

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
МИКОЛАЇВСЬКИЙ НАЦІОНАЛЬНИЙ АГРАРНИЙ  
УНІВЕРСИТЕТ**

Факультет культури й виховання  
Кафедра іноземних мов

**АНГЛІЙСЬКА МОВА**

Методичні рекомендації та навчальний матеріал для  
аудиторної роботи здобувачів вищої освіти «доктор  
філософії» усіх спеціальностей МНАУ денної та  
заочної форм навчання

**Миколаїв  
2020**

УДК 811.111  
А-64

Друкується за рішенням науково-методичної комісії факультету культури й виховання від 26 травня 2020 р., протокол № 8

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## ПЕРЕДМОВА

Євроінтеграційні процеси спонукають до оновлення змісту вищої освіти, підвищення наукового рівня працівників народного господарства, вихід на новий якісний рівень потребує створення нових методичних напрацювань для підготовки здобувачів вищої освіти ступеня доктора філософії.

Пропоновані методичні рекомендації призначені для роботи здобувачів вищої освіти «доктор філософії» усіх спеціальностей денної та заочної форми навчання. Методичні рекомендації розроблені згідно з Порядком підготовки здобувачів вищої освіти ступеня доктора філософії та доктора наук у вищих навчальних закладах (наукових установах), Типовою програмою Міністерства освіти і науки України, програмою «English for Specific Purposes», що передбачають здобуття мовних компетентностей, достатніх для представлення та обговорення результатів своєї наукової роботи іноземною мовою в усній та письмовій формі, а також для повного розуміння іншомовних наукових текстів з відповідної спеціальності.

Метою методичних рекомендацій є розвиток комунікативних умінь і навичок різних видів мовленнєвої діяльності для представлення та обговорення результатів наукової роботи здобувача вищої освіти ступеня доктора філософії англійською мовою відповідно до специфіки спеціальності в усній та письмовій формі, а також навичок реферування наукової літератури для повного розуміння іншомовних наукових текстів з відповідної спеціальності.

Методичні рекомендації складаються з двох розділів, додатку з фаховими текстами. Розділи містять оригінальні наукові тексти зі спеціальностей за профілем університету для читання та реферування, лексичні вправи та завдання, мовні кліше для реферування та зразки сталих виразів для публічного представлення і захисту наукових результатів власного дослідження й публічного виступу на наукових заходах.

## **PART 1. READING AND REVIEWING OF THE ORIGINAL LITERATURE IN ENGLISH**

*1. Study the texts given below, use additional information resources and deliver a report on your special field of knowledge.*

### **Economics**

The term economics was coined around 1870 and popularized by Alfred Marshall, as a substitute for the earlier term political economy which has been used through the 18th-19th centuries, with Adam Smith, David Ricardo and Karl Marx as its main thinkers and which today is frequently referred to as the "classical" economic theory. Economic thought may be roughly divided into three phases: Premodern (Greek, Roman, Arab), Early modern (mercantilist, physiocrats) and Modern (since Adam Smith in the late 18th century). Systematic economic theory has been developed mainly since the birth of the modern era.

Economics has been recognized as a special area of study for over a century. The term Economics derived from the Greek words οἶκος [okos], 'house', and νέμω [nemo], 'rules' hence it means household management. There is no unani-mous consensus upon its definition. Various definitions describe different aspects of this social science. We may mention some of them. Economics is:

- the social science that studies the allocation of scarce resources to satisfy unlimited wants. This involves analyzing the production, distribution, trade and consumption of goods and services, and their management;
- the study of choice and decision-making in a world of limited resources;
- the science that deals with the production, distribution, and consumption of wealth, and with the various related problems of labor, finance, taxation, etc.
- research on such factors as interest rates, gross national product, inflation, unemployment, and inventories, as tools to predict the direction of the economy.

Economics is said to be normative when it recommends one choice over another, or when a subjective value judgment is made. Conversely, economics is said to be positive when it tries objectively to predict and explain consequences of choices, given a set of assumptions and/or a set of observations.

Economics is the study of how society chooses to allocate its scarce resources to the production of goods and services in order to satisfy unlimited wants. Society makes two kinds of choices: economy-wide, or macro, choices and individual, or micro, choices. The prefixes macro and micro come from the Greek words meaning “large” and “small,” respectively. Reflecting the macro and micro perspectives, economics consists of two main branches: macroeconomics and microeconomics.

Economics, which focuses on measurable variables, is broadly divided into two main branches: microeconomics, and macroeconomics. Microeconomics (literally, very small economics) is the study of the economic behaviour of individual consumers, firms, and industries and the distribution of production and income among them. It considers individuals both as suppliers of labour and capital and as the ultimate consumers of the final product. It analyzes firms both as suppliers of products and as consumers of labour and capital. It deals with individual agents, such as households and businesses.

Microeconomics seeks to analyze the market form or other types of mechanisms that establish relative prices amongst goods and services and/or allocates society's resources amongst their many alternative uses.

Macroeconomics considers the economy as a whole, in which case it considers aggregate supply and demand for money, capital and commodities. Aspects receiving particular attention in economics are resource allocation, production, distribution, trade, and competition. Economic logic is increasingly applied to any problem that involves choice under scarcity or determining economic value.

There appear to be three methods by which economic phenomena may be investigated. The first consists mainly in

deductive analysis. Preceding from a few simple premises based upon general observation a researcher makes broad generalizations. The second is the historical method, which seeks an understanding of existing institutions by tracing their evolutions from their origins in the past. The third is statistical induction, which endeavours, by the analysis of numerical data, to develop quantitative knowledge of economic phenomena. Anyway, it is now coming to be recognized that these methods are complementary rather than mutually exclusive.

A successful theory provides insights into the physical or social relationships it studies. Economic theories are developed to explain such important observable quantities as the production, prices and consumption of goods and services, the employment of workers, and levels of saving and investment.

Economic variables are quantities that can have more than one value. For example, the price of an item is an economic variable representing what we must give up in exchange for each unit of that item. Price is an economic variable because it can go up or down as changes occur in the economy. An economic theory of price seeks to determine the causes for changes in the price of an item.

An economic model is a simplified way of expressing how some sector of the economy functions. An economic model contains assumptions that establish relationships among economic variables. We use logic, graphs, or mathematics to determine the consequences of the assumptions. In this way we can use the model to make predictions about how a change in economic conditions results in changes in decisions affecting economic variables. Economists often use the term “model” as a synonym for theory.

*M. Kasi Reddy, S. Saraswathi, Managerial economics and financial accounting.*

## **AN INTRODUCTION TO AGRICULTURE**

### **A. Terminology**

Agriculture is derived from Latin words “Ager” and “Cultura”. “Ager” means land or field and “Cultura” means cultivation. Therefore the term agriculture means cultivation of land

i.e., the science and art of producing crops and livestock for economic purposes. It is also referred as the science of producing crops and livestock from the natural resources of the earth. The primary aim of agriculture is to cause the land to produce more abundantly, and at the same time, to protect it from deterioration and misuse. It is synonymous with farming—the production of food, fodder and other industrial materials.

#### B. Definitions

Agriculture is defined in the Agriculture Act 1947, as including ‘horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use ancillary to the farming of land for Agricultural purposes’. It is also defined as ‘purposeful work through which elements in nature are harnessed to produce plants and animals to meet the human needs. It is a biological production process, which depends on the growth and development of selected plants and animals within the local environment.

#### C. Agriculture as art, science and business of crop production

Agriculture is defined as the art, the science and the business of producing crops and the livestock for economic purposes. As an art, it embraces knowledge of the way to perform the operations of the farm in a skillful manner. The skill is categorized as;

**Physical skill:** It involves the ability and capacity to carry out the operation in an efficient way for e.g., handling of farm implements, animals etc., sowing of seeds, fertilizer and pesticides application etc.

**Mental skill:** The farmer is able to take a decision based on experience, such as (i) time and method of ploughing, (ii) selection of crop and cropping system to suit soil and climate, (iii) adopting improved farm practices etc.

**As a science:** It utilizes all modern technologies developed on scientific principles such as crop improvement/breeding, crop production, crop protection, economics etc., to maximize the yield and profit. For example, new crops and varieties developed by hybridization, transgenic crop varieties resistant to pests and

diseases, hybrids in each crop, high fertilizer responsive varieties, water management, herbicides to control weeds, use of bio-control agents to combat pest and diseases etc.

As the business: As long as agriculture is the way of life of the rural population, production is ultimately bound to consumption. But agriculture as a business aims at maximum net return through the management of land, labour, water and capital, employing the knowledge of various sciences for production of food, feed, fibre and fuel. In recent years, agriculture is commercialized to run as a business through mechanization.

*B. Chandrasekaran, K. Annadural, E. Somasundaram, Agronomy. Textbook*

## **FOOD PROCESSING & TECHNOLOGY**

Meat has been an integral part of our culture since the dawn of humanity. We crave meat, celebrate it, but its production is becoming unsustainable. Animal agriculture utilises over 80% of the world's habitable land, 30% of our freshwater supply, and is a major driver for deforestation.

Meat can be defined as “the muscle tissue of slaughter animals”. It is one of the most important feeding sources for humans because it has high amount valuable protein and important micronutrients essential to provide good health for people, briefly.

For meat industry, consumer preferences are one of the most important factors. Behaviours of consumers and their beliefs on meat and meat products rely on product itself and on the characteristics of the individual. Generally speaking and regardless of its traditional character and established social status, meat has a negative image generally, because it is relation of living animal, handling practices and slaughter conditions, the presence of blood, environmental issues and religious, ideological, ethical or moral concerns. Paradoxically, all these negative factors about meat seem to have a limited effect of consuming meat, it may possible as a result of low consumer knowledge.

Meat industry was influenced by the technological developments. However, the technology has to be accepted by consumers and it should be feasible. In addition to all, meat industry was faced some other problems, which were also in general problems for humankind such as, global warming and its effects on livestock, stress on them and pastures. Moreover, due to increasing of human population and urbanization, agricultural areas stressed and prices of them increased. For this reason, feeding price of animals increased and as a result price of animal products increased.

*Gokirmakli C, Bayram M. Future of meat industry.*

## **MANAGEMENT**

Management (or managing) is the administration of an organization, whether it is a business, a not-for-profit organization, or government body. Management includes the activities of setting the strategy of an organization and coordinating the efforts of its employees (or of volunteers) to accomplish its objectives through the application of available resources, such as financial, natural, technological, and human resources. The term "management" may also refer to those people who manage an organization - individually: managers.

Social scientists study management as an academic discipline, investigating areas such as social organization and organizational leadership. Some people study management at colleges or universities; major degrees in management include the Bachelor of Commerce (B.Com.) Bachelor of Business Administration (BBA.) Master of Business Administration (MBA.) Master in Management (MScM or MIM) and, for the public sector, the Master of Public Administration (MPA) degree. Individuals who aim to become management specialists or experts, management researchers, or professors may complete the Doctor of Management (DM), the Doctor of Business Administration (DBA), or the PhD in Business Administration or Management. There has recently been a movement for evidence-based management.

Larger organizations generally have three levels of managers, which are typically organized in a hierarchical, pyramid structure:

Senior managers, such as members of a board of directors and a chief executive officer (CEO) or a president of an organization. They set the strategic goals of the organization and make decisions on how the overall organization will operate. Senior managers are generally executive-level professionals, and provide direction to middle management, who directly or indirectly report to them.

Middle managers - examples of these would include branch managers, regional managers, department managers and section managers, who provide direction to front-line managers. Middle managers communicate the strategic goals of senior management to the front-line managers.

Lower managers, such as supervisors and front-line team leaders, oversee the work of regular employees (or volunteers, in some voluntary organizations) and provide direction on their work.

In smaller organizations, an individual manager may have a much wider scope. A single manager may perform several roles or even all of the roles commonly observed in a large organization.

*From Wikipedia, the free encyclopedia*

## *2. Read the text, headline and answer the questions:*

The link between information and computer technology has resulted in changes that until a few years ago were restricted to science fiction. Physical access to documents is no longer so important: on-line services, databases on CD-ROM, the Internet, all make access possible to diverse sources of information. If the system allows downloading, if the research results can be printed, how much does access cost, if it is to a public source... Reading is no longer the only form of access. Now the user has the option to format: brochures, CD-ROMs, videos, audio-books, etc.

Technological advance provoked an earthquake in the area of information, breaking barriers. The Global Village is a reality, changing people's daily routines, habits and customs. It is no longer necessary to go to Washington to consult the catalogue of the Library of Congress to conduct bibliographical research: its electronic address is the Open Sesame for researchers and scholars.

1. Is the link between information and computer technology still science fiction?
2. Why is physical access to documents no longer so important?
3. Why is not reading the only form of access now?
4. Why did technological advance provoke an earthquake in the area of information?

3. *Answer the questions using the phrases in the brackets:*

1. What does the book begin with? (a short introductory chapter)
2. What does the article begin with? (an introductory part; a few general remarks; a short introduction)
3. What is each subsection preceded by? (a brief theoretical introduction; some introductory notes; an introductory discussion)
4. What does the book introduce to? (the work done in ...; the new data in the field of ...; the up-to-date techniques in ...)
5. What does the book acquaint us with? (recent discoveries in ...; applications of new methods; the work done in the field of; experimental technique)

4. *Read the an example of a review on the book*

Review on the book «The Secret history» by Donna Tratt

*The Secret History* is a powerful novel written by the American writer Donna Tartt. The story is set in New England and shows the life of students in some prestigious college. It is told by the fellow Richard Popen, who recently moved to the area from Calofornia. He happened to be aware of a terrible secret, which changed his life forever.

*The Secret History* is rich and detailed in plot and provide many layers for the reader to explore. The intricately constructed murder will hold your attention right up to the final page. The book is moving at times and amusing at others. The background of the book contains references to Ancient Greece, which you are sure to enjoy if you are interested in history.

As for the characters, Donna Tratt has managed to create different personalities from indulgent parents to light-hearted hippies. She is very convincing and depicted her characters very true to life. The contrast between the sophisticated ideas of the elite group of students and their contemporaries is done most skilfully.

In conclusion, I would like to note that the only reservation of the book is its length. It has more over 500 pages, so it is rather long. However, it's difficult to put the book down. I highly recommend *The Secret History* to everyone as the greatest achievement of this young novelist.

(Source: <http://englishstory.ru/a-review-on-t>)

5. Complete the following sentences:

1. The title of the book I am reading is ....
2. The title of my professor's work for Doctor's Degree is ....
3. The title of my friend's thesis is ....
4. The heading of the chapter I am interested in is ....
5. The headline of the article we discussed last time is ...

6. Answer the following questions:

1. Did you (the author) provide your (his) paper with a list of references?
2. Whom did you (the author) make reference to?
3. Is your (the author's) list of references complete (extensive, numerous, adequate, inadequate)?
4. What kind of book do you consult if you need some information?
5. What reference work do you usually consult?
6. Who is the author or editor of this work of reference?
7. What is the headline of the article you are going to tell us about?
8. What is the heading of the last section?
9. Does the title describe the subject?
10. Under what headings does the subject matter appear?
11. What is the title of your paper?

7. Complete the sentences with the words: *subject, object and subject matter*:

1. The ... of the textbook falls into two sections.
2. The ... of my work is to investigate this particular problem.
3. I'm engaged in one of the aspects of the broad ... of law.
4. The ... of my thesis is arranged in the following way.
5. The ... of the book is of major importance.
6. The ... of the paper is to give some idea about family law.

8. Answer the following questions:

1. What subjects are dealt with in your thesis (paper, article, the book you are reading)?
2. What is the subject of your research?
3. What is the object of your research (investigation)?
4. The subject of your research is of practical importance, isn't it?
5. How is the subject matter of your thesis (paper, the book you are reading) arranged?
6. How many chapters does the book you are reading consist of?
7. Do the chapters contain any summary?
8. Does the book contain any original data?
9. Does it contain any errors?

9. Tell about your published papers answering these questions:

1. What is the subject of your thesis?
2. Have you already published any articles?
3. Where and when did you publish them?
4. What are the titles of your published papers?
5. What problems do you deal with in those papers?
6. What are you going to prove in the course of your research?
7. Is there much or little material published on the subject of your research?
8. Who are your published papers addressed to?

9. What do you give much attention to in you published papers?
10. What is of particular interest in your paper?
11. How many parts does your paper consist of?
12. What is the purpose of your paper?
13. What do you treat in your introductory part?
14. What do you say in conclusion?
15. Who do you makes references to?

*10. Translate the words on the topic.*

study/research visit, to be (of) mutual interest, to get the material ready for publication, collaboration, to work against time, farewell party, research project, to do research on the exchange program(me), application, applicant, deadline/closing date, to fund the program(me), to bear/cover expenses, to provide accommodation, experienced staff, to arrange a visit, identical approach, related fields, to be given a free hand, to maintain permanent contacts, to conduct joint experiments, to be absorbed in work, report on a research visit, curriculum vitae (C.V.)

*11. Check your knowledge of the useful vocabulary on the topic.*

наукове стажування  
 програма обміну  
 достатні знання  
 зупинятися в готелі  
 організувати відвідування  
 представити колегам  
 компетентний дослідник  
 працювати у співпраці (с)  
 проблеми, що представляють взаємний інтерес  
 проводити спільні дослідження  
 застосувати інший підхід  
 надати повну свободу дій  
 бути поглинутим роботою  
 ретельно аналізувати  
 готувати матеріал до видання

переглядати періодичні видання  
працювати не покладаючи рук  
прощальна вечірка  
схвально відгукнутися  
висловити подяку наукове стажування  
програма обміну  
достатні знання  
зупинятися в готелі  
організувати відвідування

13. *Translate sentences, paying attention to underlined expressions:*

1. This book is written mainly for businessmen and economists.
2. The books aim to acquaint the reader with the general problems that we face in the broad realm of economics and policy.
3. This originally appeared in the journal «Economics».
4. Reference is made to economical interpretation of human rights from all available sources.
5. The subject matter appears under two headings.
6. Subject areas include global human rights and international law.
7. The author imparts his enthusiasm for the economic way of reasoning.
8. The book is highly readable.
9. The author makes concepts understandable and relevant.
10. The author succeeds in giving a good overview of how economics can come to valid conclusions.

14. *Read and retell the text.*

I did my research on the REAP scientific exchange programme. I arrived in Britain for a 3-month visit which took place in February. It was my first ex-perience in the country. I couldn't help thinking of what my stay in Britain would be like and whether my knowledge of English would be sufficient.

At Gatwick airport I was met by Prof. Flowers, the programme's coordina-tor from Kingston University.

From Gatwick airport the car brought us to the very center of London where we had a very pleasant walk, and then we drove to the hotel where I was to stay.

The next morning Mr. Flowers arranged for me a visit to the University. He introduced me to the staff of the Law School. I was shown round, visited the local li-brary.

Mr. Flowers himself is an excellent man, a capable and competent researcher. We spent a lot of time discussing different problems of mutual interest.

Law School was not very large, but resourceful. I found our research topics almost identical, but we used different approaches. It was as if we were doing the same by different means. Though I was practically given a free hand in the research, I tried to maintain permanent contacts with the Law School staff.

I must say I had very busy time there. I was totally absorbed in my work. Time and efforts were necessary for writing, reports and articles getting the material ready for publication.

During the final weeks of my stay in England I worked against time trying to solve the remaining problems.

On the last day of my stay there my British colleagues gave a little farewell party for me. My supervisor made a speech. He spoke in a very flattering terms about our collaboration.

I was glad to hear about the prospects of a series of exchange visits be-tween our two Universities.

At the end I expressed my deep gratitude to all the people who had worked with me for their valuable advice and assistance.

15. Use “*consist (of)*” instead of “*contain*”, where it is possible:

1. The last part of my thesis contains references to other workers in this special branch of law.
2. The paper contains a description of work carried on in our department.
3. The volume contains 20 articles.

4. The book contains a careful account of work done in the USA in this field of science.
5. The text contains a number of minor errors.
6. My article contains four parts.

*16. Read the text. Any research conducted by a postgraduate student is supervised by a competent researcher with an advanced academic degree. Dean of Guildford University speaks about supervision at his University. Compare it with what you have at MNAU.*

When you are offered a place on any of our research degrees, you carefully match you with an appropriate supervisor who will be experienced in the field of your research interests. Your supervisor(s) will help you in formulating your research proposal and give you assistance towards successful and timely completion of your studies. Many Schools will offer dual supervision or a supervisory panel. In addition, students working in most of the Schools in the Sciences and Life Sciences will be part of a research group. We believe that this provides the opportunity for you to gain access to wider expertise and support.

Your Supervisor is usually the most important academic person-resource in your postgraduate program. He is appointed from the School's academic staff. He is also your first point of contact for a range of questions, including professional development and administrative procedures.

The main activity is, of course, independent study and the production of a thesis based on it. As a research student, you will work closely with a supervisor who will guide and advise you throughout your period of study. The supervisor will also guide you in writing your thesis, but you retain the prime responsibility for your own work. Our University has approved policies on supervisory practice which set out how the responsibilities are shared between student and supervisor. In addition to your own independent study, you will take part in the general research life of your department, and may be involved in research seminars, colloquia and other activities with your colleagues and with academic staff. At the end of your

period of study, you will present your thesis for examination and be given an oral examination on it.

We regard the support of the supervisor as crucial in assisting you to complete your programme of study successfully and within the permitted length of time. However, it is also important to remember that, whatever the discipline; a research degree is an opportunity to carry out an independent and original piece of work. Supervisors can offer advice and guidance, but they will not tell you exactly what to read or how to design and carry out work on your thesis.

Your supervisor should be acquainted with procedures and regulations of writing and defending your thesis. It is expected that supervisor and student meet at regular intervals so that the supervisor may advise and inform the development of the research project. He establishes a stimulating research environment, gives advice on the choice of project and planning, ensures that appropriate facilities are available, provides training in research, consults the postgraduate, continuously monitors progress and provides structured feedback. Usually a supervisor remains aware of the student's situation and needs.

*17. Translate the abstract about a research supervisor summarizing your topical vocabulary.*

### **Науковий керівник. Хто він?**

Для того, щоб не розгубитися у величезній кількості інформації, у кожного аспіранта є науковий керівник – досвідчений педагог і вчений, який може допомогти визначитися з темою, вибрати методики дослідження, дати поради з організації експерименту, а можливо, порекомендувати деяку необхідну літературу. Однак науковий керівник лише направляє аспіранта, допомагає йому зорієнтуватися, але не робить роботу за нього.

Отже, науковий керівник - це той, хто повинен здійснювати керівництво науковою діяльністю аспіранта, з

висоти свого досвіду допомагати йому рухатися до наміченої мети. Зазвичай, ним стає доктор наук (причому тих наук, вчений ступінь на здобуття яких збирається отримати аспірант). Але у виняткових випадках (яких чимало), ним може бути і кандидат наук.

Наукових керівника може бути і два, особливо якщо дисертація захищається за двома спеціальностями. Крім наукового керівника, у аспіранта може бути і науковий консультант.

Наукові керівники затверджуються Вченою Радою ВНЗ на самому початку навчання в аспірантурі разом з темою дисертації.

Існують два типи наукових керівників.

Перший тип найбільш зручний для аспіранта - такий науковий керівник у всьому допомагає своєму підопічному: перевіряє дані його експерименту, допомагає їх інтерпретувати, знаходить для нього можливості публікуватися, править статті, радить, як сформулювати мету, завдання, гіпотезу дослідження і т.д. Аспіранту, що має такого наукового керівника, живеться легше, але при цьому від нього вимагається і менше творчості. В результаті такої співпраці аспірант може так і не придбати навичок самостійного заняття науковою роботою.

Другий тип наукових керівників можна назвати ледачими – вони не спроможуться навіть ознайомитися з матеріалами дисертації, відбиваються від свого учня загальними порадами. Аспірантам з таким науковим керівником дуже важко, особливо на початковому етапі навчання, але в подальшому, якщо такому аспіранту все ж вдасться написати і захистити дисертацію, він буде являти собою тип сформованого науковця.

Краще, звичайно, якщо Ваш науковий керівник являє собою щось середнє між двома крайніми типами, описаними вище.

## PART 2. MY RESEARCH WORK

### *1. Translate the sentences:*

1. До кінця терміну навчання в аспірантурі аспірант повинен представити текст дисертаційного дослідження для обговорення на одному з засідань кафедри.
2. Після обговорення на кафедрі, внесення необхідних змін і виправлень робота отримує рекомендацію до захисту.
3. Дисертація надається для розгляду членами відповідної Вченої Ради і заслуховується на одному з його засідань.
4. На захисті претендент коротко викладає основні положення дисертації, цілі дослідження, обґрунтовує його актуальність і новизну, отриманих результатах і можливостях практичного застосування.
5. Всі положення, що виносяться на захист повинні бути відображені в авторефераті дисертації, який в стислій формі представляє пророблене дисертаційне дослідження і розсилається за місяць до захисту.
6. Після доповіді здобувача виступають офіційні опоненти з критичним аналізом виконаної роботи.
7. Якщо в присутніх є бажання виступити, вони мають право це зробити.
8. Здобувач зобов'язаний відповісти на всі запитання, що надійшли в усній або письмовій формі.
9. Хід засідання записується, з тим щоб пізніше була можливість долучити стенограму засідання до документів щодо його захисту.
10. Нарешті, після дотримання всієї процедури захисту, проходить тайне голосування членів Вченої ради щодо присудження претенденту вченого звання кандидата наук.

### *2. Make up English-Ukrainian pairs of words equivalent in meaning:*

to publish, sphere, research, to include, importance, to develop, to collaborate; enterprise, scientific adviser, scientific degree, to be awarded, department, to encounter, branch, research team, data, to participate, to take post-graduate courses, to prove a thesis (dissertation)

захищати дисертацію, навчатися в аспірантурі, опублікувати, область, бути нагородженим, включати, (наукове) дослідження, важливість, кафедра, зустрічати (ся), дослідницька група, дані (інформація), розробляти, співпрацювати, брати участь, вчений ступінь, науковий керівник, підприємство, галузь

*3. Find synonyms in the list below, arrange them in pairs:*

1) device, research, technology, branch, obtain, importance, collaborator, team, scientific adviser, to enable, thesis, journal, to prove a thesis, to collect, data, to encounter, to be engaged in, to be through with, scientific papers, rapidly;

2) quickly, publications, instrument, technique, to finish, to be busy with, field, to get, significance, to come across, information, to gather, coworker, group, supervisor, to defend a dissertation, scientific magazine, dissertation, to allow, investigation.

*4. Read the model pattern and sample of topic about yourself and your research paper in English:*

## I. ABOUT MYSELF

1. **First, let me introduce myself.**

2. My name is... (e.g. Ivanov Victor Ivanovich)

3. I am a post graduate student (doctoral student) at the department of ...

4. My scientific advisor is Prof....

### **To begin with**

5. I'd like to give you a brief description of my background, that is my previous studies and work.

6. I graduated from ... University in .....

7. I received my diploma in Agronomy/ Management/ Economics... at the department of ...
8. My specialization was...
9. My course work was dedicated to...
10. I had a period of practical training in (the field of ) at ....
11. During my final year at university I did my graduation paper in the area of ....
12. It was entitled...
13. It was a very interesting topic for me to investigate because...
14. After graduation I started my full time (part-time) work as a faculty member (teaching assistant/ instructor/ assistant professor/ laboratory assistant/ programmer) at ..
15. Last year I applied for a job as a ..... at ...
16. I was offered a position of ... at the department of (laboratory of/ firm called "...")
17. I decided to combine my work and research in ... and was supported by ...
18. **The topic/theme I have chosen is “ ...”**
19. My scientific advisor suggested the study of ...
20. My interest was motivated by ....
21. Prof. N ... advised/prompted me studying .....
22. The topic of my thesis is “ ..... ”
23. It deals with exploration (investigation/ analysis/ development/ integration) of ...
24. The subject of my research is ...
25. **Let me now go into some detail regarding my research guided by the subject I have mentioned.**
26. I began with the study of literature on the subject including some basic works written by...
27. These problems ... are widely discussed (treated) in literature.
28. There are many papers reviewing the state of the art of...
29. There are many articles in scientific journals and special periodicals such as ... in particular.
30. These problems are widely discussed in the works by a number of prominent scientists (scholars) such as....

31. In recent years the issues involving ... have received considerable attention of ... in ..
32. The theory of ..... was constructed and developed by ....
33. **The object of my research** is the operation (behaviour/ processes) of .....
34. The immediate aim (goal/objective) is to examine the function (behaviour/dynamics ) of ...
35. A current study in our laboratory is addressing the question of....
36. The focus of my research is on the relationship between .... and ...
37. It is very important and interesting to examine (analyze/ evaluate/ describe) the complex interaction between ... and .....
38. This is one of the points that strongly motivate my work dedicated to... .
39. Typically, we assume that the object (group/ value/ characteristic/ parameter) in question is ...
40. Another aspect of the interaction is ....
41. For example, if we take ... then ...
42. We may therefore assume that ...
43. Similarly, if one takes X to be .... then .... is related to ....
44. One may ask the question as to the nature of ....
45. A very interesting question which I am actively pursuing is.....
46. I am interested to know...
47. In our joint work with....
48. I explore (test/ examine) .....
49. To this end, we study ,...
50. **The methods and techniques** we apply in this research include experiments (observations, laboratory tests, field and pilot plant study ....)
51. **The experimental part** of my research will mostly consist of tests to be conducted on ...

52. It is therefore quite encouraging that these methods may be used to solve a number of problems in this instance and get an insight in ...
53. Some of most recent results of the research in ... make use of the .... and the theory of....
54. The results may be constructed into a theoretic framework that
55. I am going to describe by systemizing the data obtained in the experiments (observations).
56. As to the practical output of my study, I think they will be of considerable **practical significance**, because ...
57. The list of my published papers includes ....
58. Some of the general issues that I studied last year include: first, ... second, ... and third...
59. I remain actively involved in several other projects.
60. I have analysed the .... of this .... and tried to show that there are ....
61. It is becoming clear that .... plays a crucial role in the operation of ....
62. In my paper I will try to give a simple description/definition of ....
63. That makes it possible to calculate (identify/ establish/ develop)... with the help of ...
64. Since ... is a .... , these results may be applied to solving a wide range of problems in ...
65. We may hope that the results of our study will be of practical significance because ...
66. It may have good potential to improve (enhance/ alleviate the problem/ eliminate the need for/ increase)...

## II. MY RESEARCH WORK

I am an economist. My special subject is ... I combine practical work with scientific research. I am doing research in ... This branch of knowledge has been rapidly developing in the last two decades. The obtained results have already found wide application in most varied spheres of the country's national economy. I am particularly interested in ... which includes ... I have been working on the

problem for... years. I got interested in it when I was a student. My work is primarily of practical importance, it is based on the theory developed by the collaborators of our department. So I can say that I work in close cooperation with my colleagues. We also closely collaborate with several enterprises of our country. There are several research teams at our department. The team I work in is headed by Doctor of Economic sciences ... He is my scientific adviser. I always consult him when I encounter difficulties in my research. We often discuss the obtained data. As I am rather an experimentator than a theoretician I make use of different equipment .... The obtained data enabled me to define more precisely the theoretical model of .... I have not yet completed the experimental part of my thesis, but I am through with the theoretical part. For the moment I have ... scientific papers, some of which were published when I was a student. Two of them were published in the journals of ... and ... I take part in various scientific conferences where I make reports on my subject, I willingly participate in scientific discussions and debates. I am planning to finish writing the thesis by the end of the next year. I hope to get the scientific degree of Ph. D. in Economics / Agriculture.

*5. Read the list of questions and answers for them about the specialty and scientific activity of a postgraduate and give your own answers for them:*

**1. Who is your scientific supervisor and what is his/her contribution to science?**

My scientific supervisor is E.I. Shmitko. He is doctor of technical science, profes-sor, head of the chair of — Technology of Building Materials and Structures. He has many publications devoted to the problem of cellular concrete. My scientific supervisor is considered to be a competent specialist. He is the man to be relied on.

**2. What does your scientific work deal with? Or: What problem do you investigate?**

My scientific work deals with the problem concerning structure of cellular concrete. Or: I'm going to investigate the problem ... .

**3. What can you say about your scientific work?**

**While speaking about my scientific work it should be said** that it is very important for building industry.

**It is common knowledge** that cellular concrete is widely used in construction. But technology of cellular concrete has not fully investigated several operations that result in some variable properties of concrete.

**It should be stressed that** it is the density that determines the properties of cellular concrete.

**The aim of my research is** to control the characteristics of cellular concrete structures. I will determine the possibilities of controlling the characteristics of cellular concrete structures by means of different factors.

**I'm going to carry out the theoretical analysis of experimental data. I will also deliver some recommendations** for producing cellular concrete with better properties and characteristics.

**In conclusion** I'd like to say that my recommendations will be useful for enterprises producing products from cellular concrete.

***4. Do you need any special equipment for fulfilling your investigation?***

For fulfilling my investigation I will use different measuring devices, plants, tools and computer programs.

***5. What illustrations are you going to prepare to demonstrate the results of your investigation?***

To demonstrate the results of my investigation I am going to prepare different tables, diagrams, graphs, drawings because they will help me to convincingly and precisely prove my conclusions.

***6. What conclusions will you make if the results of your research are positive/ negative?***

If the results of my research are positive I will make the conclusion that I have managed to increase the quality of cellular concrete and to develop a new complex method for its estimation.

If the results of my research are negative I will make the conclusion that I have to further investigate the problem under other conditions and with other parameters.

***7. How do you plan your research?***

First of all, I make up the plan of my research. Then I analyze literature concerning the field of my research both in Ukrainian and in English, sum up the information obtained, carry out my experiment, make conclusions and apply the results of my research in practice.

***8. What have you already managed to do?***

I have already managed to make up the plan of my research, to analyze some literature both in English and in Ukrainian, and to prepare an article dealing with my research for publication.

***9. What points of your plan have you failed to fulfill?***

I have failed to make my experiment, to make conclusions and to apply the results of my research in practice.

***10. How will you continue your investigation?***

I will continue to analyze literature concerning my research. I will carry out my experiment, make conclusions and apply the results of my research in practice.

***11. How many English publications important for your research have you found?***

I have found about twenty English publications important for my research and I have already analyzed all of them.

***12. How many key terms have you selected from the English publications?***

I have selected about 50 key terms from the English publications. The most important of them are: cellular concrete, foam generator, foam liquid concentrate and others.

***13. What points of view expressed in the publications do you criticize?***

It should be said that at present I only analyze literature and get acquainted with different points of view, so I don't criticize anything.

***14. Who are the best informed scientists in the field of your research?***

The best informed scientists in the field of my research are Ye.M. Chernyshov, A.N. Fedin, Ye.I Shmitko, J. Gonsales, Sh. Wood and others.

***15. How long can it take you to complete your research?***

I think that it can take me about two years to complete my research.

**16. By what time/by when will you have completed your research?**

I hope that I will have completed my research by the end of 2023.

**18. What contribution may your research make into science?**

I think that the recommendations done by me will be useful for building industry.

**19. Did you take part in scientific conferences?**

Yes, I did. I took part in scientific conferences held in our University and in some other institutions.

**20. Did you make any reports? What were they devoted to? Were your reports a success?**

Yes, I did. I made some reports. They were devoted to the problem of my research. I think that my reports were a success because there were a lot of questions and I answered all of them.

**21. Are you going to take part in scientific conferences in the future?**

There is no doubt about it. I will certainly take part in scientific conferences and I will make reports devoted to the theme of my research.

**21. Have you got any publications?**

Not yet. But in the near future I am going to prepare some articles for publication. They will be devoted to the theme of my research.

Or: Yes, I have. I have got two publications devoted to the theme of my investigation. They were published in the proceedings of our University.

**22. What is the purpose of your publications?**

The main purpose of my publications is to attract attention of scientists to the problem of my research and to make a certain contribution to science.

**23. How long have you been working at your research?**

I have been working at my research for about two years/ since 2018.

**24. By when had you completed your précis?**

I had completed my précis by the end of April/September.

**25. Speak about your précis?**

While speaking about my précis it should be said that I have analyzed about 20 papers to prepare it. It consists of an introduction, seven main parts, professional vocabulary and references. The main

parts deal with the history of cellular concrete and the technology of its production. Professional vocabulary contains 80 key-terms connected with problem being investigated. References have 10 names.

***26. What do you think the social role of your investigation is?***

In my opinion, my investigation will help to improve the quality of production, to reduce a total cost of housing construction and to provide people with harmless and safe houses to live in.

***27. Why are you interested in such a problem?***

I am interested in such a problem because I consider it to be urgent and timely but not thoroughly investigated yet.

***28. What kind of sources do you prefer to use for the theoretical substantiation/grounds of your research?***

For the theoretical grounds of my research I prefer to use some works of my scientific supervisor, different publications of Ukrainian and foreign scientists and the materials presented by the Internet.

***29. Could you speak about the historical background of your problem?***

As far as I know some aspects of this problem have been already investigated both by Ukrainian and foreign scientists but still some of them should be further studied. So, my task is to fill in this gap, and I will do my best to accomplish it.

***30. Can you say now what structure of your dissertation will be? How many chapters will it consist of?***

Now I can't exactly say anything about the structure of my dissertation. But I think that it will consist of three chapters, conclusions and Appendix. We will decide this problem with my scientific supervisor together. I am sure he/she will help me.

*6. Translate the phrases which will help you speak on the topic of your research and supply you with the extractions from scientific papers on the issue in question.*

1. Presenting the topic of your research.

The paper deals with...

The study is devoted to...

The investigation studies...

The research of ... is dealt with in the paper.

An extensive study of the problem of... has been undertaken in the paper.

A comprehensive analysis of ... has been presented in the research.

The case of ... has been thoroughly studied in the research.

The investigation deals with...

... are dealt with in detail in the present research.

## 2. Defining the purpose of the research.

The aim of the study is to determine the value ... The research is aimed at revealing the ways of ...

The main purpose of the paper is to establish the regularities in ... / the difference in ...

The investigation is designed to simplify the procedure of ...

The chief task of the research is to reveal the causes of.../ the essence of ...

The research is intended for eliminating ambiguity ... / undesirable effect ...

The research is aimed at providing evidence for ... / new facts in support of ...

The aim of the investigation is to present systematic description of ...

## 3. Explaining the topicality and novelty of the research:

We offer a fundamentally new approach...

The essential merit of our work is ...

The approach is not similar to that previously used ...

The novelty of the research can be seen ...

The research compares favorably with ...

Explanation is offered for ...

Since previous works suffered from considerable limitations ...  
We tried to interpret the phenomenon of ...  
We intended to overcome the difficulty of ...  
Advantages and limitations of ... are discussed for the first time

...  
In contrast to identical works in the field of ... our understanding provides ...

As opposed to commonly recognized classification ...

Unlike commonly recognized definition of ...

#### 4. Describing methods applied.

Modern methods of scientific analysis have been applied...

Unconventional approach to ... has been presented in the paper.

Appropriate technique has been used ...

Reliable methods of analyzing facts of ...

The comparative method is useful in ...

Methods of empirical and systematic analysis were used ...

The approach is especially helpful when ...

The approach is more flexible and permits ...

The methods of synchronic and diachronic analysis used in the study allow/permit...

The technique is best suited in evaluating ...

Comparison is made of the method generally adopted with that used in the investigation.

We have applied an alternative method which ...

#### 5. Describing your findings.

It was found that ...

The data obtained enables us to determine the nature of ...

Our findings provide evidence for ...

Our findings make possible the application of ...

An analysis of ... indicated that ..., which made is possible ...

The principal advantage of the approach based on ...

Of special importance for ... is ...

Of particular value for ... is ...

The present observation supports the viewpoint ...  
Obviously, it's due to the fact that ...  
The influence of ... on ... has been revealed.  
Little dependence of ... on ... has been observed.  
This phenomenon is closely connected with ...  
The validity of the assumption was questioned ...  
The study has revealed a better understanding of ... based on ...  
These discrepancies are caused by ...  
The findings are in agreement with ...  
Certain correlation between ... and ... has been established.  
From the analysis of the data it was determined that ...

## 6. Recommendations for further application and research.

The findings may find practical application in ...  
The present investigation enables as ...  
This approach is applicable to ...  
The method can be used in the studies on ...  
The approach is best suited for the investigation of ...  
The findings are especially helpful when ...  
Another method of treating ... is recommended.  
The approach will make it possible to ...  
Our observations can be particularly efficient when  
investigating.../for the study of ...  
We make a suggestion as to how ...  
... can be used (can be of use) if we study ...  
... can be helpful to determine ...  
It is suggested that ... should be

## 7. Reporting on the results of your research, drawing conclusions.

It has been shown that ...  
It's concluded that ...  
The results obtained show/confirm/indicate .../... made it possible  
to conclude/to draw a conclusion that ...  
Thus, it may be stated that ...

Therefore we came to a conclusion that ...  
The above said led us to a conclusion ...  
As a consequence, a conclusion is made ...  
Results from experiments prove ...  
These factors are shown to be irrelevant to ...  
... were described with particular emphasis on ...  
New data on ... were obtained.  
As a result of the investigation it was observed ...

As a result of the study some practical recommendations can be given.

The results indicate that additional work is needed to improve...  
We reported our results at ...

*7. Complete the sentences supplying them with information on your own research activities.*

The present paper deals with ...  
The research is aimed at ...  
An attempt has been made ...  
We have applied the method of ...  
The method has been applied together with ...  
Some features of the phenomenon have been described with the help of ...  
We wanted to have a full view of ...  
It's argued that ...  
The paper abounds in ...  
On the basis of the comparison made ...  
Interdependence between ... has been revealed.  
Research into ... provides an answer to the question ...  
The research provides the answers to a multitude of questions facing ... and gives us the tools which ...  
The main provisions of the research have been reported at ... Some disputable issues have been discussed in ...  
The reliability of the results obtained can be verified ...  
The results of the investigation have been reflected in the form of ...

*8. Read and translate the short comments to your research paper*

The final aim of post-graduates studies is submission of the dissertation for hearing at the session of the Academic Council. On the eve of the defense procedure abstract of the thesis is to be issued, it being a digest of the research made. In the abstract a researcher is to present certain scientific points since abstracts are designed in accordance with the established pattern. Thus, you should be able to state the purpose of your investigation, define its subject, object, describe the methods applied, to ground its topicality and novelty, underline the results obtained, state your personal findings, the practical value and possibilities for further research and application.

*9. Read and translate a summary of the research conducted in the field of linguistics which is to serve as a model for describing your research paper. Study it carefully and pick out useful cliches.*

### **Summary**

The current paper is devoted to a problem of colloquial or informal speech which has recently moved into the foreground of both theoretical interest of the world's linguists and scholars and practical attempts of language teachers and students. Its significance and practical value in the age of mass communications are axiomatic. Yet, paradoxically many aspects of contemporary informal English (Standard Educated Colloquial/Informal English, SECE in this case) including its status and role in the system of national language (British English), its specific properties as distinct from the so-called "standard English", according to G. Brown and other prominent colloquialists, "at an infant stage of research and investigation". Practically underinvestigated are also the basic types of SECE; major settings and motives determining the choice of SECE in a particular communicative situation.

Finally, it's worthy to note an absolutely rudimentary stage of research in Britain and in our country into the status of SECE in modern media, including the British "quality and "popular" press and BBC radio and television broadcasting. Moreover, some pioneer

attempts in this direction are sometimes as-sessed with a considerable share of scepticism.

It would hardly be surprising then that these and other problems relevant to the essentials of contemporary colloquial English and its functioning and ana-lyzed in the current paper may facilitate a serious approach to SECE as a so-ciolinguistic phenomenon worth of theoretical investigating and practical studying and the course itself be used by scholars and students of English as a kind of theoretic introduction into the topic.

Most research papers dealing with informal English published recently in Great Britain and elsewhere concentrate on specifics of SECE in a chosen field. And that is only too natural and rewarding considering an extremely complex nature of informal English and absolutely insufficient level of its in-vestigation. Understandable as it may be at the present stage of accumulation of knowledge of colloquial speech, the level-oriented approach invariably adds to the mosaic picture of SECE, barring its understanding as a real self-contained sociolinguistic system as a whole. Guided by these considerations the author attempts to follow a systematic approach to the problem in question (undertaken in a number of fundamental works by E. Zemskaya, Y. Skrebnev, B. Gavranek, T. van Dijk, M. Stubbs and other Russian Western scholars) and tries to present a comprehensive outline of SECE as an entity, relying on an interdisciplinary approach. It is for the reader to judge, however, to what ex-tent such an approach is justifiable and beneficial.

One of the sociocultural consequences of contemporary scientific-technological revolution is that in many, if not most, «prestigious» communi-cative situations of today, a speaker may use SECE alongside MESE and the problem of the choice between the two cannot but stimulate a researcher to get to the bottom of it. On the basis of analysis of some modern relevant concepts the author dares to offer his understanding of the problem.

These considerations have basically predetermined the structure and make-up of the paper, offering the following parts: introductory part, three chapters, conclusions, bibliography, supplement.

The prevailing method of problem examination in the book is that of dis-course analysis. The absolute majority of SECE illustrations are the chunks of real conversations (rather, their transcripts' presented in the manner adopted in the works of prominent colloquialists). Also included are the examples of talks recorded by the author during the latter's stay in Great Britain and other Eng-lish-language countries.

The paper is tailored along the programmes of foreign language institutes and departments and may be used by students, postgraduates, teachers and scholars, by all those whose line of activity is linked to English.

The author is fully aware of the futility “to embrace unembraceable” as re-gards such a complex (and underinvestigated) phenomenon as contemporary colloquial or informal language, therefore the given paper on SECE may only serve as an attempt in the right direction, at best. The author would be very much undebted to any critical remark facilitating further studies of SECE.

*10. Read and translate the example of the abstract of research paper. Study it carefully and pick out useful cliches.*

**The regulation of processes of forming and use of land-resource potential of rural areas of Ukraine. - Manuscript.**

Thesis for the Candidate Degree in Economic Sciences, Specialty 08.00.03 - Economics and Management of National Economy. - Mykolayiv National Agrarian University. Mykolaiv, 2017.

This thesis is dedicated to substantiation of theoretical and methodological principles as well as development of practical recommendations for improving the processes of regulation of forming and use of land-resource potential of rural areas of Ukraine.

The essence of forming and use of land-resource potential of rural areas and scientific approaches to their regulation were proved. These approaches are a set of state laws and regulations, which have to be aimed at providing balance of interests of society, business and nature. It is concerned with neutralization of environmental risks and rural areas development at ecological principles.

It was formed approaches and evaluated environmental and economic standards for the use of land-resource potential of rural areas. It was determined strategic principles of legislation approximation to international and European laws in order to preserve, restore and protect the environment, create preconditions to preserve the qualitative characteristics of land-resource potential of rural areas of Ukraine.

Conceptual bases of regulation of forming and use of land-resource potential of rural areas were summarized and grounded. They are based on state support, coordination of laws, state and regional programs in the implementation of "eco-technology" of land use for agricultural purposes, taking into account the prioritized principles of international and European laws of the conservation, restoration and environmental protection, rational use and creation of preconditions to preserve qualitative features of land-resource potential of rural areas of Ukraine.

It was established that priority areas for determining losses from pollution, environmental intervention to identify dependence on directions and peculiarities of its use, environmental and economic effects, and opportunities of management of land-resource potential of rural areas taking into account the level of waste for different levels of hazards.

It was proved that environmental assessment of land-resource potential is made to determine the territory with unsatisfactory environmental conditions and it needs to develop proposals for optimizing land use. Whereas the environmental conditions and stability of any territory depends on the level of agricultural development and land tillage, intensity of land use and degree of anthropogenic transformation of natural ecosystems, the increasing of share of natural lands by reducing arable land will enhance the environmental sustainability of agricultural landscapes.

**Keywords:** land-resource potential, environmental sustainability of agricultural landscapes, environmental policy, regulation of forming and use of land resources, environmental development of rural areas.

*11. Now speak on your research paper dwelling upon the following issues.*

- composition of the dissertation;
- problems discussed in the introductory part;
- topicality and novelty of your research;
- methods of scientific analysis applied;
- your findings (anticipated results);
- assessment of the results obtained;
- practical application;
- possibility for further research;
- your reports, articles on the problem under research.

## APPENDIX

### ADDITIONAL TEXTS FOR READING AND REVIEWING

#### Спеціальність «Агрономія»

##### **TEXT 1. The parts of a plant and their functions**

A plant is a living organism. It is made up of different parts, each of which has a particular purpose, or specialized function. If one part of the plant is not functioning properly the whole plant will suffer. But we may cut flowers off the plant or prune the roots. Such damage is only temporary and so the plant will continue to grow.

The basic parts of a plant are the root system, which is below the ground, and the shoot system above. The root of a plant has two main functions. It takes in, or absorbs, water and minerals from the soil through the root hairs, which are single cells near the tip of each root. The other main function of the root is to hold, or anchor, the plant firmly in position in the soil.

Plants such as sugar beet and carrots are able to store food in their roots. In this way they can keep growing for more than one season. In addition, plants such as clover and lucerne, known as 'legumes', have special bacteria which live on the roots. These simple forms of life take nitrogen out of the air which is in the soil. Such leguminous plants are usually ploughed under the soil. By doing this the soil is made more fertile.

The shoot system above the ground consists of the stem, the leaves, flowers and fruit. One of the functions of the stem is to support the plant. Another important function is to enable water and minerals to pass up from the roots to the leaves and flowers. Organic materials such as sugar travel down the stem to the roots. The leaves

grow out of the side of the stem. Their main job is to make food for the plant by the process known as photosynthesis. For this process sunlight is necessary. Water from the soil and carbon dioxide from the air are converted into sugars and other carbohydrates. During the process oxygen is formed and released into the air. The flower contains the reproductive organs of the plant. The stamens produce the male sex cells, or spermatia, which are carried in the pollen grains. The carpel produces the female sex cells, or ovules. The fruit, the ripened ovary of the flower, encloses the seeds and protects them while they are developing. The seed itself consists of an embryo and foodstore. The embryo is the part which will develop into another plant and the foodstore is necessary to provide nourishment for the young plant while it is growing.

### **TEXT 2. The life cycle of a plant**

The life cycle of a typical annual plant can be divided into several stages. The first stage is germination. Seeds remain dormant, or in a resting state, if they are kept cool and dry. When the amount of moisture and the temperature level are right, the seeds germinate and start growing.

Certain conditions are necessary for this to happen. An essential condition is that the seeds must be alive. Sometimes seeds are dried at a temperature which is too high. This has two effects: the water content in the seeds is reduced too much, and certain essential proteins are destroyed. As a result, the seeds die.

Other conditions for germination concern the amount of moisture in the soil. If dry seeds are planted in a dry soil, they will not germinate until it rains. On the other hand, if there is too much water in the soil, the seeds will not germinate either. This is because wet soils remain cold for a longer period of time than drier, well-drained soils. If the soil is too cold germination will not occur. An additional reason for seeds not germinating is that badly drained soils may lack sufficient oxygen. Dormant seeds require very little oxygen in order to stay alive, but when they start to germinate they require more.

In the first stage of germination the primary root, or radicle, emerges. Then the stem pushes its way upward until it appears above the surface of the soil. At the same time the root system grows downward, and begins to spread through the soil. In the early stages of development the seedling depends entirely on the foodstore in the seed but as soon as the first leaves are produced, it is able to manufacture food for itself. The seedling begins photosynthesis.

Next, the plant enters the stage of rapid growth. In this stage of the life cycle, the plant begins to grow to its full size. When it is mature enough, it flowers, and when this happens pollination and fertilization are ready to take place. In the process of pollination the pollen is carried by wind or insects from the stamens to the stigma of the carpel. It germinates on the stigma and grows down the style into the ovary, where fertilization takes place.

### **TEXT 3. The origin and composition of soil**

Soil is a residue composed of two main ingredients: mineral material and organic material. Organic material originates from dead plants and animals and materials other than this are derived from rocks of various kinds. These rocks are broken down into small particles by mechanical disintegration and chemical decomposition. This breaking down process, known as weathering, may thus be both physical and chemical.

When weathering processes are largely physical - by heat or wind, for instance - the composition of the soil is very similar to that of the parent rock. In arid regions weathering is mostly by physical means. But in humid regions chemical processes of weathering are equally important. In such regions rock particles are affected by water which may contain carbonic or other weak acids. These acids dissolve some of the particles in the rocks. The mineral material that is left behind is insoluble. Consequently, the insoluble mineral residues in the soils have less resemblance to the original rocks. There are larger amounts of organic matter in the soil, too.

The process of soil formation results in the development of the soil profile. This is made up of a succession of horizontal layers, or 'horizons', of varying thickness, from the surface to the parent

rock. Generally speaking, there are three distinct horizons, known as A, B and C. A is the top soil, which is coarse-grained, and dark in colour because of the presence of humus. B is known as the sub-soil which contains some of the products leached, or washed, out of the A horizon. The C horizon consists of parent material which has been weathered in the upper part, and unweathered rock below.

Soils range from pure clays to pure sands. Most of them contain various proportions of sand, silt and clay and these varying proportions make up a soil's textural class. The principle classes in order of increasing fineness of material are sand, loamy sand, loam, silt loam, silty clay loam, clay loam, silt and clay.

Any soil contains both mineral and organic matter. Clay particles are the most important of the mineral particles because they are the smallest. Smaller sized particles have a greater exposed surface area than larger sized particles. The smaller the size of a particle, the greater is its reactivity. That is to say, smaller sized particles can react or combine with water, nutrients and humus more easily than larger sized particles. Thus, a clay soil is more reactive than any other type of soil. Humus from decomposed organic matter is vital to a soil as it makes a heavy soil lighter. In addition, it helps to bind the mineral particles together in 'crumbs'.

#### **TEXT 4. Drainage and irrigation**

One meaning of drainage is the natural ability of the soil to allow a downward movement of water. The ease with which water can pass through a soil depends on the proportions in it of coarse and fine particles such as sand and clay. The finer the particles become, the more slowly the water percolates, or passes, through the soil. So heavy soils such as clay are more impermeable than light soils.

When there is too much water in the soil, some of it must be drained off. This is the other meaning of drainage: the removal of excess water from the soil by ditching or tiling. This is done in order to maintain a correct balance of air and water in the soil. Good drainage makes a soil easier to work. It also helps to increase the feeding area of the soil for the roots of plants. "Another advantage is

that a well-drained soil will have enough air for aerobic bacteria to break down humus and so provide food for the plant.

Ditching is one of the most important techniques for draining land. Ditches can be cut at certain intervals between the crops. These will remove surface water. They should be wide and straight, with sloping sides, and they should be regularly cleaned. Another important technique is tile drainage. Porous drainage tiles may be laid in or on the land and these will help to draw off the surplus water. The distance between the drains will depend on the level of the land, the permeability of the soil, and the amount of rainfall. For very heavy soils mole drainage can be used. This technique is used where water accumulates underground. A tunnel is bored about 3 inches in diameter through the earth at a depth of about 2 feet.

Where and when water is in short supply, irrigation is needed to make up the deficit. We should distinguish between the collection of water and its application. "There are two main sources of irrigation water: surface water and ground water. The former may be obtained from rivers, lakes or reservoirs, and the latter is provided by underground water deposits. "Irrigation from rivers is mainly along canals from dams which have been built across the rivers. The water collects behind the dam during the wet season. And it is applied in the fields later during the dry season. "Subterranean water is obtained by digging or drilling a well. In either case it is necessary to lift the water before it can be used for irrigation.

The amount of water which is required for irrigation depends on a number of factors. It depends, firstly, on the type of soil, and the deficit in the soil. By this we mean the amount of water which is needed to bring the soil to full capacity. It also depends on the type of crop, the stage of growth of the crop and the amount which it will use at that particular time. The irrigation requirement of a crop is not the same throughout its growing period.

### **TEXT 5. Manures and fertilizers**

Plant growth cannot continue if there is not a supply of minerals in a soil. The materials which are available for this purpose can be divided into two groups: the bulky, organic materials which

are called manures, and the more concentrated, inorganic chemical substances which are called fertilizers. Farmyard manure, or dung, consists of a mixture of litter, solid excreta and urine. It contains three most important substances for plant materials -nitrogen, phosphate and potash. Manure is added to the soil for several reasons. It improves the physical condition of the soil. It also keeps up the level of humus in the soil, and maintains the best conditions for the activities of soil organisms. Finally, it makes up for the plant nutrients which have been removed by crops or lost by leaching and soil erosion.

Another kind of manure is green manure. This includes leguminous crops which grow quickly such as clover and lucerne. Such crops supply additional nitrogen as well as organic matter. A leguminous crop which is ploughed under will add as much nitrogen to the soil per acre as 3 to 10 tons of farmyard manure.

Fertilizers are usually classified according to the particular food element which forms their main constituent. So, they may be grouped as nitrogenous fertilizers, phosphatic fertilizers, potassic fertilizers and so on.

The most commonly used fertilizer which contains nitrogen is ammonium sulphate, which is made from ammonia and sulphuric acid, and which contains 21% nitrogen. This element encourages rapid vegetative growth and gives plants a healthy green colour. Another valuable nitrogenous fertilizer is urea, which is made from ammonia and carbon dioxide, and contains 46% nitrogen.

The most widely used phosphatic fertilizer, superphosphate, is made by treating mineral phosphate with sulphuric acid. Phosphorous stimulates the formation of a plant's roots, and promotes fruit and seed production. Tropical soils are very often poor in this element.

Finally, wherever high crop yields are expected, potash is used together with nitrogen and phosphorous. Potassium makes the plant tissues stronger. "This helps the plant to withstand mechanical damage such as broken branches and torn leaves. In this way the entry of disease bearing agents, or pathogens, such as bacteria and fungi, is prevented. "Potassium is important for all plants but

particularly so for those that produce oil and starch or sugars. Oil palm and tapioca plants require potassium in large amounts. It is usually supplied in the form of muriate of potash (potassium chloride), which contains 50 to 60% potassium oxide ( $K_2O$ ) and sulphate of potash (potassium sulphate).

### **TEXT 6. The control of weeds and plant disease**

In crop production the control of weeds, diseases and pests is essential to obtain high yields. All three may be controlled by sound farm practices. These include the choice of clean seed and the growing of varieties of crop which can resist disease. They also include careful cultivation, both pre-sowing and post-sowing, and the use of chemicals.

Weeds reduce crop yields on account of the fact that they compete with crops for water, soil nutrients and light. They also make harvesting difficult. Most weeds are aggressive and invasive, they grow quickly and spread far, and so are difficult to get rid of. One recommended way of eradicating many persistent weeds is first to plough up the roots and underground parts of the plant. Then the soil may be cultivated lightly, or rotavated, on one or more occasions after the first ploughing.

The principal reason for cultivating the soil is to kill weeds. Weeds may also be killed by means of chemicals which have the collective name of herbicides. Weed-killers are of two basic types: selective and non-selective. The former remove certain weeds from certain crops. The rice will not be affected, but many of the rice weeds will be killed. Non-selective weed killers may be used for removing all vegetation e.g. as brush killers. They must be used extremely carefully for the simple reason that they will eradicate all plants on contact - which includes the crop itself. They are usually used before sowing or before the emergence of the crop itself.

Plant diseases are caused by organisms which use the crop plant as a 'host'. These are mainly micro-organisms e.g. fungi, bacteria and viruses.

These parasitic micro-organisms live off the food nutrients in the tissue cells of the plants. They frequently kill the host tissues, and

either the whole plant or a part of it is damaged and killed. Micro-organisms are reproduced and spread by minute bodies such as spores, fungi and bacteria.

Wind, water, diseased plants, cuttings and tubers, animals, men and insects are some of the means whereby disease is disseminated.

It is very difficult to kill the fungi and bacteria, or to make the virus which is inside the host plant inactive. But the evolution of plant varieties which can resist disease has completely changed methods of disease control. A number of varieties have been evolved and are now available to farmers. So the control of plant diseases has increasingly become a matter of prevention.

Fungi, which attack the aerial parts of the crop, can be controlled by means of fungicides. These are sprayed or dusted on to the plant surfaces.

They should be applied before the plant is seriously damaged. Sometimes spray and dust is applied whether disease is present or not. In any case, it is necessary to examine crops frequently for signs of disease.

Soil-borne diseases are much more difficult to control. There are various ways of treating the soil. One way is to use chemicals that easily change into a gas or vapour, which enter the soil and kill the harmful organisms. The soil is covered with a polythene sheet and the volatile chemical is injected into the soil. After about 24 hours the sheet is removed and the soil is allowed to air for a few days before use.

### **TEXT 7. Agriculture in General**

Agriculture is the world's most important industry. It provides us with almost all our food. It also supplies materials for two other basic human needs – clothing and shelter. In addition, agriculture provides materials used in making many industrial products, such as paints and medicines. About half the world's workers are employed in agriculture – far more than in any other industry.

Food is the most important farm product. But farms also provide many other products, from natural fibres to ornamental flowers and trees. Some crops are used only to feed livestock. These forage crops include alfalfa, clover and many grasses. Forage crops are important because they make commercial livestock production possible.

Farms provide almost all the world's food, including some fish and game. Most food products come from crops. The rest come from animals, especially cattle, hogs, poultry, sheep and other livestock.

The world's farmers grow about 85 major food crops. They can be divided into eight groups. The main group is cereal grains. Grain is grown on half the world's cropland and supplies much of the nourishment in the human diet. The chief grains are barley, corn, millet, oats, rice, rye, sorghum and wheat.

Various root crops make up the second most important group of food crops. Cereal grains, root crops are grown throughout the world and are a basic food for many people. The leading root crops are potatoes, beets and sweet potatoes.

The six remaining groups of major food crops are: (1) pulses, which consist mainly of beans and peas; (2) fruits and vegetables; (3) oil-bearing crops, such as soybeans and coconuts; (4) sugar-bearing crops, especially sugar cane and sugar beets; (5) nuts; and (6) cocoa beans, coffee, and tea.

Cattle, chickens, goats, hogs, sheep, turkeys and other livestock are the main animals raised for food. Livestock are raised in every country and supply nearly all the world's meat, eggs and milk. Farmers also raise other animals for food. For example, many farmers keep bees for honey. Farmers on fish farms raise freshwater food fish, such as carp and trout, and saltwater shellfish, such as mussels and oysters.

Natural fibres come from a variety of plants and animals raised on farms. Factories use the fibres to make fabrics, yarn and other textile products. Cotton and flax together with some tropical plants are the chief plant fibres. Wool, the principal animal fibres, comes mainly from sheep but also from such animals as goats and

members of the camel family. Silk fibres are obtained from the cocoons of silkworms. However the development of synthetic fibres has reduced the demand for natural fibres in some countries.

Many farms provide other raw materials for industry besides fibres. These materials include natural rubber, animal hides which are used to make leather and such vegetable oils as castor oil and linseed oil. These oils are used in a variety of products, from paints to medicines. Many farmers grow tobacco. Others grow ornamental flowers, trees and shrubs. A few farmers raise such animals as foxes and minks for their fur

### **TEXT 8. 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. (before Christ –до нашої ери) 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.

Labor-saving technologies. Steam-powered tractors were developed in the mid-1800s, but they were expensive and difficult to operate. The first all-purpose gasoline-powered tractors appeared in the 1920s. They gradually replaced work animals and steam-powered machines on almost all farms. In Japan and several European countries most farms had electric power 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 equipment. 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 agricultural colleges or other information centers.

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.

Agricultural chemicals. Almost since the beginning of agriculture, farmers have used various substances to enrich the soil and to kill insect pests. For example, they have used wood ash and manure as fertilizers since prehistoric times. Since the beginning of modern chemistry in the late 1700s, scientists have produced many kinds of synthetic chemicals for use in agriculture. These chemicals include fertilizers, insecticides, herbicides or weedkillers and chemicals to control plant and animal diseases. All these chemicals have helped increase farm production greatly.

## **TEXT 9. Soils**

Soil plays a vital and important role in the life of the world and mankind. It is in fact a highly organized physical, chemical and biological complex all of us are dependent on. As the supporter of vegetable life, soil plays the most fundamental of roles in providing food for all animals and men.

Soils develop under the influences of climate, vegetation, slope and drainage, time, the nature of the parent material, and the culture. Climate influences plants, animals and soil directly. Plants influence the soil, the animals and the climate near the ground. Animals play a considerable role in soil development, the type of soil often influences the animals which are present in it, while the animals also influence the vegetation which is growing in the soil. Finally climate, through weathering, influences the rocks, which in time come part of the soil through the processes of soil formation.

All soils do not have the same utility, but man uses different soils in different ways. "Good" land for the production of food-stuffs must lie well and have good depth, for yields are dependent upon the ability of the soil to take up and use fertilizers and water. Man has done much to adapt crops to the soil and to provide various kinds of fertilizers for plant growth and development. Soils those are not good for the production of food-stuffs may be valuable in other ways. For example, podzols in high elevations are poor for crops but they comprise excellent forest soils.

Each soil series requires skilful handling if it is to produce to its maximum potential; but no two series make the same demands. From season to season conditions of temperature and moisture change, so the farmer must change the management to produce better drainage, improve tilth, prevent erosion, and test the soil to identify the proper kind and the correct proportion of fertilizer needed. Only by careful study of the soil, resulting in an understanding of the complexity of its nature and uses, will man be able to provide food for all the people who will inhabit the earth. The soil cannot reproduce itself. Therefore, man should improve it through good management and treatment so that future generations can farm more efficiently than their fathers and grandfathers have done. Man can

improve the soil now in use and even discover how more kinds of soils can be utilized more productively.

So, the results obtained in soil science can be applied to practical problems in agriculture, horticulture, forestry, engineering, and in planning the future use of land.

### **TEXT 10. Physical properties of soils**

The physical properties of a soil are determined largely by its texture, or the size of the particles of which it consists, and its structure, or the arrangement of these particles.

For a soil to be in good physical condition for plant growth, the air, water, and solid particles must be in the right proportions at all times. Every cubic foot of soil that supports plant life must be:

1) well enough aerated to permit all plant root cells to obtain oxygen at all times, but not excessively aerated to the point of preventing a continuous contact of roots with moist soil particles;

2) open enough to permit the right amount of rain-water or irrigation water to enter the soil, but not so open as to allow excessive loss of water and plant nutrients by deep percolation;

3) sufficiently retentive of moisture to supply roots with all needed water, but not so retentive as to create undesirable suspended water-tables.

Soil texture has to do with the fineness or coarseness of soil particles. Mineral particles which make up the bulk of soil vary greatly in size. The four principal size categories are "gravel", "sand", "silt", and "clay". Some soils, for example sand, consist largely of particles of approximately the same size. Most soils, however, have two or more groups, classified by size of particles, usually with one group dominant. Thus, in grouping soils into texture classes, the proportion of particles belonging to different size groups, as well as the particle sizes themselves, are important.

In most soils texture varies greatly from the surface downward. The subsoil usually contains more clay and other fine material than does the surface soil, although this is not always the case. In soil classification, the texture of the surface soil seems more significant than that of deeper layers. Therefore, soils are usually classified

according to the texture of a six- to eight-inch thick surface layer, approximately the "plow layer". Six major texture groups are "sand", "sandy loam", "silt loam", "loam", "clay loam", and "clay". Each of these groups may be subdivided when it is useful to do so.

Many soil qualities are closely related to texture. Since fine-textured soils have greater pore space and larger surface area than coarse-textured soils, they provide greater storage space for water and better feeding zones for plant roots. Thus, in a broad way, relatively fine-textured soils are more productive agriculturally than are soils with coarse texture. Too fine a texture, however, adversely affects tillage. Sands and sandy loams are more easily tilled than clays and clay loams because the tilling of the former requires less power and is hindered less by wetness.

Soil structure refers to the manner in which the individual soil particles are arranged. Structure has much in common with texture, although structure is much more complex. As a property of soil, structure in some instances may be even more important than texture.

## **Спеціальність «ТВППТ»**

### **TEXT 11. Beef production programs**

The initial and most fundamental step in the beef enterprise is the production of a baby calf and raising it to weaning age. The calf is, so to speak, the raw material out of which the finished beast will eventually be made. The breeding herds in which calves are produced need little grain or other fattening feeds. Consequently, the raising of beef calves is confined chiefly to those sections that have an abundance of comparatively cheap, low carrying-capacity grazing land. Hence, we find the important breeding centers located either in regions that are sparsely settled or in hilly areas where the land is too rolling to be farmed to advantage. Climate also plays an important part in determining the location of the breeding industry. The southern and southwestern states have a decided advantage over those farther north with respect to climate. Because of the shorter winters in these regions, the calves are ordinarily born 4 to 6 weeks earlier than in the north, or they may even be born in the fall. Thus

the calves are larger and heavier than they are marketed the following fall.

Commercial – that is, not purebred – cow herds can be grouped together in four broad categories which depend upon system of land management, available feeds and pastures, and the method of marketing the calf crop, as follows:

(1) There are the large spectacular herds which sometimes consist of as many as a thousand cows or more, operated on ranches located principally in the Mountain region. These ranches usually consist of some deeded land situated along or near rivers or streams where the winter feed supply of hay or silage is produced on irrigated meadows and crop land. The remainder of the ranch usually consists of extensive acreages of low carrying-capacity, government-controlled land such as national parks or forests, which may be situated near or adjacent to the deeded land. The rancher has grazing privileges or permits for a given number of cows for the summer grazing season. The calf crop of this type of ranch is sold either as calves at weaning time in the fall, or as yearlings the following fall, after having spent another grazing season on the range. Little if any fattening is ever done on these ranches because grain is not grown to any extent.

12) Then there are herds varying in size from 30 to 50 cows to very large herds operated on ranches usually owned by the rancher or leased from private owners. Most of these herds are found in the Great Plains and the Pacific Coast regions. The operation of these ranches varies considerably, depending upon whether they are located in the northern or southern portion of these regions and upon the feed-producing capabilities of the soil. Although most of these ranches sell either calves or yearlings to other ranchers or to feeders, some may feed out their own production.

### **TEXT 12. Stocker Program**

A stocker is a young animal that is being fed and cared for in such a way that growth rather than an improvement in condition may be realized. Stockers or stock cattle are of two kinds: heifers that are intended for use in the breeding herd, and steers and heifers that are

intended for the market as feeders or are intended for fattening by the present owner. With both kinds of stockers the principal purpose in the mind of the owner is to affect as much economy in feeding and management as is consistent with normal growth and development. Necessarily then, stockers are handled only by farmers or ranchers who have much cheap feed, either in the form cheap pasture or cheap harvested roughage such as hay, straw, fodder, and silage. Since stock heifers that are intended for breeding purposes are in demand principally in the breeding centers where they have been produced, few animals of this class are to be found outside such areas. In general, their method of management is much like that of the breeding herd.

With stockers intended for the market, however, we have a somewhat different, situation. Such cattle may be grown out in the region where they were bred and reared, by allowing them to graze grass land of the same character as that used by their mothers: or they may be shipped soon after they are weaned, either to grazing areas that are not fully stocked with cows and young calves, or to grain-growing sections where they ultimately will be fattened. In grain sections their feed consists mainly of the aftermath of meadows, legume pasture crops grown in the regular farm rotation, stalk fields, oat straw, legume hay, and silage. Many cattle feeders of the Corn Belt make a practice of buying their cattle as calves or yearlings in the fall and carrying them on such feeds through the winter or for a full year before putting them into the feed lot. In this way the by-products of grain farming are utilized; any undesirable or unthrifty cattle are weeded out before the use of expensive feeds is begun; and, what is probably most important of all, the cattle are purchased when market conditions are particularly favorable to the buyer.

Stock cattle may be put in at almost any time of year on a well-diversified farm.

### **TEXT 13. Cattle Utilize Pasture Crops**

A more efficient utilization of all farm products is one of the important problems of the general farmer. With these coarse roughages beef cattle offer a solution that is usually found satisfactory.

Mature beef cows can be maintained satisfactorily on rations composed of roughage alone, whereas steers that are being finished for the market consume 50 to 300 per cent as much roughage as grain, depending on the degree to which their grain ration is limited. Beef cattle are well adapted to utilize the surplus roughages that are produced under a system of general farming.

**Cattle Utilize Pasture Crops.** The importance of pastures and the place of beef cattle in their utilization upon ranches is taken for granted. On the contrary, the importance of pasture crops in the non-ranching areas of the country is often overlooked. Beef cattle make it possible for the permanent and rotation pastures to contribute a fair share of income on the farms in this vast area.

In less favored parts of the country, real efforts are being made to reclaim and rebuild soils no longer able to support cash crops. However, without beef cattle and other ruminants to convert the grass and roughage produced on these lands into income, such reclamation is economically impossible.

Pastures necessarily occupy a large portion of the total farming area in this country.

The choosing of the animals that are to be the foundation stock for the breeding herd is a matter of prime importance. Far too often insufficient attention is given to their selection. Particularly is the young breeder, in his eagerness to start operations, likely to take too little time to consider properly just what animals will best suit his needs. He grows impatient at what seems to him to be a loss of time and to get started he purchases the animals that are immediately available, even though he knows full well that they fall far short of the kind he really wants. Such a procedure is to be avoided, for usually a herd that is established hastily in this way is found to be so unsatisfactory that it is soon replaced either by cattle of much higher merit or by some project which is entirely different from a beef breeding herd.

Once a herd is established it is usually the best idea to raise one's own replacement heifers. This is because of the disease control problem present when outside animals are added, rather than from the standpoint of making progress in improvement in performance

and type. Decisions have to be made almost every time a calf crop is weaned in order to choose the best heifers to keep, but since only a few cows are replaced each year, these decisions are not nearly so important as those involved in laying the foundation.

In some ways it is unfortunate that we have several breeds of beef cattle of the same general type, because many men waste considerable time and effort in attempting to decide which breed is best for their particular conditions.

#### **TEXT 14. Choice of Animals for the Commercial Herd**

The following items should be given much consideration in choosing the annuals which are to form the foundation of a new herd or which are to serve as additions or replacements for a herd already in existence:

1. Freedom from disease.
2. Individuality.
3. Performance records (if available).
4. Performance of near relatives.
5. Age.
6. Cost.

*Freedom from Disease.* The most important item in the determination of profits is percentage of calf crop, and the best insurance against poor calving percentage is a healthy herd. High selling prices due to extra quality and weight or low feed costs cannot offset low calving percentage and large death losses.

Important contagious reproductive diseases of breeding cattle which must and can be guarded against are brucellosis (contagious abortion), leptospirosis and vibriosis in females and trichomoniasis in bulls. These diseases can be minimized at the time of purchase by demanding negative results from tests conducted by qualified veterinarians on all breeding animals composing the foundation stock or additions to the herd. Replacements which are produced in one's own herd should be free of these diseases if the herd is healthy. However, annual tests should be made on these additions as well.

#### **TEXT 15. Opportunities from poultry processing**

It is quite often the case that when a visitor attends a food technology show, he or she feels a bit overwhelmed by the variety of machines on display. In part, this is due to the fact that the food we eat comes in so many different forms, from sticky liquids to frozen solids. How do you really know whether a particular piece of equipment can be applied to the red meat industry?

This is one of the main advantages of visiting the International Poultry Exposition: poultry meat is similar enough to red meat that most of the further processing machines on display can be used within the red meat industry, in some cases in rather innovative ways.

One important aspect in food production is separating products into clearly defined weights or specific numbers of pieces. When doing so, it is critical that any deviation from these specifications is as small as possible in order to reduce giveaway.

Closely linked to these machines is packaging equipment, since often the batches go directly into the packaging line or the packages themselves need to be weighed both for quality control purposes and for printing a final label on the finished product, for example. It is therefore very desirable that the machines are well integrated so that the process runs as smoothly as possible.

Often enough, all one needs is a simple, sturdy and accurate scale.

Like bacon'n'eggs, batching and grading frequently come together in the same machine, which is mainly due to the fact that they are similar processes, in the sense that you group together or batch products of a similar quality or grade. The new grader series is suitable for grading and batching both meat and poultry and has a more cleaning friendly design. We also improved the man-machine interface and provided it with more processing power to make the batching more exact. This then allows production managers to have an improved overview in order to optimize yield and minimize giveaway.

Special companies also introduced an improved design on their weighing system. Instead of using a conventional tube design for the frame, the company engineers opted for an open-frame

design, which translates into less area where product pieces can lodge themselves and foster bacterial growth. Company also installed its own controller, designed to withstand the rigours of the working floor of a food processor. The company introduced another innovation in this area of technology, a new 9-inch (22.8cm) portion classifier designed to handle items like portioned steaks, pork chops and other small food portions weighing less than 21bs (900g) and shorter than 10 inches (25cm) in length. It is extremely fast and accurate with programmable controls that allow it to batch by count, weight or multiple product type, thus minimizing the incidence of overweight packing. Another company also introduced a batching system that they like to call the Speed Batcher. This breakthrough new system uses a patented method to intelligently speed-batch product.

### **TEXT 16. Significant Features of Ruminant Nutrition**

Ruminant animals such as beef cattle are usually found on farms and ranches which, either because of choice on the part of the operator or because of necessity due to low rainfall, erosion problems, or infertility of the soil, produce large quantities of roughage and or pasture. Ruminant animals, so called because they ruminate or chew cuds, have special adaptations in their digestive systems which enable them to utilize roughages or feeds which contain comparatively high levels of crude fiber or cellulose and related compounds. An understanding of these special adaptations is of value in determining feed or nutrient requirements of beef cattle, and by the same token an understanding of nutrient requirements is essential for proper ration formulation.

*Significant Features of Ruminant Nutrition.* Monogastric animals or those having simple stomachs, such as the pig and man, have a relatively low-capacity alimentary tract consisting of stomach, small and large intestines, and accessory glands. Digestion in these animals is largely of an enzymatic nature and little provision is made for either handling or digesting roughages; hence the diet of such animals must consist largely of concentrates or feeds low in crude fiber. In contrast, ruminant animals have compound stomachs and a

much more complex digestive system, and much remains to be learned about their anatomy and function. Productive research work with the artificial rumen and the rumen fistula in the live animal is shedding much light on the so-called darkest spot in animal nutrition, the rumen.

The most successful cattle feeders today are those who understand and take advantage of the following significant features of ruminant animal:

1. The Four-Compartment Stomach. The *rumen* or paun . *first compartment, constitutes about 80 per cent of the total stoiincapacity in adult cattle and may hold up to 50 or 60 gallons. Connected with the paunch are the second and third compartments, tht- reticulum or honeycomb and the omasum or manyplies, which constitute 5 and 7 or 8 per cent of the total stomach capacity, respectively, in mature animals. All three of the compartments thus far mentioned have a common opening or passageway called the esophageal groove, through which materials may pass freely. The function of the reticulum is not too well understood, but it is known that the omasum is the site where much water is absorbed from the paunch contents prior to its passage into the fourth compartment, the abomasum or true stomach. The abomasum holds about 7 or 8 per cent of the total stomach contents, and this compartment is similar in function to the stomach of simple-stomached animals.*

## **Спеціальність «Економіка»**

### **TEXT 17.**

The economy is for us. «The economy» is simply an abstraction that refers to the sum of all our individual production and consumption activities. In order to produce anything, we need resources, or factors of production. Factors of production are the inputs — land, labor, and capital (buildings and machinery) we use to produce final goods and services (output).

Unfortunately, the quantity of available resources is limited. We cannot produce everything we want in the quantities we desire. Resources are scarce relative to our desires. This fact forces us to

make difficult choices. Hence the more missiles we build, the less of other goods and services we can produce at the same time.

Opportunity costs exist in all situations where available resources are not abundant enough to satisfy all our desires.

Indeed, economics is often defined as the study of how to allocate scarce resources. The study of economics focuses on «getting the most from what we've got», on making the best use of our scarce resources.

Production possibilities are the alternative combinations of final goods and services that could be produced in a given time period with all available resources and technology.

According to the law of increasing opportunity costs we must give up everincreasing quantities of other goods and services in order to get more of a particular good.

Economic growth is an increase in output; an expansion of production possibilities.

Over time the quantity of resources available for production has also increased. Each year our population grows a bit, thereby enlarging the number of potential workers. Our stock of capital equipment has increased even faster. In addition the quality of our labor and capital resources has improved, as a result of more education (labor) and better machinery (capital).

Market mechanism is the use of market prices and sales to signal desired outputs (or resource allocations).

Thus the essential feature of the market mechanism is the price signal. If you want something and have sufficient income, you buy it. If enough people do the same thing, the total sales of that product will rise, and perhaps its price will as well. Producers, seeing sales and prices rise, will be inclined to increase production.

### **TEXT 18.**

When transportation costs are low and governments do not interfere much in transactions that cross national boundaries, firms and individuals frequently look across those boundaries for opportunities to buy or sell. Indeed, for many commodities there are

international rather than domestic markets, and for most commodities there are international effects on markets.

Commodities that are produced in a foreign economy, but which are consumed by individuals within a domestic economy, are imports, while commodities which are produced within a domestic economy, but which are consumed by individuals in a foreign economy, are exports.

If the world price of commodity is below the domestic price, there will be an incentive to import the commodity, purchasing it from foreign producers.

Money once again solves the problem of coincident or reciprocal wants: individuals or firms who want to import a commodity can make the exchange using money, while those individuals or firms who want to export do so in exchange for money. As long as money can be used in international transactions (as well as within an economy), exporters and importers do not need to be the same individuals. The complexity arises because foreign firms usually want to be paid in money useful in their own economy. Conversely, domestic firms who want to export usually want to be paid with money useful in the domestic economy, while foreigners to whom they must sell if they are to export usually want to pay for the commodities using money from their own economy.

When the money used in the international exchange is different from that used in the domestic economy, the person receiving payment in the foreign currency will want to exchange it for a domestic currency.

Hence, international trade creates markets for different kinds of money. Such markets are called foreign exchange or foreign currency markets.

A foreign exchange market is a market where one kind of money is traded for a different kind of money.

Changes in supply and demand in these markets change the rate at which one currency will be exchanged for another currency. As a consequence, the price of goods that are traded will change either because of a change in the price in the economy where they are produced or because of a change in the exchange rate.

The difference between the value of exports and imports is the foreign trade balance. If the value of imports exceeds the value of exports then trade balance is deficit.

### **TEXT 19.**

Human wants are unlimited, but the resources necessary to satisfy those wants are limited. Thus, every society is faced with the identical problem, the problem of scarcity. Since there is not enough of everything to go around, everyone — individuals, business firms, and government — needs to make choices from among the things they want. In the process they will try to economize, to get the most from what they have. With this in mind we can define economics as the social science that describes and analyzes choices from among scarce resources to satisfy its wants. The need to choose is imposed on us by our income, wealth and ability to borrow.

The food you eat, the home you live in, the clothes you wear, and the way you spend your leisure time are all affected, in part, by economic forces. The study of economics will help you to live a fuller life. Economic forces also affect decisions in the world of business. The more you know about the subject, the better career decisions you will be able to make.

The development of modern economics began in the 17th century. Since that time economists have developed methods for studying and explaining how individuals, business and nations use their available economic resources. Large corporations use economists to study the way they do business and to suggest methods for making more efficient use of their employees, equipment, factories, and other resources.

Economists have two ways of looking at economics and the economy. One is macro approach, and the other is the micro. 'Macroeconomics is the study of the economy as a whole. Microeconomics is the study of individual consumers and the business firm.

The resources that go into the creation of goods and services are called the 'factors of production. The factors of production include natural resources, human resources, capital and entrepreneurship.

Each factor of production has a place in our economic system, and each has a particular function. Our country is rich in natural resources. Economists also use the term «land» when they speak of natural resources as a factor of production.

The price paid for the use of land is called rent. Rent becomes income to the owner of the land. Economists call the physical and mental effort that people put into the creation of goods and services labor or human resources.

The price paid for the use of labor is called wages. Capital is something created by people to produce other goods and services. A factory, tools and machines are capital resources. The term capital is often used by business people to refer to money they can use to buy factories, machinery and other similar productive resources. Payment for the use of someone else's money, or capital is called interest.

In exercising the choices imposed upon individuals, business firms and governments by their unlimited wants and limited resources, every society must come to grips with the fundamental economic questions:

What goods and services are to be produced?

How are they to be produced?

Who will receive them? The way in which a society goes about answering these fundamental questions is known as its economic system.

**TEXT 20.** Most of the income you are likely to earn will come from work. In return for working, you will receive a wage or salary. {The term «wage» typically refers to the earning of workers paid by the hour or unit of production. «Salary» refers to earning paid on a weekly or monthly basis.) How much you earn will depend on your job, your abilities, your performance,<sup>11</sup> and a number of other factors.

Wealth can be expressed as the value of the things you own. Adding the value of all your possessions by bank accounts, savings, and the like will give you the total amount of your wealth.

Used in certain ways, wealth can earn income. If you owned a motorcycle, you might be able to let others use it for a fee. In that

instance economists would say that you used your wealth to earn «rent». Wealth in the form of money that is loaned to others or deposited in a savings account will earn interest. Interest and rent are the two forms of income that can be earned by wealth.

The number and value of things we are able to buy depends upon the size of our income and how wisely we spend it.

To help keep track of income and expenditures, many people use personal budgets. A **budget** is a financial plan that summarizes income and expenditures over a period of time. When a budget has expenses that exactly equal income, it is said to be balanced. When proposed expenses are greater than expected income, the budget is said to have a **deficit**.

Budgets in which income exceeds expenditures will have a surplus.

Although there are as many ways to prepare a budget as there are people who use them, the process usually involves three steps: setting financial goals, estimating income, and planning expenditures.

Bank and savings institutions protect your money against fire, theft and other disasters.

One of the main reasons people save their money is to earn interest, the income from allowing someone else to use one's capital. The amount that they earn is known as **the rate of return** which is expressed as a percentage of the amount on deposit for a period of a year. A deposit of \$100 in an account paying 5 percent, for example, would earn a total of \$5 in interest over a year. The \$5 is the return; the rate of return is 5 percent (\$5 divided by \$100). Most accounts offer **compound interest**. This is interest computed on the principal and on the interest that was previously paid.

The rate of return offered by banks and savings institutions will vary with economic conditions and the length of time they hold your money. It is also important to distinguish between rate of return and yield, the actual amount of interest earned. Yield depends on the rate of return and the frequency of compounding.;

**Liquidity** is a measure of the ease with which you can convert your savings to cash. The easier it is to withdraw your funds, the greater is the liquidity.

Theft, accident, sickness, and natural disasters are daily risks of life. Just as we do our best to avoid the physical consequences of these perils, we can also protect ourselves from their financial cost. We do this by sharing the risk of that loss with others through insurance. You can purchase insurance on your life and to pay your medical bills. You can purchase property insurance to protect your car, home, and other major possessions from damage or theft. Liability insurance protects you if you should injure others or damage their property.

### **TEXT 21.**

Market economies are directed by prices. Prices ration scarce resources, and they motivate production. As a general rule, the more scarce something is, the higher its price will be, and the fewer people will want to buy it. Economists describe this as the rationing effect of prices.

Prices encourage producers to increase or decrease their level of output. Economists refer to this as the production- motivating function of prices. Prices send out «signals» to buyers and sellers, keeping the economy responsive to the forces of supply and demand.

In a free market economy, prices are determined by the interaction of the forces of supply and demand. Perfectly competitive markets are those in which many buyers and sellers, with full knowledge of market conditions, buy and sell products that are identical to one another.

Demand is a consumer's willingness and ability to buy a product or service at a particular time and place. If you would love to own a new pair of athletic shoes but can't afford them, economists would describe that your feeling as desire, not demand. If, however, you had the money and were ready to spend it on shoes, you would be included in their demand calculations.

The law of demand describes the relationship between prices and the quantity of goods and services that would be purchased at

each price. It says that all else being equal, more items will be sold at a lower price than at a higher price.

The degree to which price changes affect demand will depend upon the elasticity of demand for a particular item. If total revenue increased following a price decrease, demand would be elastic. If the price decrease led to a decrease in total revenue, the demand for the item would be described as inelastic.

The demand for some goods and services will be inelastic for one or more of the following reasons:

They are necessities. It is difficult to find substitutes. They are relatively inexpensive. It is difficult to delay a purchase. Sometimes things happen that change the demand for an item at each and every price. When this occurs, we have an increase or a decrease in demand.

Supply, which is the quantity of goods or services that sellers offer for sale at all possible prices at a particular time and place, varies directly with price. In other words, at a higher price, more goods and services will be offered for sale than at a lower one, and vice versa.

The price at which goods and services actually change hands is known as the equilibrium, or market price. It is the point at which the quantity demanded exactly equals the quantity supplied. Market price can be represented graphically as the point of intersection of the supply and demand curves.

Shifts in demand or supply will affect market price. When everything else is held constant, an increase in demand will result in an increase in market price, and vice versa. Similarly, an increase in supply will result in a decrease in price, and vice versa.

The market price is the only price that can exist for any length of time under perfect competition conditions. Perfect competition exists when the following conditions prevail:

Buyers and sellers have full knowledge of the prices quoted in the market. There are many buyers and sellers so that no individual or group can control prices.

## **TEXT 22.**

There are numerous reasons that make people think about owning a business of their own. Personal independence, unlimited profit potential, the opportunity to work at something that they really love and at hours they choose are some of the reasons people have given for trying entrepreneurship. Many business leaders begin their careers as entrepreneurs after four years of undergraduate college training and even additional graduate school training. Others become successful entrepreneurs without special training.

Many colleges now offer programs that teach students how to start and operate a business. Basic information is combined with hands-on experience and the advice of successful business consultants. These programs help potential entrepreneurs decide whether their own ideas are good and how to follow through with them. With the high rate of business failure, this approach can prevent personal financial losses.

A common way to learn about a business, and the opportunities for starting one similar to it, is to learn while working for someone else. It provides a source of steady income to people while they are planning to start their own businesses, -About 50 percent of entrepreneurs start their businesses in industries in which they have some experience.

Evidence shows that people who come from families whose members were in business themselves are more likely to start their own companies. Unfortunately, the record shows that two out of three new businesses fail within their first four years.

Small businesses face many problems. Bad economic times affect small business more than they do big business. In addition, small business profits tend to fall faster, and small businesses are more likely to fail.

What are the problems that face small business now? In January, 1985 the National Federation of Independent Business reported that the four top problems facing small business at that time were taxes, slow sales, the high cost of borrowing money and competition from other businesses.

In a large business the tasks of organizing and operating are done by many hired managers.

A corporation is one kind of business organization. Other kinds of business organizations are sole proprietorships and partnerships. Sole proprietorships are the most numerous kind of business organization, but most are very small. The reason for their popularity is that they are the easiest and least costly to organize.

Sole proprietors own all the profits of their enterprises, and they are their «own bosses», free to make whatever changes they please. They have minimal legal restrictions and do not have to pay the special taxes placed on corporations. Sole proprietors also have opportunity to achieve success and recognition through their individual efforts.

A partnership is a business organization that is owned by two or more persons.

A corporation is a business organization created under a government charter. Ownership of a corporation is represented by shares of stock, and for that reason corporate owners are known as stockholders. One feature of the corporation is that the courts treat it as a legal «person».

## **Спеціальність «Менеджмент»**

### **TEXT 23.**

Most of the money used by business comes from the sale of its products and services. Since these funds come from within the firm they are described as internal funds. The rest must come from outside, or external funds.

As a firm sells its products or services, it receives money, which it uses to meet its expenses. One of these expenses, depreciation, represents the cost of replacing assets (like tools, machinery, and buildings) that wear out. Typically, businesses use internal funds to cover the cost of depreciation.

Business loans are generally classified as either short-term or long-term loans. For short-term loans, the principal (the amount borrowed) must be repaid within one year. Longterm loans mature (come due) in more than a year.

Short-term loans are used to finance the everyday costs of doing business, such as payrolls, raw materials and merchandise. Long-term loans are more likely to be used to purchase equipment, buildings and other high cost items.

All corporations issue common stock; some, however, also issue preferred stock. Unlike common stockholders, preferred stockholders usually do not have voting rights.

A security exchange is a market where brokers meet to buy and sell stocks and bonds for their customers.

The largest of the securities exchanges are the New York Stock Exchange and the American Stock Exchange.

There is some risk of default (failure to pay interest or principal) on the bonds of even the strongest corporations. For this reason many people invest in mutual funds. Mutual funds are corporations that sell stock and use the proceeds to invest or speculate in the security markets.

Two of the most important pieces of information contained in every prospectus and annual report are the balance sheet and the income statement. The balance sheet summarizes a corporation's assets, what it owns; its liabilities, what it owes; and its net worth, the difference between the two sums at a given time. The income statement summarizes a firm's revenues, costs, and the difference between the two (the profit or loss) over a period of time.

#### **TEXT 24.**

Markets exist wherever people come together to buy and sell their goods and services. In economic systems during such hours, consumers and producers exchange their goods and services in many competitive markets.

A perfectly competitive market, according to economists, requires all of the following conditions:

Many buyers and sellers; no individual or group can influence the behavior of the market.

Identical goods or services offered for sale.

\*No buyer or seller knows more than any other about the market.

Buyers and sellers are able to enter or leave the market at will. Few markets have all these characteristics. The New York Stock Exchange, the American Stock Exchange and other similar securities markets, however, are good examples of perfect competition. The individual securities of a particular firm are totally interchangeable.

Collusion is a secret arrangement between two or more firms to fix prices or share the market. These agreements are usually illegal.

Public Utilities are privately owned firms that provide an essential public service. They are granted a monopoly because it is felt that competition would be harmful to the public interest.

Trademarks are special designs, names or symbols that identify a product, service or company. Many businesses are naturally interested in growing and controlling as much of a market — or several markets — as possible. One way to accomplish this goal is through a merger.

Mergers fall into three categories: horizontal, vertical, or conglomerate.

The combination (or «integrating») of two or more companies engaged in the same business is a horizontal merger. The combination of two or more book publishing firms would be an example of a horizontal merger or horizontal integration.

A conglomerate merger combines two or more unrelated businesses under a single management

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**Навчальне видання**

**АНГЛІЙСЬКА МОВА**

Методичні рекомендації

Укладач: **Ганніченко** Тетяна Анатоліївна

Формат 60x84 1/16. Ум. друк. арк. 4,0

Тираж 50 пр. Зам. №\_\_

Надруковано у видавничому відділі

Миколаївського національного аграрного університету

54020, м. Миколаїв, вул. Георгія Гонгадзе, 9

Свідоцтво суб'єкта видавничої справи ДК № 4490 від  
20.02.2013 р.