МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ЖИТОМИРСЬКИЙ АГРОТЕХНІЧНИЙ КОЛЕДЖ

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НАВЧАЛЬНИЙ ПОСІБНИК

ІНОЗЕМНА МОВА ЗА ПРОФЕСІЙНИМ СПРЯМУВАННЯМ

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Навчальний посібник з дисципліни «Іноземна мова за професійним спілкуванням» для студентів денної форми навчання зі спеціальності 201 «Агрономія» можна розглядати в якості носія змісту іншомовної освіти та засобу навчання іншомовного спілкування, а також сприяє вивченню іноземної мови за професійним спрямуванням, засвоєнню професійно-орієнтованої лексики, окремих тем за спеціальністю, повторенню та використанню їх в мовленні.

Посібник рекомендується для використання викладачами та студентами вищих аграрних навчальних закладів.

Рекомендовано до друку методичною радою Житомирського агротехнічного коледжу
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ЗМІСТ

ВСТУП

Освіта – стратегічна основа розвитку особистості, суспільства, нації й держави, запорука майбутнього, його політичної, соціально-економічної, культурної та наукової організації. Вона є засобом відтворення й нарощування інтелектуального, духовного потенціалу народу, виховання патріота і громадянина, дієвим чинником модернізації суспільства. Навчання іноземним мовам є складовою частиною загального завдання підготовки кваліфікованих фахівців для України. Мотивацією вивчення іноземної мови є професійна потреба для студентів, які готуються стати спеціалістами у різних галузях народного господарства. Саме тому однією з головних особливостей вивчення іноземної мови у немовному вузі є професійно-орієнтований характер, що знаходить своє відображення в учбових цілях та змісті навчання.

Потреби українського суспільства в галузі підготовки фахівців нового типу в умовах перебудови і реформування відображені в кваліфікаційних характеристиках випускників вузів.

Кваліфікаційні характеристики випускників вищої школи передбачають наявність високої фахової підготовки, високої загальної культури та знань іноземної мови. Отже, навчання іноземній мові розглядається як органічна частина процесу формування спеціаліста.

Навчальний посібник з дисципліни «Іноземна мова за професійним спілкуванням» для студентів денної форми навчання зі спеціальності 201 «Агрономія» складається з трьох змістових частин. Перша частина містить матеріал для проведення практичних занять з іноземної мови. Матеріал базується на роботі з текстами, засвоєнні лексичних одиниць, опрацюванні текстової інформації у різних видах роботи на заняттях. Друга частина містить матеріали для проведення контрольних робіт. Контрольні роботи дають змогу систематизувати граматичний та

лексичний матеріал, проконтролювати рівень засвоєння матеріалу. Третя частина містить спеціалізовані тексти англійською мовою для самостійного опрацювання.

Запропонований посібник можна розглядати в якості носія змісту іншомовної освіти та засобу навчання іншомовного спілкування.

Випускник коледжу повинен отримати достатній рівень підготовленості з дисципліни «Іноземна мова за професійним спрямуванням» і здатність удосконалювати його упродовж життя відповідно до власних намірів і потреб.

У межах чинної навчальної програми студент має оволодіти комплексом знань, умінь і навичок, які дадуть йому можливість адекватно реагувати в соціально-комунікативних ситуаціях, знати професійні терміни і поняття та стійкі словосполучення, які зустрічаються в технічних текстах; особливості перекладу професійно спрямованих текстів, норми ділового етикету; правила вербальної та невербальної поведінки в типових ситуаціях спілкування; вільно спілкуватись за темами, пов’язаними

з сільським господарством; здобувати необхідну інформацію з нових текстів спеціальної та загальної тематики для подальшого застосування в мовленнєвій діяльності; оформляти ділові листи; складати резюме, заяву на роботу, заповнювати анкети тощо.

В змісті поданого посібника передбачена ефективна система засобів, зокрема вправ і завдань, які сприяють формуванню комунікативної компетентності як пріоритетної мети оволодіння студентами іншомовним спілкуванням за професійним спрямуванням, велика увага приділяється формуванню навичок роботи з текстовим матеріалом аграрного спрямування.

Посібник рекомендується для використання викладачами та студентами вищих аграрних навчальних закладів.

CHAPTER 1
CHOOSING YOUR WAY OF LIFE

UNIT 1 JOBS AND PROFESSIONS

Exercise 1. Read the following information about an interview, its types and methods of success. Prepare a short presentation on either of these topics:

JOB INTERVIEWING. GETTING DOWN TO BASICS

A job interview is your chance to show an employer what he or she will get if you're hired. That is why it is essential to be well prepared for the job interview. There exist five basic types of interviews:

The Screening Interview

This is usually an interview with someone in human resources. It may take place in person or on the telephone. He or she will have a copy of your resume in hand and will try to verify the information on it. The human resources representative will want to find out if you meet the minimum qualifications for the job and, if you do, you will be passed on to the next step.

The Selection Interview

The selection interview is the step in the process which makes people the most anxious.

The employer knows you are qualified to do the job. While you may have the skills to perform the tasks that are required by the job in question, the employer needs to know if you have the personality necessary to "fit in." Someone who can't interact well with management and co-workers may disrupt the

functioning of an entire department. This ultimately can affect the company's bottom line.

The Group Interview

In the group interview, several job candidates are interviewed at once. The interviewer or interviewers are trying to separate the leaders from the followers. The interviewer may also be trying to find out if you are a "team player." The type of personality the employer is looking for determines the outcome of this interview. There is nothing more to do than act naturally.

The Panel Interview

The candidate is interviewed by several people at once. It can be quite intimidating as questions are fired at you. You should try to remain calm and establish rapport with each member of the panel. Make eye contact with

each member of the panel as you answer his or her question.

The Stress Interview

It is not a very nice way to be introduced to the company that may end up being your future employer. It is, however, a technique sometimes used to weed out those that cannot handle adversity. The interviewer may try to artificially introduce stress into the interview by asking questions so quickly that the candidate doesn't have time to answer each one. The interviewer may also ask weird questions, not to determine what the job candidate answers, but how he or she answers.

Exercise 2. Match two parts of the sentences:

1) There exist five basic types	a) someone in human resources.
2) This is usually an interview with	b) of interviews
3) Make eye contact with each member of the panel	c) you are qualified to do the job.
4) It is not a very nice way to be introduced to the company that may end up	d) as you answer his or her question.
5) The employer knows	e) the leaders from the followers.
6) The interviewer or interviewers are trying to separate	f) being your future employer.

Exercise 3. Fill in the gaps with necessary words.

employer, qualifications, management, leaders, candidates

1. In the group interview, several job _____ are interviewed at once.
2. It is not a very nice way to be introduced to the company that may end up being your future _____.
3. The interviewer or interviewers are trying to separate the _____ from the followers.
4. Someone who can't interact well with _____ and co-workers may disrupt the functioning of an entire department.
5. The human resources representative will want to find out if you meet the minimum _____ for the job and, if you do, you will be passed on to the next step.

Exercise 4. Match the words (1 - 5) with the definitions (A - E).

1) representative	a) a person or organization that employs people
2) employer	b) a person with whom one works, typically someone in a similar role or at a similar level within an organization
3) interviewer	c) a division of a large organization such as a government, university, business, or shop, dealing with a specific subject, commodity, or area of activity
4) co-worker	d) a person who interviews someone, especially as a job
5) department	e) typical of a class, group, or body of opinion

Exercise 5. Read and translate the text below. Match choices (A – J) to (1 – 8). There are two choices you do not need to use.

1 _____

Before you begin to think about how you will dress for the interview, or answer questions, you should gather as much information about the employer as you can. Not only will you appear informed and intelligent, it will also help you make a decision if a job offer is eventually made.

You might also want to prepare for answering questions by listing some of your attributes. Talk to former co-workers with

whom you worked closely. Ask them to list some traits about you that they most admired - work related, of course.

You want to seem somewhat spontaneous, but you also want to appear self-confident.

The way to do that is to rehearse, not exactly what you will say, but how you will say it. A great method is to rehearse in front of a video camera. Study your posture, the way you make eye contact, and your body language.

2 _____

Appearance is very important and whether we like it or not, it is the first thing people notice about us. You should match your dress to employees in the workplace in which you are interviewing and probably take it up a notch. If dress is very casual, those being interviewed should wear dress pants and dress shirts or skirts and blouses. Don't choose a Friday, since many offices have "casual Fridays."

Your hair should be neat and stylish. Your nails should be well manicured and clean.

Men's nails should be short. Women's nails should be of a reasonable length and polished in a neutral color. Also, for women, makeup shouldn't be heavy. Perfume or cologne should be avoided as some people find certain scents offensive.

3 _____

Since the interviewer's job is to make sure that not only your skill, but your personality as well, is a good match, you must establish rapport with the person or persons interviewing you. That begins the instant you walk in the door. Let the interviewer set the tone. Nothing is as awkward as offering your hand and having the gesture not returned by the other person. Therefore, you should wait for the interviewer to offer his or her hand first, but be ready to offer your hand immediately.

4 _____

They say that body language gives more away about us than speech. Eye contact is very

important but make sure it looks natural. A smiling, relaxed face is very inviting.

Hands resting casually in your lap rather than arms folded across your chest also is more inviting.

5 _____

When it comes down to it, isn't this the main point of the interview? Speak slowly and clearly. Pause before you answer a question. Your answers will seem less rehearsed and it will give you a chance to collect your thoughts.

6 _____

Usually toward the end of the interview, the person conducting it will ask you if you have any questions. You should have some. You should ask about what a typical day would entail. You could also ask what special projects you would be working on. As in every other aspect of the job search, you are trying to show the employer how you can fill their needs.

7 _____

We have all heard horror stories of interviewers asking job candidates inappropriate questions, such as those about marital status, age, and family status. These questions should not be asked, but it is up to you whether to answer them.

8 _____

Money is a very sensitive topic. The candidate shouldn't bring it up. However, the interviewer may bring it up first. He or she may ask what salary you hope to earn. You must prepare for this question before the interview. Find out what others in the same position are earning. Always give a range, not an exact number. This will help keep you from pricing yourself out of a job. You don't want the employer to think they can't afford you, but you also don't want them to think you are a cheap commodity.

A – Preparing for the Interview
B – Asking Questions
C – Dressing for the Interview
D – A cheap commodity
E – Establishing Rapport
F – Money Questions
G – Body Language
H – Wait for the interviewer
I – Answering Questions
J – Illegal Questions

Exercise 6. Translate the following words into Ukrainian and remember them:

make eye contact	
body language	
neutral color	
to offer your hand	
the first thing	
salary you hope to earn	
help you make a decision	
makeup shouldn't be heavy	
preparing for the interview	
dressing for the interview	

Exercise 7. Match two parts of the sentences:

1) Speak slowly	a) find certain scents offensive.
2) He or she may ask what salary	b) and clearly.
3) Perfume or cologne should be avoided as some people	c) as you can.
4) You should gather as much information about the employer	d) it is the first thing people notice about us.
5) Appearance is very important and whether we like it or not,	e) you worked closely.
6) Talk to former co-workers with whom	f) you hope to earn.

UNIT 2 CURRICULUM VITAE (CV)

Exercise 1. Before you read the text given below match the words in the left column with their synonyms or explanations in the right column:

Part 1

1) to realize	a) to get money for some work
2) to rear	b) to give money
3) to apply to college	c) to be happy
4) to refuse	d) to give another job inside the company
5) to give financial support	e) to bring up children
6) to be unemployed	f) to come to classes
7) to be satisfied	g) to enter a college
8) to earn	h) to lose a job
9) to be sacked	i) to understand
10) to attend	j) to be out of work
11) to transfer	k) to say «no»

Part 2

12) sales representative	l) someone who pays others to work for him
13) dole	m) someone learning a craft or trade from an employer, a beginner
14) a blue-collar worker	n) money paid for education
15) labourer	o) someone paid to work on a regular basis
16) fee	p) an unskilled worker
17) employer	q) money given to people who are out of work
18) employee	r) a salesman who sells while travelling
19) apprentice	s) a worker

Exercise 2. Read the following information about CV writing:

FORMAT FOR A CURRICULUM VITAE (CV)

A Curriculum Vitae, commonly referred to as CV, includes a summary of your educational and academic backgrounds as well as teaching and research experience, publications, presentations, awards, honors, and affiliations.

International employers often expect to read the type of personal information on a curriculum vitae that would not be included on a resume. When writing a CV for graduate school or academia the personal information included in this curriculum vitae template would be omitted.

The following curriculum vitae template will give you an example of what to include in your CV and show the appropriate format for curriculum vitae.

Exercise 3. Imagine that a young friend of yours is about to attend his or her first

interview. Note down some more advice that you would give:

e.g. Do your homework: find out about the company.

Prepare some questions to ask about the company and what the job entails.

Wear smart, formal clothes, etc.

Exercise 4. Look at this Job AD: what would be its attractions – what might be its drawbacks? Write a letter of application to Acme Atlantic

Work in Bermuda!

ACME Atlantic are a well-known and respected trading company. We handle imports

directly from manufacturers in 35 different countries, often to our own specifications, and currently export to 46 different countries worldwide.

We are looking for enthusiastic people to work in our office in Bermuda on temporary 3- 6- and 9-month contracts. Applicants must be able to speak and write at least one foreign language fluently and can be nationals of any country.

Experience in import/export will be an advantage, but as special training will be available this is not essential. The main requirements are a willingness to work as a member of a team, to cope with pressure, to use the telephone in a foreign language and in English and to be prepared occasionally to work long hours when necessary.

There are several posts available and long-term prospects are good, though initially all successful applicants will be contracted for a maximum of 9 months.

The salary we will offer is excellent. We will pay for your return air fare and provide adequate accommodation at a nominal rent.

Please apply in your own handwriting, enclosing your resume, to Charles Fox,

European Sales Office, ACME Atlantic Ltd, 45 Pentonville Road, London EC2 4AC.

CHAPTER 2
WHAT IS AGRICULTURE
UNIT 1

Exercise 1. Find the match between verbs (1 – 12) and nouns (a - l)

1) develop	a) soil
2) inherit	b) methods
3) enrich	c) data
4) provide	d) diseases
5)control	e) troughs
6) fill	f) production
7) improve	g) groundwork
8) run	h) hybrids
9) lay	i) machines
10) increase	j) damage
11) operate	k) characteristics
12) cause	l) equipment

Exercise 2. Read and translate the text below.

FROM THE HISTORY OF AGRICULTURE

For hundreds of thousands of years, prehistoric people lived by hunting, fishing and gathering wild plants. Then about 8000 B.C., people took the first steps toward agriculture. Some tribes discovered that plants could be grown from seeds. They also learned that certain animals could be tamed and then raised in captivity. These two discoveries marked the beginning of the domestication of plants and animals. Scholars believe that domestication began in the Middle East and then spread to surrounding areas.

The Romans had developed some farming methods, e. g. systems of crop rotation. The

selective breeding of plants and livestock began in Europe during Roman times, too.

Since the 1800s, science and technology have helped make agriculture more and more productive in three main ways. They have provided farmers with labor-saving technologies, produced improved plant varieties and breeds of livestock and developed new agricultural chemicals.

Exercise 3. Choose the words that best complete the phrase.

1. Some tribes discovered that plants could be grown from _____. (soil, seeds, plant)
2. Scholars believe that domestication began in the Middle _____ and then spread to surrounding areas. (East, West, North, South)
3. The Romans had developed some farming methods, e. g. systems of crop _____. (operating, improving, rotation)
4. The selective breeding of plants and livestock began in _____ during Roman times. (Europe, America, Egypt)

5. Livestock _____ have introduced many improved lines since the early 1900s. (breeders, nations, collecters)

Exercise 4. Read and complete the text below. For each empty spaces (1 – 5) choose the correct answer (A, B, C, D)

LABOR-SAVING TECHNOLOGIES.

Steam-powered tractors were developed in the mid-1800s, but they were expensive and difficult to **(1)** _____. The first all-purpose gasoline-powered tractors appeared in the 1920s. They gradually replaced work animals and steam-powered **(2)** _____ on almost all farms. In Japan and several European countries most farms had electric **(3)** _____ service by the

mid-1930s. Today farmers use electric motors to run milking machines, irrigation pumps, and many other farm machines. Farmers also use electric power to operate electronic and automated **(4)** _____.

This equipment includes devices that fill feeding troughs or collect and grade eggs automatically.

Many farmers use computers to aid in farm operations. Using the Internet, farmers may make use of data provided by **(5)** _____ colleges or other information centers.

1	**a**	operate	**b**	improve	**c**	develop	**d**	use
2	**a**	tool	**b**	machines	**c**	instrument	**d**	gadget
3	**a**	capacity	**b**	strength	**c**	power	**d**	hardness
4	**a**	accessories	**b**	furniture	**c**	apparatus	**d**	equipment
5	**a**	agricultural	**b**	agrarian	**c**	territorial	**d**	landed

Exercise 5. Read and translate the text below. Give explanations to the highlighted words and word-combinations.

PLANT AND LIVESTOCK BREEDING.

During the mid-1800s an Austrian botanist and **monk** named Gregor Mendel discovered the principles of **heredity**.

Mendel thus laid the **groundwork** for **genetics** – the **science** that explains how characteristics are inherited. The **development** of genetics has made it possible **to breed** plants and animals scientifically.

Since the early 1900s, plant breeders have developed a great number of **hybrid crops** that produced unusually **high yields**. The new **varieties** were intended mainly to help various **poor nations**, such as India and Mexico, increase their food supply. This **effort** proved so **successful** that it has been called the Green Revolution.

Livestock breeders have introduced many improved lines since the early 1900s. **Nutrition specialists** have developed better **livestock feeds**, and veterinarians have improved methods of **health care**. All these advances continue to make livestock more and more **productive**.

Exercise 6. Match two parts of the sentences:

1) For hundreds of thousands of years, prehistoric people lived	a) run milking machines, irrigation pumps, and many other farm machines.
2) The development of genetics has made it possible to breed	b) by hunting, fishing and gathering wild plants.
3) Today farmers use electric motors to	c) plants and animals scientifically.
4) The selective breeding of plants and livestock began	d) the principles of heredity.
5) An Austrian botanist and monk named Gregor Mendel discovered	e) in Europe during Roman times.

Exercise 7. Match the words (1 - 5) with the definitions (A - E).

1) plants	a) supply (a device) with mechanical or electrical energy
2) power	b) find (something) unexpectedly or in the course of a search
3) discover	c) a living organism of the kind exemplified by trees, shrubs, herbs, grasses, ferns, and mosses
4) heredity	d) make or become better.
5) improve	e) the passing on of physical or mental characteristics genetically from one generation to another.

Exercise 9. Decide whether the following statements are TRUE or FALSE. Correct the false ones.

1. In the 20th century gasoline-powered tractors replaced steam-powered tractors.
2. Most farms in Europe had electric power service by the early 1920s.
3. Today electric motors are widely used on the farms.
4. Gregor Mendel invented the fi rst automatic milking machine.
5. Geneticists work on breeding new crops and animals.
6. The Green Revolution was the exploration of new farming areas in India and Mexico.
7. Veterinarians are the specialists who develop livestock feeds.

Exercise 10. Translate into Ukrainian.

1. Crops require the proper amounts of air and water for their healthy growth.
2. The soil in this area lacks water.
3. Irrigation is necessary in extremely dry areas.
4. Crops are threatened by weeds, plant diseases and insects.
5. Improper use of pesticides may endanger the environment.
6. The newest crop varieties developed by the scientists are more resistant to pests.
7. The plant wastes from the preceding crop are scattered all over the field.
8. Cultivators stir the soil between rows.
9. A good farm must have all the necessary facilities for crop storage.

Exercise 11. Complete the following sentences with the correct words.

All crops require nutrients and water to **1** _____. Soil supplies most of the nutrients. It also stores the water that the **2** _____ need.

Crops differ, however, in the amount of nutrients and water they require for healthy growth.

A farmer must therefore make sure that the soil and water **3** _____ meet the needs of each crop. A farmer must also plan measures to **4** _____ pests, which could damage or ruin a crop. Most farmers plan their methods of soil and water management and of pest control well in advance of the growing **5** _____.

1	**a**	grow	**b**	analyze	**c**	irrigate	**d**	collect
2	**a**	farms	**b**	crops	**c**	fields	**d**	pests
3	**a**	resources	**b**	nutrients	**c**	methods	**d**	varieties
4	**a**	use	**b**	control	**c**	learn	**d**	tend
5	**a**	time	**b**	date	**c**	season	**d**	weed

Exercise 12. Read the text below. Match choices (A– E) to (1 – 3). There are two choices you do not need to use.

BASIC PRINCIPLES OF CROP PRODUCTION

1 _____ Soil consists chiefly of mineral particles mixed with decaying organic (plant and animal) matter. Chemical reactions involving these substances produce most of the nutrients that crops need. To be fertile, therefore, soil must consist of the right mixture of minerals, organic matter and helpful microbes. It must also have the proper amounts of air and water.

After deciding which crops to grow, farmers analyze their soil to learn if any nutrients are insufficient or lacking. To get an accurate analysis, most farmers send samples of the soil to a soil-testing laboratory. The test results help farmers plan a scientific fertilizer program for their crops.

2 _____ Crops cannot grow without water. In most cases, farmers rely entirely on rainfall for the necessary moisture. In extremely dry areas, however, farmers must irrigate their

crops. Many farms often have too much water rather than too little. The problem is great on low-lying land and on land crossed by streams or rivers. Fields that tend to collect water must have a drainage system.

3 _____ Agronomists use the word “pests” in referring to weeds, plant diseases and insects that threaten crops. Most farmers control pests with chemicals called pesticides. Scientists have developed hundreds of pesticides for use on farms. All pesticides must be used with extreme care.

If they are used improperly, they may pollute the environment or the food supply and so endanger people’s health. For example, turning the soil with a plough or mechanical cultivator kills most weeds.

A – People’s health
B – Soil management
C – Water management
D – A process called erosion
E – Pest control

Exercise 12. Answer the questions to the text.

1. How and when should farmers plan their methods of soil and water management and of pest control?
2. How are the nutrients produced by the soil?
3. What does soil fertility mean?
4. What do farmers need to do before sowing their crops?
5. Why must the topsoil be protected?
6. When are irrigation and drainage systems used?
7. What does the word “pests” mean?
8. Why must pesticides be used with extreme care?

Exercise 13. Decide whether the following statements are TRUE or FALSE. Correct the false ones.

1. Plants can't grow without nutrients and water.
2. The amount of nutrients and water for healthy growth is different for every crop.
3. Chemical reactions involving mineral particles produce the nutrients that crops need.
4. The most fertile soil lies deep below the surface.
5. Farmers cannot always rely entirely on rainfall for the necessary
moisture.
6. Even small amounts of pesticides pollute the environment and endanger people's health.
7. Some herbicides have a long-lasting effect.
8. Pesticides using is not the most effective method of pest control.

Exercise 14. Choose the words that best complete the phrase

varieties herbicides kill conservation surface

1. The richest soil lies at and just below the _____.
2. Effective soil management, therefore, also includes methods of soil _____.
3. Special pesticides called _____ control weeds more thoroughly than soil turning does.
4. Some herbicides remain active in the soil for some time and so _____ weed seedlings as they develop.
5. Plant scientists have developed _____ of corn, wheat and other crops that are more resistant to diseases and insects than earlier varieties were.

Exercise 15. Read the text below. Match choices (A– G) to (1 – 5). There are two choices you do not need to use.

BASIC STAGES OF CROP PRODUCTION

1 _____ The main purpose of soil preparation is to make a seedbed – that is, an area of soil in which seeds can be planted and in which they will sprout, take roots and grow. Most farmers make the seedbed by a process called tillage. Tillage involves digging the soil and mixing it. Tillage loosens the soil, kills weeds and improves the circulation of the water and air in the soil. The chief tillage devices are ploughs.

2 _____ Nearly all the fi eld crops grown on the farms are planted by machines called planters or drills. These machines cut furrows (narrow grooves) in the soil, drop seeds into each furrow and cover the seeds with soil – all in one operation. Some fertilizers and

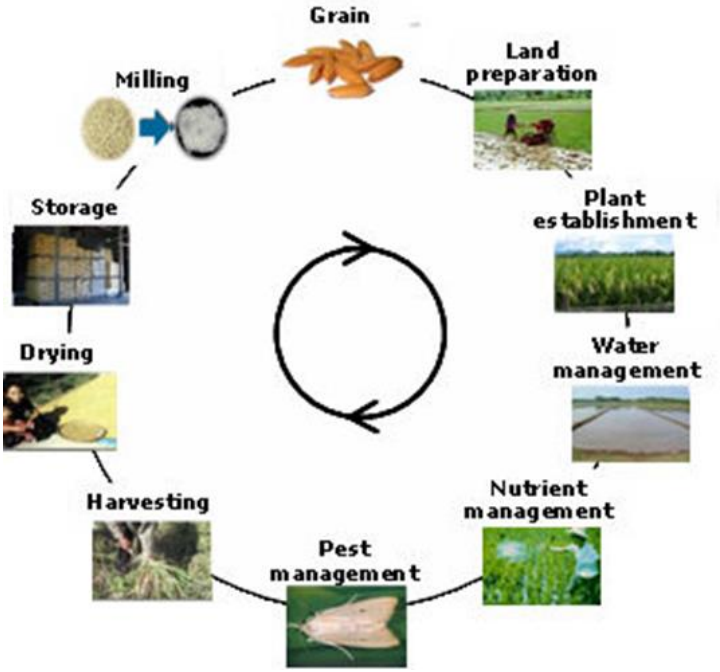
pesticides are applied to the soil during planting. Equipment to distribute the chemicals may be attached to the seed drill.

3 _____ Herbicides applied before or during planting kill many kinds of weeds, but not all. Some weeds may develop with the crops. Farmers control such weeds with cultivators. These devices stir the soil between rows and so uproot and bury any weeds.

4 _____ Farmers harvest their field crops with machines. They use combines to harvest most grains and seed crops, including barley, corn, rice, soybeans and wheat. A combine performs several tasks. First, it cuts the plant stalks. Then, it threshes the cuttings – that is, separates the grain or seeds from the straw and other residues. The combine returns the residues to the ground and collects the grain or seeds in a tank or bin.

5 _____ Crops raised to supply food for human beings are called food crops. Many food crops tend to spoil quickly, and so

farmers ship these crops to the market as soon as possible after harvesting. Food grains, however, can be stored for months on farms that have the proper facilities. Before grain is stored, it must be dried. Most farms that store large amounts of grain have grain-drying equipment and large storage bins.



A – Preparing the Soil
B – Large amounts of grain
C – Planting
D – Cultivating
E – The main purpose
F – Harvesting
G – Processing and Storage

Exercise 16. Fill the gaps in the text below with one of the words given in the box

grain crops machines gather harvest ground

Some farmers harvest corn with special **1 _____**. The machines pick the ears from the stalks but do not remove the **2 _____**from the ears. Special machines are also used to **3 _____** other field crops, including peanuts, potatoes and sugar beets. Some machines mow such **4 ____** as alfalfa and clover.

The mowed crops are left on the **5 _____**, where they dry and become hay.

Machines called hay balers **6 _____** the hay and bind it into bales.

Exercise 17. Complete the following sentences with the correct words.

At ploughing time, most farm **1 _____** are scattered with dead stalks, leaves, and other plant wastes from the preceding crop. Other fields may have a cover crop, such as alfalfa or **2 _____.** Plant wastes and cover crops help **3 _____**soil from erosion. They also enrich the soil with nutrients if they are ploughed under.

4 _____ that has been completely turned over in ploughing often remains stuck together in large chunks. Most farmers, therefore, also use a device called a **5 _____.** A harrow has sharp teeth or disks that break the chunks of soil into smaller pieces. Many farmers attach a harrow to the back of a plough. Farmers may add **6 _____** to the soil during ploughing and harrowing.

1	**a**	grain	**b**	soil	**c**	water	**d**	fields
2	**a**	tasks	**b**	plants	**c**	grass	**d**	grains
3	**a**	harvest	**b**	protect	**c**	product	**d**	turn
4	**a**	Soil	**b**	Land	**c**	Chunk	**d**	Hay
5	**a**	drag	**b**	harrow	**c**	crawl	**d**	bush
6	**a**	control	**b**	engineer	**c**	fertilizer	**d**	dressing

Exercise 18. Match the words with their definitions.

1	silage	**a**	Machine for cutting furrows in the soil and turning it up
2	plough	**b**	Grass mown and dried for fodder
3	tillage	**c**	Green moist fodder
4	ear	**d**	Seed-bearing head of a cereal plant
5	mow	**e**	Large farm building for storing grain
6	barn	**f**	Cut down the grass
7	hay	**g**	Preparation of land for growing crops

Exercise 19. Answer the questions to the text.

1. How many operations does crop farming involve? What are they?
2. What is the effect of tillage?
3. Are plant wastes helpful or harmful for soil?
4. How does a harrow work?
5. What kinds of machines plant the crops?
6. What tasks does a combine perform?
7. What other machines are used for harvesting?
8. What facilities must a farm have to store large amounts of grain?
9. How must hay and silage be stored?

UNIT 2 PLANT DISEASES

Exercise 1. Read and translate the text "Plant Diseases" and then answer the questions below.

1. What is meant by plant diseases?
2. Why had cultivation of certain crops in some countries been abandoned in the past?
3. What can cause plant diseases?
4. What plant diseases are most to be feared?

PLANT DISEASES

By disease in plants is meant some disturbance in the normal life-processes which affects either a particular organ or the entire

plant, and which sometimes leads to premature death. Cultivated plants are usually more liable to disease than wild plants.

The losses caused by plant diseases are sometimes enormous, and cultivation of certain crops in some countries had been abandoned in the past owing to the ravages of diseases.

Storage losses through disease may be severe. Diseases in plants may be brought about either through attack by some kind of parasite or by some autonomous, functional derangement.

Abnormal moisture conditions, peculiarities of soil, extremes of temperature, and many other factors cause functional disturbances.

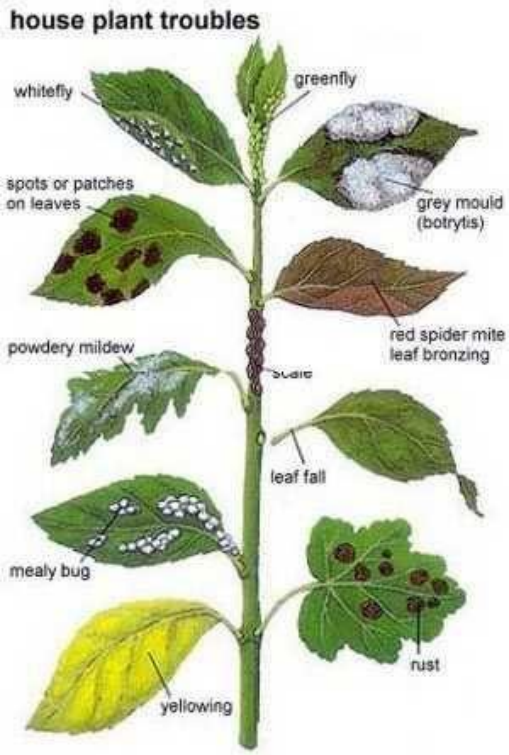
Many different groups of organisms attack plants parasitically. Nematode worms of microscopic size often invade plants, and living parasitically therein, cause serious diseases in roots, tubers, bulbs, stems, and leaves.

Highly infectious diseases of the virus type are now recognized to be among the most

serious that affect plants; they are often transmitted by insects.

The fungi include an immense number of forms parasitic on plants which are often extremely injurious.

The diseases most to be feared are those which are epidemic in character, i. e. those which develop almost simultaneously and universally throughout a crop.



Exercise 2. Match two parts of the sentences:

1) Cultivated plants are usually more liable to disease	a) attack plants parasitically.
2) The diseases most to be feared are those	b) than wild plants.
3) Many different groups of organisms	c) which are epidemic in character.
4) Highly infectious diseases of the virus type	d) may be severe.
5) A harrow has sharp teeth or disks that	e) are now recognized to be among the most serious that affect plants.
6) Storage losses through disease	f) break the chunks of soil into smaller pieces

Exercise 3. Match the following words in the left-hand column with their definitions in the right-hand column.

1	disease	**a**	a part of an organism that is typically self-contained and has a specific vital function, such as the heart or liver in humans
2	losses	**b**	a disorder of structure or function in a human, animal, or plant, especially one that produces specific signs or symptoms or that affects a specific location and is not simply a direct result of physical injury
3	organ	**c**	the fact or process of losing something or someone
4	tuber	**d**	the main body or stalk of a plant or shrub, typically rising above ground but occasionally subterranean
5	bulb	**e**	a much thickened underground part of a stem or rhizome, e.g. in the potato, serving as a food reserve and bearing buds from which new plants arise
6	stem	**f**	any of a group of spore-producing organisms feeding on organic matter, including molds, yeast, mushrooms, and toadstools.
7	fungi	**g**	the action or method of storing something for future use
8	storage	**h**	a rounded underground storage organ present in some plants, notably those of the lily family, consisting of a

			short stem surrounded by fleshy scale leaves or leaf bases, lying dormant over winter.

CHAPTER 3
VEGETABLES AND FRUITS
UNIT 1 VEGETABLES

Exercise 1. Read, translate and memorize the following words and word combinations:

plant-roots	
harvest	
stems	
pickling	
freezing	
leave	
spoilage	
fresh	
source	

Exercise 2. Read, translate the text and answer the questions below.

VEGETABLES

A vegetable is any kind of plant life or plant product. The term “vegetable” usually refers to the fresh edible portion of herbaceous plant-roots, stems, leaves, flowers or fruit. These plant parts are either eaten fresh or prepared in a number of ways.

Vegetables are usually classified on the basis of the part of the plant that is used for food. The root vegetables include beets, carrots, radishes and turnips. The stem vegetables include asparagus and kohlrabi. Among the edible tubers are potatoes. The leaf vegetables include brussels sprouts, cabbage, celery, lettuce, rhubarb and spinach. Among the bulb vegetables are garlic, leeks and onions. The flower vegetables include artichokes, broccoli and caulifl ower. The fruits commonly considered vegetables by virtue of their use

include beans, cucumbers, eggplants, sweet corn, squash, peppers and tomatoes.

Most fresh vegetables have a water content in excess of 70 percent, with only about 3.5 percent protein and less than 1 percent fat. Vegetables, however, are good sources of minerals, especially calcium and iron, and vitamins, principally A and C.

Most vegetables are planted by seeding in the fields where they are to be grown, but occasionally they are germinated in a nursery of a greenhouse and transplanted as seedlings to the fi eld.

Vegetables may be washed, sorted, cut and packaged for sale as fresh products. Fresh vegetables are subject to quick aging and spoilage, but their storage life can be extended by such preservation processes as canning, freezing or pickling.

1. What does the word “vegetable” mean?
2. What does usual classification of vegetables depend on?
3. Are vegetables good sources of minerals?

Exercise 3. Decide whether the following statements are TRUE or FALSE

1) Vegetables are usually classified on the basis of the part of the plant that is used for food.
2) Among the bulb vegetables are garlic, leeks and apples.

3) Vegetables are good sources of minerals, especially calcium and iron, and vitamins, principally B and D.
4) Most vegetables are planted by seeding in the fields where they are to be grown.
5) Fresh vegetables are subject to quick aging and spoilage.

Exercise 4. Choose the words that best complete the phrases

1) The root vegetables _____ beets, carrots, radishes and turnips. (used, considered, include)
2) The _____ vegetables include artichokes, broccoli and caulifl ower. (flower, minerals, leaves)
3) Vegetables _____ washed, sorted, cut and packaged for sale as fresh products. (may be, must be, have to)
4) Fresh vegetables' storage life can be extended by such preservation _____ as

canning, freezing or pickling. (eggplants, processes, seedlings)

5) A vegetable is any _____ of plant life or plant product. (vitamin, field, kind)

UNIT 2 FRUITS

Exercise 1. Read, translate the text and answer the questions below.

FRUITS

A fruit is the fleshy or dry ripened ovary of a plant, enclosing the seed or seeds. Thus apricots, bananas and grapes, as well as bean pods, corn grains, tomatoes, cucumbers are all technically fruits. Popularly, however, the term is restricted to the ripened ovaries that are sweet and either succulent or pulpy. A fruit is the usually sweet-tasting part of a tree or bush which holds seeds which can be eaten. Oranges, apples, pears, plums, bananas are all types of

fruit. A fruit is a mature ovary. It usually contains seeds.

There are two broad categories of fruits: fleshy fruits such as oranges, cherries, blackberries, strawberries, pineapples and mulberries and dry fruits such as nuts.

In general, the chief concerns of fruit cultivation are the propagation and improvement of varieties; the improvement of the microclimatic conditions and soil conditions; fertilization and pest control; the development of harvesting and postharvest practices.

Fruits are important sources of dietary fi bre and vitamins (especially vitamin C). Although fresh fruits are subject to spoilage, their shelf life can be extended by refrigeration. Fruits can be processed into juices, jams and jellies and preserved by canning and pickling.

1. What does the word “fruit” mean?
3. How many categories of fruits are there?

4. Are fruits important sources of dietary fibre and vitamins?
5. What is usually done with fruit and vegetables used for sale as fresh products?

Exercise 2. Translate into Ukrainian.

1. A vegetable is a plant that is used as food, particularly in savoury dishes.
2. The potato is the most popular vegetable in Britain.
3. The current trend for healthy eating has led to a rise in demand for fresh green vegetables.

4. In winter we tend to eat more root vegetables, such as carrots and parsnips.
5. Raw vegetables contain more potassium than cooked ones.
6. Julia and John created a vegetable garden at the back of the house and sold their produce at the local market.
7. For a healthy diet you should eat at least one piece of fresh fruit every day.
8. A fruit salad is a mixture of pieces of different types of fruit, which is usually served at the end of a meal.
9. We made a fruit salad for dessert using strawberries, kiwis and pineapples.

Exercise 3. Match the words (1 - 5) with the definitions (A - E).

1) diet	a) the action of cultivating land, or the state of being cultivated.
2) cultivation	b) a gathering at which people sample, compare, and evaluate different wines, or other drinks or food.
3) tasting	c) the process of subjecting food or drink to cold in order to chill or preserve it.
4) refrigeration	d) a regular gathering of people for the purchase and sale of provisions, livestock, and other commodities.
5) market	e) the kinds of food that a person, animal, or community habitually eats.

Exercise 4. Decide whether the following statements are TRUE or FALSE

1) There are five broad categories of fruits: fleshy fruits and mulberries and dry fruits.
2) Popularly the term is restricted to the ripened ovaries that are sweet and either succulent or pulpy.
3) A vegetable is a plant that is used as food, particularly in salty dishes.
4) For a healthy diet you should eat at least one piece of fresh fruit every day.
5) A fruit is a mature ovary. It usually contains roots.

SUPPLEMENTARY READING

DO YOU KNOW WHEN TO HARVEST?

Apple – There is no sure method for home gardeners to determine maturity for all varieties. If picked prematurely, the fruit is likely to be sour, small and poorly coloured; if picked overripe, it may develop internal breakdown and store poorly.

To harvest apples correctly, you must be familiar with the term "ground colour". Ground colour is the colour of an apple's skin. When the ground colour of red varieties changes from leaf green to creamy, the apples are ready to harvest. Apples will improve in storage if they are picked when hard but mature. Most apples have brown seeds when ready for harvest.

Cherry – The size of the fruit increases until mature. Sample the fruit to determine the proper time to harvest. It should be fully coloured and flavourful as quality will not improve after harvesting.

currant – Harvest currants for jelly when they are slightly underripe
for high pectin content. Pick them fully ripe to use for jams or if they are to be stewed. Fully ripe currants are coloured, juicy and beginning to soften.

Gooseberry – Pick when the berries are fi rm and greenish-yellow with darkened seeds. The fruit of some varieties often turns very light to dark red when mature. An overmature fruit is purplish. Quality does not improve after harvest.

Pear – Harvest when the ground colour changes from dark green to yellowish green and before the fruit is tree- ripe. Additional guides to proper harvesting time are when the fruit separates from the twig.

Plum – Harvest when the fl esh is soft. The skin changes its colour before the fruit is mature.

Raspberry – Harvest when the fruit is full colour and separates easily from the centre.

Strawberry – Harvest when uniformly red and beginning to soften.

Harvest with the cap (плодоніжка).

Beet – Harvest when roots are 11/4 to 2 inches in diameter. Some varieties may maintain quality in larger sizes.

Cabbage – Harvest when heads are solid, but before they split.

Carrot – Harvest when 3/4 to 1 inch in diameter or smaller when thinning. For storage, leave carrots in soil until a light frost occurs.

Cucumber – Proper harvesting size is determined by product use. Leave a short piece of stem on each fruit. Harvest daily and don't allow fruit to mature.

Onion – Correct harvesting stage is determined by the type and product use. Harvest onions when they are 6 to 9 inches tall for immediate table use. Onions grown for fresh use should be harvested when the bulbs are 1/4 to 1 inch in diameter. Harvest seed grown onions for boiling when the bulbs are 11/2 inches in diameter. Harvest for storage when the tops have weakened and fallen over and the bulbs are 2 or

more inches in diametr. Harvest before hard frost.

Pepper, green – Harvest when fruits are full sized and fi rm. Allow peppers to remain on the plant until they become completely red. This usually requires additional 2 to 3 weeks.

Potato – For storage, harvest when full sized with fi rm skins. Tubers continue to grow until the vine dies. For new potatoes, harvest at any early stage of development. This is usually when tubers are 11/4 to 11/2 inches in diameter.

Pumpkin – Harvest pumpkins when they are full coloured and the

skins have hardened enough to resist the fi ngernail test. Harvest before a killing frost.

Squash, summer type – Harvest when the fruit is young and tender.

Your fingernail should easily penetrate the rind. Long-fruited varieties, such as zucchini, are harvested when 11/2 inches in diameter.

Squash, winter type – Harvest when mature. The rind should be firm and glossy and not

easily punctured by your thumbnail. The portion that contacts the soil is cream to orange when mature. Harvest squash before a heavy frost.

Tomato – For peak quality, harvest 5 to 8 days after fruits are fully coloured. Tomatoes lose their fi rmness quickly if they are overripe.

CHAPTER 4

UNIT 1 POTATO

Exercise 1. Read, translate and memorize the following words and word combinations:

starch	крохмаль
tuber	коренеплід
crop	сільськогосподарська культура
species	різновид
cuisine	кухня
wheat	пшениця
storage	зберігання
to require	вимагати, потребувати
warehouse	склад
perishable	що швидко псується
occur	траплятися
distrustful	недовірливий

Exercise 2. Read and translate the text:

POTATO

The potato is a starchy, tuberous crop. The word potato may refer to the plant itself as well as the edible tuber. In the region of the Andes, there are some other closely related cultivated potato species. First introduced outside the Andes region four centuries ago, today potatoes have become an integral part of much of the world's cuisine and are the world's fourth-largest food crop following rice, wheat and maize.

Long-term storage of potatoes requires specialized care in cold warehouses and such warehouses are among the oldest and largest storage facilities for perishable goods in the world.

Wild potato species occur throughout the Americas. They were domesticated 7,000–10,000 years ago. Following centuries of selective breeding, over a thousand different types of potatoes currently exist in the world.

The Spanish introduced the potato to Europe in the second half of the 16th century. The staple was subsequently conveyed by European mariners to territories and ports throughout the world. The potato was slowly adopted by distrustful European farmers, but soon enough it became an important staple food and field crop that played a major role in the European 19th century population boom.

Exercise 3. Give English equivalents for the following:

1. крохмалистий коренеплід
2. сорти картоплі
3. вирощувати картоплю
4. невід’ємна частина
5. пшениця

6. довготривале зберігання картоплі
7. відігравати важливу роль

Exercise 4. Answer the following questions:

1. What is the potato?
2. Does the potato belong to the grain crops or the food crops?
3. When was it domesticated?
4. What are the necessary storage conditions for potatoes?
5. Is potato the world's second-largest food crop?
6. When was the potato introduced to Europe?

Exercise 5. Match two parts of the sentences:

1) Wild potato species occur	a) distrustful European farmers.
2) The Spanish introduced the potato to Europe in	b) throughout the Americas.
3) The potato was slowly adopted by	c) the plant itself as well as the edible tuber.
4) The word potato may refer to	d) starchy, tuberous crop.
5) The potato is a	e) the second half of the 16th century.

Exercise 6. Translate into Ukrainian the following definitions:

1. **Tubers** are various types of modified plant structures that are enlarged to store nutrients. They are used by plants to survive the winter or dry months and provide energy and nutrients for regrowth during the next growing season and they are a means of asexual reproduction.

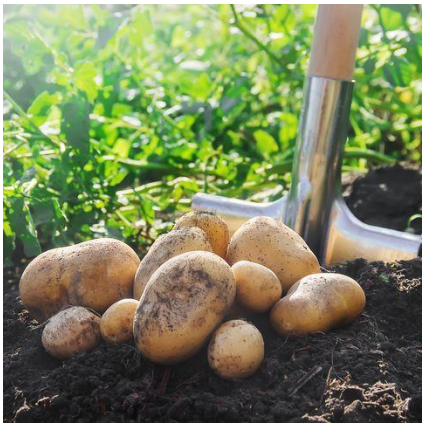
2. **Selective breeding** is the process of breeding plants and animals for particular genetic traits. Typically, strains which are selectively bred are domesticated, and the breeding is sometimes done by a professional breeder. Bred animals are known as breeds, while bred plants are known as varieties, cultigens, or cultivars. The cross of animals results in what is called a crossbreed and crossbred plants are called hybrids. The term selective breeding is synonymous to artificial selection.

Exercise 7. Complete the following sentences with the correct words.

A **1) _____** is a non-animal species or variety that is grown to be harvested as **2) _____**, livestock fodder, fuel or for any other economic purpose. Major world crops **3) _____** maize (corn), wheat, rice, soybeans, hay, potatoes and cotton. While the term "crop" most commonly refers to plants, it can also include species from other biological

4) _____. For example, **5) _____** like shiitake, which are in the fungi kingdom, can be referred to as crops.

1	**a**	grain	**b**	soil	**c**	crop	**d**	field
2	**a**	food	**b**	plant	**c**	grass	**d**	hybrid
3	**a**	harvest	**b**	protect	**c**	storage	**d**	include
4	**a**	countries	**b**	lands	**c**	kingdoms	**d**	grass
5	**a**	mushrooms	**b**	trees	**c**	berries	**d**	bushes



Exercise 8. Translate into English:

1. Картопля вимагає особливих умов зберігання в холодних приміщеннях.

2. Картопля є невід’ємною частиною української кухні.
3. В якому столітті картопля була завезена до Європи?
4. Які сільськогосподарські культури вирощує цей фермер?
5. Який сорт картоплі ви садили минулого року?
6. Завдяки селекції зараз існує багато різних сортів картоплі.
7. Яке місце займає картопля серед харчових культур?

Exercise 9. Match the following words in the left-hand column with their definitions in the right-hand column.

1	varieties	**a**	a group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
2	tuber	**b**	the mating and production of offspring by animals.
3	species	**c**	the quality or state of being different or diverse; the absence of uniformity, sameness, or monotony.
4	shiitake	**d**	a much thickened underground part of a stem or rhizome, e.g. in the potato, serving as a food reserve and bearing buds from which new plants arise.
5	kingdom	**e**	an edible mushroom which grows on fallen timber, cultivated in Japan and China.
6	breeding	**f**	the action or process of making a copy of something.
7	reproduction	**g**	each of the three traditional divisions (animal, vegetable, and mineral) in which natural objects have conventionally been classified.

UNIT 2

WORLD FOOD SUPPLY

Exercise 1. Read, translate and memorize the following words and word combinations:

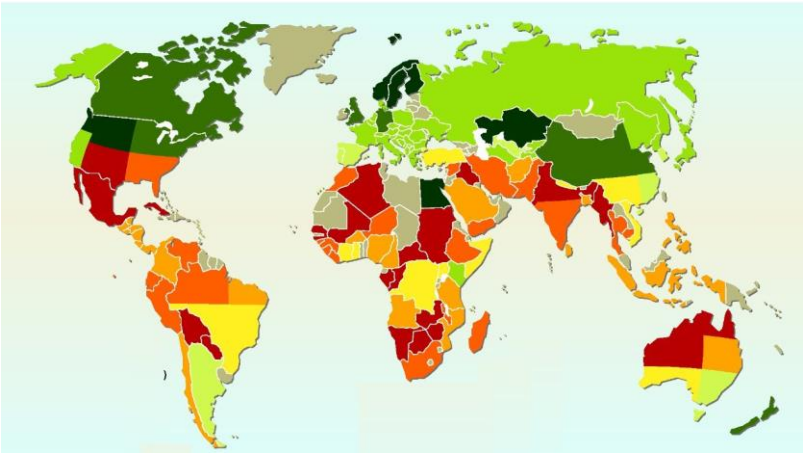
production	виробництво
annual	річний
average	середній
importance	важливість
essential	головний, суттєвий
expansion	поширення
to harvest	збирати врожай
shifts	зміни
income	прибуток

Exercise 2. Read and translate the text:

ROLE IN THE WORLD FOOD SUPPLY

The United Nations FAO reports that the world production of potatoes in 2010 was 314 million tons. The annual diet of an average global citizen in the first decade of the 21st century included about 33 kg of potato. However, the local importance of potato is extremely variable and rapidly changing. It remains an essential crop in Europe (especially eastern and central Europe), where production per capita is still the highest in the world. But the most rapid expansion over the past few decades has occurred in southern and eastern Asia. China is now the world's largest potato-producing country, and nearly a third of the world's potatoes are harvested in China and India. The geographic shift of potato production has been away from wealthier countries toward lower-income areas of the world, although the degree of this trend is ambiguous.

In 2010 several international organizations highlighted the potato's role in world food production. They cited its potential derived from its status as a cheap and plentiful crop that grows in a wide variety of climates.



NOTE: The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger.

Exercise 3. Give English equivalents for the following:

1. світове виробництво картоплі

2. важливість картоплі
3. щорічний раціон
4. пересічний громадянин
5. головна сільськогосподарська культура
6. багатші країни
7. збирати врожай
8. світове виробництво продуктів харчування

Exercise 4. Answer the following questions:

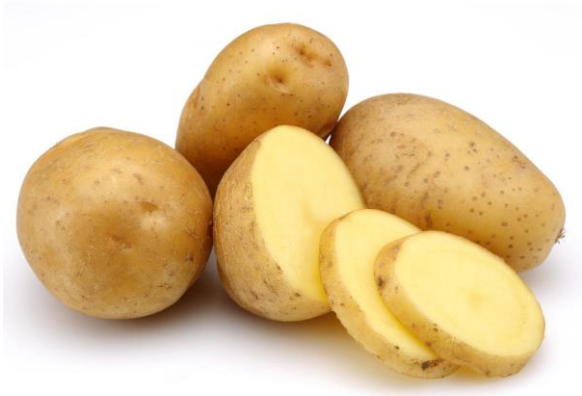
1. What was the world production of potatoes in 2010?
2. Potato remains an essential crop in Asia, doesn't it?
3. What country is the largest potato-producing country?
4. Where is the third part of all the world's potatoes harvested?
5. Do you need much money and resources for growing and storing potatoes?

Exercise 5. Decide whether the following statements are TRUE or FALSE

1) The annual diet of an average global citizen in the first decade of the 21st century included about 43 kg of potato.
2) The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger.
3) In 2010 several international organizations highlighted the carrot's role in world food production.
4) China is now the world's largest potato-producing country, and nearly a second of the world's potatoes are harvested in China and India.
5) The local importance of potato is extremely variable and rapidly changing.

Exercise 6. Translate into English:

1. Виробництво картоплі на душу населення є найвищим у Європі.
2. На даний час найбільшим виробником картоплі є Китай.
3. Ми завжди збирали високий врожай картоплі.
4. Картопля – це корисна та дешева сільськогосподарська культура, яка росте в різних кліматичних зонах.
5. Пересічний громадянин споживає близько 33 кг. Картоплі на рік.



UNIT 3

Exercise 1. Read, translate and memorize the following words and word combinations:

value	цінність
potassium	калій
amount	кількість
fiber	волокно
grain	зерно; хлібні злаки
cereals	хлібний злак; каша
nutrition	харчування; їжа

Exercise 2. Read and translate the text:

NUTRITION

The potato contains vitamins and minerals and a range of phytochemicals such as carotenoids and polyphenols. A medium-size 150 g potato with the skin provides 27 mg of vitamin C (45% of the Daily Value (DV)), 620 mg of potassium (18% of DV), 0.2 mg

vitamin B6 (10% of DV) and trace amounts of thiamin, riboflavin, magnesium, phosphorus, iron and zinc. The fiber content of a potato with skin (2 g) is equivalent to that of many whole grain breads, pastas and cereals.

In terms of nutrition the potato is best known for its carbohydrate content (approximately 26 grams in a medium potato). The predominant form of this carbohydrate is starch. A small but significant portion of this starch is resistant to digestion by enzymes in the stomach. This resistant starch is considered to have similar physiological effects and health benefits as fiber: it provides bulk, offers protection against colon cancer, improves glucose tolerance and insulin sensitivity, lowers plasma cholesterol, increases satiety and possibly even reduces fat storage. The amount of resistant starch in potatoes depends much on preparation methods. Cooking and then cooling potatoes significantly increased resistant starch. For example, cooked

potato starch contains about 7% resistant starch which increases to about 13% upon cooling.

The nutrients of the potato seem to be fairly evenly distributed between the flesh and the skin. For a medium potato, with and without the skin, the data are the following:

Nutrient	Without skin (156 g) (%)	With skin (173 g) (%)
Vitamin C	33	28
Thiamin	11	7
Niacin	11	12
Vitamin B_6	23	27
Folate	4	12
Pantothenic Acid	9	7
Iron	3	10
Magnesium	10	12
Potassium	17	26
Copper	17	10
Dietary Fiber	9	15

The cooking method used can significantly impact the nutrient availability of the potato.

Exercise 3. Give English equivalents for the following:

1. вміст вітамінів та мінералів
2. картопля середнього розміру
3. приблизно
4. що стосується поживних речовин
5. вплив
6. волокно
7. залежати від
8. захист від раку

Exercise 4. Answer the following questions:

1. What does the potato contain?
2. What is the potato best known for?
3. What is starch?
4. What does it provide?
5. What does the amount of resistant starch depend on?

Exercise 5. Read the text below. Match choices (A– F) to (1 – 6). There are two choices you do not need to use.

1 _____ are chemical compounds, such as beta-carotene, that occur naturally in plants. The term is generally used to refer to those chemicals that may affect health, but are not yet established as essential nutrients.

2 _____ are organic pigments that naturally occur in the chloroplasts and chromoplasts of plants. There are over 600 known carotenoids. People consuming diets rich in carotenoids from natural foods, such as fruits and vegetables, are healthier and have

lower mortality from a number of chronic illnesses.

3 _____, also known as vitamin B_2 is an easily absorbed micronutrient with a key role in maintaining health in humans and other animals. Vitamin B_2 is required for a wide variety of cellular processes. It plays a key role in energy metabolism, and the metabolism of fats. Milk, cheese, liver, kidneys, tomatoes, mushrooms and almonds are good sources of vitamin B_2, but exposure to light destroys riboflavin.

4 _____ is a carbohydrate consisting of a large number of glucose units joined together. It is produced by all green plants as an energy store. It is the most important carbohydrate in the human diet and is contained in such staple foods as potatoes, wheat, maize (corn), rice. Pure starch is a white, tasteless and odorless powder that is insoluble in cold water or alcohol. When dissolved in warm water, it can be used as a thickening or gluing agent.

A – Starch
B – Phytochemicals
C – Potatoes provide
D – Carotenoids
E – Gluing agent
F – Riboflavin

Exercise 6. Translate into English:

1. Картопля містить багато цінних вітамінів, чи не так?
2. Спосіб приготування картоплі значною мірою впливає на її поживну цінність.
3. Люди, які вживають їжу багату на каротиноїди, набагато здоровіші.
4. Кількість крохмалю в картоплі залежить від методу її приготування.
5. Картоплина середнього розміру забезпечує 27 міліграм вітаміну С.

Exercise 7. Complete the following sentences with the correct words.

Correct potato **1** _____ can be an arduous task in some circumstances. Good **2** _____

preparation, harrowing, plowing, and rolling are always needed, along with a little grace from the weather and a good source of **3 _____**. Three successive plowings, with associated harrowing and rolling, are desirable before **4 _____.** Eliminating all root-weeds is desirable in potato cultivation. In general, the potatoes themselves are grown from the eyes of another potato and not from **5 _____.** Home gardeners often plant a piece of potato with two or three eyes in a hill of mounded soil.

1	**a**	husbandry	**b**	majority	**c**	maturation	**d**	preparation
2	**a**	task	**b**	ground	**c**	earth	**d**	plow
3	**a**	source	**b**	will	**c**	water	**d**	liquid
4	**a**	harvesting	**b**	covering	**c**	growing	**d**	planting
5	**a**	root	**b**	rot	**c**	seed	**d**	hill

SUPPLEMENTARY READING

GROWTH AND CULTIVATION

Potato growth has been divided into five phases. During the first phase, sprouts emerge and root growth begins. During the second, photosynthesis begins as the plant develops leaves and branches. New tubers develop during the third phase, which is often (but not always) associated with flowering. Tuber formation stops when soil temperatures reach 26.7 °C. Hence potato is considered to be a cool-season crop. Tuber bulking occurs during the fourth phase when the plant begins investing the majority of its resources in its newly formed tubers. At this stage several factors are critical to the yield: optimal soil moisture and temperature, soil nutrient availability and balance and resistance to pest attacks. The final

phase is maturation: the tuber skins harden and their sugars convert to starches.

New tubers may arise at the soil surface. Since exposure to light leads to greening of the skins and the development of solanine, growers are interested in covering such tubers.

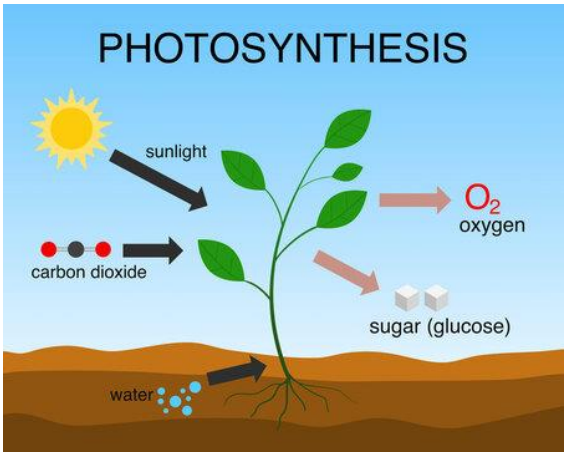
Correct potato husbandry can be an arduous task in some circumstances. Good ground preparation, harrowing, plowing, and rolling are always needed, along with a little grace from the weather and a good source of water. Three successive plowings, with associated harrowing and rolling, are desirable before planting. Eliminating all root-weeds is desirable in potato cultivation. In general, the potatoes themselves are grown from the eyes of another potato and not from seed. Home gardeners often plant a piece of potato with two or three eyes in a hill of mounded soil.

Potatoes are sensitive to heavy frosts, which damage them in the ground. Even cold weather makes potatoes more susceptible to bruising and

possibly later rotting, which can quickly ruin a large stored crop.

NOTES:

Photosynthesis is a process that converts carbon dioxide into organic compounds, especially sugars, using the energy from sunlight. Photosynthesis occurs in plants and many species of bacteria. Photosynthesis is vital for all aerobic life on Earth. As well as maintaining the normal level of oxygen in the atmosphere, nearly all life either depends on it directly as a source of energy, or indirectly as the ultimate source of the energy in their food.



Storage

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

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

Under optimum conditions possible in commercial warehouses potatoes can be stored for up to ten or twelve months. When stored at homes the shelf life is usually only for several weeks. If potatoes develop green areas or start to sprout these areas should be trimmed before using.

Commercial storage of potato involves several phases:

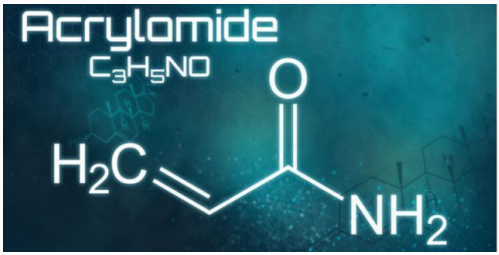
- drying surface moisture;
- a wound healing phase at 85% to 95% relative humidity and temperature below 25 °;
- a cooling phase;
- a holding phase;
- a reconditioning phase during which the tubers are slowly warmed.

Mechanical ventilation is used during the process to prevent condensation and accumulation of carbon dioxide.

When stored in the home mature potato is optimally kept at a room temperature in a paper bag in a dry, cool, dark and well ventilated place

during 1-2 weeks. If mature potato is refrigerated dark spots can occur and conversion of starch into sugar can give rise to unpleasant sweet flavour during cooking. Only new potatoes can be refrigerated and should be kept with the shelf life of 1 week. Kept under too high temperature both mature and new potatoes will sprout and shrivel. Exposure to light causes them to turn green. Also potatoes absorb odours produced by pears.

NOTES:



Acrylamide is a chemical compound with the chemical formula C_3H_5NO. It is a white odorless crystalline solid, soluble in water, ethanol, ether, and chloroform.

Acrylamide also occurs in many cooked starchy foods and is concerned as a possible carcinogen. Acrylamide was accidentally

discovered in foods in April 2002 by scientists in Sweden when they found the chemical in starchy foods, such as potato chips, French fries, and bread that had been heated (production of acrylamide in the heating process was shown to be temperature-dependent). It was not found in food that had been boiled or in foods that were not heated.

In February 2009 Health Canada announced that they were assessing whether acrylamide which occurs naturally during the cooking of French fries, potato chips and other processed foods is a hazard to human health and whether any regulatory actions need to be taken. They are currently collecting information on the properties and prevalence of acrylamide in order to make their assessment. The European Chemical Agency added acrylamide to the list of substance of very high concern in March 2010.

CHAPTER 5

UNIT 1 RICE

Exercise 1. Read, translate and memorize the following words and word combinations:

nutrition	харчування
cereal	хлібний злак
grain	зерно
provide	забезпечувати
survive	виживати
require	вимагати, потребувати
ratoon	кореневий паросток
soil fertility	родючість ґрунту
costs	витрати
ample	достатній

Exercise 2. Read and translate the text and answer the questions below:

RICE

Rice as a cereal grain, is the most important staple food for a large part of the world's human population, especially in East and South Asia, the Middle East, Latin America, and the West Indies. It is the grain with the second-highest worldwide production, after maize (corn).

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

Rice is normally grown as an annual plant. Although in tropical areas it can survive as a perennial and can produce a ratoon crop for up to 30 years. The rice plant can grow to 1–1.8 m tall, occasionally depending on the variety and soil fertility.

It has long, slender leaves 50–100 cm long and 2–2.5 cm broad. The edible seed is a grain 5–12 mm long and 2–3 mm thick.

Rice cultivation is well-suited to countries and regions with low labor costs and high rainfall, as it is labor-intensive to cultivate and requires ample water. Rice can be grown practically anywhere, even on a steep hill or mountain. Although its parent species are native to South Asia and certain parts of Africa, centuries of trade and exportation have made it commonplace in many cultures worldwide.

The traditional method for cultivating rice is flooding the fields while or after setting the young seedlings.

1. What place does the rice production occupy?

2. People cultivate rice as a perennial plant, don't they?

3. What does the growth of rice depend on?

4. Are heavy rains favourable for rice cultivation?

5. What is the traditional method for cultivating rice?

Exercise 3. Decide whether the following statements are TRUE or FALSE

1) Rice is the most important staple food for a large part of the world's human population, especially in the East and West Europe.

2) Rice is normally grown as an annual plant.

3) Rice cultivation is well-suited to countries and regions with high labor costs and high rainfall.

4) Rice can be grown practically anywhere, even on a steep hill or mountain.

5) The traditional method for cultivating rice is flooding the fields while or after setting the old seedlings.

Exercise 4. Give English equivalents for the following:

1. зернова культура
2. споживання
3. вирощувати з метою
4. харчування
5. однорічна рослина
6. залежати від родючості ґрунту
7. низькі затрати праці
8. традиційний метод вирощування рису

Exercise 5. Read the text below. Match choices (A– E) to (1 – 3). There are two choices you do not need to use.

INSTANT RICE

Instant rice, also known as minute rice, is rice that has been precooked and dehydrated so

that it cooks more rapidly. Regular rice requires approximately 20 minutes to cook while instant rice needs 5-10 minutes. Because it has already been cooked, all that is necessary to prepare instant rice is only to re-hydrate it with hot water.

1 _____

Instant rice is made by using several methods. The most common method is similar to the home cooking process. The rice is blanched in hot water, steamed, and rinsed. Then it is placed in large ovens for dehydration until the moisture content reaches approximately twelve percent or less.

The basic principle involves increasing moisture of the milled white rice by using steam or water to form cracks or holes in the kernels. And water can penetrate into the cracked grain much more quickly.

2 _____

The major advantage of instant rice is the rapid cooking time. Some brands can be ready in three minutes. Currently several Asian and American companies have developed brands which require only 90 seconds to cook. Another advantage is the variety of flavors available. Items such as chicken, carrots, peas, mushrooms, broccoli, etc. are added to make the meal more complete. Companies like Uncle Ben's, Kraft, and Rice-A-Roni carry different pre-flavored varieties which are conveniently packaged as well.

3 _____

Instant rice is more expensive than regular rice. Naturally rice has minerals like phosphorus, magnesium and potassium. Instant rice has fewer of the calories, carbohydrates and protein than regular rice. Due to its processing it also loses some of the flavour, but companies compensate by adding herbs and exotic spices and aromas to make it more appetizing. They

also try to make up for the loss of nutrients by adding their own nutrients such as the B-vitamins as well as iron.

A – Rice cultivation
B – Disadvantages
C – Advantages
D – Human consumption
E – Preparation process

Exercise 6. Complete the following sentences with the correct words.

Cereals (grains) are grasses cultivated for the edible components of their fruit **1** _____. Cereals are grown in great quantities and provide more food energy worldwide than any other **2** _____ of crop.

They are a rich **3** _____ of vitamins, minerals, carbohydrates, fats, oils and protein. In some developing nations grain in the **4** _____ of rice, wheat or maize constitutes a

majority of daily sustenance. In developed nations cereal consumption is moderate and varied but still substantial. The word cereal derives from Ceres, the name of the Roman goddess of **5** _____ and agriculture.

1	**a**	seed	**b**	seeding	**c**	seeded	**d**	seeds
2	**a**	variety	**b**	model	**c**	type	**d**	category
3	**a**	wellspring	**b**	source	**c**	etymology	**d**	genesis
4	**a**	form	**b**	shape	**c**	format	**d**	creation
5	**a**	reap	**b**	gather	**c**	collect	**d**	harvest

Exercise 7. Choose the words that best complete the phrases

1) The staple food of a specific society may be _____ as often as every day or every meal. (eat, eating, eaten)
2) Most staple foods derive either from cereals such as wheat, barley, rye, maize and rice or starchy root vegetables such as _____. (potatoes, nuts, carrots)
3) In gardening annual often refers to a plant grown outdoors in spring and summer and

surviving just for one growing _____. (age, season, condition)
4) The _____ is blanched in hot water, steamed, and rinsed. (potatoes, rice, wheat)
5) Carrot, celery and parsley are usually grown as annual _____ for their edible roots, petioles and leaves respectively. (roots, crops, trees)
6) Examples of true _____ include corn, wheat, rice, lettuce, peas, watermelon, beans. (perennial, annuals, yearbook)

Exercise 8. Translate into Ukrainian the following definitions:

1. A **staple food** is a food that is "eaten regularly and in such quantities as to constitute the dominant part of the diet and supply a major proportion of energy and nutrient needs." Staple foods vary from place to place but are typically inexpensive or readily-available foods that supply one or more of the three macronutrients needed for survival and health: carbohydrate, protein and fat. The staple food of a specific

society may be eaten as often as every day or every meal. Early civilizations valued staple foods. In addition to providing necessary nutrition they could be stored for a long period of time without decay.

Most staple foods derive either from cereals such as wheat, barley, rye, maize and rice or starchy root vegetables such as potatoes.

2. An **annual plant** is a plant that usually germinates, flowers, and dies in a year or season. In gardening annual often refers to a plant grown outdoors in spring and summer and surviving just for one growing season. Many food plants are grown as annuals. They including virtually all domesticated grains. Examples of true annuals include corn, wheat, rice, lettuce, peas, watermelon, beans.

Carrot, celery and parsley are usually grown as annual crops for their edible roots, petioles and leaves respectively. Tomato, sweet potato and bell pepper are tender perennials usually grown as annuals.

Exercise 6. Translate into English:

1. Рис вирощується як однорічна рослина.
2. Вирощування рису вимагає достатньої кількості води.
3. Злакові культури – це багате джерело вітамінів, мінералів, жирів та білку.
4. Чи існують якісь особливі вимоги щодо вирощування рису?
5. Який традиційний метод вирощування рису ви можете назвати?
6. До яких сільськогосподарських культур належить рис?

Exercise 7. Read the magazine article. Then, mark the following statements as true (T) or false (F).

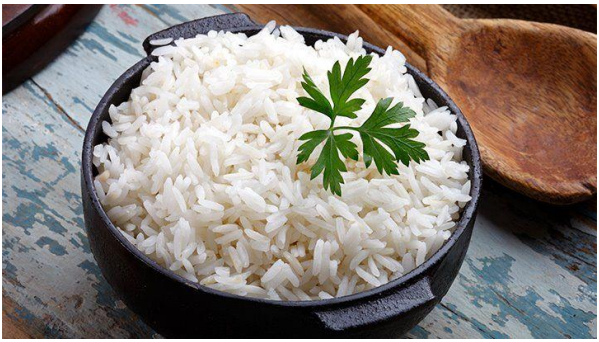
Few plants have as much protein as quinoa, and it can grow in many environments. For that reason, it's become popular with gardeners and commercial farmers alike. Check out the following tips to grow quinoa at home. Quinoa requires full sun to conduct photosynthesis. Sow seeds where the plant will get plenty of light. Provide at least 10 inches between rows to give the roots plenty of space. If you maintain growth charts, you'll notice that quinoa grows slowly at first. But when the stem reaches about 12 inches, the buds will flower. The plant is ready for harvest when the leaves drop. Only the seed heads will remain. These can be stripped from the branches with little effort. Remove and dry the seeds for your first quinoa harvest.

1 – No plant has more protein than quinoa.

2 – Quinoa sprouts quickly and then slows.

3 – Farmers who grow quinoa harvest its seeds.

UNIT 2



Exercise 1. Read, translate and memorize the following words and word combinations:

to mill	молоти
chaff	полова, дрібна солома
bran	висівки
germ	зародок, ембріон; зав’язь
to lack	відчувати нестачу; бракувати
to prevent	запобігати
to refer	стосуватися; посилатися на
to process	переробляти
to enrich	збагачувати
to cause	спричиняти

Exercise 2. Read and translate the text:

PREPARATION AS FOOD

The seeds of the rice plant are first milled using a rice huller to remove the chaff (the outer husks of the grain). At this point in the process, the product is called brown rice. The milling may be continued removing the 'bran' (the rest of the husk and the germ) thereby creating white rice. White rice which is kept longer lacks some important nutrients. In a limited diet which does not supplement the rice, brown rice helps to prevent the disease beriberi.

White rice may also be buffed with glucose or talc powder (often called polished rice), parboiled or processed into flour. White rice may also be enriched by adding nutrients, especially those lost during the milling process.

In some countries parboiled rice is popular. Parboiled rice is subjected to a steaming or parboiling process while still a brown rice. This causes nutrients from the outer husk, especially

thiamine, to move into the grain itself. The parboil process causes a gelatinization of the starch in the grains. The grains become less brittle, and the color of the milled grain changes from white to yellow. The rice is then dried, and can then be milled as usual or used as brown rice. Milled parboiled rice is nutritionally superior to standard milled rice. Parboiled rice has an additional benefit: it does not stick to the pan during cooking.

Raw rice may be ground into flour for many uses including making many kinds of drinks such as amazake, horchata, rice milk, and sake. Rice flour does not contain gluten and is suitable for people on a gluten-free diet. Rice may also be made into various types of noodles.

Rice is a good source of protein and a staple food in many parts of the world. But it is not a complete protein. It does not contain the sufficient amount of all essential amino acids necessary for good health. And it should be

combined with other sources of protein such as nuts, seeds and beans.

NOTES:

Amazake is a traditional sweet, low-alcoholic Japanese drink made from fermented rice. The basic recipe for amazake has been used for hundreds of years. Amazake can be used as a dessert, snack, natural sweetening agent, salad dressing or smoothie. Amazake is believed to be very nutritious, with no additives.

Horchata is the name of several kinds of traditional beverage made of ground almonds, sesame seeds, rice, barley, or tigernuts.

Exercise 3. Give English equivalents for the following:

1. зберігати довше
2. важливі поживні речовини
3. попереджати різні хвороби
4. мука
5. спричиняти
6. змінювати колір з білого на жовтий
7. додаткова користь
8. джерело
9. білок
10. в достатній кількості

Exercise 4. Answer the following questions:

1. What is the first stage in the rice processing?
2. What is “the bran”?
3. What is the importance of brown rice?
4. Is parboiled rice popular in our country? Do you use it while cooking?
5. What is the characteristic feature of parboiled rice?

6. For what purposes is rice used?

Exercise 5. Translate into Ukrainian the following definitions:

1. **Husk** (or **hull**) in botany is the outer shell or coating of a seed. It often refers to the leafy outer covering of an ear of maize (corn) as it grows on the plant.

2. A **rice huller** or **rice husker** is an agricultural machine used to automate the process of removing the chaff and the outer husks of rice grain. Throughout the history there have been numerous techniques to hull rice. In more recent times the processes are mechanized and the machine is called a huller. This machine is widely developed and used throughout Asia.

3. **Parboiled rice** is rice that has been boiled in the husk. Parboiling makes rice easier to process by hand, improves its nutritional profile, and changes its texture.

4. **Beriberi** (/bɛribɛri/) is a nervous system ailment caused by a **thiamine deficiency** (deficiency of vitamin B_1) in the diet.

Exercise 6. Translate into English:

1. Білий рис можна збагатити шляхом додавання поживних речовин.
2. Який процес спричиняє желатинізацію крохмалю в зерні?
3. Рисова мука може використовуватися для виготовлення багатьох напоїв.
4. Які поживні речовини містить в собі рис?
5. На жаль, він не містить достатню кількість головних амінокислот і тому повинен поєднуватися з іншими джерелами білку.

SUPPLEMENTARY READING

TEXT 1 RICE

To meet the food needs of the world's rapidly expanding population, rice-producing countries must address a range of issues

Production

Since the 1970s, demand for rice has been met thanks to high-yielding varieties and improved production methods. Irrigation was key -- during the green revolution irrigated area grew by 4 to 5 million hectares per year. Today, as populations grow, land and water resources for rice production are diminishing. To head off a crisis, governments should promote better crop management techniques and higher-yielding hybrid seeds to reap more from already irrigated lands. Wetlands could be converted to irrigated rice

production -- in Africa and the Americas, over 135 million hectares of wetland are suitable.

Environment

Excessive use of pesticides in rice farming pollutes water and creates health hazards. Intensive irrigation can cause salinization and waterlogging. Flooded rice is a major source of methane emission while the use of nitrogen-based fertilizers produces nitrous oxide -- both are greenhouse gases linked to global warming. One solution is integrated pest and crop management, which teaches farmers to monitor the pests in their fields and adopt practices that reduce the need for pesticides.

Poverty

Small-scale rice farmers will never be rich, but they too can benefit from improved technologies and methods -- if the improvements are designed with small-scale needs in mind. Double-cropping with tomatoes or cabbage, for example, can increase income. Women farmers have less access to credit, farm

inputs, marketing facilities and extension services - a missed opportunity to boost production and reduce poverty. National policies often favour the consumer and the export market instead of being pro-poor. Increased rice production also means more jobs in support sectors such as milling, marketing and trading.

Nutrition

In addition to being a rich source of dietary energy, rice is a good source of thiamine, riboflavin and niacin. The nutrient content of rice can be improved by using both traditional selective plant breeding techniques and new technologies, such as modification of the plant's genetic code. "Golden rice", a rice with high levels of Vitamin A, is expected to reach consumers in the near future.

Biotechnology

Biotechnology can help increase yields and reduce the need for inputs. For example, biotechnology could one day create a drought-

resistant variety of rice, or one that fixes nitrogen directly from the atmosphere, reducing the need for fertilizer. Human and environmental safety must come first, though, and benefits should flow not only to multinational companies but also to farmers.

Hybrid technology

High-yielding rice varieties take credit for much of the remarkable gain in rice production over the past 35 years. Yet since 1966, yields have been stagnant. Unfortunately, the cost of hybrid seed production is four to five times higher than normal seeds - out of reach for most poor farmers. Developing countries need international help to start their own hybrid rice programmes.

Genetics

Although the use of new, high-yielding varieties instead of traditional rice varieties brought huge gains in yield, the planting of a single variety over large areas year after year may compromise genetic resistance to pests.

Research needs to be supported to continue the search for new, more pest-resistant varieties. The rice genome was recently mapped fully and more effective breeding is expected.

After the harvest

Unfortunately, even when rice thrives, a significant portion is lost after harvesting. Hand harvesting and threshing are still common, rudimentary grain drying prevails and rice is poorly stored. Farmers often lose 10 to 37 percent of the harvest, especially in the rainy season. Improved silos, and new varieties more tolerant to delayed harvesting would help.

TEXT 2 RICE PRODUCTION UNDER CLIMATE CHANGE

Members of the National Agriculture and Food Research Organization, Japan, have been conducting 'Free-Air CO2 Enrichment' experiments to ascertain the impact that climate change is having on rice production.

Rice directly feeds more people than any other crop and is relied on as a staple food source by half of the world's population. But while its adaptability allows it to grow in a wide range of conditions, from cold to tropical climates and low to high altitude areas, projected climate change is becoming a major threat to the stable production of high-quality products.

Atmospheric CO2 concentrations are rising at an unprecedented rate, along with other greenhouse gases, and we are seeing increasing temperatures and differing precipitation amounts and patterns, as well as more frequent occurrences of extreme weather.

But, while many of these changes are projected to have negative effects, an increase in CO2 has a positive effect on rice crops – enhancing photosynthesis, biomass, and thereby grain yield – through a phenomenon known as 'CO2 fertilisation'.

Grain quality is becoming increasingly important in the rice market, and serious concerns are emerging about quality losses due to heat stresses under global warming.10, 11 The amount of chalky immature grains increases with rising temperatures during the grain growth stage and this decreases marketability and milling quality. The FACE experiments have shown that elevated CO2 also significantly degrades the grain appearance quality by increasing the percentage of chalky grains12, which is particularly pronounced in hot years.13

Simultaneous increases in CO2 and air temperature will negatively impact high-quality rice production, while elevated CO2 also

decreases zinc, iron, and protein content in the grains.14, 15 It is important to note that considerable variation exists in the quality degradation across different rice cultivars,14, 15 which suggests that there is scope for breeding rice cultivars whose micronutrient levels or appearance quality are less vulnerable to increasing CO2.

TEXT 3 RICE COOKING

There are many varieties of rice. One can distinguish between long- and medium-grain rice. The grains of long-grain rice tend to remain intact after cooking. Medium-grain rice becomes stickier. Medium-grain rice is used for sweet dishes, for risotto in Italy and many arrossos in Spain.

Rice is cooked by boiling or steaming and absorbs water during cooking. It can be cooked in just as much water as it absorbs (the absorption method) or in a large quantity of water which is drained before serving (the

rapid-boil method). Electric rice cookers popular in Asia and Latin America simplify the process of cooking rice. Rice is often heated in oil before boiling or oil is added to the water. This is thought to make the cooked rice less sticky.

In Arab cuisine rice is an ingredient of many soups and dishes with fish, poultry and other types of meat. It is also used to stuff vegetables or is wrapped in grape leaves. Combined with milk, sugar and honey it is used for making desserts. In some regions bread is made using rice flour. Medieval Islamic texts spoke of medical uses of the plant.

Rice may also be made into rice porridge by adding more water than usual. The cooked rice becomes very soft and fluffy. Rice porridge is commonly eaten as a breakfast food and is also a traditional food for the sick.

Rice may be soaked prior to cooking. It decreases cooking time, minimizes exposure to high temperature and thus decreases the

stickiness of the rice. For some varieties soaking improves the texture of the cooked rice by increasing expansion of the grains.

CHAPTER 6
STRAWBERRIES PRODUCTION
UNIT 1 STRAWBERRY

Exercise 1. Match two parts of the sentences:

1) Strawberry blossoms are	a) popular at local farmers' markets and roadside stands.
2) Strawberries are many people's favorite fruit and are always	b) central and northern European countries.
3) Strawberries prefer	c) susceptible to late spring frosts.
4) There is a strong year-round demand for	d) high quality fresh strawberries in Europe.
5) From February to May strawberries are produced in the south of Spain and Italy and imported into	e) full sun, although afternoon shade.

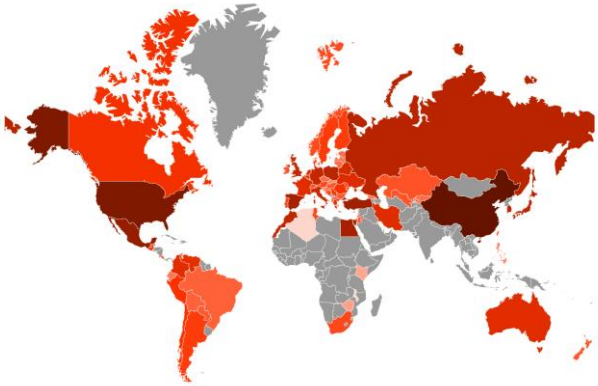
Exercise 2. Complete the following sentences with the correct words.

There is a strong year-round **1** _____ for high quality fresh strawberries in Europe. From February to May strawberries are produced in the south of Spain and Italy and **2** _____ into central and northern European countries. The high temperatures in August in southern Italy, France and Spain make it **3** _____ to establish strawberry plants and obtain good yields in the summer and in autumn. In central Europe (UK, Germany, The Netherlands, Belgium and Switzerland) short day cultivars typically **4** _____ for four to six weeks in June and July. The traditional production in the Scandinavian countries lasts from the end of June until the **5** _____ of August.

1	**a**	request	**b**	demand	**c**	command	**d**	order
2	**a**	imported	**b**	exported	**c**	taken	**d**	given
3	**a**	easy	**b**	different	**c**	difficult	**d**	simple
4	**a**	plant	**b**	crop	**c**	yield	**d**	output
5	**a**	finale	**b**	ending	**c**	terminal	**d**	end

Exercise 4. Read and translate the text below.

WORLD STRAWBERRY PRODUCTION



The strawberry belongs to the family Rosaceae, genus Fragaria, and is among the most widely consumed fruit throughout the world.

Most varieties are cultivated from Fragaria and Ananases and grown across a wide range of regions worldwide with the exception of polar latitudes.

Over 4.3 million tons of strawberries are produced each year. This has increased from 3.2 million tones over the last decade. Biggest producer is the USA at 1.3 million tons per

annum – which represents 30% of the world's crop (Table 1). The next largest producers are Turkey, Spain, Egypt and Mexico, growing between 230,000-303,000t each. The areas grown and their respective yields vary considerably, largely due to production methods.

Protected cropping under plastic or in greenhouses produces yields that are around 60-70 t/ha while under open field cultivation producers aim for around 20t/ha. The highest mean yield of 56t/ha comes from the USA where a large proportion of the crop is intensively produced under plastic tunnels.

Northern and Eastern European countries are lower, at between 3-8 t/ha, but the best growers produce yields much higher than this. Spain is the largest exporter at over 350,000 tones/annum, marketing 85% of their crop largely to North European consumers. In the EU, Germany and France are biggest importers at 90,000-100,000 t/annum. The second largest

exporter is the USA, where Canada is the main market, taking 110,000 t. Around 80% of US exports are as fresh strawberries.

Per capita annual consumption of strawberries in the USA is around 3 kg - a figure that has almost doubled over the last decade. EU citizens also consume similar amounts at between 3-4 kg/person.

Exercise 5. Decide whether the following statements are True (T) or False (F):

1) Most varieties are cultivated from Fragaria and Ananases and grown across a less range of regions worldwide with the exception of polar latitudes.

2) Protected cropping under plastic or in greenhouses produces yields that are around 60-70 t/ha.

3) Northern and Eastern European countries are lower, at between 10 t/ha, but the best growers produce yields much higher than this.

4) Per capita annual consumption of strawberries in the USA is around 3 kg.

5) The second largest exporter is the USA, where Canada is the main market, taking 110,000 t. Around 80% of US exports are as fresh strawberries.

Exercise 6. Arrange the sentences in logical order according to the text about strawberries production. Then use them as a plan to retell it.

Normal Season Production

A ___ Normally fresh dug plants are established during the first two weeks of August. The majority is planted on raised beds with black polyethylene to advance the harvest period. In most countries the harvest is advanced by 10 days by covering the fields with floating mulch or woven sheets. In colder areas and northern slopes white mulch is being used to postpone the harvest.

B ___ Summer production can be achieved by using everbearing cultivars. Cold-stored plants are usually established in the field March on raised beds. Double row systems with a density of 4-5 plants per m2 are most common. The first flower trusses are removed in Mav through early June. Harvest starts around the

beginning of July and last until October depending on the climatic conditions.

Late Cropping Systems with Everbearers

C___ Currently strawberry production in central Europe is dominated by the short-day cultivar ‘Elsanta’. This Dutch cultivar is widely adapted, from the south of Sweden to northern Italy and central France, from Ireland and Scotland to Germany and Austria. Its high-quality fruit is favored by the major-retailers for retail markets and export.

D ___ The use of everbearing cultivars under protection is of minor import in polyethylene tunnels for an autumn crop, advance. ‘Everest’, ‘Everglade’ are grown for summer cropping and covered with walk-in runnels to extend the production into autumn.

1 _____ 2_____ 3 _____ 4 _____

Exercise 3. Fill in the gaps in the text below with one of the words given in the box, read and translate about the strawberries.

growing season gardens fruit plants production high-pH vitamin

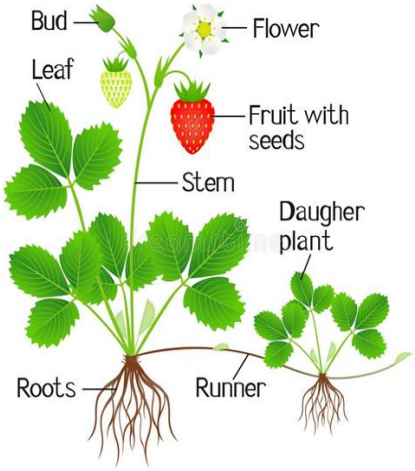
Strawberries are many people's favorite **1) ____** and are always popular at local farmers' markets and roadside stands. They are one of the most common small fruits grown in home **2 _____** and are an easy fruit to grow. Strawberries are not only attractive and flavorful but also nutritious. A cup of strawberries has only 55 calories, but will supply more than the daily recommended requirement of **3 _____** C. A bed of 25–50 strawberry **4 ____** will produce enough berries for an average-sized family for fresh eating and some preserves. Strawberry plants grow best with a long growing **5 _____** of daily maximum temperatures of 70–75° F.

In the U.S., commercial strawberry **6 _____** is concentrated in Florida and California, where optimal temperatures are achieved for several months. In northern New Mexico, the cold winter and high elevation limit

the length of the **7 _____** season, while in low-elevation areas of southern New Mexico, the high daytime temperatures in summer make growing strawberries a challenge. Some strawberries also do not perform well in **8 _____**soil.

UNIT 2

Exercise 1. Read and translate the text below. Remember the structure of strawberries



BOTANY

Strawberry belongs to the rose family (Rosaceae). Its fruit is an aggregate fruit with seeds or achenes embedded on the surface of a swollen receptacle. Strawberries generally propagate vegetatively by producing runners (stolon).

In June-bearing strawberries, runners arise from buds at the base (axils) of the leaves in response to longer days (more than 12 hours of sunlight, which occurs from June to August). Day-neutral varieties generally produce fewer runners, so they should be planted closer together in the bed.

Exercise 2. Match the words (1 - 5) with the definitions (A - E).

1) blossoms	a) cause the water or other liquid in (something) to run out, leaving it empty, dry, or drier.
2) to drain	b) a flower or a mass of flowers, especially on a tree or bush.
3) to select	c) light from the sun.
4) to reduce	d) carefully choose as being the best or most suitable.
5) sunlight	e) make smaller or less in amount, degree, or size.

Exercise 3. Translate the following words into Ukrainian and remember them:

1	early blossoms	
2	strawberry beds	
3	delay bloom	
4	shady locations	
5	disease problems	
6	to control white grub	
7	should be free	
8	perennial weeds	

Exercise 4. Fill the gaps in the text below with one of the words given in the box, read and translate the text below.

frost sun blossoms to protect yield strawberries berries

SITE SELECTION

Strawberry **1)____** are susceptible to late spring frosts. Those early blossoms are primary or secondary flowers and produce the largest berries. Loss of these flowers will reduce **2_____.** Locating strawberry beds on elevated areas of the garden with gentle slopes will allow heavy cold air to drain away from the bed, helping to reduce **3_____** damage. A northern exposure may help delay bloom in the spring if late frosts are a problem.

Earlier production can be achieved by selecting a southern exposure that warms earlier in the spring, but this will also increase the risk of frost damage. Plants may have to be covered with a straw mulch or frost blanket at night **4** _____ them if frost becomes a problem. Locations next to a house are often warmer due to heat generated from the home.

Strawberries prefer full **5** _____**,** although afternoon shade or shade cloth to reduce sunlight intensity may be needed in southern New Mexico. However, shady locations can cause more vegetative plants with fewer **6** _____ and more disease problems. Avoid planting strawberries after peppers, tomatoes, potatoes, eggplant, or okra, all of which are susceptible to Verticillium wilt, which can

remain in the soil and affect **7 _____.** Strawberry plots following sod may have to be treated to control white grub. Sites should also be free of noxious and perennial weeds.

Exercise 5. Match the following English words with their Ukrainian equivalents:

1	protect	**a**	розташування
2	wilt	**b**	захищати
3	eggplant	**c**	зменшувати
4	location	**d**	баклажан
5	yield	**e**	в'янути
6	increase	**f**	урожайність
7	reduce	**g**	збільшувати

Exercise 5. Read and complete the text below. For each empty spaces (1 – 5) choose the correct answer (A, B, C, D)

HARVEST AND STORAGE

Pick **1 _____** in the morning when temperatures are cool to prolong their shelf life. The surface of the berry should be dry to prevent fruit **2 _____.** Since berries will not continue to ripen after harvest, pick them when fully ripe (red from calyx to tip).

Be sure to remove any overripe, diseased, or insect-damaged fruit to keep plants producing. Berries should be harvested every other day if possible, to maintain **3 _____.** Keep berries out of the **4 _____**, and refrigerate unwashed berries until needed. Strawberries can be stored for 2–6 days at 32–34°F (high humidity). Remove the tops and clean berries when ready to **5 _____,** freeze, or process.

1	**a**	roots	**b**	crops	**c**	leaves	**d**	berries
2	**a**	increase	**b**	reduce	**c**	rot	**d**	improve
3	**a**	status	**b**	quality	**c**	sort	**d**	kind
4	**a**	sun	**b**	moon	**c**	wind	**d**	rain
5	**a**	dry	**b**	taste	**c**	try	**d**	eat

SUPPLEMENTARY READING

TEXT 1 SOIL PREPARATION FOR STRABERRIES

Strawberries grow best in well-drained, sandy loam soils high in organic matter and fertility. Before planting, a soil test for pH and nutrient levels is recommended. Soils should be neutral to slightly acidic (pH 6.5). Plants established on more alkaline soils (pH 7.5 or greater) tend to exhibit signs of iron deficiency (yellowing between leaf veins, or interveinal chlorosis, of younger leaves). In severe cases, pale leaves become white, turn brown around the edges, and then die. Strawberry plants are also highly sensitive to salts in the irrigation

water or soil (salinity). High total salinity causes stunting, marginal leaf scorch, and severe yield reduction. Enough water should be applied to ensure that salts are leached below the root zone. Strawberry cultivars vary in their adaptation to high soil pH.

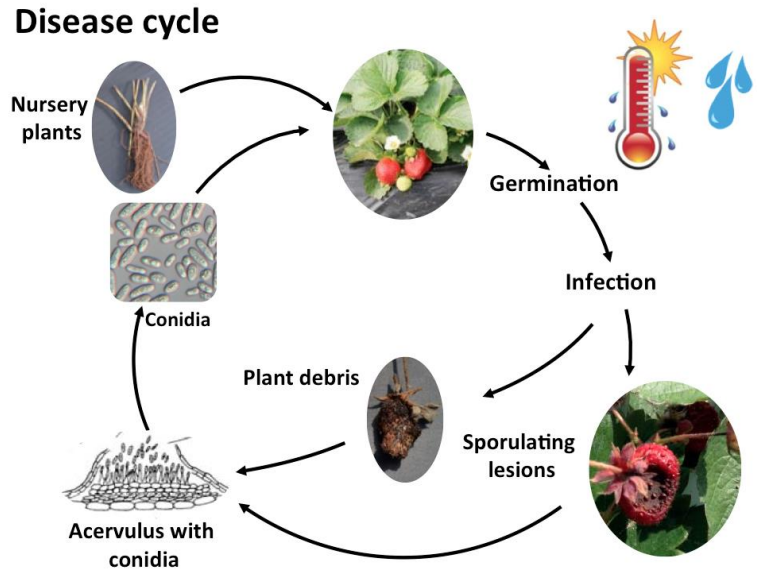
The soil should be prepared before planting by incorporating organic matter (2–3 inches of garden compost) into the bed to a depth of at least 8 inches. Organic matter will improve nutrient availability as well as the structure and water-holding capacity of the soil over time. Avoid over-application of some composts that may be high in salt content. Soil drainage can be improved by planting on raised beds (36 inches wide and 3–4 inches high), which will also warm sooner in the spring than flat ground but can make the plants vulnerable to late frosts. However, planting on flat ground may be preferred where salinity is a problem and it is necessary to flood the beds occasionally to move salts down through the soil profile. If drip

or sprinkler irrigation systems are used, salts will be leached down from the tops of the raised beds.

TEXT 2 PESTS AND DISEASES OF STRAWBERRIES

The major pests/diseases we noticed at Alcalde were tarnished plant bugs, anthracnose, leaf chlorosis, and fruit rot. For home gardens, you may also encounter white grubs, spider mites, slugs, snails, and sowbugs on strawberries. Tarnished plant bug is a small bug (1/4 inch long), but it causes severe damage to the fruit—it sucks the juice of the fruitlets, deforming the fruit and making it unmarketable. Its infestation period is during blooming time

and the fruitlet stage. To manage tarnished plant bugs, scout the field around blooming time to monitor its population and spray when necessary. Anthracnose is a fungal disease that affects not only the leaves but also flower clusters. It causes lesions on leaf petioles and can clip the leaves in severe situations. Keeping plants healthy and maintaining good air circulation can prevent/reduce anthracnose. Leaf chlorosis is a physiological disorder in high-pH soils. It is more prevalent during wet, cold



springs, or when irrigation is started too early in the year. As mentioned in the fertilization section, iron chelate application (preferably the EDDHA form) is recommended to manage leaf chlorosis and improve plant health. Botrytis fruit rot is very common for strawberries, and a crowded bed, humid conditions, and sprinkler irrigation will all make it worse. Appropriate cultural and sanitation practices can help to reduce fruit rot. Viral infections are also possible in any straw-berry fields, and some of them are not visible. Always purchase clean plants from reliable nurseries and replant your strawberry beds with new plants after 3–4 harvest seasons. Other pests include weeds and birds. Weeds can be controlled with various mulches or pulling by hand. Birds are best controlled with net-ting spread across the beds.

TEXT 3 PLANTING

Bare-root plants should be ordered early (before spring planting) to ensure that appropriate cultivars are available. Buy only certified virus-free plants that have been inspected for pests and bred for dis-ease resistance. Beds should be prepared before your scheduled planting date.

Planting in the spring after danger of hard frost ensures greater plant survival because the weather is cool. Plants should be dormant and healthy upon arrival. Crowns should be solid with light-colored roots. If new plants arrive early, they can be stored at 30–32°F with 85–90% relative humidity (wrapped in moist packing materials).

Plants can also be “healed in” in the garden for temporary storage. To heal in the plants, place them in a shallow trench, cover the roots with soil, and water them. Planting depth is critical for strawberries. The crown (where

leaves are attached) should be level with the surface of the soil. If planted too shallow, the roots will dry out; when planted too deep, the plants will rot. Firm the soil over the roots and around the base of the crown so no air pockets form. Water plants immediately. One pint of fertilizer starter solution around each plant will help promote early growth. A starter solution can be made of one cup of 12-12-12 or 12-24-0 per 10 gallons of water.

TEXT 4 CALIFORNIA STRAWBERRY FESTIVAL

Have you ever tried a strawberry pizza? If you went to Oxnard, the “Strawberry Capital of California,” in May, you could! Oxnard is in Southern California and this part of the state takes its strawberries very seriously. At the two-day California Strawberry Festival, you can see and try strawberries prepared in all sorts of ways. In addition to traditional treats such as strawberry shortcake, strawberry jam, strawberry tarts and strawberries dipped in chocolate, there is strawberry pizza!

This dessert pizza is topped with strawberries, sour cream, cream cheese and

whipped cream on sweet bread baked like a pizza. Strawberry kabobs dipped in powdered sugar are another delicacy. And drinks such as a strawberry smoothie can wash it all down. Strawberries are big business in Oxnard. The annual strawberry revenues are $100 million from Oxnard's bountiful 6,600 berry acres. Twenty-four companies harvest and cool nearly 16 million trays of berries, which are shipped throughout North America as well as to Germany and Japan. The festival, which attracts more than 85,000 visitors, features three stages with musical entertainment, 335 arts and crafts exhibits, strolling musicians, clowns, artists, face-painting, contests, and a "Strawberryland" for children with puppets, magicians, musicians, and a pet zoo.

CHAPTER 7

UNIT 1 WHEAT

Exercise 1. Read, translate and memorize the following words and word combinations:

wheat	пшениця
content	вміст
scale	масштаб
yield	урожай
storage	зберігання
straw	солома
fertilizers	добрива
to benefit	отримувати користь
to ensure	забезпечувати
thatch	солом’яна покрівля

Exercise 2. Read and translate the text:

WHEAT

Wheat is a grass, originally from the Near East, but now cultivated worldwide. In 2008 world production of wheat was 607 million tons making it the third most-produced cereal after maize (784 million tons) and rice (651 million tons). Globally wheat is the leading source of vegetable protein in human food, having a higher protein content than either maize (corn) or rice, the other major cereals.

Wheat was one of the first crops that could be easily cultivated on a large scale, and had the additional advantage of yielding a harvest that provides long-term storage of food.

Wheat grain is a staple food used to make flour for bread, biscuits, cookies, cakes, breakfast cereal, pasta, noodles and for fermentation to make beer, other alcoholic drinks or biofuel.

Wheat is planted to a limited extent as a forage crop for livestock, and its straw can be

used as a construction material for roofing thatch.

Wheat normally needs between 110 and 130 days between planting and format, depending upon climate, seed type and soil conditions. Optimal crop management requires that the farmer have a detailed understanding of each stage of the development of growing plants. In particular spring fertilizers, herbicides, fungicides, growth regulators are typically applied only at specific stages of plant development.

Exercise 3. Choose the correct items to complete the sentences. Translate the following sentences into Ukrainian:

1) Globally wheat is the leading source of vegetable protein in human _____. (cereal, food, rice)
2) Wheat was one of the first crops that could be easily cultivated on a large _____. (size, format, scale)
3) Knowledge of stages is also important to identify periods of higher risk from the _____. (weather, climate, whether)
4) Most animal feed is from plants but some is of animal _____. (origin, formatting, planting)
5) Organic fertilizers have been used for many centuries whereas chemically synthesized inorganic fertilizers were only widely developed during the industrial _____. (rotation, revolution, alteration)

Exercise 4. Give English equivalents for the following:

1. вирощуватись у всьому світі
2. високий вміст білка
3. одна з перших сільськогосподарських культур
4. велика рогата худоба
5. застосовувати добрива
6. будівельний матеріал
7. наливання зерна
8. саджати в обмеженій кількості

Exercise 5. Answer the following questions:

1. What does the wheat cultivation depend on?
2. Is wheat a food crop or an industrial crop?
3. Where do people use wheat's straw?
4. Is wheat a valuable source of fats or vegetable protein?
5. Can we use wheat as a forage crop?
6. What place does it occupy in the world production?

Exercise 6. Complete the following sentences with the correct words then read and translate the information:

It is currently recommended that the second **1 _____**of nitrogen is best done when the ear is about 1 cm in size. Knowledge of stages is also important to identify periods of higher risk from the **2 _____.**

Farmers also benefit from knowing when the 'flag leaf' (last leaf) **3 _____,** as this leaf represents about 75% of photosynthesis reactions during the grain filling period. And it should be preserved from **4 _____** or insect attacks.

1	**a**	using	**b**	exaction	**c**	ordering	**d**	application
2	**a**	crops	**b**	water	**c**	climate	**d**	air
3	**a**	appeared	**b**	appears	**c**	is appeared	**d**	appearing
4	**a**	diseases	**b**	affection	**c**	disorder	**d**	confusion

Exercise 7. Read the sentence pair. Choose where the words best fit the blanks.

1 highly-organic /course-grained

A soil is best suited for farming.

B Growing crops in _____ soil is difficult.

2 peat / clay

A _____ makes soil more fertile.

B _____ is much denser than sand.

3 unified soil classification system /composition

A Each soil type has a different ____

B Soil types are organized by the ____

Exercise 8. Decide whether the following statements are True (T) or False (F):

1) Wheat grain is a staple food used to make flour for bread, biscuits, cookies, cakes, breakfast cereal, pasta and noodles.
2) Farmers benefit from knowing when the ‘flag leaf’ (last leaf) appears, as this leaf represents about 75% of photosynthesis reactions during the grain filling period.
3) Wheat is a grass, originally from the Near East, but now cultivated only in Europe.
4) Wheat normally needs between 100 and 110 days between planting and harvest, depending upon climate, seed type and soil conditions.
5) In particular spring fertilizers, herbicides, fungicides, growth regulators are typically applied only at specific stages of plant development.

Exercise 9. Translate into Ukrainian the following definitions:

1**. Biofuels** are fuels derived from biomass. Biodiesel is made from vegetable oils, animal fats or recycled greases. Biodiesel can be used

as a fuel for vehicles in its pure form, but it is usually used as a diesel additive to reduce levels of carbon monoxide and hydrocarbons from diesel vehicles. Biodiesel is the most common biofuel in Europe. Biofuels provided 1.8% of the world's transport fuel in 2008.

2. In agriculture, **fodder** or **animal feed** is any foodstuff that is used to feed livestock such as cattle, goats, sheep, horses, chickens and pigs. Most animal feed is from plants but some is of animal origin. "Fodder" includes hay, straw, silage, compressed feeds, oils and mixed rations, and also sprouted grains and legumes.

The worldwide animal feed industry consumed 635 million tons of feed in 2008 with an annual growth rate of about 2%. The use of agricultural land to grow feed rather than human food can be controversial. Some types of feed such as corn (maize) can also serve as human food, while others such as grass cannot.

3**. Fertilizers** are substances that supply plant nutrients or amend soil fertility. They are

the most effective means of increasing crop production and improving the quality of food and fodder. Fertilizers are used in order to supply nutrients to the soil, especially to correct yield-limiting factors. Fertilizers are applied to promote plant growth.

The main nutrients present in fertilizers are nitrogen, phosphorus and potassium (the 'macronutrients'). Other nutrients are added in smaller amounts. Fertilizers are usually directly applied to the soil and can also be sprayed on leaves.

Organic fertilizers have been used for many centuries whereas chemically synthesized inorganic fertilizers were only widely developed during the industrial revolution.

5. **A herbicide**, commonly known as a **weedkiller**, is a type of pesticide used to kill unwanted plants. Selective herbicides kill specific targets leaving the desired crop relatively unharmed.

Exercise 10. Match two parts of the sentences:

1) Industrial crops are widely	a) cotton.
2) The most important industrial crop for textile industry is	b) the irrigated lands.
3) Cotton is generally grown on	c) cultivated by the farmers.
4) Cotton and flax oils are	d) raising productivity and also by increasing the heads of livestock and the amount of poultry.
5) Livestock breeding comprises	e) both edible and valuable.
6) One of the principle problems cattle-breeding faces is	f) cattle-breeding, pig-growing, poultry-breeding, etc.
7) Increasing the production of meat, milk and wool can be achieved by	g) that of fodder or feeds.

Exercise 8. Match the words (1 – 6) with the definitions (A – F).

1 _ sand
2 _ silt
3 _ grain
4 _ classification
5 _ fine-grained
6 _ texture

A soil deposited by water
B consisting of tiny particles
C a small piece of material
D group something belongs to
E how something feels F soil made of rock and minerals

Exercise 11. Translate into English:

1. Які сорти пшениці вирощуються у вашому господарстві?
2. Чи вносите ви якісь добрива для підвищення врожайності пшениці?
3. Що є найкращим засобом для підвищення врожайності?
4. Які головні мікроелементи входять до складу добрив?
5. Яке місце належить пшениці у світовому виробництві?

Exercise 12. Match the words (1-6) with the definitions (A-F).

1 agriculture	**A** a large group of cultivated plants
2 crop	**B** to put seeds in soil
3 cultivate	**C** growing plants and raising animals
4 produce	**D** to make something
5 domesticate	**E** to raise a crop from seeding to harvest
6 plant	**F** to tame an animal

Exercise 13. Read the sentence pair. Choose where the words best fit the blanks.

1) reap / mature

A _____ the crops in six months.

B Some plants take longer to _____

2) chaff / harvest

A The annual _____ is next month.

B This machine removes the unusable _____ .

3) tons / bales

A There were many more of hay this year.

B How many _____ of wheat were harvested?

Exercise 14. Read and translate the text below.

LABOUR SUPPLY FOR WHEAT PRODUCTION

As known labour is regarded as one of the essential inputs, the survey pursued to assess this component. The research found that farm labour force scheme comprises both family and hired labours according to the production stage, size of cultivated area, financial abilities of tenants and the type of the crop. The wheat

grower tended to avoid hired labours to reduce the cost of production, but sometimes and for some production stages that require large number of labours force, they found themselves compelled to hire labour (s), such as for pre-sowing land cleaning, canal cleaning, plots preparation, weeding, pest control and harvesting stages.

SUPPLEMENTARY READING

TEXT 1 PRODUCTION AND CONSUMPTION

Harvested wheat grain that enters trade is classified according to grain properties for the purposes of the commodities market. Wheat buyers use these properties to decide which wheat variety to buy (as each class has special uses). And producers use them to decide which classes of wheat will be most profitable to cultivate.

Wheat is widely cultivated as a cash crop because it produces a good yield, grows well in a temperate climate even with a moderately short growing season. The popularity of foods made from wheat flour creates a large demand

for the grain even in economies with significant food surpluses.

Wheat can be ground into flour or semolina. Wheat is a major ingredient in such foods as bread, porridge, crackers, biscuits, muesli, pancakes, pies, pastries, cakes, cookies, rolls and breakfast cereals.

Nutrition

100 grams of hard red winter wheat contain about 12.6 grams of protein, 1.5 grams of fat, 71 grams of carbohydrate, 12.2 grams of dietary fiber and 3.2 mg of iron (17% of the daily requirement).

The same weight of hard red spring wheat contains about 15.4 grams of protein, 1.9 grams of fat, 68 grams of carbohydrate, 12.2 grams of dietary fiber and 3.6 mg of iron (20% of the daily requirement).

Much of the carbohydrate share of wheat is starch. Wheat starch is an important commercial product but second in economic value to wheat gluten.

NOTES:

In agriculture a **cash crop** is a crop which is grown for profit.

In earlier times cash crops were usually only a small (but vital) part of a farm's total yield. Today especially in the developed countries almost all crops are mainly grown for cash. Non-developed nations consider cash crops as crops which attract demand of more developed nations, and hence have some export value.

In many tropical and subtropical areas jute, coffee, cocoa, sugar cane, bananas, oranges and cotton are common cash crops. Grain crops, oil-yielding crops and some vegetables and herbs predominate in cooler areas. For example the predominant cash crops for the United States are corn, wheat and soybeans.

TEXT 2 DURUM WHEAT BREAD IN SICILIAN

Sicily is one of the few areas of Southern Europe where it is still possible to find landraces of many agricultural species, particularly cereals and durum wheat. Many landraces or ancient constituted durum wheat varieties are no longer cropped because of the commercial spread of new high-yielding varieties. Underutilization (of landraces) can induce genetic erosion both in species and between species and in ecosystems. In the last years the awareness of this process, the changes in the UE agricultural policy, the introduction of low input agricultural systems, a greater consumer desire for food quality have

reawakened interest in local, typical food productions. In Southern Italy, bread is traditionally prepared using durum wheat semolina. This use represents a powerful and strong link between the country (particularly suited to durum wheat cultivation), its crops and its food production; the link that is intertwined with the history, habits and customs of local people.

Among its principal objectives, the "Experimental Station for Durum Wheat in Sicily" aims to maintain and increase the value old Sicilian durum wheat landraces. This is done in the belief that preserving and enhancing plant biodiversity means preserving and enhancing food diversity. This institute has promoted activities aimed at a revaluation of these landraces for production of traditional Sicilian durum wheat bread.

In this way an economic importance will be assigned to typical and local crops and food production which could lead to a reawakening

of the economy in marginal areas of the interior of Sicily. The aim of this work is to study how objective morphological parameters and sensory quality of the bread are influenced by the raw material (grain from old varieties and improved ones) and by each step of production chain. In order to appreciate the value and to better define traditional Sicilian bread made by old durum wheat varieties, this work has the purpose of investing and highlighting the differences between this typical product and bread made with new improved durum wheat varieties. In this way a method for the traceability of the traditional bread could be developed as a powerful tool for detection of trickery and adulterations adopted by the manufacturers to meet the growing demand of traditional quality products.

TEXT 3 PRODUCTION COST OF WHEAT IN EGYPT

Cost recovery is an important reform strategy in agricultural advisory services. A number of different countries have contracted out advisory services to private providers or have diversified the funding of this activity. Production economics play a unique role in farm management. The dominant conception of production cost in the area of study is known as the cost of material inputs, labor force, services and the management used in producing a certain goods or / and crops. Many studies showed that the cost of production overall the RNS has leaded to the low profit.

The high cost of production attributed to high cost of numerous of production inputs, but absolutely, the irrigation water cost is considered as the most agricultural constraint and that might refer to the high-cost pumping water from the River Nile and this is justified strict allocation among the different crops grown. The coming elaboration of the survey results discerned the cost items as the sequence of the seasonal crop production operations.

The study detected that mainly about 13 cost components as mentioned in the above figure; they constitute the cost of production and they accounted SDD 70054.2 equal about US $ 300. Irrigation cost component achieved the highest cost item as 19% of total production cost. The wheat growers in Elzeidab scheme pay the cost of this item as a fixed rate for the scheme administration at the end of the season.

TEXT 4 CEREAL CHAIN QUALITY

The differences in the finished product depend on the raw material, (grain and semolina of old or improved varieties), used for bread preparation. The different genetic background, minor breeding intervention on the old varieties compared to the improved ones are responsible for the different chemical, merceological, technological properties of the semolina. These characteristics decisively influence the bread obtained.

Nowadays more and more people are looking for old fashioned and traditional tastes, but the increasing demand for traditional and genuine foods leads to adulteration and deception by manufacturers. The data here shown point out that bread prepared with old and improved varieties can be clearly distinguished both by objective morphological parameters (image analysis) and by sensorial

evaluations, for a potential traceability of typical product.

TEXT 4 LAW OF CONSERVATION OF ENERGY

Energy is the capacity to do work. Energy comes in many forms. Heat, light, electricity, magnetism, motion are various forms of energy.

The most common form of energy is the Sun's heat and light. We know the Sun's heat and light is the form of energy because it can do work. It can heat the ocean and evaporate it and lift astronomical quantities of water vapour high into the air.

Water vapour falls as rain to the Earth. Rain that falls on high ground flows back to the sea in the forms of rivers. We know the moving water contains energy. Long ago, people began to use the energy of flowing water that comes from the energy of the sunlight.

The sunlight also heats the air. The air nearer the equator gets more heat than the air

nearer the poles. The warm bodies of air rise, and the cold bodies of air fall, which causes winds all over the world. The winds contain energy. Long ago people started to use the energy of the wind that comes from the energy of the Sun.

There are some forms of energy that do not come from the Sun. There is heat inside the Earth. In some places, the hot regions appear quite near the surface on the Earth in the form of volcanoes, geysers and hot springs.

The most important forms of energy for man, however, are various kinds of chemical energy. Green plants grew in sunlight (provided they also have water and certain chemicals from the air and the soil). The green plants make use of the energy of sunlight and store it in their leaves in the form of certain substances. When these substances are slowly combined with oxygen from the air, a chemical reaction takes place that releases energy. It is on this

«chemical energy» that the plant lives and grows.

Plants are capable to store more energy than they are using. Animals can eat the plants and change the plant chemicals into their own, which they then store in their own body. The energy of animals' muscles comes from the energy of sunlight. In the process about 80 to 90 per cent of the energy stored in the plants is lost, 10 to 20 per cent being stored in the animal. It takes about seven kilograms of plant life to support one kilogram of animal life.

There is always a balance or «equilibrium» between plant and animal life in nature. If animals eat more plants than can be replaced by plant growth, the amount of food for animals grows less. Some animals die and the plants grow better than usual, there being fewer animals to eat them.

The total amount of energy is constant. When energy is spent there is as much energy as before, though its form can be changed. All the

transformations that are always taking place are only changes of energy from one form into another without affecting the whole.

CHAPTER 8

AGROECOLOGY

UNIT 1 WHAT IS AGROECOLOGY?

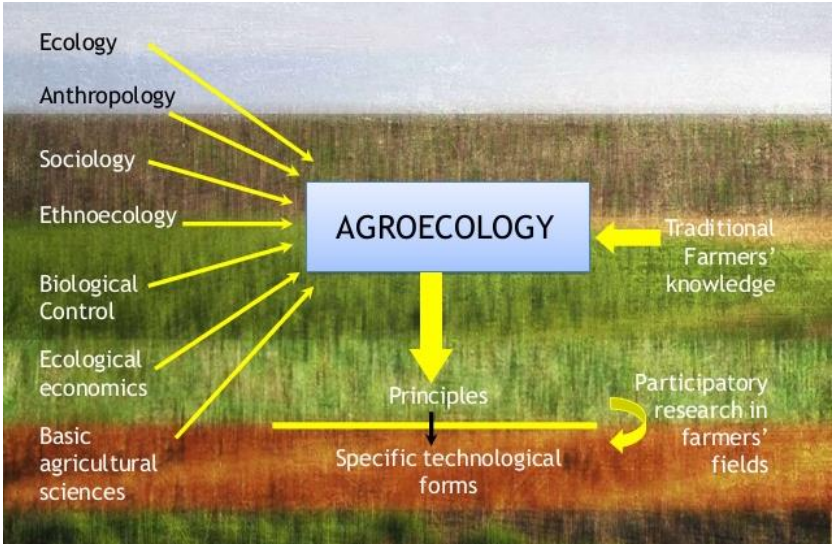
Exercise 1. Read and translate the text below.

The term agroecology has come to mean many things. Agroecology often incorporates ideas about a more environmentally and socially sensitive approach to agriculture, one that focuses not only on production, but also on the ecological maintenance ability of the production system. This might be called the ‘normative’ use of the term agroecology, because it implies a number of features about

society and production that go well beyond the limits of the agricultural field.

At its most narrow, agroecology refers to the study of purely ecological phenomena within the crop fields, such as predator/prey relations, or crop/weed competition.

At the heart of agroecology is the idea that a crop field is an ecosystem in which ecological processes found in other vegetation formations



Exercise 2. Read the text below. Match choices (A– F) to (1 – 6). There are two choices you do not need to use.

1 _____

At the heart of agroecology is the idea that a crop field is an ecosystem in which ecological processes found in other vegetation formations — such as nutrient cycling, predator/prey interactions, competition, and successional changes.

Implicit in some agroecological work is the idea that by understanding these processes and relations, agroecosystems can be manipulated to produce better, with fewer negative environmental or social effects, more rationally and with fewer external inputs. As a result, a number of researchers in the agricultural sciences and related fields have begun to view the agricultural field as a particular kind of ecosystem — an agroecosystem — and to formalize the analysis

of the ensemble of processes and interactions in cropping systems.

2 _____

Social factors such as a collapse in market prices or changes in land using can break up agricultural system as decisively as drought, pest outbreak or soil nutrient decline. The results of the interplay between endogenous biological and environmental features of the agricultural field, and exogenous social and economic factors, generate the particular agroecosystem structure.

3 _____

Under conventional agriculture, humans have simplified the structure of the environment over vast areas, replacing nature's diversity with a small number of cultivated plants and domesticated animals. This process of simplification reaches an extreme form in a monoculture. The objective of this simplification is to increase the proportion of solar energy fixed by the plant communities

that is directly available to humans. The net result is an artificial ecosystem that requires constant human intervention. Commercial seed-bed preparation and mechanized planting replace natural methods of seed dispersal; chemical pesticides replace natural controls on populations of weeds, insects and diseases; and genetic manipulation replaces natural processes of plant evolution and selection.

Agricultural systems are complex interactions between external and internal social, biological and environmental processes. The degree of external against internal control can reflect intensity of management over time.

Agricultural strategies respond not only to environmental, biotic and cultural forces, but also reflect human existence strategies and economic conditions. Factors like labor availability, subsidies, risk, price information, family size are often critical to understanding the logic of a farming system.

4 _____

Traditional agricultural scientists have been concerned primarily with the effect of soil, animal or vegetation management practices upon the productivity of a given crop, using a perspective that emphasized a target problem such as soil nutrients or pest invasions.

Increasingly, however, scientists are recognizing that such a narrow approach could limit agricultural preferences for rural peoples, and that the “target approach” often carries with it unintended secondary consequences that have often been ecologically damaging and had high social costs.

Agroecology can best be described as an approach that questions the ideas and methods of several subfields, rather than as a specific discipline. It has roots in the agricultural sciences, in the environmental movement, in ecology (particularly in the explosion of research on tropical ecosystems), in the analysis of native agroecosystems and in rural

development studies.

A – The net result
B – Agroecology Demand
C – The Stability of Agroecosystems
D – The Ecological View
E – The Social Perspective
F – Agricultural scientists

Exercise 3. Answer the following questions:

1. What does the term agroecology mean?
2. What is the central idea of agroecology?
3. What the major characteristics of agroecosystems?
4. Is agroecology a specific discipline?

Exercise 4. Fill in the gaps in the text below with one of the words given in the box.

agriculture, field, scientists, environmental, ecological

1) Traditional agricultural _____ have been concerned primarily with the effect of soil, animal or vegetation management practices.
2) A number of researchers in the agricultural sciences and related fields have begun to view the agricultural _____ as a particular kind of ecosystem.
3) Agricultural systems are complex interactions between external and internal social, biological and _____ processes.
4) At the heart of agroecology is the idea that a crop field is an ecosystem in which _____ processes found in other vegetation formations.

5) Agroecology often incorporates ideas about a more environmentally and socially sensitive approach to _____.

Exercise 5. Read, translate and remember about major characteristics of agroecosystems:

Here are four major characteristics of agroecosystems:

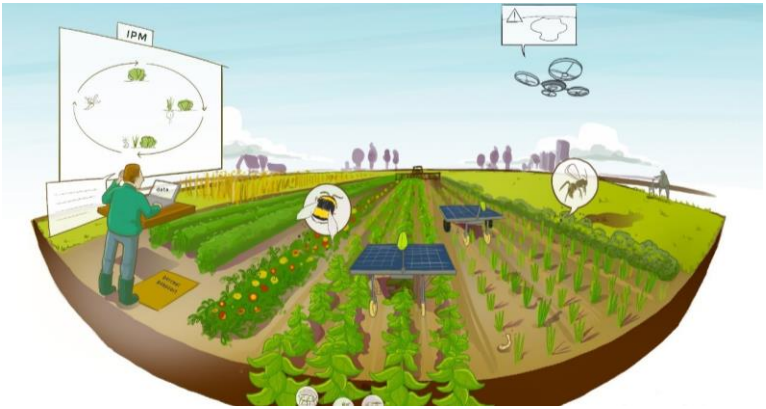
1. Agroecosystems include helping sources of energy like human, animal and fuel energy to make better productivity of particular organisms.

2. Diversity can be greatly reduced compared with many natural ecosystems.

3. The dominant animals and plants are under artificial rather than natural selection.

4. The controls on the systems are largely external rather than internal by way of subsystem feedback.

This model is primarily based on modernized agriculture, such as that found in the United States. There are, however, many kinds of agricultural systems, particularly in the tropics, that do not fit well with this definition.



Exercise 6. Match two parts of the sentences:

1	Agroecology can best be described as an approach that	**a**	as drought, pest outbreak or soil nutrient decline.
2	Factors like labor availability, subsidies, risk, price information, family size are	**b**	the plant communities that is directly available to humans.
3	Social factors such as a collapse in market prices or changes in land using can break up agricultural system as decisively	**c**	often critical to understanding the logic of a farming system.
4	The objective of this simplification is to increase the proportion of solar energy fixed by	**d**	beneficial effects on flood control and water purity.
5	Agriculture has had a long positive association with the environment,	**e**	questions the ideas and methods of several subfields.
6	The structural evolution associated with these changes has altered	**f**	its production has quadrupled in this century alone
7	Drainage and other soil cultivation operations can have diverse	**g**	the rural landscape.

Exercise 7. Read, translate and remember about agriculture and environment

AGRICULTURE AND NVIRONMENT

Agriculture has had a long positive association with the environment, its production has quadrupled in this century alone, contributing to accelerated urban development, industrial growth and expansion of the service sector. But at the same time agricultural pollution has increased and the quality of a number of rural landscapes has declined.

Farming has become much more mechanized and more intensive, with greater regional and on-farm specialization and greater regional concentration. Exploiting mechanization and technology, replacing man and beast with energy from fossil fuels, strengthening the productivity of the soil and crop yields with fertilizers and pesticides (pesticides are understood to include insecticides, herbicides and fungicides), agriculture has evolved to a state where short

term profits can be made without maintaining the traditional harmony and interdependence between agriculture and the environment which has existed for centuries.

While agriculture still makes a significant contribution to the landscape in many areas, because of a failure to integrate agricultural and environmental policies the above changes have often brought with them a number of significant problems. These problems, which vary in character and degree from country to country and region to region, include concerns about:

—the human health effects of pesticide and fertilizer residues, heavy metals, feed supplements and contaminants in soil, water bodies, food products and the food chain;

—the decrease of biotopes valued for nature conservation;

—the contamination of ground and surface waters by nitrates and phosphates leading to local health risks, declines in the quality of aquatic resources, losses in recreation values

and increased water supply costs;
—agricultural pollution problems associated with the growth of intensive animal husbandry;
—air pollution from intensive animal production, manure spreading and crop spraying;
—the salinization of soils which is contaminating water supplies and causing losses in soil productivity and landscape values;
—losses of landscape and wildlife habitat caused by the amalgamation of farms, the growing emergence of monocultures, the removal of hedges, walls and terraces, the draining of wetlands and the deterioration and destruction of traditional farm buildings;
—soil compaction, erosion and pollution which have led to productivity losses, declines in the quality of water resources and reduction in the capacity of water storages.

At the same time the policies of other sectors and the pollution which has resulted from some of them have had bad effects on

agriculture in some regions. Severe financial problems have also arisen within the agricultural sector.

The structural evolution associated with these changes has altered the rural landscape.

As a result of the above, significant structural change within the agricultural sector can be expected in the near future. Suggestions for the most desirable direction for this change vary from country to country and region to region. But in several countries, restructuring is increasingly seen as compatible with a desire to improve the environment, promote regional diversification and reduce the dependence of certain rural areas on agriculture.

In several countries, pollution from other sources has led to regional declines in the quality of food production and, the quantity of food produced.

In summary, the nature, intensity, and extent of the acid deposition, photochemical oxidants and sewage in agriculture remain

largely unknown. There is need for more research such as cause-effect and, as a second step, limiting needs have still to be clarified at present levels of acid deposition.

Thus, both agriculture and environment today need human protection.

Exercise 7. Choose the correct option to answer the questions

1. Why is the traditional harmony and interdependence between agriculture and the environment destroyed?

a) because of the accelerated urban development;

b) because of exploiting mechanization and technology;

c) because of using fertilizers and pesticides;
d) because of replacing man and beast with energy from fossil fuels;
e) because of industrial growth and expansion.
2. What are the environmental problems formed by agriculture?
a) the extinction of scarce plants and animals;
b) the contamination of ground and surface waters;
c) the human health effects of pesticides and fertilizer residues;
d) air pollution from intensive animal production, manure spreading and crop spraying;
e) soil compaction, erosion and pollution;
f) hunger and malnutrition;
g) reduction in natural resources;
h) the salinization of soil;
i) losses in landscape and wildlife habitat;
j) the decrease of biotopes.
3. What is agriculture's greatest contribution to man's wellbeing?

a) access to the countryside for enjoyment and recreation;
b) provision of better wildlife habitat;
c) provision of the food and 'nutritional' security;
d) the elimination of malaria and other diseases.
4. What are the pollution phenomenon from other sources that pose significant long-term threats to agricultural production?
a) increasing concentrations of carbon dioxide;
b) desertification;
c) increases in ozone concentration at the earth's surface;
d) water logging;
e) decreases in ozone concentration in the upper atmosphere;
f) pollution of the soil by harmful chemical and physical agents;
g) global climate changes;
h) soil erosion;
i) the salinization of soil.

5. What are the main sources of nonagricultural air and water pollution?

a) industry;

b) intensive irrigation;

c) sewage;

d) acid precipitation;

e) nuclear and industrial accidents.

UNIT 2

FERTILIZATION AND ITS EFFECT

Exercise 1. Find the meaning of the words given in bold print in the dictionary and translate the following article.

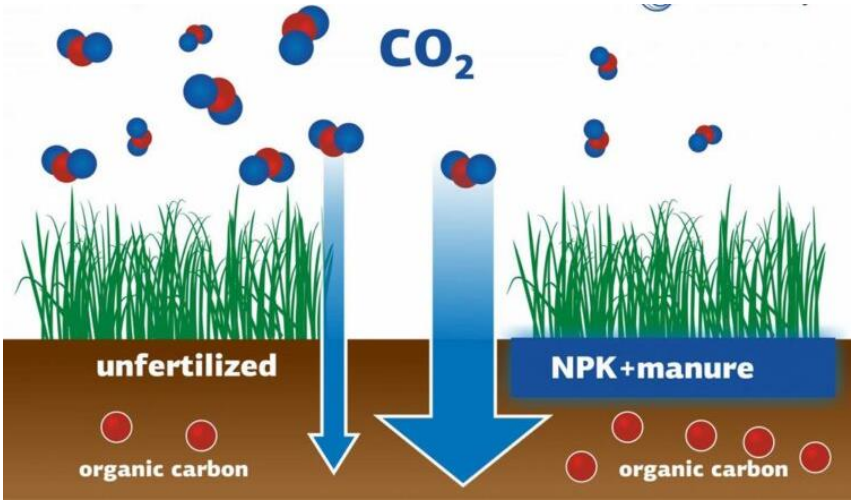
The intensive use of **inorganic fertilizers**, particularly those that contain nitrogen and phosphorus, is a key factor in the **high yields** obtained per hectare in modem intensive agriculture. In the United States, increases in yield per hectare, due in the part to the use of such materials, led to a decline in the area of

cultivated land by 27 million hectares between 1944 and 1969. During this period, fertilizer use climbed from about 10.9 million tons per year. This **increase** was **necessary** partly because of the depletion of nature fertility that had occurred since American farmlands were first put into **cultivation**. However, it was permitted some agricultural land to return temporarily to **grass** and **woodlands**, which protected it from **erosion** and allowed fertility to build up again.

It is easy to demonstrate that the addition of inorganic fertilizers makes rapid and significant **improvement** in crop yields. In general, about 20 per cent of total crop and **forage production** is due to fertilizer use although the specific **affect** varies with crop and location. In other words, if present use of fertilizer were stopped, the next season's yield would be expected to **drop** by that amount (all other factors being equal). **On the other hand**, a number of basic crop species, such as **soy-**

beans and wheat neither receive much fertilizer nor show strong responses to it.

It is clear that fertilization is essential to **permanent agriculture** and just as clear that the fertilizing techniques in mechanized agriculture are **highly successful**. Nevertheless, there are negative side effects, moreover, the increasing energy costs and the important considerations of **raw material** availability make it essential to examine present fertilizers use critically.



Exercise 2. Match the words (1 - 5) with the definitions (A - E).

1) fertilizers	a) accomplishing an aim or purpose.
2) successful	b) the basic material from which a product is made.
3) species	c) a chemical or natural substance added to soil or land to increase its fertility.
4) raw material	d) reduction in the number or quantity of something.
5) depletion	e) a group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding. The species is the principal natural taxonomic unit, ranking below a genus and denoted by a Latin binomial, e.g. Homo sapiens.

Exercise 3. Fill in the gaps in the text below with one of the words given in the box.

raw, water, fertilizers

More nitrogen **1) _____** are used than any other. Now, however, a serious problem has developed in the form of increasing cost of nitrogen fertilizer. Hydrocarbon fuels are required in quantity both as **2) _____** material and as fuel to create the high temperature and pressure conditions needed for ammonia synthesis. As a result nitrogen fertilizer costs sharply reflect changes in petroleum prices. Alternative techniques of obtaining hydrogen such as the electrolytic breakdown of **3) _____** molecules, at present used only in a few plants, also have high energy costs.

salts, fertilizer, ecosystem, gas

Much of the nitrogen fertilizer produced is applied as anhydrous ammonia a liquified **1 _____.** It is also converted to a number of other ammonium **2) _____,** nitrates, and other compounds for use as **3) _____.** These materials applied to the soil **4) _____** create major changes in ecosystem dynamics.

Exercise 4. Read and translate the text. Complete the following sentences with the correct words.

The recent comprehensive estimates of the transfer occurring in the nitrogen cycle at the global level **1) _____** that industrial fixation of nitrogen (about 30 tons per year) is still well

below the rate of biological fixation (175 million tons).

A second intervention by **2) _____** is the increased rate at which nitrogen oxides are introduced into the atmosphere by combustion. Most of these oxides are returned to the land surface by precipitation.

3) _____ cultivation and livestock production have significantly increased the outflow of nitrogen from agroecosystems. We know that food **4) _____** and accelerated erosion deplete the original soil nitrogen pools; two other factors also contribute to this depletion: the application of large quantities of inorganic fertilizers and the development of feedlots; poultry factories, and other sources of concentrated animal wastes.

Because of their toxicity, however, high concentrations of particular nitrogen compounds in crops and in water supplies can be a direct concern to **5) _____** (when nitrate in

the blood combines with hemoglobin and thus reduces its oxygen carrying capacity).

The ozone layer of the stratosphere acts as a shield to **6) _____** incoming ultraviolet radiation. Among other effects, increased ultraviolet radiation raises the incidence of skin cancer. A significant harm to health could thus be created, and close attention must be given to the movement of nitrogen **7) _____** through the atmosphere as well as other parts of the biosphere.

1	**a**	give	**b**	show	**c**	parade	**d**	display
2	**a**	person	**b**	someone	**c**	man	**d**	somebody
3	**a**	extensive	**b**	intensive	**c**	spacious	**d**	far-reaching
4	**a**	harvests	**b**	reaping	**c**	innings	**d**	gather
5	**a**	welfare	**b**	health	**c**	well-being	**d**	property
6	**a**	sink in	**b**	decorate	**c**	absorb	**d**	adore
7	**a**	storage	**b**	compounds	**c**	blend	**d**	makeup

Exercise 5. Choose the correct option to answer the questions

1. What kinds of inorganic fertilizers greatly affect the crop yields in modern intensive agriculture?

a) containing potash;
b) containing nitrogen;
c) containing phosphorus;
d) containing manure.

2. Due to what techniques did American farmers try to improve soil fertility?

a) application of manure;
b) application of fertilizers;
c) return to grass and woodland;
d) land reclamation.

3. What is the serious problem that has developed in fertilization?

a) the increasing energy costs;
b) raw material shortage;
c) the increasing cost of nitrogen fertilizers.

4. What are the results of man's interventions into ecosystem dynamics?

a) the increased amount of nitrogen in atmosphere;

b) the increased rate at which nitrogen oxides are introduced into atmosphere;

c) the reduction of the ozone layer;

d) the increase of the ozone layer.

5. What reflects changes in petroleum prices?

a) the availability of nitrogen fertilizers;

b) the amount of nitrogen fertilizers used by farmers;

c) the cost of nitrogen fertilizers.

Exercise 6. Decide whether the following statements are TRUE or FALSE:

1) The growing use of nitrogen fertilizers has recently become a matter of concern in relation to the ozone layer of the atmosphere.

2) Some scientists believe that the ozone layer might be reduced by roughly 20 per cent during the first quarter of the twentieth century as a

result of current and future use of nitrogen fertilizers.

3) In general, about 20 per cent of total crop and forage production is due to fertilizer use although the specific affect varies with crop and location.

4) A number of basic crop species, such as soy-beans and wheat neither receive much fertilizer nor show strong responses to it.

5) The increasing energy costs and the important considerations of raw material availability make it essential to examine future fertilizers use critically.

UNIT 3
ECOLOGICAL FEATURES OF TRADITIONAL AGRICULTURE

Exercise 1. Give English equivalents for the following:

1	subsistence methods	**a**	
2	benefit	**b**	
3	biological evolution	**c**	
4	combination of production	**d**	
5	humans	**e**	
6	available resources	**f**	
7	research	**g**	
8	show interest	**h**	
9	management system	**i**	

Exercise 2. Match the beginnings and the end of the sentences.

1) Crop mixtures make fullest use of	a) nutritionally adequate diet is assured.
2) Traditional agriculturalists have met the environmental requirements of	b) cultural and biological evolution that has adapted it to local conditions.
3) By ensuring a regular and varied food supply, a diverse and	c) improvement in crop yields.
4) It is easy to demonstrate that the addition of inorganic fertilizers makes rapid and significant	d) their food-producing system.
5) Traditional subsistence methods have benefited from centuries of	e) a particular environment.

Exercise 3. Read and translate the text below.

About 60 per cent of the world's cultivated land is still farmed by traditional subsistence methods. This type of agriculture has benefited from centuries of cultural and biological evolution that has adapted it to local conditions. Thus, small farmers have developed and/or inherited complex farming systems that have helped them meet their existence needs for centuries, even under unfavorable environmental conditions (on marginal soils, in drought or flood-tending areas, with scarce resources) without depending on mechanization or chemical fertilizers and pesticides. Generally, these fanning systems consist of a combination of production and consumption activities.

Most small farmers have employed practices designed to optimize productivity in the long term rather than maximize it in the short term. Inputs characteristically originate in the immediate region and farm work is performed by humans or animals that are fueled

from local sources. Working within these energy and space limits small farmers have learned to recognize and use locally available resources. Traditional farmers are much more innovative than many agriculturalists believe. Many scientists in developed countries are beginning to show interest in traditional agriculture, especially in small-scale mixed crop systems, as they search for ways to help in mode agriculture. This transfer of learning must occur rapidly, however, or this wealth of practical knowledge will be lost forever.

As more research is conducted, many farming practices once regarded as primitive or misguided are being recognized as knowledgeable and proper. Confronted with specific problems of slope, flooding, drought, pests, diseases and low soil fertility, small farmers throughout the world have developed unique management system to overcome these difficulties. Traditional agriculturalists generally have met the environmental

requirements of their food-producing system by concerning on a few principles and processes.

Exercise 4. Read the text below. Match choices (A– F) to (1 – 5). There are two choices you do not need to use.

1 _____ Multiple cropping designs are adopted to ensure constant food production and vegetation cover for soil protection. By ensuring a regular and varied food supply, a diverse and nutritionally adequate diet is assured. Extended crop harvest reduces the necessity for storage, often risky in rainy climates. A continuous sequence of crops also maintains biotic relationships (predator/prey complexes, nitrogen fixing) that may benefit the farmer.

2 _____ Assemblages of plants with different growth habits, canopies and root structures allows for better use of environmental inputs such as nutrients, water and solar radiation. Crop mixtures make fullest

use of a particular environment. In complex agroforestry systems, crops can be grown underneath tree canopies if enough light gets through.

3 _____ Small farmers sustain soil fertility by maintaining closed cycles of nutrients, energy, water and wastes. Thus, many farmers enrich their soils by collecting nutrient materials (such as manure and forest litter) from outside their fields, adopting fallow or rotational systems or including legumes in their intercropping patterns.

4 _____ In rainfed areas, the rainfall pattern is the main cropping system determinant, and farmers use cropping patterns adapted to the amount and distribution of rainfall. Thus, in areas with little moisture, farmers prefer drought-tolerant crops, and management techniques emphasize soil cover (such as mulching) to avoid evaporation and runoff. Where precipitation is more than 1,500 mm/year, most cropping systems are based on

rice. Under constant flooding conditions, instead of investing in costly drainage systems, farmers develop integrated agriculture/aquaculture systems.

5 _____ Farmers have developed a number of strategies to compete with undesirable organisms. Crop species are variety mixtures provide guaranty against catastrophic attacks from insect pests or disease. Crop canopies can effectively suppress weed growth and minimize the need for weed control. In addition, cultural practices such as mulching, changes in planting times and durability, use of resistant varieties and use of botanical insecticides and/or repellents can minimize pest interference.

A – Recycling of nutrients
B – Space and time diversity and continuity.
C – Striking features of traditional system
D – Optimal use of space and resource.
E – Water conservation**.**
F – A traditional strategy
G – Control of succession and protection of crops.

Exercise 5. Decide whether the following statements are TRUE or FALSE:

1) Most small farmers have employed practices designed to optimize productivity in the long term rather than maximize it in the short term.
2) Under constant raining conditions, instead of investing in costly drainage systems, farmers develop integrated agriculture systems.
3) Extended crop harvest reduces the necessity for storage, often risky in rainy climates.

4) Farmers have developed a number of strategies to compete with undesirable organisms.
5) About 80 per cent of the world's cultivated land is still farmed by traditional subsistence methods.

Exercise 6. Match two parts of the sentences:

1	One of the most striking features of traditional fanning system in most developing countries is the degree of	**a**	the corn is grown intercropped.
2	In the Latin American tropics, 60 per cent of	**b**	promote diet diversity, income generation, production stability, minimization of risk.
3	In Nigeria 98 per cent of the cowpea, the country's most important legume, is	**c**	crop diversity both in time and space.
4	Polyculture is a traditional strategy to	**d**	the monoculture agriculture practiced in modem countries.
5	Polyculture systems offer many advantages over	**e**	grown in association with other crops.

Exercise 7. Fill in the gaps in the text below with one of the words given in the box.

environmental, consist, rainfall, prefer, systems

1) In rainfed areas, the rainfall pattern is the main cropping system determinant, and farmers use cropping patterns adapted to the amount and distribution of _____.
2) Traditional agriculturalists generally have met the _____ requirements of their food-producing system by concerning on a few principles and processes.
3) In areas with little moisture, farmers _____ drought-tolerant crops, and management techniques emphasize soil cover to avoid evaporation and runoff.
4) Generally, these fanning systems _____ of a combination of production and consumption activities.

5) Over the course of ten thousand years humans have successfully learned to exploit ecological _____ for sustenance.

Exercise 8. Answer the questions below.

1. What are the objectives of most traditional small farmers?
2. What are the main ecological features of traditional agriculture?
3. What are the environmental difficulties that small farmers must overcome?
4. What are the main practices recommended by traditional farmers?
5. What are the advantages of crop diversity?

Exercise 9. Match the words (1 - 5) with the definitions (A - E).

1) requirements	a) a joining or merging of different parts or qualities in which the component elements are individually distinct.
2) management	b) a thing that is needed or wanted.
3) combination	c) a substance made by mixing other substances together.
4) conditions	d) the process of dealing with or controlling things or people.
5) mixtures	e) the state of something with regard to its appearance, quality, or working order.

UNIT 4

THE UNDERMINING OF FOOD PRODUCTION SYSTEMS

Exercise 1. Give English equivalents for the following:

1	environmental quality	**a**	
2	to share	**b**	
3	to serve human	**c**	
4	acrid air	**d**	
5	poisoned waters	**e**	
6	quest for food	**f**	
7	littered ruins	**g**	
8	land’s ability	**f**	
9	enough food	**i**	

Exercise 2. Fill in the gaps in the text below with one of the words given in the box.

useful, newspaper, nature, food, humans

Getting enough **1) _____** from the earth has traditionally been guided by a certain simple logic: plow more land, intensify labour, refine techniques, and the supply of food will grow proportionately. But this has been the logic of humans, not of **2) _____,** and today's **3) _____** headlines tell us with increasing frequency a different, more puzzling story. Millions of individuals, and sometimes whole countries, are learning the hard way that more

work doesn't necessarily mean more food — that it may mean fatally less.

Over the course of ten thousand years **4) _____** have successfully learned to exploit ecological systems for sustenance. Nature has been shaped and contorted to channel a higher than usual share of its energies into manufacturing the few products humans find **5) _____.** The land's ability to serve human ends can be markedly, and sometimes permanently.

Exercise 3. Match the words (1 - 5) with the definitions (A - E).

1) livelihood	a) 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.
2) ruins	b) each of the small, thin horny or bony plates protecting the skin of fish and reptiles, typically overlapping one another.
3) scale	c) the action or process of causing so much damage to something that it no longer exists or cannot be repaired.
4) agriculture	d) the physical destruction or disintegration of something or the state of disintegrating or being destroyed.
5) destruction	e) a means of securing the necessities of life.

Exercise 4. Match two parts of the sentences

1) The term "environmental crisis" joined the lexicon of journalism and politics only within the last two decades, in response to	a) be markedly, and sometimes permanently.
2) Humans are destroying the basis of their own livelihood as	b) the visible spread of acrid air and poisoned waters.
3) The littered ruins and barren landscapes left by dozens of former civilizations remind us that	c) they violate the limits of natural systems.
4) Millions of individuals, and sometimes whole countries, are learning the hard way that	d) humans have been undercutting their own welfare for thousands of years.
5) The land's ability to serve human ends can	e) more work doesn't necessarily mean more food.

Exercise 5. Read and translate the text below and answer the questions.

The basic arithmetic of world population growth reveals that the relationship between human beings and the environment is now entering a historically unique age of widespread danger.

The number of humans reached one billion about 1830, two or three million years after our emergence as a distinct species. The second billion was added in one hundred years, and the third billion in thirty years. One day in late 1975, just twenty-five years later, world population reached four billion. At the present

rate of growth, the fifth billion will come in thirteen years and the sixth in ten years after that.

1. What is the traditional logic of getting more food from the land?
2. What gave rise to the term “environmental crisis”?
3. Who happens to be the principal victims of the “environmental crisis”?
4. Why are the poor damaging the environment even more than the rich?
5. Why is environmental degradation referred to as a principal cause of poverty?
6. When did world population reach four billion?
7. What does the basic arithmetic of world population growth reveal?

Exercise 6. Decide whether the following statements are TRUE or FALSE:

1) Political and economic factors won't determine whether or not the wisdom accumulating in our libraries will be put into practice.
2) The number of humans reached one billion about 1880, two or three million years after our emergence as a distinct species.
3) The littered ruins and barren landscapes left by dozens of former civilizations remind us that humans have been undercutting their own welfare for thousands of years.
4) At the present rate of growth, the fifth billion will come in thirteen years and the sixth in ten years after that.
5) Ecological degradation is to a great extent the result of the economic, social, and political inadequacies.

Exercise 7. Read and translate the text. Complete the following sentences with the correct words.

Today the human species has the knowledge of past mistakes, and the analytical and **1) _____** skills, to stop destructive trends and to provide an adequate diet for all using lands well suited for agriculture. Political and economic **2) _____,** not scientific research, will determine whether or not the wisdom accumulating in our libraries will be put into practice.

A common factor linking every region of great poverty, virtually every rural **3) _____** given up by totally impoverished settlers, is a deteriorating natural environment. Ecological degradation is to a great extent the result of the economic, social, and political inadequacies, it is also, and with growing force, a principal cause of **4) _____.** If the environmental balance is disturbed and ecosystem's capacity to meet

human needs is damaged, the situation of those living directly off the land worsens, and recovery and development **5) _____** — whatever their political and financial backing — become all the more difficult.

1	**a**	technical	**b**	especial	**c**	express	**d**	official
2	**a**	agents	**b**	factors	**c**	solemns	**d**	sonorous
3	**a**	country	**b**	motherland	**c**	homeland	**d**	motherland
4	**a**	poorness	**b**	misery	**c**	distress	**d**	poverty
5	**a**	efforts	**b**	struggle	**c**	wrestle	**d**	fight

ТЕКСТИ ДЛЯ САМОСТІЙНОГО ОПРАЦЮВАННЯ

TEXT 1 HISTORY OF CROP ROTATION

Historic crop rotation methods are mentioned in Roman literature, and referred to by several civilizations in Asia and on three major elements: sophisticated systems of crop rotation, highly developed irrigation techniques and the introduction of a large variety of crops which were studied and catalogued according to the season, type of land and amount of water they require. Numerous farming encyclopedias were produced.

In Europe, since the times of Charlemagne, there was a transition from a two-field crop rotation to a three-field crop rotation. Under a two-field rotation, half the land was planted in a year while the other half lay fallow. Then, in the next year, the two fields were reversed. Under three-field rotation, the land was divided into three parts. One section was planted in the

Autumn with winter wheat or rye. The next Spring, the second field was planted with other crops such as peas, lentils, or beans and the third field was left fallow. The three fields were rotated in this manner so that every three years, a field would rest and be unplanted. Under the two field system, if one has a total of 600 fertile acres of land, one would only plant 300 acres. Under the new three-field rotation system, one would plant (and thereby harvest) 400 acres. But, the additional crops had a more significant effect than mere productivity. Since the Spring crops were mostly legumes, they increased the overall nutrition of the people of Northern Europe.

From the end of the Middle Ages until the 20th century, the three-year rotation was practiced by farmers in Europe with a rotation of rye or winter wheat, followed by spring oats or barley, then letting the soil rest (leaving it fallow) during the third stage. The fact that suitable rotations made it possible to restore or

to maintain a productive soil has long been recognized by planting spring crops for livestock in place of grains for human consumption.

A four-field rotation was pioneered by farmers, namely in the region Waa land in the early 16th century and popularized by the British agriculturist Charles Townshend in the 18th century. The system (wheat, turnips, barley and clover), opened up a fodder crop and grazing crop allowing livestock to be bred year-round. The four-field crop rotation was a key development in the British Agricultural Revolution.

George Washington Carver pioneered crop rotation methods in the United States by teaching southern farmers to rotate soil depleting crops like cotton with soil enriching crops like peanuts and peas.

In the Green Revolution, the traditional practice of crop rotation gave way in some parts of the world to the practice of supplementing

the chemical inputs to the soil through top dressing with fertilizers, e.g., adding ammonium nitrate or urea and restoring soil pH with lime in the search for increased yields, preparing soil for specialist crops, and seeking to reduce waste and inefficiency by simplifying planting and harvesting.

TEXT 2 EFFECTS OF SOIL EROSION

Crop rotation can greatly affect the amount of soil lost from erosion by water. In areas that are highly susceptible to erosion, farm management practices such as zero and reduced tillage can be supplemented with specific crop rotation methods to reduce raindrop impact, sediment detachment, sediment transport, surface runoff, and soil loss.

Protection against soil loss is maximized with rotation methods that leave the greatest mass of crop stubble (plant residue left after harvest) on top of the soil. Stubble cover in contact with the soil minimizes erosion from

water by reducing overland flow velocity, stream power, and thus the ability of the water to detach and transport sediment. Soil Erosion and Cill prevent the disruption and detachment of soil aggregates that cause macrospores to block, infiltration to decline, and runoff to increase. This significantly improves the resilience of soils when subjected to periods of erosion and stress.

The effect of crop rotation on erosion control varies by climate. In regions under relatively consistent climate conditions, where annual rainfall and temperature levels are assumed, rigid crop rotations can produce sufficient plant growth and soil cover. In regions where climate conditions are less predictable, and unexpected periods of rain and drought may occur, a more flexible approach for soil cover by crop rotation is necessary. An opportunity cropping system promotes adequate soil cover under these erratic climate conditions. In an opportunity cropping system, crops are grown when soil water is

adequate and there is a reliable sowing window. This form of cropping system is likely to produce better soil cover than a rigid crop rotation because crops are only sown under optimal conditions, whereas rigid systems are sown in the best conditions available.

Crop rotations also affect the timing and length of when a field is subject to fallow. This is very important because depending on a particular region's climate, a field could be the most vulnerable to erosion when it is under fallow. Efficient fallow management is an essential part of reducing erosion in a crop rotation system. Zero tillage is a fundamental management practice that promotes crop stubble retention under longer unplanned fallows when crops cannot be planted. Such management practices that succeed in retaining suitable soil cover in areas under fallow will ultimately reduce soil loss.

TEXT 3 BIOFUEL

Biofuels are a wide range of fuels which are in some way derived from biomass. The term covers solid biomass, liquid fuels and various biogases. Biofuels are gaining increased public and scientific attention, driven by factors such as oil price spikes, the need for increased energy security, concern over greenhouse gas emissions from fossil fuels, and government subsidies.

Bioethanol is an alcohol made by fermenting the sugar components of plant materials and it is made mostly from sugar and starch crops. With advanced technology being developed, cellulosic biomass, such as trees and grasses, are also used as feedstocks for ethanol production. Ethanol can be used as a fuel for vehicles in its pure form, but it is usually used as a gasoline additive to increase octane and improve vehicle emissions. Bioethanol is widely used in the USA and in Brazil.

Biodiesel is made from vegetable oils, animal fats or recycled greases. Biodiesel can be

used as a fuel for vehicles in its pure form, but it is usually used as a diesel additive to reduce levels of particulates, carbon monoxide, and hydrocarbons from diesel-powered vehicles. Biodiesel is produced from oils or fats using transesterification and is the most common biofuel in Europe.

Biofuels provided 1.8% of the world's transport fuel in 2008. Investment into biofuels production capacity exceeded $4 billion worldwide in 2007 and is growing. According to the International Energy Agency, biofuels have the potential to meet more than a quarter of world demand for transportation fuels by 2050.

TEXT 4 VEGETABLE OIL

Straight unmodified edible vegetable oil is generally not used as fuel, but lower quality oil can and has been used for this purpose. Used vegetable oil is increasingly being processed

into biodiesel, or (more rarely) cleaned of water and particulates and used as a fuel.

Also here, as with 100% biodiesel (B100), to ensure that the fuel injectors atomize the vegetable oil in the correct pattern for efficient combustion, vegetable oil fuel must be heated to reduce its viscosity to that of diesel, either by electric coils or heat exchangers. This is easier in warm or temperate climates. Big corporations like MAN B&W Diesel, Wärtsilä, and Deutz AG as well as a number of smaller companies such as Elsbett offer engines that are compatible with straight vegetable oil, without the need for after-market modifications.

Vegetable oil can also be used in many older diesel engines that do not use common rail or unit injection electronic diesel injection systems. Due to the design of the combustion chambers in indirect injection engines, these are the best engines for use with vegetable oil. This system allows the relatively larger oil molecules more time to burn. Some older engines,

especially Mercedes are driven experimentally by enthusiasts without any conversion, a handful of drivers have experienced limited success with earlier pre-"Pumpe Duse" VW TDI engines and other similar engines with direct injection. Several companies like Elsbett or Wolf have developed professional conversion kits and successfully installed hundreds of them over the last decades.

Oils and fats can be hydrogenated to give a diesel substitute. The resulting product is a straight chain hydrocarbon with a high cetane number, low in aromatics and sulfur and does not contain oxygen. Hydrogenated oils can be blended with diesel in all proportions Hydrogenated oils have several advantages over biodiesel, including good performance at low temperatures, no storage stability problems and no susceptibility to microbial attack.

TEXT 5 GREENHOUSES MARKET OF UKRAINE

Great significance in regular green-stuffs supply for population belongs to greenhouse vegetable growing. This year in Ukraine there were 3000 ha of land under greenhouses: 800 ha of glass greenhouses and 2000 ha — under film greenhouses. There were 78 greenhouses with the capacity from 5 to 30 ha of land. Since 1990, greenhouse vegetable growing has almost stopped, instead film constructions under stand-by and solar heating became popular. Significant part of greenhouses (especially film ones) today is not on-stream or of low-end level. Currently only 2, 700 ha of land are under different kind of greenhouse exploitation. Annually new greenhouses are built, film ones prevail: in 2005 — 6 ha, 2006 — 10 ha, 2007 — 20 ha, 2008 — 7 ha. However for Ukraine these areas are too small, to provide population need with early-growing vegetables.

Ukrainian greenhouses produce cucumbers and tomatoes as basic cultures, and also leaf lettuce, bunching onion, parsley, dill, spinach, bell pepper, egg-plant, radish and other vegetables. Besides, flowers and ornamental plants. In the structure of areas, taken under greenhouses, 95–98% occupy tomatoes (almost 60%) and cucumbers, 1% by bell peppers and egg-plants, other vegetables occupy an insignificant area. In the south regions of Ukraine film greenhouse areas have been increased under bell peppers, egg-plants and herbaceous crops, some private companies grow early melon cultures under film constructions.In 2009 59,8% of greenhouse vegetables were produced by private households 40,1% — are greenhouse companies and only 0,1% are by farms. Areas under primitive greenhousing and film constructions — amount to 2,36 thousand ha, or 81,4% of all greenhouse growing areas in Ukraine.Imported products are the main competitors for Ukrainian greenhouses. They

constantly increase production output and area of destination. Ukraine imports more than 10 thousand t cucumbers and 45–60 thousand t tomatoes each year. The best period for import is from November till May, when Ukrainian products are not yet presented enough. Today at the market during winter time the transportable hybrids of tomato, imported from North Africa, Spain, Turkey, Uzbekistan and China are presented.

TEXT 6 POTATO MARKET OF UKRAINE

In the world potato takes the fifth place as to the amount of energy in a human nutrition after wheat, corn, rice and barley.Potato production output is growing worldwide. Since 1991 till 2007 average annual increase rates and worked out 2.5%. Mainly the growth of production volume is provided by developing countries, where average annual growth rate is 8.5%. While there is a gradual decline of potato production among the developed countries,

where the average rate of falldown is 1.7% per year. At the same time currently production and consumption of potato grows not as quickly, as the population of the planet.About 150 countries of the world grow potato in different natural and climatic zones. But according to production volumes, in 2007 Ukraine was the fifth in the world after China, Russia, Poland and USA, but if to analyze only European countries, Ukraine is on the second places in potato production volumes among them. The share of UA in the world‘s potato production is 6.1%, a in the European one — 14.9%.

The potential potato yield differs highly from the world level, which is about 140–160 centner /ha. For example, potato yield in the North America is 140 centner /ha, and in Europe — about 100 centner /ha. At the moment leaders Netherlands, Denmark and Belgium, where the potato harvest from a hectare exceeds 400 centners, are leaders in potato yield. In Ukraine the average annual potato yield for the last five

years has been 133 centner /ha. Although during recent years an average annual growth rate has been at the level of 1.1%, however in Ukraine potato yield is low if compare to other countries. Growth of the yield is mainly provided by agricultural enterprises, but not private family farming, share of which in potato production is about 98%, which is one of the highest indexes, if compared to analogical figures on other agricultural crops. Potato prices have seasonal character: gradual price increase along with depression of stockage and decrease after the end of harvesting, when potato in big amounts, because their storage capacity is not good enough and people start buying potato to lay a store. During this period prices by 20–25% lower.

Low competitiveness of potato on our foreign market and insufficient amount of seed material, the volumes of import exceed the volumes of export. The basic importer of fresh, frappe potato is Egypt (in 2008 — 72.8% in US

dollars), and leading suppliers of seeds are Netherlands (52%), Germany (21.4%) and Poland (16.2%). According to consumption volumes and geographical prevalence potato occupies one of leading places in the structure of Ukrainian food production. So, according to the level of potato consumption per capita, Ukraine occupies the third place in the world after Byelorussia and Kyrgyzstan. In 2008 years, average habitant consumed 131.8 kg of potato per year, or 360 grams of this product per day, while the norm of consumption is 123 kg per year. The real level of potato consumption is higher the norm by 7%. Potato, as relatively cheaper product in the conditions of unstable economic situation and predominance of population low profits, is consumed in larger volumes, than more expensive products, such as meat, fish and fruit actual level of their consumption in the country is below normative.

Potato in Ukraine is mainly grown in the Polessya and Forest-Steppe areas, as there is the

most favorable soil for this culture. The advantageous feature of potato is that it grows well in the Polessya and Forest-steppe area on poor sandy and sandy loam soils which are less suitable for grain-crops. The average level of the yield in these natural and climatic areas is by higher on 50%, comparing to the Steppe area of Ukraine.

Kyiv and Chernigiv regions are currently the leaders, both as to the volume of potato produced and as to the amount of the agricultural enterprises specialized on growing it.

TEXT 7 WINE AND WINEMAKING IN UKRAINE

Official information shows that approximately 70 enterprises deal with the processing of grapes and manufacturing of wine, champagne, and cognac in Ukraine. Two large groups can be singled out from them: traditional companies with their own vineyards

and new companies dealing exclusively with the bottling of wine. Wine market is still forming in the opinion of experts. After an almost complete lack of foreign wines in Ukraine before independence, the import of wine began in the early 1990s with a simultaneous drop in Ukrainian wine production.in Ukraine has all the necessary soil and climatic conditions favorable for the cultivation of valuable European varieties of grapes for the production of high-quality sparkling wine, fine dining, strong and sweet wines, and table grapes with different timing of maturation. The best areas of wine production today in Ukraine are: Crimea (68000 ha), Odesa region (52000 ha), Kherson region (20000 ha), Mykolaiv region (15000 ha), and Transcarpathian region (8000 ha).

The total area of vineyards in Ukraine dropped by 30.6% or 43.9 ths. ha down to 99.4 ths. ha from 1990 to 2000. This tendency has continued. Vineyards in 2006 covered 75.8 ths. ha, that is 6% or 4.8 ths. ha less than in 2005.

Grape production correspondingly decreased from 835.7 ths. tons in 1990 in Soviet times to 513.8 ths. tons in 2000. Production in 2005 constituted merely 374 ths. tons, or 25.9% less than in 2003 and 2.2 times less than in Soviet times. At the same time, production in 2006 dropped by 32% or 142 ths. tons down to 301 ths. tons. It is quite difficult to estimate volumes of grape used by the Ukrainian winemaking industry due to contradicting statistical information on wine production and input smuggling. Judging from more or less reliable statistical data, we can conclude that approximately 65% of grapes produced are used for making wine.

The wine market in Ukraine keeps developing at present. Despite negative trends still present in the industry, Ukraine has manufacturing capabilities inherited from the Soviet Union and climatic conditions for growing high quality grapes as against neighboring Russia. Judging from available

information, it is possible to conclude that this market is quite promising for Ukrainian producers, because consumption volumes are steadily growing. As more and more Ukrainians become acquainted with a European life style, the change in generations should also promote a drop in vodka consumption and expansion in wine use over the next few years.

TEXT 8 AGRICULTURE OF UKRAINE – OPPORTUNITIES FOR FARMERS

Reasons why start agricultural business in Ukraine. The land in Ukraine produces amazing crops and has favorable sunlight hours during the growing season. More than 60% of Ukraine is covered in Black earth top soil. Organic matter runs anywhere from 3-6%. It is very common to find soil pits that can have an A horizon, or, top soil level that will go down 40 inches. For example, it is amazing to see road construction in Ukraine being done where they have dug down 4 feet and it is all top soil.

Ukraine has a perfect climate for growing small grains throughout the country and is excellent for corn or soybeans in the north.

Country and Government

28% of the population work in or are involved in Agriculture. Those who work in agriculture have spent their entire life working with older farm equipment for the village, therefore, they are excellent repair men and tractor drivers. The land is owned by the state (government) and the people have lifelong leases on it. The ability to find land available to lease for farming is fairly easy. Also, the prices for land leases are very inexpensive and remaining stable. Limited locations are available in the world that have inexpensive farmable land. Ukraine is included in this group. The hope in Ukraine is that land will become privatized through new government law, allowing people to own the property. The Ukraine government has hopes of joining Eastern Europe in the future.

Crops and Marketing

Among all the European countries, Ukraine is a leader in growing of sugar beet, buckwheat and carrot; second place in growing of wheat (after Russia) and of tomato (after Poland). The Ukraine is geographically the best situated of all European countries for marketing with easy access to the Black Sea, China and all of Western Europe to feed a growing population. Ukraine, overall, has the best port access in this region of the world.

Ukraine's farm location, there is train car access nearby down to the ports in the Black Sea. The market for Wheat, Barley, Sunflower and Canola have been excellent. The Sunflower and Canola are being used for oil production and Wheat/Barley for either milling wheat or feed wheat. Western Europe and China have provided a great market for these crops.

TEXT 9 GRAIN MARKET OF UKRAINE

Nowadays Ukrainian market of grain is a highly competitive sphere, where almost all international companies, specialized on agricultural product trading, are presented. Many of foreign companies have been working at the Ukrainian market for about 10 years. There are also strong enough Ukrainian companies. Altogether the main rules have already been established and have not been changed for a few last years.

Ukraine is an apparent and meaningful country-exporter of cereal and oil-bearing cultures. Especially, it is one of basic barley exporters in the world, more than 80% of which is exported to Middle East. Currently among the «exotic» buyers of the Ukrainian barley there is Japan.

Grain export is carried out to more than 50 countries. Mainly, there are already traditional for Ukraine markets of Spain, countries of North Africa (Egypt and Tunis), Middle East

(Israel, Syria). Thus, it should be noted that during the last two seasons Ukraine has opened up new distribution areas of grain – countries of Southeast Asia – South Korea, Bangladesh, Philippines.

Geography of Ukrainian corn export repeats its directions of grain export. On the analogy of the wheat market, for the last two seasons Ukraine has opened market of Southeast Asia – South Korea and Japan. Year by year Ukrainian corn becomes more and more "recognizable" product, at the same time domestic exporters strengthen their positions while working under upgrading of produce quality.

Development of biodiesel industry in the world promoted interest to rape, and Ukraine managed to deservingly react on increased demand, becoming for the short period one of the basic rapeseeds producer and exporter in the world. Key export direction of Ukrainian rapeseeds are countries of EU, particularly Poland, Holland, France, Belgium and others.

Large rapeseeds shipments are also carried out to Turkey and UAE.

TEXT 10 FRUIT TREE POLLINATION

Apple

Most Apples are self-incompatible and must be cross pollinated. A few are described as "self-fertile" and are capable of self-pollination although they tend to carry larger crops when pollinated. A relatively small number of species are "Triploid", meaning that they provide no viable pollen for themselves or other apple trees. Apples that can pollinate one another are grouped by the time they usually flower so cross-pollinators are in bloom at the same time. Pollination management is an important component of apple culture. Before planting, it is important to arrange for pollenizers - varieties of apple or crabapple that provide plentiful, viable and compatible pollen. Orchard blocks may alternate rows of compatible varieties, or

may plant crabapple trees, or graft on limbs of crabapple. Some varieties produce very little pollen, or the pollen is sterile, so these are not good pollenizers. Good-quality nurseries have pollenizer compatibility lists. Growers with old orchard blocks of single varieties sometimes provide bouquets of crabapple blossoms in drums or pails in the orchard for pollenizers. Home growers with a single tree and no other variety in the neighborhood can do the same on a smaller scale.

During the bloom each season, apple growers usually provide pollinators to carry the pollen. Honeybee hives are most commonly used, and arrangements may be made with a commercial beekeeper who supplies hives for a fee.

Orchard mason bees are also used as supplemental pollinators in commercial orchards. Home growers may find these more acceptable in suburban locations because they do not sting. Some wild bees such as carpenter bees and other solitary bees may help. Bumble

bee queens are sometimes present in orchards, but not usually in enough quantity to be significant pollinators. Symptoms of inadequate pollination are small and misshapen apples, and slowness to ripen. The seeds can be counted to evaluate pollination. Well-pollinated apples are the best quality, and will have seven to ten seeds. Apples with fewer than three seeds will usually not mature and will drop from the trees in the early summer. Inadequate pollination can result from either a lack of pollinators or pollenizers, or from poor pollinating weather at bloom time. It generally requires multiple bee visits to deliver sufficient grains of pollen to accomplish complete pollination.

Pear

Pears are similar to apples, with the notable exception that pear blossoms are much less attractive to bees, due to lower sugar content than apple or contemporaneous wildflower nectar. Bees may abandon the pear blossoms to visit dandelions or a nearby apple orchard.

There are two possible methods used to compensate. One is saturation pollination, that is to stock so many bees that all area blossoms are worked regardless of the attractiveness to the bees. The other is to delay the movement of the beehives into the orchards until there is about 30 per cent bloom. The bees are moved into the orchard during the night and will usually visit the pear blossoms for a few hours until they discover the richer nectar sources. The recommended number of hives per acre is 1.

Citrus

Many citrus varieties are seedless and are produced parthenocarpically without pollination. Some varieties may be capable of producing fruit either way, having seeds in the segments, if pollinated, and no seeds if not. Citrus that requires pollination may be self compatible, thus pollen must be moved only a short distance from the anther to the stigma by a pollinator. Some citrus, such as Meyer Lemons,

are popular container plants. When these bloom indoors, they often suffer from blossom drop because no pollinators have access. Hand pollinate by a human pollinator is a solution, though it is important to learn whether the variety is self fertile or self incompatible.

A few citrus varieties, including some tangelos and tangerines are self incompatible, and require cross pollination. Pollenizers must be planned when groves are planted. This last group generally requires the addition of managed honeybee hives at bloom time for adequate pollination.

ЗАВДАННЯ ДЛЯ КОНТРОЛЮ РІВНЯ СФОРМОВАНОСТІ ЗНАНЬ

ТЕСТОВІ ЗАВДАННЯ

Incomplete Sentences / Elementary level # 1

Q1 Can you hear what he is .....?

(a) saying (b) speaking (c) telling (d) talking

Q2 She hasn't come home .....

(a) still (b) already (c) yet (d) till

Q3 I ..... TV yesterday evening.

(a) saw (b) looked (c) viewed (d) watched

Q4 We live ..... the city center.

(a) near (b) next (c) by (d) nearby

Q5 She looks ..... a famous film star.

(a) as (b) like (c) similar (d) same

Q6 This television gives you the ..... news.

(a) last (b) latest (c) least (d) later

Q7 I only ..... one mistake in last night's test.

(a) made (b) done (c) did (d) make

Q8 I want you to tell me the ..... truth.

(a) all (b) exact (c) real (d) whole

Q9 He is looking ..... a present to buy his girlfriend.

(a) for (b) at (c) in (d) on

Q10 That's what I would like ..... Christmas.

(a) for (b) at (c) in (d) on

Incomplete Sentences / Elementary level # 2

Q1 You must not drink and then ..... a car.

(a) lead (b) drive (c) take (d) guide

Q2 Please be ..... when you cross this road.

(a) careless (b) carefree (c) caring (d) careful

Q3 Do what you like, I really don't .....

(a) concern (b) interested (c) dislike (d) mind

Q4 If you want to ..... that book remember to bring it back.

(a) borrow (b) lend (c) loan (d) owe

Q5 When your train arrives, I'll ..... you from the station.

(a) take (b) bring (c) fetch (d) remove

Q6 I always get ..... early in the summer.

(a) up (b) over (c) through (d) on

Q7 When you first meet someone, you usually shake them ..... the hand.

(a) with (b) on (c) in (d) by

Q8 I have never ..... her before.

(a) saw (b) seeing (c) seen (d) see

Q9 The teacher asked her students to do their .....

(a) housework (b) homework (c) home duty (d) house job

Q10 The police officer told the children always to tell the .....

(a) true (b) facts (c) information (d) truth

Incomplete Sentences / Elementary level # 6
Modal Verbs

Q1 I ..... go to see the doctor last week because I was very ill.
(a) must (b) must to (c) had to
Q2 I could ..... bought that car but I didn't have enough money to pay for the petrol.
(a) had (b) have (c) have to
Q3 I ..... go now because I am already late for my class.
(a) must (b) had (c) have
Q4 I may ..... able to come to your party if I have the time.
(a) be (b) being (c) being to
Q5 Do you ..... clean the house every day or every week?
(a) must (b) have (c) have to
Q6 I ..... speak French without a problem now because I have had many lessons.
(a) may (b) can (c) have

Q7 They ..... do their homework today because it is a holiday at the school.
(a) must not (b) don't have (c) don't have to
Q8 I ..... help you with your shopping because you have a lot of bags.
(a) ought (b) ought to (c) thought
Q9 When will you ..... come and see us in our new house?
(a) can (b) be able to (c) must
Q10 I may ..... go to Paris next week because there is a very big exhibition there.
(a)have (b) have to (c) had

Incomplete Sentences / Elementary level # 8
Relative Pronouns

Q1 ..... is that sitting over there in the corner?
(a) Who (b) Whom (c) Which
Q2 I don't understand a word ..... you are talking about.
(a) what (b) that (c) who
Q3 They have a very large house round ..... there are some lovely gardens.
(a) that (b) which (c) whose
Q4 I'm looking at the photograph ..... you sent me with your letter.
(a) which (b) who (c) whom
Q5 There is a new television programme called: '..... wants to be a millionaire?'.
(a) Which (b) What (c) Who
Q6 I think you will see that this is the best museum ..... you can find in the town.
(a) that (b) which (c) who
Q7 The police want to find out ..... drove the red car into the shop window.

(a) who (b) who's (c) whose

Q8 Did you meet the lady ..... uncle works in the library?

(a) who (b) whose (c) who's

Q9 The person in the house next to mine knows someone ..... met the Queen.

(a) who (b) whom (c) which

Q10 The grass, ... I cut every week, seems to grow very quickly.

(a)who (b) who's (c) which

Incomplete Sentences / Elementary level # 18
Weather Forecast

Q1 Now let's go ..... to our weather forecaster, Mary.
(a) on (b) out (c) over (d) against
Q2 Yes, thank you and I'm afraid it's not ..... very bright at the moment.
(a) seeming (b) appearing (c) seeing (d) looking
Q3 The trouble is that there are some very ..... rain clouds over the north.
(a) fat (b) heavy (c) weighing (d) dragging
Q4 These will ..... some rainfall later this morning.
(a) bear (b) carry (c) produce (d) present
Q5 Then the clouds will ..... further south in the afternoon.
(a) transport (b) convey (c) direct (d) move
Q6 And by early evening the ..... country will see the rain.
(a) whole (b) total (c) complete (d) hole
Q7 But things will ..... tomorrow.

(a) better (b) improvise (c) increase (d) improve

Q8 In the early morning the sun will make an .....

(a) apparition (b) appearance

(c) appearing (d) appear

Q9 But you'll have to be quick because it soon .....

(a) despairs (b) disappoints

(c) deserts (d) disappears

Q10 And of course after that our old friend rain .....

(a)repeats (b) reports (c) returns (d) reacts

Incomplete Sentences / Elementary level # 19
On TV tonight

Q1 Good evening. Let me tell you what's in ..... for you on television tonight
(a) shop (b) market (c) store (d) screen
Q2 It will be a bit of a mixed .....
(a) sack (b) holder (c) container (d) bag
Q3 To start ..... we have comedy.
(a) with (b) up (c) out (d) in
Q4 This will be a programme presenting that ..... comedian, George Blair.
(a) populated (b) popular
(c) populous (d) poplar
Q5 After that we have the ..... show on the latest hits.
(a) regimented (b) regulated
(c) regular (d) ruled
Q6 Next we'll have the ..... news.
(a) latest (b) newest (c) later (d) newer
Q7 This will be read by the very pretty ..... Penny Lane.

(a) newsagent (b) newscaster
(c) newsbringer (d) newspaper
Q8 At ..... I think she's very pretty.
(a) last (b) lost (c) less (d) least
Q9 And the following programs are all ..... as far as I'm concerned.
(a) boring (b) bored (c) board (d) boarding
Q10 Because after the news Penny and I are ..... on a date.
(a)doing (b) making (c) going (d) taking

Incomplete Sentences / Elementary level # 32
Object Pronoun

Q1 So did you give the book to .....?
(a) his (b) him (c) he
Q2 Of course I did. I gave ..... back on Tuesday.
(a) them (b) its (c) it
Q3 Well, he says that he doesn't trust .....
(a) yours (b) you (c) them
Q4 He doesn't trust .....?
(a) I (b) it (c) me
Q5 That's exactly what he said about .....
(a) you (b) yours (c) me
Q6 I find that difficult to believe. Do you trust .....?
(a) his (b) me (c) my
Q7 Well you and your wife have borrowed things sometimes and not given ..... back.
(a) they (b) theirs (c) them
Q8 Well I think you're being very unfair to .....
(a) our (b) us (c) ours

Q9 In that case just look at the table and tell ..... what you see.

(a) my (b) I (c) me

Q10 Oh dear, I can see ..... That must be the book I haven't given back.

(a)them (b) it (c) him

Incomplete Sentences / Elementary level # 33
Relative Pronoun

Q1 ..... does that car belong to?
(a) Who (b) Which (c) Whose
Q2 Excuse me but shouldn't you say to ..... does that car belong?
(a) which (b) that (c) whom
Q3 That's another way of saying it. I'm talking about the car ..... parked over there.
(a) who's (b) that's (c) who
Q4 ..... do you think would have a car like that?
(a) Whom (b) That (c) Who
Q5 Well, I should say someone for ..... money is no object.
(a) whom (b) who (c) that
Q6 The car to ..... you are referring happens to be mine!
(a) that (b) whom (c) which
Q7 That's interesting. We are talking about the car ..... has a red roof.

(a) that (b) who (c) that's

Q8 Yes, it's the best car ..... I've ever had. Why do you ask?

(a) which (b) that (c) who

Q9 Well, I think you ought to speak to that man ..... standing with a notebook in front of the car.

(a) which (b) whom (c) who's

Q10 Oh no! It's a traffic warden putting a parking ticket on my car and I haven't any money to pay the fine ..... I'll have to pay.

(a)whose (b) which (c) who

Incomplete Sentences / Elementary level # 34
Reflexive Pronouns

Q1 Once there was a young man who called ..... Icarus.
(a) myself (b) himself (c) herself
Q2 His father always wanted his children to look after ..... and do what they wanted.
(a) themselves (b) ourselves (c) herself
Q3 The trouble was that Icarus always wanted to put ..... into danger.
(a) herself (b) itself (c) himself
Q4 His father said again and again if we don't take care, we'd hurt .....
(a) themselves (b) yourselves (c) ourselves
Q5 Icarus shocked his father with an idea that he was going to try out on .....
(a) himself (b) themselves (c) herself
Q6 He had watched birds fly by throwing ..... into the air.
(a) yourselves (b) themselves (c) ourselves

Q7 His sister said she would like to push ..... into the air and fly but she was too frightened.
(a) itself (b) himself (c) herself
Q8 Icarus said he would try and he promised his father: I will not injure .....
(a) yourself (b) myself (c) ourselves
Q9 The last words his father said before Icarus left were: Look after .....
(a) yourself (b) himself (c) myself
Q10 Unfortunately Icarus went too near the sun and the wax on his wings melted and the feathers worked ..... free and he fell on the ground and died.
(a)itself (b) yourselves (c) themselves

Incomplete Sentences / Elementary level # 36
Basic English Grammar

Q1 The pencils and paper ..... on your desk.
(a) to be (b) is (c) are (d) be
Q2 ..... do you like to do on the weekends?
(a) How (b) What (c) Who (d) Where
Q3 My sister is ..... home today.
(a) at (b) in (c) the (d) on
Q4 ..... am an engineer.
(a) You (b) He (c) We (d) I
Q5 The bathroom is ..... to the front door.
(a) next (b) far (c) opposite (d) away
Q6 He always works ..... hard.
(a) much (b) very (c) great (d) quietly
Q7 Do you ..... time to go to the store for me?
(a) like (b) go (c) have (d) give
Q8 She is ..... athlete.
(a) good (b) well (c) a (d) an
Q9 There are 12 ..... in a year.
(a) days (b) weeks (c) months (d) hours

Q10 Driving to work in a car is much ..... than riding a bicycle.

(a)faster (b) fast (c) fastest (d) more faster

Incomplete Sentences / Elementary level # 37
Basic Weather Expressions

Q1 Yesterday ..... was very sunny outside.
(a) he (b) it (c) she (d) they
Q2 She ..... to swim when it is hot.
(a) loves (b) love (c) loved (d) loving
Q3 In some countries it never .....
(a) snow (b) snowing
(c) had snowed (d) snows
Q4 Do you like hot weather ..... not?
(a) but (b) or (c) because (d) so
Q5 I like it ..... it rains.
(a) when (b) who (c) why (d) whom
Q6 Have you ..... made a snowman?
(a) forever (b) always (c) ever (d) every
Q7 The sky is ..... cloudy today.
(a) much (b) very (c) many (d) a lot
Q8 It looks ..... a storm is coming.
(a) as (b) that (c) like (d) of
Q9 I am wet ..... my umbrella broke.
(a) because (b) or (c) if (d) so

Q10 Laura wears gloves ..... her hands will stay warm.

(a)or (b) that (c) why (d) so

Incomplete Sentences / Elementary level # 38
Basic English Expressions

Q1 My desk is a ....., I should clean it.
(a) messy (b) slob (c) mess (d) sloppy
Q2 Valerie spilled water ..... my paperwork.
(a) in (b) on (c) at (d) across
Q3 Will you please take ..... the trash?
(a) out (b) over (c) from (d) of
Q4 I like pencils ..... than pens.
(a) best (b) the best (c) better (d) more good
Q5 My old job was ..... than this one.
(a) more easier (b) easiest
(c) most easy (d) easier
Q6 Tom works the ..... of anyone.
(a) hardest (b) harder
(c) most hard (d) more harder
Q7 This is the ..... assignment I have ever had.
(a) difficult (b) more difficult
(c) most difficult (d) diffultest
Q8 My boss is very .....
(a) nicer (b) nice (c) nicest (d) much nice

Q9 Do you walk ..... take the bus to work?
(a) because (b) from (c) but (d) or
Q10 The janitor cleans the office ..... night.
(a)Total (b) all of (c) every (d) very

Incomplete Sentences / Elementary level # 39
Elementary English Grammar

Q1 She likes ..... running.
(a) go (b) to go (c) gone (d) goes
Q2 John ..... his bicycle every day.
(a) ride (b) ridden (c) rides (d) to ride
Q3 I ..... to school every day.
(a) walk (b) walks (c) walking (d) to walk
Q4 ..... play guitar all the time.
(a) She (b) He (c) Us (d) They
Q5 Do you like .....?
(a) dance (b) of dance (c) to dance (d) danced
Q6 When I was a child I ..... to climb trees.
(a) liked (b) would like (c) was liking (d) like
Q7 It is a good idea ..... every day.
(a) to exercise (b) exercise
(c) exercising (d) exercises
Q8 We went ..... every day in our neighbors' swimming pool.
(a) swim (b) swam
(c) had swam (d) swimming

Q9 There ..... a race next week.
(a) to be (b) was (c) will be (d) are
Q10 Soccer ..... now a popular sport in most countries.
(a)was (b) has been (c) am (d) is

Incomplete Sentences / Elementary level # 41
Common Prepositions

Q1 I live in the big house ..... the corner.
(a) on (b) in (c) of (d) to
Q2 My son goes ..... English classes 5 days a week.
(a) with (b) by (c) to (d) from
Q3 My friend Anna lives ..... England.
(a) from (b) at (c) on (d) in
Q4 The milk goes ..... the refrigerator.
(a) on (b) in (c) of (d) at
Q5 Will you come ..... me to the store?
(a) with (b) along (c) to (d) by
Q6 My car will not start because it is ..... gas.
(a) full of (b) out with (c) out of (d) with no
Q7 Please put the plates ..... the table.
(a) over (b) for (c) to (d) on
Q8 I like to eat ice cream ..... chocolate sauce on top.
(a) at (b) with (c) in (d) to
Q9 Were you ..... church yesterday?

(a) at (b) to (c) on (d) for

Q10 I am ..... work right now.

(a)with (b) at (c) of (d) on

Incomplete Sentences / Elementary level # 42
Modal Verb Questions

Q1 ..... you please bring me my notebook?
(a) Will (b) May (c) Do (d) Should
Q2 ..... you please bring me my notebook?
(a) Did (b) Would (c) Have (d) Might
Q3 ..... you please bring me my notebook?
(a) Should (b) Do (c) Can (d) Haven't
Q4 ..... you please bring me my notebook?
(a) Shall (b) Could (c) May (d) Must
Q5 ..... you want some water?
(a) Can (b) Have (c) May (d) Do
Q6 ..... you like some water?
(a) Can (b) May (c) Would (d) Do
Q7 ..... I ride with you to work?
(a) Would (b) Can (c) Let (d) Have
Q8 ..... I ride with you to work?
(a) Does (b) Haven't (c) Allow (d) May
Q9 ..... I could ride with you to work?
(a) Is there any way
(c) Might there some way

(b) Ain't there no way

(d) Aren't there some ways

Q10 ..... I ride with you to work?

(a)Will you mind if (b) Could you mind if

(c) Would you mind if (d) Can you mind if

Incomplete Sentences / Elementary level # 43
Elementary Grammar Questions

Q1 Flowers ..... good.
(a) stink (b) feel (c) smell (d) watch
Q2 My ..... colour is green.
(a) preferred (b) like (c) most liked (d) favourite
Q3 My mom is ..... Africa.
(a) of (b) from (c) to (d) out
Q4 There are 7 kids ..... my family.
(a) to (b) in (c) of (d) at
Q5 ..... of my parents live in the United States of America.
(a) Lots (b) The two (c) All (d) Both
Q6 ..... 4 of my grandparents are still alive.
(a) Both (b) None (c) All (d) Many
Q7 ..... you leave my shoes outside last night?
(a) Did (b) Do (c) Will (d) Would
Q8 I really like ..... spaghetti.
(a) of eat (b) to eat (c) eat (d) ate
Q9 ..... drive me home later?
(a) Do you think you can (b) You can

(c) Did (d) Is possible

Q10 It is a rule: if you ride in my car you ..... wear your seatbelt.

(a)may (b) might (c) can (d) have to

Incomplete Sentences / Elementary level # 44
English Grammar Exercise

Q1 Our couch is ..... soft.
(a) very (b) much (c) lots (d) tons
Q2 Our house ..... 3 bedrooms.
(a) is of (b) is with (c) has (d) have
Q3 Does your dog live inside ..... outside?
(a) but (b) because (c) though (d) or
Q4 Does your ..... have a dishwasher?
(a) living room (b) bathroom
(c) dining room (d) kitchen
Q5 All of the walls are ..... white.
(a) paint (b) painted (c) to paint (d) painting
Q6 There is a rug ..... the floor in the living room.
(a) in (b) under (c) on (d) next to
Q7 The ..... gets 6 channels.
(a) cat (b) tree (c) television (d) microwave
Q8 Our table is ..... for 8 people.
(a) big (b) enough big
(c) a lot big (d) big enough

Q9 Do you lock the front door ..... night?
(a) for (b) at (c) on (d) from
Q10 I will ..... the clothes after you fold them.
(a)put up (b) put next (c) put under (d) in put

Incomplete Sentences / Elementary level # 45
Much, many, a lot, lots

Q1 How ..... people are coming?
(a) lots (b) much (c) a lot (d) many
Q2 How ..... does the book cost?
(a) much (b) many (c) lots (d) a lot
Q3 Do you need ..... milk for this recipe?
(a) many (b) big (c) much (d) much of
Q4 I need to practice piano ..... before the concert.
(a) much (b) very (c) many (d) a lot
Q5 I have ..... of homework to do before tomorrow.
(a) a ton (b) a tan (c) a million (d) a much
Q6 How ..... water do you drink every day?
(a) many (b) much (c) lots of (d) very
Q7 You are ..... smart.
(a) much (b) many (c) very (d) lots
Q8 I have ..... of friends.
(a) much (b) very (c) lots (d) many
Q9 You are a ..... honest person.

(a) ton (b) very (c) many (d) much

Q10 Do you have ..... ants in your house?

(a)much (b) many (c) a lot (d) very

Incomplete Sentences / Elementary level # 46
Elementary Adjectives

Q1 If I am not right I am .....
(a) wrong (b) certain (c) correct (d) un-right
Q2 If you are not taller you are .....
(a) the short (b) shorter (c) shortest (d) short
Q3 The car is not ....., it is slow.
(a) speed (b) unhurried (c) fast (d) powerful
Q4 Today it is not hot, it is .....
(a) cold (b) un-hot (c) hotter (d) colder
Q5 If I am not weak I am .....
(a) weaker (b) pretty (c) bright (d) strong
Q6 I do not get up ....., I get up early.
(a) night (b) day (c) late (d) first
Q7 He is the heaviest and I am the .....
(a) lightest (b) lighter (c) light (d) heavier
Q8 What goes up must come .....
(a) over (b) down (c) nice (d) left
Q9 At the stop sign do not turn right, turn .....
(a) light (b) wrong (c) straight (d) left
Q10 My mom's hair is not straight, it is .....
(a)long (b) short (c) curly (d) grey

Incomplete Sentences / Elementary level # 61
Some, any, few, little

Q1 Wow! Look at that! How ..... books do you have on your shelf? I have to tell you, it's quite a great collection!
(a) much (b) many (c) any (d) some
Q2 Would you like ..... juice?
(a) a (b) an (c) some (d) much
Q3 How ..... money do you have?
(a) much (b) more (c) many (d) often
Q4 I only have ..... dollars.
(a) some (b) any (c) a little (d) a few
Q5 I want to make orange juice. Have you got ..... oranges?
(a) much (b) many (c) any (d) few
Q6 No, I don't have any. But I have ..... apples, if you'd like to make apple juice instead.
(a) a little (b) some (c) any (d) few
Q7 There are ..... people trying to go to the U2 concert this weekend.
(a) many (b) much (c) a little (d) any

Q8 How many gallons of water did you bring for the trip? — I just have ..... gallons.
(a) much (b) any (c) a little (d) a few
Q9 Jessica spent a lot of money on her car. Now she only has ..... money left to pay for her living expenses.
(a) many (b) a few (c) a little (d) much
Q10 How ..... time do you have left before you have to go to school?
(a)some (b) much (c) many (d) any

Incomplete Sentences / Elementary level # 62
Prepositions Test

Q1 I was jogging in the park this morning and saw this dog coming ..... me. It looked like he was going attack me, but he was just trying to reach out for his owner who was running right behind me.
(a) onto (b) after (c) towards (d) below
Q2 Barbara, your boyfriend is waiting for you ..... in the car.
(a) around (b) outside (c) above (d) against
Q3 I heard a glass breaking noise in the living room and ran to see what happened. A pigeon flew ..... the window and broke it.
(a) for (b) from (c) by (d) against
Q4 Suzanne who lives ..... that coffee shop place, came over to visit you this morning.
(a) on (b) by (c) at (d) in
Q5 I don't know how many times I have told my daughter to look at both sides before running ..... the street.

(a) across (b) alongside (c) beside (d) around

Q6 My house is ..... the grocery store and the gas station.

(a) under (b) off (c) among (d) between

Q7 The temperature in Washington D.C today is eight degrees ..... zero.

(a) beside (b) below (c) behind (d) between

Q8 The cat is sitting ..... the wall.

(a) on (b) over (c) above (d) underneath

Q9 As soon as Bob heard his boss coming, he jumped ..... his chair and prentended he was working.

(a) inside (b) under (c) for (d) down

Q10 Frederick lives ..... the hill, where all the mansions are.

(a)above (b) unto (c) onto (d) up

Incomplete Sentences / Elementary level # 81
Possessive pronouns

Q1 Mia left ..... notebook on the bus.
(a) her (b) yours (c) his
Q2 The colorful picture of the flowers is .....
(a) their (b) your (c) mine
Q3 The proud parents brought home ..... new baby girl.
(a) his (b) her (c) their
Q4 Will strummed ..... guitar and invited everyone to sing.
(a) his (b) its (c) her
Q5 The computer quickly stores information on ..... huge memory.
(a) yours (b) theirs (c) its
Q6 These warm chocolate chip cookies melt in ..... mouth.
(a) its (b) your (c) yours
Q7 Is ..... seat belt always fastened?
(a) your (b) mine (c) its
Q8 The fluffy brown puppy is .....

(a) its (b) my (c) theirs

Q9 ..... hand shot up when the teacher asked for volunteers.

(a) Their (b) Her (c) Mine

Q10 I didn't get a cheeseburger, so I tasted .....

(a)mine (b) its (c) hers

ЗАВДАННЯ ДЛЯ КОНТРОЛЯ РІВНЯ СФОРМОВАНОСТІ ЗНАНЬ З ПРОФЕСІЙНО-СПРЯМОВАНОЇ ЛЕКСИКИ

TEST 1

Activity 1. Read, translate the text and answer the following questions

Fertilizers are substances that **supply** plant nutrients or amend soil fertility. They are the most effective (30 -80 per cent increase in yields) means of increasing **crop production** and of improving the **quality of food** and fodder. Fertilizers are used in order to supplement nutrient supply in the **soil**, especially to correct yield-limiting factors. Fertilizers are applied to **promote** plant growth; the main nutrients present in **fertilizer** are nitrogen, phosphorus, and potassium (the 'macronutrients') and other nutrients ('micronutrients') are added in smaller amounts. Fertilizers are usually directly applied to soil, and can also be sprayed on **leaves** as a foliar **feeding.**

1. What are fertilizers?

2. Are they the most effective means of increasing crop production?
3. Why fertilizers are applied?

Activity 2. Give Ukrainian definition to the underlined words in the text from Activity 1.

Activity 3. Decide whether the following statements are TRUE or FALSE:

1) Fertilizers are used in order to supplement nutrient supply in the plant.
2) Fertilizers are applied to promote plant growth; the main nutrients present in fertilizer are nitrogen, phosphorus.
3) Fertilizers are usually directly applied to soil, and can also be sprayed on root as a foliar feeding.

TEST 2

Activity 1. Read, translate the text and answer the following questions

Organic fertilizers and some mined **inorganic** fertilizers have been used for many centuries, whereas chemically synthesized inorganic fertilizers were only widely developed during the **industrial revolution**. Increased understanding and use of fertilizers were important parts of the pre-industrial British Agricultural Revolution and the industrial Green Revolution of the 20th century. Inorganic fertilizer use has also significantly supported **global population growth** – it has been estimated that almost half the people on the **Earth** are currently fed as a result of artificial nitrogen fertilizer **use**.

1. Organic fertilizers and some mined inorganic fertilizers have been used for many centuries, haven't they?

2. Are half of the people on the Earth fed as a result of artificial nitrogen fertilizer use?

Activity 2. Give Ukrainian definition to the underlined words in the text from Activity 1.

Activity 3. Decide whether the following statements are TRUE or FALSE:

1) Increased understanding and use of fertilizers were important parts of the pre-industrial British Agricultural Revolution.
2) Inorganic fertilizer use has also significantly supported global population growth.
3) Inorganic fertilizer has been estimated that almost half the people on the Earth are currently fed as a result of artificial nitrogen fertilizer use.

TEST 3

Activity 1. Read, translate the text and answer the following questions

A **herbicide**, commonly known as a weedkiller, is a type of **pesticide** used to **kill** unwanted plants. Selective herbicides kill specific targets while leaving the desired **crop** relatively unharmed. Some of this **act** by interfering with the **growth** of the weed and are often synthetic "imitations" of **plant hormones**. Herbicides used to clear waste ground, industrial sites, railways and railway embankments are non-selective and kill all plant material with which they come into contact. Smaller quantities are used in forestry, pasture systems, and **management** of areas set aside as wildlife habitat.

Some plants produce **natural herbicides**, such as the genus Juglans (walnuts), or the tree of heaven; such action of natural herbicides, and

other related chemical interactions, is called allelopathy. Herbicides are widely used in **agriculture** and in landscape turf management. In the U.S., they account for about 70% of all agricultural pesticide **use**.

1. What is herbicide?
2. What do selective herbicides kill?
3. Do they kill all plant material?
4. Why do we use herbicides in agriculture?

Activity 2. Give Ukrainian definition to the underlined words in the text from Activity 1.

Activity 3. Decide whether the following statements are TRUE or FALSE:

1) Selective herbicides kill specific targets while leaving the desired crop relatively unharmed.
2) Herbicides kill all plant material with which they come into contact.
3) Some plants don’t produce natural herbicides, such as the genus Juglans (walnuts).

TEST 4

Activity 1. Read, translate the text and answer the following questions

The **classification** of insecticides is done in several **different ways**: Systemic insecticides are incorporated by treated plants. **Insects** ingest the insecticide while **feeding** on the plants. Contact insecticides are toxic to insects brought into **direct contact**. Efficacy is often related to the quality of pesticide **application**, with small droplets (such as aerosols) often improving performance.

Inorganic insecticides are manufactured with metals and include arsenates, copper **compounds** and fluorine compounds, which are now seldom used, and sulfur, which is commonly used. Organic insecticides are **synthetic chemicals** which comprise the largest numbers of pesticides available for use today. Mode of action is another way of classifying

insecticides. Mode of action is **important** in predicting whether an insecticide will be **toxic** to unrelated species, such as fish, birds and mammals. Heavy metals, e.g. arsenic have been used as insecticides; they are **poisonous** and very rarely used now by **farmers**.

1.How can insecticides be classified?
2. What kinds of insecticides do you know?
3.What are the effects of insecticides application?
4. Are these substances toxic?

Activity 2. Give Ukrainian definition to the underlined words in the text from Activity 1.

Activity 3. Decide whether the following statements are TRUE or FALSE:

1) Insects don’t ingest the insecticide while feeding on the plants.

2) Organic insecticides are synthetic chemicals which comprise the least numbers of pesticides available for use today.
3) Heavy metals are poisonous and very rarely used now by farmers.

TEST 5

Activity 1. Read, translate the text and answer the following questions

Crop rotation is a type of cultural control that is also used to **control pests** and diseases that can become established in the soil over time. The changing of crops in a sequence tends to decrease the population level of **pests**. **Plants** within the same taxonomic family tend to have similar pests and pathogens. By regularly changing the planting location, the pest cycles can be broken or limited. For example, root-knot nematode is a serious problem for some plants in warm climates and **sandy soils**, where it slowly builds up to high levels in the **soil**, and can severely **damage** plant productivity by cutting off circulation from the plant roots. Growing a crop that is not a host for root-knot nematode for one season greatly reduces the level of the nematode in the soil, thus making it

possible **to grow** a susceptible crop the following season without needing **soil fumigation.**

1. What is crop rotation?
2. Does it help to provide weeds control?
3. What is the main principle of crop rotation?
4. What is the general effect of it?
5. What does the choice of rotating crops depend on?

Activity 2. Give Ukrainian definition to the underlined words in the text from Activity 1.

Activity 3. Decide whether the following statements are TRUE or FALSE:

1) Crop rotation isn't a type of cultural control that is also used to control pests and diseases
2) Plants within the same taxonomic family tend to have similar pests and pathogens.

3) Growing a crop that is not a host for root-knot nematode for one season greatly reduces the level of the nematode in the water.

TEST 6

Activity 1. Read, translate the text and answer the following questions

It is difficult **to control** weeds similar to the crop which may contaminate the **final produce**. For instance, ergot in **weed grasses** is difficult to separate from harvested **grain**. A different crop allows the weeds to be eliminated, breaking the **ergot cycle**.

This principle is of particular **use** in organic farming, where pest control may be achieved without **synthetic pesticides**.

A general effect of **crop rotation** is that there is a geographic mixing of crops, which can slow the spread of **pests** and **diseases** during the **growing season**. The different crops can also **reduce** the effects of adverse weather for the individual farmer and, by requiring **planting** and **harvest** at different times, allow more land

to be farmed with the same amount of machinery and labor.

The choice and sequence of rotation crops depends on the **nature** of the soil, the climate, and precipitation which together **determine** the type of plants that may be cultivated. Other important aspects of farming such as crop marketing and economic variables must also be considered when deciding crop rotations.

1. What is the general effect of crop rotation?
2. What does rotation crops depend on?
3. What are the important aspects of farming?

Activity 2. Give Ukrainian definition to the underlined words in the text from Activity 1.

Activity 3. Decide whether the following statements are TRUE or FALSE:

1) A general effect of crop rotation is that there is a geographic mixing of crops

2) A different crop doesn’t allow the weeds to be eliminated, breaking the ergot cycle.
3) The choice and sequence of rotation crops depends on the nature of the thickness of soil and precipitation.

TEST 7

Activity 1. Read, translate the text and answer the following questions

GM stands for genetically **modified food**. They have been artificially changed by **scientists** in a laboratory.

GM foods are developed because there is some perceived advantage either to the **producer** or **consumer** of these foods. This is meant to translate into a product with a lower price, greater benefit or both.

The GM crops currently on the market are mainly aimed at an increased level of **crop protection** through the introduction of **resistance** against plant diseases caused by insects or viruses or through increased tolerance towards herbicides. Insect resistance is achieved by incorporating into the food plant the **gene** for toxin production from the bacterium Bacillus thuringiensis (BT). This toxin is currently used

as a conventional **insecticide** in agriculture and is **safe** for human consumption.

Virus resistance is achieved through the introduction of a gene from certain viruses which cause **disease** in plants. Virus resistance makes plants less susceptible to diseases caused by such viruses, resulting in higher crop yields. Herbicide tolerance is achieved through the introduction of a gene from a bacterium conveying resistance to some herbicides.

1. What are GM foods?
2. Do people worry about GMO?
3. Are there any advantages in producing GM foods?
4. What's the aim of GMO production?
5. Do you know the examples of GMO?

Activity 2. Give Ukrainian definition to the underlined words in the text from Activity 1.

Activity 3. Decide whether the following statements are TRUE or FALSE:

1) The bacterium Bacillus thuringiensis isn't used as a conventional insecticide in agriculture and is safe for human consumption.
2) Herbicide tolerance is achieved through the introduction of a gene from a bacterium conveying resistance to some herbicides.
3) GM foods are developed because there is some perceived advantage either to the producer or consumer of these foods.

VOCABULARY FOLDER

A

annual - річний
average – середній
amount – кількість
ample – достатній
absorb – поглинати
add – додавати
artificial – штучний
appearance - зовнішність

B

bran – висівки
benefit – отримувати користь
breed – розводити
breeder – селекціонер
biofuel – біопаливо
beet - буряк

C

cattle – велика рогата худоба
crop – с.г культура
cuisine – кухня

cereals – хлібний злак, каша
costs – витрати
chaff – полова, дрібна солома
content – вміст
conditions - умови
cause – спричиняти
cultivate – обробляти
carrot – морква
cucumber – огірок
cabbage - капуста

D

distrustful – недовірливий
decrease – зменшувати
domesticate – одомашнювати
destroy – знищувати
disease – хвороба
drainage – дренаж
disorder – розлад
distinction – відмінність

E

essential – головний
expansion – поширення
elimination – знищення
evaluation – оцінка
excessive – надмірний
exhibit – проявляти
enrich –збагачувати
ensure – забезпечувати
exist – існувати
employer – роботодавець
essential – важливий
exist – існувати
erosion - ерозія

F

fungicides – фунгіциди
fiber – волокно
fertilizers – добрива
flour – мука
fat – жир
flesh – м’ясо

frost resistance – морозостійкість
flexible – гнучкий

G

grain – зерно, хлібні злаки
growth – ріст
geographic – географічний
genetic substances – генетична субстанція
gland – залоза
gastric juices – травні соки
grow – рости
germ – зародок, ембріон, зав'язь

H

health – здоров'я
herbicides – гербіциди
horse – кінь
hereditary – спадковий
highlight – висвітлити
harvest – збирати врожай
habitat – місце проживання

I

insect attacks – ураження комахами
importance – важливість
income – прибуток
intact – неушкоджений
iron –залізо
inflammatory – запальний
inoculation - щеплення
inherit – успадковувати
intercellular – міжклітинний
improve – покращувати
instant – розчинний
interviewer – інтерв'юер

K

kidneys – нирки
keratinization –ороговіння
kernel – зерно
knee – кореневий виріст
kind – сорт, різновид

L

liver – легені
long-term storage – довгострокове зберігання
lack – відчувати нестачу
longevity – тривалість
lesion – ушкодження
limb – кінцівка

M

mill – молотити
maize – кукурудза
metabolism – метаболізм
mature – зрілий
moisture – вологість
mushrooms – гриби
maintenance – утримання
milking machine – доїльний апарат

N

nutrition – харчування, живлення
nut – горіх

nitrogen – азот
nitrate – нітратний азот
nonarable – неорний
nurse – покривна рослина
nursling – саджанець
nematode - нематода

O

occur – траплятися
organic compound – органічний компонент
oxygen – кисень
opaque – непрозорий, матовий
onion - цибуля

P

penetrate – проникати
perishable – що швидко псується
production – виробництво
potassium – калій
provide – забезпечувати
prevent – запобігати

porridge – каша
pig – порося
protein – білок
purpose – ціль, мета
predominant – основний
phase – фаза
plump – слива
plough – плуг, орати
pumpkin – гарбуз
pepper - перець

Q

quantity – кількість
quality – якість
quicksand – сипучий пісок

R

rodenticides – родентициди
require – потребувати
ratoon – кореневий паросток
rice – рис

reproduction – відновлення, репродукція
rapid – швидкий
root – корінь
remove – видаляти
release – вивільняти
response – реакція
regeneration – регенерація
regrowth – вторинний ріст

S

straw – солома
starch – крохмаль
species – різновид
storage –зберігання
shifts – зміни
survive – виживати
soil fertility –родючість грунту
seeds – насіння
surface – поверхня
scale – масштаб
stomach – шлунок
skin – шкіра

sheep – вівця
silage - силос
steam – варити на пару
simplify – спрощувати
stuff – начиняти
stalk – стебло
seedling – саджанець
salary – платня,оклад

T

tuber – коренеплід
thatch – солом’яна покрівля
treatment – обробка, протруєння насіння
taming – освоєння земель
twig – пагін, гілка
twin-row – дворядковий
tuberization – утворення коренеплоду
transplant – розсаджувати, пересаджувати
toxicity – токсичність
tomato - помідор

U

ultraviolet rays – ультрафіолетові промені
use – використовувати
unharmed – неушкоджений
underseeding – підсіювання
unfertile – неродючий
unfrozen – талий, немерзнучий
underflood – підтоплення
unripe – незрілий, зелений

V

value – цінність
vehicle of the virus – переносчик вірусів
virus – вірус
variety – сорт, різновид
variability – мінливість, варіабільність
vegetation – вегетація, рослинність
ventilation – аерація
vetch – вико, горошок

W

wheat – пшениця
warehouse – склад
weed – бур’ян
water-bearing –водоносний
water-free –безводний
watering – зрошення, полив
waterproof – водонепроникний

Y

yield – урожай
yield-limiting factors – фактори, що обмежують врожайність
yieldability – усадка грунту
young – молодий, слаборозвинутий

Z

zinc –цинк
zonality – зональність
zone – зона, пояс
zymosis - ферментація

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