form of agriculture, using mostly hand or animal labor, and often produce an inadequate food supply.

### **Vocabulary Review**

**4.3. Fill in the gaps. Choose the lexical units from the list below:** a. conflicts; b. fertilizer; c. green revolution; d. irrigation; e. "miracle seeds"; f. priorities; g. surplus; h. transportation.

1. India changed its \_\_\_\_\_ by deciding to develop farming before industry.
2. The new \_\_\_\_\_ made it possible for farmers to grow more crops per year.
3. A great deal of \_\_\_\_\_ is needed to get the best results from the new seeds.
4. Farmers need to grow a \_\_\_\_\_ of food in order to sell it at the market for money.
5. Dams were built to provide \_\_\_\_\_ for farms in dry years.

**4.4. Translate the following words and phrases into English:** ріст населення, підвищувати виробництво продуктів, само відтворююча система, не містити шкідливих речовин, завдавати шкоду навколишньому середовищу, перевиробництво, обмежити виробництво молочних продуктів, захист навколишнього середовища, орні землі, надання субсидій фермерам, місцева влада, щорічні платежі, використовувати хімічні добрива, нижчий рівень нітратів.

**4.5. Explain the meaning of the following word combinations in English:** organic farming, a sustainable system, providing grants.

**4.6. Look up the words below, and see which sentences they fit:** use, used, season, special, love, drought, bread

Barley is a crop that farmers \_\_\_\_\_ for its short growing \_\_\_\_\_. It is able to withstand \_\_\_\_\_, flood, and frost. Barley was \_\_\_\_\_ as a bread grain by ancient Greeks and Romans. Barley was used not only in \_\_\_\_\_ baking, but also as

an additive in sausage, stews, and soups. The principal \_\_\_\_\_ of barley for humans today are in the production of beer and whisky. Barley has always been looked upon as something \_\_\_\_\_, a food playing a magic role, giving strength and life.

#### 4.7. Writing a composition. Possible composition titles:

1. Methods of irrigation.
2. The green revolution.
3. Prepare arguments in favour and against organic food.

### Unit 5

## PLANTATION AGRICULTURE



**Plantation agriculture** is an **extensive system** of agriculture, in the sense that very large amounts of land are **involved**. Plantation agriculture is very widely practiced in many parts of the tropics. It is also found in some subtropical areas. It is not **indigenous** to the areas where it is now practiced, but was introduced by the Europeans during colonial times.

Plantations (sometimes called estates) are very big farms which usually grow one type of crop. This practice is known as monoculture. Crops are grown almost entirely for sale, and are often intended for export.

A lot of paid workers are employed. On very large plantations housing is often provided for the workers, and there are sometimes other facilities available such as schools and clinics. Because of their large size, plantations are able to make use of specialization of labor. Different groups of workers can be trained **to carry out** particular tasks, at which they become very **skilled**.

A great deal of capital is involved to buy land and machinery, build housing and roads, etc. Many plantations have their own factories for processing their crops, and even their own light railway systems for transporting the crops from the field to the factory.

Methods of cultivation are usually modern and efficient. Much use is made of artificial fertilizers, pesticides and **herbicides** (chemicals used to kill **weeds**). As a result, crop yields are often higher on plantations than on **peasant farms**. Modern factory methods also give a more uniform and better quality product, which is likely to fetch a higher price on the world market.

One of the main **weaknesses** of the plantation system lies in the fact that plantations rely upon a single crop. As a result, plantations are greatly affected by rises and falls in world market prices. The fact that on a plantation a single crop is grown over a very large area increases the risk of the spread of disease. Disease is not likely to spread as quickly on a peasant farm, because several different kinds of crops are grown.

### Vocabulary

<b>extensive system</b> – екстенсивна система	<b>housing is often provided</b> – житлом забезпечуються
<b>indigenous</b> – природній, властивий	<b>facilities available</b> – наявні зручності, обладнання
<b>herbicides</b> – гербіциди	<b>machinery</b> - машини
<b>peasant farms</b> - /peznt/ сільська ферма	<b>to process the crops</b> – обробляти с/г культури
<b>weaknesses</b> – недоліки	<b>methods of cultivation</b> - способи обробітку
<b>to carry out</b> – виконувати	<b>better quality product</b> – продукція кращої якості
<b>skilled</b> – умілий, досвідчений	<b>world market prices</b> – світові ринкові ціни
<b>weeds</b> - бур'ян	
<b>involve</b> – включати, залучати	
<b>for sale</b> – на продаж	



### 5.1. Answer the questions:

1. What do we call “plantation agriculture”?
2. Where is it widely practiced?
3. Plantations are very small farms which usually grow several types of crops, are not they?
4. What do the owners of the plantations provide for the workers?
5. What methods of cultivation are used there?
6. What are the strengths and weaknesses of plantation agriculture?

### 5.2. Fill in the missing words in the table

1	General noun	Verb	Personal noun
2	Agriculture		
3		cultivate	
4			producer
5	farming		
6		feed	
7	supply		
8		fertilize	

### 5.3. Match the words expressions on the left with the definition on the right:

- |                 |  |
|-----------------|--|
| A) plantation   |  |
| B) herbicide    | 1) a disadvantage or fault   |
| C) to carry out | 2) a large piece of land, especially in a tropical country, where crops such as rubber, coffee, tea, or sugar are grown. |
| D) weakness     | 3) an illness which affects people, animals, or plants, for example one which is caused by bacteria or infection         |
| E) crop         | 4) to perform or cause to be implemented   |
| F) disease      | 5) a chemical that is used to destroy plants, especially   |

weeds.

commercially, especially a cereal, fruit, or vegetable.

б) a cultivated plant that  
is grown on a large scale

**5.4. Translate the following words and phrases into English:** велике господарство з посадками сільськогосподарських культур, не властивий для певних територій, повністю на продаж, працівники забезпечуються житлом, розподіл праці, виконувати обов'язки, досвідчений, способи обробітку землі, штучні добрива, однорідна продукція кращої якості, недоліки одна культура, хвороба, падіння і зростання ціни на світових ринках.

**5.5. Explain the meaning of the following word combinations in English:** plantation agriculture, extensive system, methods of cultivation, specialization of labor, peasant farms.

**5.6. Use the correct verb form.**

Manager's first job (be) to establish goals for the business. In the case of a hired manager, the business owner (establish) and (communicate) them to the manager. Without goals there (be) no way to make management decisions nor (measure) their results. The decisions (concern) with allocating the limited resources of land, labor, and capital among alternative and competing uses. This allocation process (force) the manager to identify goals to guide and direct the decision making. This (include) the acquisition of the resources and materials necessary to put the plan into effect as well as overseeing the entire process. Agriculture management and soil degradation ... closely (relate). If people (manage) their soil in a sustainable manner, the problem of land degradation could be solved.

**5.7. Skim the text and make up a summary.**

#### **Diseases of Carrots in Relation to Diseases of Other Crops**

In order to rotate crops to advantage as a disease control measure, the interrelations of the major diseases of carrots and other crops must be understood. So

far as is known, bacterial blight of carrots does not affect any other crop plants. Gray mould (Botrytis), which causes a very destructive root rot of carrots, is important also on lettuce, beans, and peas. Sclerotinia, which is sometimes of importance as a root rot of carrots, is the cause of the worst disease of lettuce, and may cause severe damage to celery, cabbage and related crops, beans and peas. Bacterial soft rot affects not only carrots, but also potatoes and beets, and to a lesser extent, other vegetable crops. Botrytis, sclerotinia, and bacterial soft rot are soil-borne. All may be introduced into a field on rotting roots. Sclerotinia may be seed-borne in beans and possibly in other crops. Sclerotinia and Botrytis are spread also by air-borne spores which may be scattered far and wide by the wind from piles of susceptible, decaying vegetable refuse.

From the standpoint of disease control, small grains, grasses, corn, alfalfa, and sweet clover are the most desirable crops for rotation with carrots. Potatoes and sugar beets are satisfactory, while lettuce, peas, beans, and celery are the most objectionable.

Infected carrots are one of the chief sources of the serious aster yellow disease of the lettuce seed crops. The disease is not soil-borne but, because infection spreads to weeds along the head lands and ditch banks, crop rotation is of some importance in its control.

## Unit 6

### PLANTS FOR THE FUTURE



The world is entering the age of biotechnology, where scientists can **alter the genes** that carry the biological codes controlling **heredity** in living things.

Scientists at more than 200 companies and universities in the United States work **to develop plants with traits** such as larger size or **resistance to disease**. Scientists believe these new **ventures** will lead to the beginning of an era of **custom-designed agriculture**.

**Biotechnology at work.** In a matter of weeks scientists can grow the plants that take years to produce in nature. And by controlling the growth environment, they can cause the plants to grow in specific ways. Scientists are also experimenting with **protein-rich crops**, such as soybeans. **Grown on a large scale** these crops could dramatically improve the world's supply of protein.

Another research group has created several healthy snack foods. These biotechnologically developed snacks include extra sweet and crunchy carrots, varieties of both common and exotic fruits, and popcorn so flavorful that popcorn lovers will enjoy it without adding salt or butter.

**Increasing food supplies.** Other plant scientists work to make tropical plants grow faster so that they will grow during the shorter summer growing season of cooler regions. Similarly, scientists are trying to develop a corn that has the soybean's ability to produce fertilizer from the nitrogen in the air. The potential **annual savings** in fertilizer bills for corn could amount to millions of dollars.

While some plant scientists seek to increase the world's food supply through biotechnology, others look to the past for plants that may once again become important. One such plant - **amaranth** - was the principal **grain** of the Aztecs and Incas. After the Spanish conquered those civilizations, they **prohibited** the growing and eating of amaranth because it had been used in Indian ceremonies. However, amaranth survived in a few remote highland villages. Today several research centers in the United States work to develop its use again.

Amaranth is a particularly exciting food possibility for the future because it requires little water or fertilizer and will grow almost anywhere. Even more importantly, amaranth seeds are richer in protein than any other grain now cultivated. They look much like **sesame seeds**, have a pleasant **nutty taste**, and can be **popped** like corn or **steamed** and **flattened** into flakes.

Some plant scientists believe that a plant called the pepino will gain popularity. It, too, is an ancient South American plant. It grows tomatolike **foliage**, and the fruit tastes like a cross between a **strawberry** and a **melon**. The first North American fields of pepino were planted in California in 1985. The first people to taste pepino **predicted enormous success**. Now researchers are working to develop a pepino that grows in cooler climates and that will be easy to pick, pack, and store.

These plants offer hope for adding significantly to the world's food supply. Biogeographers and biotechnicians continue to have success. Within just a few years a wide variety of custom-designed products will be ready for use.

### Vocabulary

<b>heredity</b> – спадковість	<b>pepino</b> – пепіно, динна
<b>resistance to disease</b> – опір хворобі	груша
<b>ventures</b> – ризикований захід, нововведення	<b>alter the genes</b> – змінювати гени
<b>amaranth</b> – щириця, амарант	<b>to develop plants with traits</b> - вирощувати рослини з необхідними
<b>grain</b> – зерно	властивостями
<b>prohibit</b> – забороняти	<b>custom-designed agriculture</b> – с/г, що вирощує на замовлення, згідно з
<b>nutty taste</b> – горіховий смак	потребами споживача
<b>pop</b> – підсмажувати	<b>protein-rich crops</b> – культури, багаті на білок
<b>flatten</b> – розкачувати, розплющувати	<b>grown on a large scale</b> – у великих масштабах
<b>sesame seeds</b> - /sesemi/ насіння сезаму	<b>annual savings</b> – щорічні заощадження
<b>foliage</b> – листя	<b>predict enormous success</b> – передрікати великий успіх
<b>strawberry</b> – полуниця	
<b>melon</b> – диня	

**6.1. Write questions, relating to the text, and make the plan of the text.**

**6.2. Match the words expressions on the left with the definition on the right:**

- A) gene
- B) heredity
- C) resistance
- D) biotechnology
- E) improve
- F) snack
- G) nitrogen

- 1) the chemical element of atomic number 7, a colourless, odourless unreactive gas that forms about 78 per cent of the earth's atmosphere.
- 2) the exploitation of biological processes for industrial and other purposes, especially the genetic manipulation of micro-organisms for the production of antibiotics, hormones.
- 3) a simple meal that is quick to cook and to eat.
- 4) the passing on of physical or mental characteristics genetically from one generation to another
- 5) the part of a cell in a living thing which controls its physical characteristics, growth, and development.
- 6) to make or become better in quality
- 7) the ability not to be affected by something.

**6.3. Translate the following words and phrases into English:** змінювати гени, спадковість, виводити рослини з необхідними характеристиками, опір хворобам, с/г , що вирощує на замовлення, у великих масштабах, покращувати, легка закуска, додавати сіль чи масло, азот, щорічна економія на добривах, зерно, завойовувати цивілізації, віддалені гірські села, здобувати популярність, дослідники, полуниця, диня, збирати, пакувати,

зберігати.

#### **6.4. Use the correct verb form.**

Plants (classify) according to their total length of life. We shall (use) a combination of criteria – some genetic, some morphological, and some based on the plant part eaten. Terminology further (confuse) by the lack of clear distinction between fruits and vegetables. A vegetable (define) as the edible portion of herbaceous garden plants, usually grown as annuals. Barley and oats which (complete) their life history in one growing season, i. e. starting from the seed, in one year they (develop) roots, stem and leaves and then produce and seed before dying. Fruits generally (eat) as a dessert or snack.

#### **6.5. Answer the questions about given fruits and vegetables given below: banana, onion, lettuce, apple, carrot, pea, tomato, celery**

What fruits and vegetables are red in color? What of the chosen is hard and soft?

What fruits and vegetables are round? Which of them has strong odour when cut open? What is white and what is orange in color? What fruit or vegetable has no odor when cut open?

What fruits and vegetables are not round? What of them are green in color? What is yellow or orange in color? What is hard and what is soft? What is leaflike and what is stalklike?

#### **6.6. Use the correct verb.**

Farmers traditionally (use) a moldboard plow to till the soil, digging a deep trench and running the topsoil upside down. In the 1800s, it (show) that tilling a field fully – until it was “clean” – increased crop production. It (help) control weeds and pests, it brought fresh nutrients to the surface, providing a good seedbed; and it improved surface drainage and aerated the soil. A chisel plow (make) a trench in the soil in which seeds can be planted

## FOCUS ON WORD FORMATION

### 6.7. Complete the table:

noun	adjective	verb	adverb
application	acceptable  herbaceous hereditary	till  increase prepare	respectively

### 6.8. Discussion

1. What are genetically-modified foods?
2. What are some of the advantages of GM foods?
  - pest resistance
  - herbicide tolerance
  - disease resistance
  - cold tolerance
  - drought tolerance/salinity tolerance
  - nutrition
  - pharmaceuticals
  - phytoremediation
3. How prevalent are GM crops? What plants are involved?
4. What are some of the criticisms against GM foods?
  - environmental hazards
  - human health risks
  - economic concerns
5. How are GM foods regulated and what is the government's role in this process?



## 6. How are GM foods labeled?

### Unit 7

## CHEMICALS IN OUR FOOD - TWO SIDES OF AN ARGUMENT



Much of the food that leaves a farmer's field **undergoes** several processing steps before it reaches our tables. Grain is **ground** into **flour** or meal, often enriched with vitamins and minerals lost in processing, and then turned into cereal or bakery products. Meat is smoked, pickled, or otherwise treated to keep it from spoiling. Salt, **pepper, garlic,** other **herbs** and **spices,** and **flavorings** improve the taste of food. Dyes injected into fruit or added to other foods make taste of food. **Dyes** injected into fruit or added to other foods make them more eye-appealing. Vitamins, minerals, smoke, dyes, stabilizers, thickeners, salt, and other flavor **enhancers,** substances with chemical-sounding names - all these things are food additives.

In the past, most - if not all - food additives came from nature. Today, technology has made it possible for many natural additives to be replaced with manufactured ones - additives made by putting chemicals together.

Some people say we should **be** just as **concerned** with the effects these manufactured additives have on our bodies as we are with the effects of chemicals on the land, in the water, and in the air. These people fear we are polluting our bodies with too many chemicals. They think these chemicals may **cause diseases** such as **cancer.**

Food processors try to **justify** their use of manufactured **additives.** They point out that every living and non-living thing on earth is made up of chemicals or combinations of them. Even when eating "natural" foods, people are eating

chemicals. Processors argue that manufactured additives do all the things that natural additives do, but they do them with less cost to the consumer. They also point out that manufactured additives do some things that natural ones cannot do. For example, they enrich milk, flour, and other foods with vitamins and minerals lost in processing. Of they make foods tastier for people who cannot eat salt or sugar.

Food companies admit that large doses of some manufactured additives can cause diseases. At present, the use of some of them is **banned**. Words of **caution** on the packaging of some products are added.

### Vocabulary

undergo – перенести	enhancer – посилювач
ground – перемелений	to be concerned – хвилюватися
flour – мука	cancer – рак
pepper – перець	cause diseases – бути причиною захворювання
garlic – часник	to justify – виправдовувати
herbs – трава, рослини	additives – добавки
spices – спеції	ban – забороняти
flavorings – смакові добавки	caution – застереження
dyes – фарба, барвник	

#### 7.1. According to the text are the following statements true or false?

1. Nowadays all food additives come from nature.
2. Chemicals cannot make any harm to our bodies.
3. Every living and non-living thing is made up of chemicals or combinations of them.
4. Food additives are vitamins and minerals.
5. Food processors justify the use of manufactured additives.

**7.2. Translate the following words and phrases into English:** проходити декілька стадій обробітку, молоти, сіль, часник, перець, спеції, смакові добавки, барвники, привабливі, підсилювачі смаку, харчові добавки, замінити,

забруднювати організм, штучні добавки, виділяти, збагачувати, забороняти, застереження, викликати захворювання.

**7.3. Match the words expressions on the left with the definition on the right:**

A) additives

B) caution

C) ban

D) concern

E) process

1) a substance added to something in small quantities to improve or preserve it

2) warning

3) a series of actions that produce a change or development

4) make (someone) anxious or worried

5) officially or legally prohibit

**7.4. Use the correct verb form.**

Farmers often (overfertilize) because they are unaware of the specific nutrient content of their soils or the needs of their crops. Excess of fertilizer (percolate) through the soil to contaminate groundwater supplies. Nitrate levels in groundwater (rise) dangerous levels in many areas where intensive farming is practiced. Young children (be) especially sensitive to the presence of nitrates.

**7.5. Add the prefix inter- to change the meaning of each word. Write the new words you make and translate them.**

plant, action, play, change, crops, cropping

**7.6. Write each sentence to make a new one with a passive verb phrase.**

E. g. Farmers harvest the crop of sugar beet mechanically. The crop of sugar beet is harvested mechanically.

Ukrainian farmers grow barley, wheat, rye, oats, and sunflower. Farmers rear baby animals in a natural environment. You can't eat hops. They introduced new varieties of wheat. The students will do these exercises for extra practice. The British farmers grow barley either for malting or as a food for livestock. Farmers around the world use chemicals to get rid of the pests. Great Britain exports pedigree livestock: cattle, sheep, pigs, horses to other countries. Americans invented the first successful harvesting machine and steel plow. We shall water flowers tomorrow.

**7.7. Decide whether these words are nouns or verbs, or whether they can be both. Then sort out 3 categories:**

verb                      verbs and nouns                      nouns

Cover, sharp, help, control, use, plant, water, plow, lack, want, experience, face, respect, work.

**7.8. Read this passage to discuss advantages and disadvantages of chemical pesticides.**

Chemical pesticides offer a quick, convenient, and relatively inexpensive way to eliminate annoying or destructive organism. At the same time, however, misuse of these toxic chemicals is causing some serious environmental problems as unhealthy levels of noxious pesticide residues accumulate in our environment. Excessive pesticide use also kills beneficial organisms and results in growing chemical resistance among some of our most harmful pests.

Modern chemical pesticides have saved millions of human's lives by killing disease-causing insects and by increasing food supplies. Without modern chemical pesticides we would lose immense amounts of agricultural products. But we must understand what these pesticides are doing and use them judiciously.

**7.9. Writing composition. Possible composition titles:**

1. Soybeans and soybean products.
2. Healthy food.
3. Hybrid corn.

## Unit 8

### CHINA TRIES ORGANIC FARMING FOR A CHANGE



Almost any vegetable can be found in perfect form in China's open-air markets. In all this **abundance**, however, is an **invisible threat: haphazard** use of farm chemicals that leave **poisonous residues**. The Ministry of Agriculture is responding to rising concerns about food quality by promoting "green food", fresh and processed food certified as **contamination-free**. Living standards have gone up. Grain production has been basically solved and people are more concerned with the quality of their food. Many Chinese farmers and consumers have been sickened by fertilizers and pesticides in recent years. Chinese newspapers report cases like one in Guangzhou in 1996 when 112 people were hospitalized with **dizziness, vomiting** and stomach pains after eating fertilizer-tainted vegetables. China has farm chemical regulations that if followed precisely would leave only a **negligible, safe residue** on market vegetables. But authorities are unable to monitor and control chemical use on China's small family farms. When farmers find pesticides or fertilizers don't work, they tend to apply them more frequently or use something stronger. Rising use of chemical fertilizers also has caused environmental damage: hardened soil, polluted water and fish kills.

The Ministry of Agriculture's Green Food Development Center **encourages** farmers to supply safer food. It trains them to use traditional farming methods, such as compost for fertilizer, and biological controls, such as planting crops that **repel insects** next to crops the insects attack.

The center also puts its green and white **logo** on foods it certifies as having been grown with minimal amounts of non-toxic or low-toxic chemicals on land that is free of

industrial pollution. With only one-third the world's average farmland **per capita**, China must **rely on** agricultural chemicals to farm intensively.

But it can replace chemicals with other methods on a limited scale and meet a growing demand for safer food. The Chinese are concerned about residues of farm chemicals on their food, so the market is very good for the Liuminying organic farm, a national model farm outside Beijing. People buy vegetables raised in the farm's greenhouses at a new organic foods market in Beijing. Some of the products go to restaurants that are trying to become competitive by advertising pollution-free food. The market has started because there are many people who are afraid to buy the vegetables because of chemicals and night soil - human waste used as fertilizer. But food certified as **uncontaminated** still represents less than one per cent of all food grown in China. Agricultural officials **estimate** consumers will pay no more than five per cent extra for it. Chinese companies are also trying to build a reputation for clean vegetables and other foods. The Ministry of Agriculture's "Green Food" logo appears on hundreds of products, including Happy Longlife coffee, Lightning River milk powder and Clear Water **canned bamboo shoots**.

### Vocabulary

**abundance** – велика кількість

**invisible threat** – невидима загроза

**haphazard** – випадковий,  
безсистемний

**poisonous residues** – отруйний осад,  
залишок

**dizziness, vomiting** – запаморочення  
голови та нудота

**negligible** – незначна кількість

**encourage** – сприяти, стимулювати

**repel insects** – відганяти комах

**logo** – логотип, емблема

**per capita** – на душу населення

**rely on** – покладатися на

**estimate** – оцінювати, вважати

**canned bamboo shoots** –  
консервовані бамбукові  
пагінці

### 8.1. Answer the questions:

1. Why is it dangerous to buy fruit and vegetables in China?
2. Who is trying to promote 'green food', certified as contamination-free?
3. What about food are most people concerned with?

4. What damage did rising use of chemicals cause to environment and people as well?

5. In what way does the Ministry of Agriculture encourage farmers to supply safer food?

**8.2. Translate the following words and phrases into English:** відкриті ринки, багатство, невидима загроза, отруйні залишки, зростаюче занепокоєння, рівень життя, екологічно чистий, заохочувати фермерів, відганяти комах, теплиця, сухе молоко, підраховувати.

**8.3. Match the words expressions on the left with the definition on the right:**

- |                     |  |
|---------------------|--|
| <b>A) residue</b>   | 1) a small amount of something that remains after the main part has gone or been taken or used           |
| <b>B) logo</b>      | 2) drive or force (an attack or attacker) back or away   |
| <b>C) encourage</b> | 3) a symbol or other small design adopted by an organization to identify its products, uniform, vehicles |
| <b>D) poisonous</b> | 4) to do or continue to do something by giving support and advice  |
| <b>E) repel</b>     | 5) something that will kill you or make you ill if you swallow or absorb it.                             |

#### **8.4. Use the correct verb form.**

Ukraine (be) famous for its vast plains called steeps. The plains (cover) with fertile black soil, which has made Ukraine one of the world's leading farming regions. During the Soviet rule, farmers (allow) to have small plots and sell their products for a profit. After Ukraine (gain) its independence in 1991, it (start) to change its economy to one based on free enterprise. Ukraine (lead) the world in sugar beet production. Most farms in Ukraine (own) and (control) by the government under the Soviet rule. Independent Ukraine (cut) its military spending. Private plots (become) the most productive farming areas in Ukraine. In the late 1980's, the Ukrainian winter wheat harvest (can/finish) in roughly three weeks. Harvest now (take) twice as long to complete, and both yield and grain quality suffer as a result of the delays. Only 25 to 50 percent of total corn area (harvest) for grain; the rest (cut) for silage, usually in August.

#### **8.5. Use the correct preposition: on, by, over, in, of, from, to**

##### ***Changes in livestock farming of Great Britain***

Livestock production has seen dramatic changes \_\_\_ the post-war years. Dairy farming is a good example to illustrate the nature \_\_\_\_ these changes. Between 1960 and 1980 the milk yields of cows increased \_\_\_ about 50%. A high-yielding cow can produce 40 liters \_\_\_\_milk in 24 hours. Many factors have led to higher yields and great efficiency \_\_\_\_\_ dairy farms.

The intensive methods used to rear pigs and poultry are so different ...\_\_\_\_\_traditional farming practices. \_\_\_\_\_ both poultry and pig units, temperature, light and amounts of feed are automatically controlled.

**8.6. Find the missing words to fill the gaps in these sentences: crops, cows, harvest, labor force, picked up, pesticides, meadows.**



Less than 2% of the British \_\_\_\_\_ is employed on farms. In the autumn, at \_\_\_\_\_ time, the \_\_\_\_\_ in the fields have to be gathered in and the fruit in the orchards has to be \_\_\_\_\_. In the Alps, \_\_\_\_\_ are kept indoors in winter and spend the summer in the \_\_\_\_\_. Pollution is caused when waste products or \_\_\_\_\_ contaminate the environment.

**8.7. Make nouns ending “er” or “or” from these verbs: work, fertilize, visit, drive, clean, act, operate, manage, employ, speak, milk, garden, plant, harvest, farm, trade.**

**8.8. Translate the following noun + noun combinations.**

Land shares, livestock inventories, fertilizer use, grain production, key production zone, oilseed crop, soil depletion, crop rotation practices, sugar beet production, hand labor, grain quality, soil moisture, on-farm storage capacity, debt burden, living standard

**8.9. Decide whether these words are nouns or verbs.**

Inventor, scientist, modernize, contribute, modernization, improvement, contribution, concentrate, variety, development, organize, illustrate, manager, management, illustration, modify, activity, identify, difference, coordination, specialize, refinement, modification, characterize, specialization, identification, concentration, specialist, coordinate, owner, fertilization, operate, contractor, utilization, fertilization, utilize, transportation, legislation, fertilize, application, requirement, container, adoption.

**8.10. Writing composition. Possible composition titles:**

1. Current farm problems in Ukraine.
2. Agriculture of Canada.
3. Special features of agriculture in the USA.

**8.11 Photograph Analysis Worksheet**



**Image 1**



**Image 2**





**Image 3**



**Image 4**





**Image 5**



**Image 6**



**Image 7**

1. *Observation.* What do you see in this photograph? Study the photograph and discuss it in your group. Use the chart below to list people, objects, and activities that you can clearly observe in the photograph.

People	Objects	Activities

2. *Inference.* Make some reasonable guesses about this photograph.

When, would you guess, was the photograph taken?

Where was the photograph taken?

Why are these people here, doing what they are doing?

Why was the photograph taken, would you guess?

3. *Inquiry.* Write a question that is left unanswered by the photo.

4. After the teacher gives you more information about the photographs, you can answer these questions more precisely:

When was the photo taken, in fact?

Where was the photo taken?

Where was the photo taken?

5. You can also answer some questions about the creator of this image.

Who was the photographer?

For whom was the photographer working?

Do you think that the photographer had a message beyond simply documenting the moment?

If so, what might that message have been?

6. Write a question that is still left unanswered about this photo.

7. What would be a good title for this photo?

8. Write a question you would like to ask the people shown in this photo, if they were still alive today.

9. Write a question that you would like to ask the photographer if he or she were still alive today.



## PODCASTS

### PODCAST 1

#### [AN AFRICAN GRAIN JOINS THE GLUTEN-FREE MARKET FOR PEOPLE WITH CELIAC](#)



Teff is a common part of the diet in Ethiopia and other parts of Africa. This nutritious grain is very small. It has a mild, nutty taste.

People use teff flour to make bread and other foods. Now teff is finding new uses in foods for people with celiac disease.

People with celiac disease cannot process gluten. Gluten is a protein in wheat, rye and barley. Glutens can be found not just in foods but also medicines and other products.

The immune system is supposed to protect the body. But celiac causes the immune system to damage the small intestine. The disease can cause stomach pains, bloating and diarrhea. It can also cause weight loss and make people feel continually hungry. It interferes with the body's ability to absorb nutrients from food.

In the past, celiac disease was considered rare and limited mostly to people of European ancestry. The rate of reported cases was one in ten thousand people.

Today the estimate is about one in one hundred thirty-three Americans. But celiac researcher Alessio Fasano says until recent years not much was known about the disease.

ALESSIO FASANO: "Now, with large epidemiological studies done everywhere including here, we can say with a great level of confidence that the disease affects roughly the same percentage of the general public worldwide. That is roughly one percent. So it is not rare at all."

Doctor Fasano directs the Center for Celiac Research at the University of Maryland School of Medicine. He says the disease can be very mild. But more serious cases can interfere with a child's growth. Adults can suffer liver damage, joint pain and other problems.

The main way to control the disease is to avoid glutes. There is a growing market for products that are gluten-free.

Farmers in Nevada grow about half the teff produced in the United States. The crop is currently worth only about one million dollars to farmers in that state. But teff grower David Eckert is hopeful.

DAVID ECKERT: "The non-gluten market, I think is going to be a big market. I think it's just getting there and knowing the right people, getting into the larger companies that are going to really use the product."

Some people without celiac disease say they feel better when they avoid gluten. But many scientists question if this is really true.

Seven years ago, Anna Quigg was surprised to learn that she has celiac disease. She says gluten-free products are much easier to find these days. She buys teff and other whole grains.

ANNA QUIGG: "Who thinks they are allergic to bread, you know?"

## **VOCABULARY**

teff – теф (метличка абіссинська (*Eragrostis abyssinica*))

teff flour – мука

celiac disease – целиакія

gluten – клейковина

gluten-free – не містить клейковини

small intestine – тонка кишка

bloating – здуття

liver damage – пошкодження печінки

joint pain – біль у суглобах

## **I. LISTENING [An African Grain Joins the Gluten-Free Market for People With Celiac](#)**



**Task. I Complete the sentences:**

Celiac disease

- a) . causes the immune system to \_\_\_\_\_
- b) causes \_\_\_\_\_
- c) causes \_\_\_\_\_
- d) makes \_\_\_\_\_
- e) interferes with \_\_\_\_\_
- f) interferes with \_\_\_\_\_

**Task. II. Who says what? Match the following statements (a-f) with the person (1-3) who made them**

- 1. Alessio Fasano
  - 2. David Eckert
  - 3. Anna Quigg
- a) Adults can suffer liver damage, joint pain and other problems.
  - b) The disease affects roughly the same percentage of the general public worldwide.
  - c) Gluten-free products are much easier to find these days.
  - d) The non-gluten market is going to be a big market.
  - e) Who thinks they are allergic to bread, you know?
  - f) The disease can be very mild. But more serious cases can interfere with a child's growth.

**Task. III. Listen again and answer the questions:**

- 1. What does it mean “celiac disease”?
- 2. What crops contain gluten?
- 3. Gluten can be found just in foods, can't it?
- 4. How did the situation change with celiac disease? What was the rate of the reported cases in the past?
- 5. What is the rate nowadays?
- 6. How to control the disease?

7. What products are gluten-free?

## PODCAST 2

### PHONE CALL ABOUT FERTILIZER COULD BE A BIG HELP TO PHILIPPINE RICE FARMERS



Advice on how much fertilizer to use will soon be just a phone call away for rice farmers in the Philippines.

The Philippine Department of Agriculture and the International Rice Research Institute plan to launch a free service next month.

Farmers will call a number and a recorded voice will ask them simple questions in Tagalog or other languages including English.

RECORDED VOICE: "Welcome. This is the nutrient manager for rice. Answer a statement by pressing the

appropriate number on your phone."

For example, to get fertilizer guidelines for the wet season, they press one. For the dry season, they press two.

Farmers will be asked about the size of their field and how many bags of rice it produced last year.

What about natural sources of fertilizer? Does the farmer return rice straw to the field? Is the field near a lake or river that floods, or in a low area collecting soil and other material from nearby hills?

About ten minutes later the farmer will get a text message. The message will advise what kind of fertilizer to use and how much. The grower will also get suggestions about when to plant and harvest the rice.

Roland Buresh at the International Rice Research Institute helped developed the system. Mr. Buresh says fertilizer represents about one-fifth of the cost of inputs for rice production.

He says the service could help farmers in the Philippines increase their yields and their profits.

ROLAND BURESH: "If we in a year can be reaching just five thousand farmers and their fields can be increasing the yield by half a ton per hectare, we could be looking at profitabilities for those farmers in the range of half a million dollars."

Danielle Nierenberg at the Worldwatch Institute, an environmental research group, says the system could also help reduce pollution.

DANIELLE NIERENBERG: "In the Philippines and all over Asia, fertilizer has been overused and misused because no one explains to them how much they need or how to use it."

The technology could also be copied for crops in other places. Danielle Nierenberg has been traveling across sub-Saharan Africa. She says the cost of a cell phone there is low enough that most farmers have their own or borrow someone else's.

In Zambia, for example, farmers without bank accounts can use their phones to buy seeds and fertilizers. They can also get information on how much their crop is selling for in city markets.

DANIELLE NIERENBERG: "They can decide whether they want to travel all the way from their village to the city, because sometimes farmers get there and prices are too low."

## **I. LISTENING Phone Call About Fertilizer Could Be a Big Help to Philippine Rice Farmers**

### **I. Listen and choose the best variant**

1. The Philippine farmers will be able to get advice on

- a) how much fertilizer to use;
  - b) what kind of fertilizer to use;
  - c) how to use pesticides.
2. This phone service will be
- a) very expensive, only for rich farmers;
  - b) free of charge;
  - c) rather cheap.
3. Farmers will be asked about
- a) their family life and problems;
  - b) the size of their field and the weather during the season;
  - c) their education and earnings.
4. A few minutes later the farmer will get a text message which will advise
- a) how to use cell phones;
  - b) how to make fertilizer;
  - c) what kind of fertilizer to use and how much.
5. The service could help farmers in the Philippines
- a) increase the size of their field;
  - b) increase inputs of fertilizers;
  - c) increase their yields and their profits.
6. Fertilizer represents about
- a) one-sixth of the cost of inputs for rice production;
  - b) one-fifth of the cost of inputs for rice production;
  - c) one-fifteenth of the cost of inputs for rice production

**II. Complete the sentences with the words from the box. Then listen for the second time and check your answers.**

pollution	plant	straw	nutrient	fertilizer	launch	harvest	seeds	floods
-----------	-------	-------	----------	------------	--------	---------	-------	--------

1. The Philippine Department of Agriculture and the International Rice Research Institute plan to \_\_\_\_\_ a free service next month.
2. Welcome. This is the \_\_\_\_\_ manager for rice

3. Does the farmer return rice \_\_\_\_\_ to the field?
4. Is the field near a lake or river that \_\_\_\_\_, or in a low area collecting soil and other material from nearby hills?
5. The grower will also get suggestions about when to \_\_\_\_\_ and \_\_\_\_\_ the rice.
6. The system could also help reduce \_\_\_\_\_.
7. \_\_\_\_\_ has been overused and misused because no one explains to them how much they need or how to use it."
8. In Zambia, for example, farmers without bank accounts can use their phones to buy \_\_\_\_\_ and fertilizers.

### PODCAST 3

#### [MANY FARMERS AND GARDENERS TURN AWAY FROM TILLING](#)

Farmers and gardeners have turned the soil for centuries. But many now believe in no-till or reduced tillage, a method also called conservation tillage. The Conservation Technology Information Center says forty percent of American cropland used this method at last report.



Tilling can remove weeds and the waste from last season's crops and help break down old plant material into fertilizer. But it can also increase the risk of soil erosion by rain or wind.

Tilling also releases carbon dioxide from the soil into the atmosphere. No-till keeps carbon in the soil and avoids the release of heat-trapping gases from motorized equipment. It also keeps water in the soil and protects helpful organisms like earthworms. And it saves money on labor, machinery and fuel.

A recent study reported on almost twenty years of different tillage methods in the American states of Colorado, Kansas and Nebraska.

The researchers say tillage makes soil less resistant to being broken apart by raindrops than plowed soil. They say no-till stores more soil carbon, which helps the soil particles stick together. They found that the first two and a half centimeters of topsoil are up to seven times stronger against rain than plowed soil.

The study also noted that when tilled soil particles come in contact with air, soil organic matter is lost through the process of oxidation.

The findings appeared in the Soil Science Society of America Journal. Humberto Blanco-Canqui from Kansas State University and Maysoon Mikha from the Agricultural Research Service led the study.

Another recent study found that a single tillage does not harm yield or soil structure in land that is normally not tilled. Charles Wortmann at the University of Nebraska-Lincoln says a one-time tillage may be used to correct a problem like aggressive weeds. His five-year study appeared in the Agronomy Journal.

Fabian Fernandez, a soil and plant nutrition expert at the University of Illinois, says no-till means less intensive labor. But he also says it does not mean an end to preparing the ground for planting.

Jimmy Wagner works at the American Plant garden center in Bethesda, Maryland. He says hand tools like tilling forks, shovels and thatching rakes require more work than a rotary tiller, but they work well and cost less.

If you till, wait until the soil is warm and dry enough. If the soil stays together in a ball, it is too wet to till.

And that's the VOA Special English Agriculture Report, written by Jerilyn Watson. I'm Jim Tedder.

## **LISTENING [Many Farmers and Gardeners Turn Away From Tilling](#)**

### **I. Listen to the podcast and choose the correct answer:**

1. The Conservation Technology Information Center says
  - a) fifty percent of American cropland used conservation tillage at last report;

- b) forty percent of American cropland used conservation tillage at last report;
- c) five percent of American cropland used conservation tillage at last report.

**II. Listen for the second time and complete the sentences with the words below:**

fertilizer	carbon dioxide	water
resistant	carbon	increase
erosion	release	protects
stores	oxidation	weeds
waste	break down	

1. Tilling can remove \_\_\_\_\_ and the \_\_\_\_\_ from last season's crops and help \_\_\_\_\_ old plant material into \_\_\_\_\_.
2. Tilling can \_\_\_\_\_ the risk of soil \_\_\_\_\_ by rain or wind.
3. Tilling also releases \_\_\_\_\_ from the soil into the atmosphere.
4. Tillage makes soil less \_\_\_\_\_ to being broken apart by raindrops than plowed soil.
5. No-till keeps \_\_\_\_\_ in the soil and avoids the \_\_\_\_\_ of heat-trapping gases from motorized equipment.
6. It also keeps \_\_\_\_\_ in the soil and \_\_\_\_\_ helpful organisms like earthworms.
7. No-till \_\_\_\_\_ more soil carbon, which helps the soil particles stick together.
8. The researchers found that when tilled soil particles come in contact with air, soil organic matter is lost through the process of \_\_\_\_\_.

**III. Now listen and decide if the statements true or false:**

1. A one-time tillage may be used to correct a problem like aggressive weeds.
2. No-till means more intensive labor.
3. No-till means an end to preparing the ground for planting.
4. Hand tools like tilling forks, shovels and thatching rakes work well and cost less than a rotary tiller.
5. If the soil stays together in a ball, it is high time to till.

## PODCAST 4

### PRETTY FLOWERS LEAD TWO SCIENTISTS TO A DISCOVERY



Not all research begins with a plan. Some studies begin by accident. Meredith Schafer says that is what happened with her and Cynthia Sagers. Cynthia Sagers is a biology professor at the University of Arkansas. Meredith Schafer

is a graduate student.

They were traveling in the state of North Dakota on a project. They noticed pretty yellow flowers.

They recognized them as canola. Farmers grow canola for seeds to make cooking oil. Canola is also used for animal feed and biofuel.

But the canola plants they saw were not growing in farm fields. They were growing along the road.

The researchers decided to test the plants. They had brought along special testing papers for the project they were working on. They crushed some of the leaves in water and added the test strips.

The results showed that the weedy canola plants contained genetic changes. If a plant is genetically modified, that means its genes have been changed to produce desired qualities.

This summer, the researchers from Arkansas went back to North Dakota. This time they went on a road trip to find canola. They traveled more than five thousand kilometers.

They stopped about every eight kilometers to count plants and take samples to test in their vehicle.



What they found, they say, was the first discovery in the United States of wild canola plants with modified genes.

Meredith Schafer presented the findings at a recent meeting of the Ecological Society of America.

The scientists found canola plants in almost half of the places they investigated. They tested a total of two hundred eighty-eight plants. They found that eighty percent of those plants contained genes from genetically engineered canola.

Some crop plants are modified to resist damage from the chemicals that farmers spray to kill weeds. There are two proteins that can give canola the ability to resist two commonly used herbicides. One protein gives resistance against glyphosate. The other protein gives resistance against glufosinate.

Two of the plants growing in the wild showed resistance to both kinds of weed killers. Professor Sagers says canola varieties with these genetic qualities have not been released on the market. This suggests the result of wild populations reproducing on their own.

canola – канола (різновид рапсу, виведеного в Канаді)

animal feed – корм для тварин

biofuel – біопаливо

sample – зразок

investigate – досліджувати

glyphosate – гербіцид, що застосовується для знищення багаторічних бур'янів

glufosinate – гербіцид

varieties – види

## **I. LISTENING [Pretty Flowers Lead Two Scientists to a Discovery](#)**

### **I. Listen for the first time and choose the correct answer:**

- a) The researchers modified the genes of canola plants to help farmers.
- b) The researchers found canola plants with modified genes in farm fields.
- c) The researchers found wild canola with modified genes growing along the road.

### **II. Complete the sentences with the words from the box. Then listen for the**

## second time and check your answers.

samples	seeds	varieties	crop plants	herbicides
feed	kill weeds	investigated	proteins	

1. Farmers grow canola for \_\_\_\_\_ to make cooking oil.
2. Canola is also used for animal \_\_\_\_\_ and biofuel.
3. They stopped about every eight kilometers to count plants and take \_\_\_\_\_ to test in their vehicle.
4. The scientists found canola plants in almost half of the places they \_\_\_\_\_.
5. There are two \_\_\_\_\_ that can give canola the ability to resist two commonly used \_\_\_\_\_.
6. Some \_\_\_\_\_ are modified to resist damage from the chemicals that farmers spray to \_\_\_\_\_.
7. Professor Sagers says canola \_\_\_\_\_ with these genetic qualities have not been released on the market.

## PODCAST 5

### IDEAS FOR GETTING A FIRM GRIP ON WEED CONTROL

#### VOCABULARY

mulch – мульча (перегній, солома, що захищає ґрунт від промерзання та випаровування)

undesirable qualities – небажані ознаки (властивості)

eradicate – виривати з коренем, викорінювати; знищувати

gluten – клейковина

suppress – стримувати, припиняти

dense – густий; щільний

competitive crop – конкуруюча рослина

spread – поширення

vehicles- транспортні засоби

heat – тепло

graze on weeds – пастися, скубти траву

weed management – боротьба з бур'янами



When is a plant considered a weed? Experts at Penn State University have a simple answer: When the undesirable qualities outweigh the good qualities.

Consider that crops generally produce several hundred seeds from each plant. By comparison, each weed plant can produce tens or even hundreds of thousands of seeds. And some buried seeds can survive up to forty years -- or even longer.

Eradicating weeds means that you have to remove all the seeds and roots so the plants will not grow back. But birds or the wind can reintroduce them to the land.

A more common way to deal with weeds is to control them enough so that the land can be used for planting. Experts advise using two or more control methods to deal with weeds.

Chemical weed killers or natural treatments like corn gluten can suppress weed growth. Dense planting of a crop can also act as a natural control.

Bill Curran at Penn State in University Park, Pennsylvania, is a professor of weed science. He says one of the most common methods for suppressing weeds is dense planting.

He says a dense, competitive crop that quickly shades the soil will help suppress many weeds. The seeds need light to grow, so blocking the sun will reduce weed growth.

Other controls include turning over the soil, pulling the weeds or covering them with mulch made of wood, garden waste or other material.

But even mulch has its limits. Natural resource specialists point out that weeds can be transported in mulch. This is also true of soil, grain, hay and animals.

Yet animals like sheep or goats eat weeds, so they can provide a biological control. Insects and other organisms can also act as biological controls.

Preventing the spread of weeds is an important part of weed management. Farm vehicles should be kept out of areas with weeds. If that is not possible, then clean off the equipment and your shoes when leaving.

Some people burn weeds or bury them deeply or make them into mulch.

Professor Curran says another way to make use of weeds is to compost them. The process of making organically rich compost produces heat. The heat will kill many, though not all, weed seeds. The same is true of seeds that pass through animals that graze on weeds.

## **I. LISTENING Ideas for Getting a Firm Grip on Weed Control**

**Task1. Listen and find out which of the following methods have been mentioned by the speaker?**

1. **Tillage**

2. **Cultivation**

3. **Mowing and cutting** – removing top growth of weeds.

4. **Flame (ВОГОНЬ) weeding and thermal weeding**

5. **Mulching** - blocking weed emergence with organic materials, plastic films, or landscape fabric.

6. **Manually pulling weeds** – workers are used to pull weeds at various points in the growing process.

7. One technique employed by growers is the ‘**stale seed bed**’, which involves cultivating the soil, then leaving it for a week or so

8. **Irrigation** is sometimes used as a weed control measure such as in the case of **paddy fields** (рисове поле).

9. Use of organic **herbicides and bioherbicides**

10. **Grazing** - For example, geese have been used successfully to weed a range of organic crops including cotton, strawberries, tobacco, and

11. **Rotation** of annual crops

12. Weed-suppressive **cover crops**

13. **Dense planting**

14. To **increase soil organic matter content**, which can support microorganisms that destroy common weed seeds.

**Task 2. If it's necessary look at the tapescript of Ideas for Getting a Firm Grip on Weed Control. Answer the questions and underline any useful expressions for this topic.**

1. When is a plant considered a weed?
2. What control methods can be used to deal with weeds?
3. What does it mean "a biological control"?
4. How can the farmers prevent the spread of weed seeds?
5. In what way is it possible to make use of weeds?

## TESTS

## PLANTS

**I. Put each of the following words and phrases in its correct place in the passage below.**

bacteria	breeds	cheese	forests
fungi	grasses	plant kingdom	plants
rocks	scientists	seed-bearing	shrubs
species	stems	varieties	world

### **Kinds of Plants**

1. \_\_\_\_\_ know that there are more than 335,000 different 2. \_\_\_\_\_ of plants. Actually, if we travelled all over the 3 \_\_\_\_\_ we could see more different kinds of

plants than these, but some of these are merely 4.\_\_\_\_\_, as much as dogs are merely different 5.\_\_\_\_\_of one basic kind of animal.

The simplest plants found in the 6.\_\_\_\_\_ are one-celled 7.\_\_\_\_\_and algae, and 8. \_\_\_\_\_. that are like the moulds often seen growing on bread and 9.\_\_\_\_\_.

The next group of relatively simple 10.\_\_\_\_\_includes the mosses and lichens that are found in11.\_\_\_\_\_, on bare 12.\_\_\_\_\_, on rooftops, and elsewhere. Some of these plants have 13\_\_\_\_\_ and leaves, but no roots. After that, the next group includes ferns and bracken. Finally, there is the group of 14.\_\_\_\_\_ plants. Such plants include our common 15. \_\_\_\_\_and vegetables, and most trees, 16.\_\_\_\_\_ and flowers.

## II. PLANTS. Choose the right answer.

1. The little boy climbed up the tree and sat on a \_\_\_\_\_.

- a) branch    b) root    c) twig    d) trunk

2. I think the birds must have eaten all the seeds I \_\_\_\_\_ last month!

- a) sawed    b) sewed    c) showed    d) sowed

3. They spent the afternoon \_\_\_\_\_ blackberries in the wood.

- a) cutting    b) gaining    c) picking    d) taking

4. It was spring, and the flowers were \_\_\_\_\_.

- a) coming out    b) going out    c) growing up    d) raising

5. It is difficult to grow good vegetables in the poor \_\_\_\_\_ in this area.

- a) crust    b) dirt    c) soil    d) strand

6. You will have to \_\_\_\_\_ those apple trees if you want a good crop of apples next summer.

- a) cut    b) fell    c) prune    d) wash

7. If \_\_\_\_\_in March, they should give a host of splendid blooms a few months later.

- a) dug    b) earthed    c) installed    d) planted

8. You will need a strong \_\_\_\_\_ if you are going to dig that hard ground.

a) hoe   b) ladle   c) rake   d) spade

9. You should plant \_\_\_\_\_ in the autumn if you want the flowers to appear in the spring.

a) bulbs   b) roots   c) stalks   d) twigs

10. There is a \_\_\_\_\_ of plant which is found only in this particular area.

a) breed   b) class   c) specimen   d) species

11. Sugar is more expensive now because there was a very poor sugar-beet \_\_\_\_\_ last year.

a) collection   b) crop   c) gathering   d) production

12. The flowers in this vase have \_\_\_\_\_.

a) dimmed   b) dulled   c) faded   d) shaded

13. I want some roses with nice long \_\_\_\_\_, please.

a) branches   b) feet   c) stems   d) trunks

14. Why don't you \_\_\_\_\_ some flower seeds in that patch of ground by the garden gate?

a) bed   b) dig   c) set   d) sow

15. He stood up and leant against the \_\_\_\_\_ of the tree.

a) body   b) figure   c) root   d) trunk

16. You shouldn't hack the \_\_\_\_\_ off trees. They might die.

a) bark   b) crust   c) peel   d) rind

17. \_\_\_\_\_ grows only in a hot climate.

a) Cotton   b) Linen   c) Silk   d) Wool

18. There are a lot of red \_\_\_\_\_ on that holly bush.

a) acorns   b) berries   c) currants   d) nuts

19. The corn was not ready for cutting as the ears were still \_\_\_\_\_.

a) undeveloped   b) unprepared   c) unripe   d) unsteady

20. Some trees \_\_\_\_\_ their leaves in winter.

a) fell    b) leave    c) shed    d) throw

**III. PLANTS. Put each of the following words into its correct place in the passage below.**

agriculture                      bright                      darkness                      enormous  
environment                      horticulture                      hot                      imaginable  
naked                      pine                      science                      seaweed  
small                      snow                      yeast

### **The Appearance of Plants**

Plants can be almost any colour 1.\_\_\_\_\_.They may be 2.\_\_\_\_\_, or so small that you cannot see them with the 3.\_\_\_\_\_ eye. A giant 4.\_\_\_\_\_is just as much a plant as a 5.\_\_\_\_\_tree, 6.\_\_\_\_\_plant, or a bacterium which is too 7.\_\_\_\_\_ to see.

Some plants flourish in 8.\_\_\_\_\_ climates, while others live equally successfully on 9.\_\_\_\_\_ and ice. Some carry out their life processes in total 10\_\_\_\_\_, while others are at their best in 11.\_\_\_\_\_ sunlight.

A whole 12\_\_\_\_\_known as ecology has grown up to help us understand the relationship between the 13.\_\_\_\_\_ and living things there. 14.\_\_\_\_\_, forestry, and 15.\_\_\_\_\_are the sciences of learning how to make living things do what we want them to do in a given place.

**TREES. Give the Ukrainian name of the following trees**



1. ash \_\_\_\_\_
2. aspen \_\_\_\_\_
3. birch \_\_\_\_\_
4. chestnut \_\_\_\_\_
5. elm \_\_\_\_\_
6. fir \_\_\_\_\_
7. hazel \_\_\_\_\_
8. larch \_\_\_\_\_
9. linden \_\_\_\_\_
10. maple \_\_\_\_\_
11. oak \_\_\_\_\_
12. pine \_\_\_\_\_
13. poplar \_\_\_\_\_
14. walnut \_\_\_\_\_
15. willow \_\_\_\_\_

**TREES.** Which of the above trees are deciduous, which coniferous, and which evergreens?

**PLANTS.** Put each of the following words and phrases into its correct place in the passage below.

**air                    branching head                    climb                    erect                    ground**  
**liquids                    reproduction                    shrubs                    soft                    spread**  
**storage                    tall                    tissue                    trunk                    woody plants**

### Stems

Stems are parts of plants that may be organs of food 1. \_\_\_\_\_ or of 2. \_\_\_\_\_. They may be useful in moving 3. \_\_\_\_\_ from one part of the plant to another, or they may merely hold certain parts high in the 4. \_\_\_\_\_.

The 5. \_\_\_\_\_ of stems may be 6. \_\_\_\_\_ and weak or hard and woody. The

different groups of 7.\_\_\_\_\_are vines, trees, and shrubs.

Vines are rarely 8.\_\_\_\_\_They 9.\_\_\_\_\_wind, or 10. \_\_\_\_\_over some support. Trees have a single trunk, with a 11.\_\_\_\_\_and are, when mature, normally over three metres 12\_\_\_\_\_. 13.\_\_\_\_\_, on the other hand, do not have a 14.\_\_\_\_\_.They usually branch close to the 15.\_\_\_\_\_ and are not very tall.

- |    |                      |    |                              |
|----|----------------------|----|------------------------------|
| 1. | First,               | a. | flowers appear.              |
| 2. | Next,                | b. | the fruit forms.             |
| 3. | Soon,                | c. | germination begins.          |
| 4. | At this stage,       | d. | leaves also start to sprout. |
| 5. | Subsequently,        | e. | the plant decomposes.        |
| 6. | Meanwhile,           | f. | the plant dies.              |
| 7. | Later,               | g. | pollination takes place.     |
| 8. | Then,                | h. | roots begin to develop.      |
| 9. | During this process, | i. | the seed begins to swell.    |
| 10 | Afterwards,          | j  | the seed is sown.            |
| 11 | Eventually,          | k. | the seed needs water.        |
| 12 | Finally,             | l  | the stigma receives pollen.  |

**STAGES IN THE LIFE-CYCLE OF A PLANT. Put the following stages of the life-cycle of a plant in the correct order.**

**PLANTS. Choose the right answer.**

1. One of the effects of acid rain is that it causes plants to \_\_\_\_\_.

- a) contract   b) shrink   c) thrive   d) wither

2. Owing to the warm weather, there has been \_\_\_\_\_of strawberries this year.

- a) an affluence   b) a glut   c) an overflow   d) a redundancy

3. Our grandpa's sitting over there in the shade in the middle of that \_\_\_\_\_of trees.

- a) bundle   b) clump   c) scrub   d) stack

4. We thought the plants had all died from lack of rain, and were delighted to see new \_\_\_\_\_ appearing.

- a) points    b) shapes    c) shoots    d) tops

5. Oak and beech are \_\_\_\_\_

- a) bushes            b) coniferous trees            c) deciduous trees            d) shrubs

6. Those \_\_\_\_\_ could be delicious fried in butter for dinner.

- a) ferns            b) fungi            c) mosses            d) mushrooms

7. A green carpet of \_\_\_\_\_ covered the decaying tree trunk.

- a) herb    b) moss    c) shrub    d) turf

8. When the wind blows, you can hear the leaves \_\_\_\_\_

- a) cracking            b) creaking            c) rattling            d) rustling

9. The indiscriminate use of pesticides has \_\_\_\_\_ many rare species.

- a) cancelled            b) devastated            c) extincted            d) wiped out

10. Waste paper can be \_\_\_\_\_ instead of being burnt.

- a) decomposed            b) incinerated            c) recycled            d) revamped

11. Don't eat those berries in case they are \_\_\_\_\_

- a) contagious            b) infectious            c) poisonous            d) venomous

12. Several of the trees in the park were \_\_\_\_\_.

- a) diseased            b) ill            c) sick            d) unhealthy

**HERBS. Put each of the following words and phrases into its correct place in the passage below**

biennials	life-cycle	seasons
blades	mature	seed
classified	medicines	value
flavor	perennial	year
fleshy	scent	

## Herbs

Herb is a low-growing plant that has a \_\_\_\_\_ or juicy stem when it is young. The \_\_\_\_\_ word \_\_\_\_\_ herb comes from Latin word herba, meaning "grass" or "\_\_\_\_\_". Some herbs are used in cooking. Although they have little food \_\_\_\_\_ they make food tasty and full of \_\_\_\_\_. Other herbs give \_\_\_\_\_ to perfumes. Others still are used for \_\_\_\_\_.

Herbs are frequently \_\_\_\_\_ as annuals, \_\_\_\_\_, and perennials. An annual goes through its \_\_\_\_\_ from seed to \_\_\_\_\_ in a year. A biennial requires two \_\_\_\_\_ to complete the cycle. A \_\_\_\_\_ may live many seasons, producing seeds \_\_\_\_\_ after year once the plant has become \_\_\_\_\_.

**PLANTS.** Choose the word that best keeps the meaning of the original sentence if it is substituted for the capitalized word or phrase.

1. The walnut is a deciduous tree that **BEARS** valuable nuts.

- a) enriches
- b) hides
- c) replaces
- d) yields

2. The orchid is an **EXOTIC** plant to see blooming in many European gardens

- a) a beautiful
- b) a colourful
- c) a common
- d) an unusual

3. The rose may grow as a low bush or as a tree, depending on how it is

**PRUNED.**

- a) nourished
- b) planted
- c) trimmed
- d) watered

4. The flowers will **WITHER** in a few hours.

- a) bloom
- b) dry up
- c) open
- d) revive

5. The needle-like leaves of the giant redwood tree are **MINISCULE**, each scarcely a quarter of an inch long.

- a) pretty
- b) thorny
- c) tiny
- d) wiry

6. Leeks are **CULTIVATED** throughout much of the world.

- a) cooked
- b) dried
- c) grown
- d) seen

7. The principal areas inhabited by marine algae are rocky **SHORES**, salt marshes, and shallow water.

- a) cliffs
- b) coasts
- c) pools
- d) rivers

8. Soot **STICKS TO** anything it touches.

- a) blackens
- b) clings to
- c) points to
- d) streaks

9. The flower is the **MOST ATTRACTIVE**, most colourful and most fragrant part of many plants.

- a) prettiest

- b) rarest
- c) softest
- d) strongest

10. Roses are POPULAR flowers in Polish gardens.

- a) accustomed
- b) favourite
- c) ordinary
- d) vulgar

**ENVIRONMENT PROTECTION. Complete the sentences with the correct words from the box**

biodiversity	conservation	erosion	exhaust
fertilizer	genetically modified (GM)	pesticide	acid
ozone layer	pollution	recycling	species
crops	environment	organic	pesticides
wildlife			

1. It's amazing how much \_\_\_\_\_ you can find in a city garden: foxes, hedgehogs, frogs and lots of birds and insects
2. We need stricter laws to protect the \_\_\_\_\_ from the smoke and gases released by cars and factories.
3. This apple juice is \_\_\_\_\_ That means the fruit trees weren't sprayed with chemicals.
4. Most farmers spray their \_\_\_\_\_ with \_\_\_\_\_ to stop insects eating them.
5. By \_\_\_\_\_ glass, metal and paper, we save energy
6. Scientists have detected holes in the \_\_\_\_\_, which will allow harmful radiation to reach the surface of the Earth.
7. One result of global \_\_\_\_\_ is likely to be a disastrous rise in sea levels.
8. Heavy industry causes a great deal of air \_\_\_\_\_.
9. Human activity has destroyed many animal \_\_\_\_\_.

10. Damage has been caused to forests by \_\_\_\_\_ rain.
11. A chemical \_\_\_\_\_ may destroy harmful insects, but it often has undesirable side-effects.
12. A great deal of \_\_\_\_\_ is used to increase the yield of crops. But it then runs off into the water supply and causes other problems.
13. Your car \_\_\_\_\_ may look OK, but in fact it is part of the biggest and fastest growing global source of pollution.
14. It is important to preserve as many species of plant and animal as we can, to maintain \_\_\_\_\_.
15. Most of the wildlife of a country like Britain has long been destroyed. The priority now is the \_\_\_\_\_ of what remains.
16. Conservationists are very suspicious of \_\_\_\_\_ crops they fear genetic pollution of other species.
17. In many places the destruction of forest has lead to serious \_\_\_\_\_ of the soil, and sometimes to flooding.

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