

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SUMY NATIONAL AGRARIAN UNIVERSITY

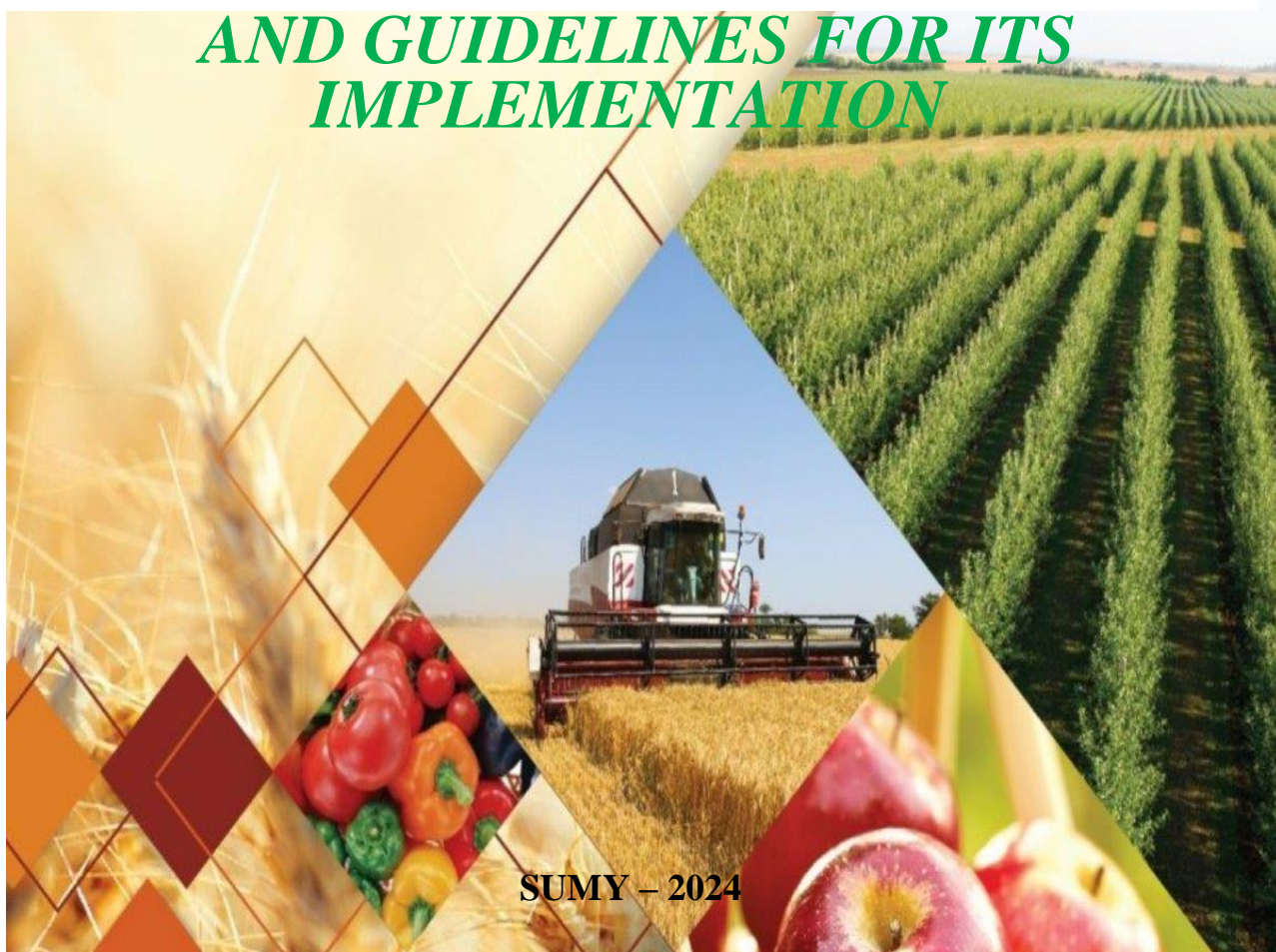


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***A COMPREHENSIVE PROGRAM OF
SCIENTIFIC AND INDUSTRIAL
PRACTICE
AND GUIDELINES FOR ITS
IMPLEMENTATION***



SUMY – 2024

UDC 378.147

Creators: Doctor of Agricultural Sciences, Professor, *Trotsenko V.I.*
PhD, Associate Professor *Bakumenko O.M.*
PhD, Associate Professor *Onychko V.I.*
Doctor of Agricultural Sciences, Professor *Mishchenko Y.G.*
Doctor of Agricultural Sciences, Professor *Melnyk A.V.*
PhD, Associate Professor *Masyk I.M.*
PhD, Associate Professor *Osmachko O.M.*
PhD, *Datsko O.M.*

Methodical instructions for the conducting of scientific and production practice by applicants of the Faculty of Agrotechnology and Natural Resource Management of the second level of higher education (Master's), specialty 201 - "Agronomy" / Sumy, 2024 - 49 p.

The guidelines are aimed at providing methodological assistance to master's students during their research and production practice in the specialty 201 - "Agronomy".

Reviewers:

Kravchenko N.V., Doctor of Agricultural Sciences, Professor of the Department of Biotechnology and Chemistry, Sumy NAU

Melnyk T. I., PhD, Professor of the Department of Gardening and Forestry, Sumy NAU

Leonov O.Y., Acting Director of the V.Y. Yuriev Institute of Plant Industry of the National Academy of Agrarian Sciences of Ukraine, Doctor of Agricultural Sciences, Senior Researcher

Responsible for the issue: Bakumenko O.M., Associate Professor, PhD., Dean of the Faculty of Agrotechnology and Natural Resource Management

Recommended for publication by the Academic Council of the Faculty of Agrotechnology and Environmental Management. Minutes № 9 of March 11, 2024.

TABLE OF CONTENT

INTRODUCTION	4
1. PURPOSE, TASKS AND ORGANIZATION OF SCIENTIFIC AND RESEARCH PRACTICE	5
2. PROGRAM AND METHODOLOGICAL GUIDELINES FOR RESEARCH AND INDUSTRIAL PRACTICE	10
3. METHODOLOGICAL ADVICE ON COLLECTING EXPERIMENTAL MATERIAL FOR SCIENTIFIC WORK	13
4. REQUIREMENTS FOR THE STRUCTURE, CONTENT AND RECOMMENDATIONS FOR WRITING A REPORT ON THE SCIENTIFIC AND PRODUCTION PRACTICE	14
5. PREPARATION OF A PRACTICE REPORT	16
6. RULES FOR WRITING A DIARY ON RESEARCH AND INDUSTRIAL PRACTICE	21
7. PREPARATION OF A PRESENTATION FOR THE DEFENSE OF THE RESEARCH AND INDUSTRIAL PRACTICE REPORT	23
8. TYPES AND METHODS OF CONTROL	25
LIST OF REFERENCES	27
ANNEXES	28

INTRODUCTION

Practical training of university students is an integral part of the training of specialists in the relevant specialties. The program of scientific and production practice is developed in accordance with the requirements of the Law of Ukraine "On Higher Education", "Regulations on the practice of students of higher educational institutions of Ukraine" of 08.04.93, № 93, "Methodological recommendations for conducting student practice in agricultural higher educational institutions", recommended by the Scientific and Technical Council of the Ministry of Agrarian Policy of Ukraine (Protocol of 16.12.03, № 5) and "Regulations on the practice of higher education applicants of Sumy National Agrarian University", 2022. (https://snau.edu.ua/wp-content/uploads/2022/06/%D0%9F%D0%BE%D0%BB%D0%BE%D0%B6%D0%B5%D0%BD%D0%BD%D1%8F_%D0%9F%D0%A0%D0%90%D0%9A%D0%A2%D0%98%D0%9A%D0%90-1.pdf).

The content of the practice, types and its scope are determined by educational and professional programs (EPP), curricula and programs of academic disciplines. The place of practice is modern high-tech enterprises (organizations, institutions) of agricultural production, education, science, public administration, as well as practice bases outside Ukraine.

1. PURPOSE, TASKS AND ORGANIZATION OF SCIENTIFIC AND RESEARCH PRACTICE

Practical training of students is an essential part of the educational process of training specialists in the Master's degree program, specialty 201 "Agronomy".

The purpose of the research and industrial practice is:

Formation of a set of knowledge, skills and abilities for use in professional activities in the specialty 201 - "Agronomy", aimed at solving complex problems in the organization and technology of production of high-quality environmentally friendly agricultural products and balanced environmental management through practical training.

The tasks of the practice are:

- Gaining practical work experience in the specialty, and, accordingly, knowledge and understanding of the subject area and professional activities;
- consolidation and deepening of students' theoretical knowledge and professional skills in solving production problems;
- consolidation and deepening of knowledge about the basic concepts, theoretical and practical problems in the specialty 201 Agronomy, branch 20 Agricultural Sciences and Food, which are necessary for analysis and decision-making in the professional field;
- consolidation of knowledge and skills in organizing monitoring within the studied object;
- understanding of modern achievements, provisions of national and international legislation in the professional field;
- development and consolidation of skills in the use of information and communication technologies to make informed decisions in the field of agronomy and plant biology;
- development and consolidation of skills in predicting the impact of technological processes and production on the development of pests, as well as

identifying environmental risks associated with research and production activities;

- Gaining practical experience in the development and implementation of projects aimed at optimal management and regulation of crops (within the research object);

- development of the ability to adapt and act in a new situation, to communicate the results of activities to a professional audience and the general public, to make presentations and messages, to communicate with representatives of other professional groups of different levels, to work in a team;

- consolidation of knowledge and skills on methods and technical means used in the cultivation of crops;

- consolidation of knowledge and skills about modern and promising measures in the plant protection system using generally accepted (standard) approaches and international and domestic experience;

- Acquiring skills in organizing their own research work;

- development and consolidation of the ability to justify the need for and develop technological processes aimed at preserving the environment;

- mastering statistical methods of data processing in agronomy;

- development and consolidation of communication skills in the state and foreign languages;

- development of the ability to conduct independent research;

- development of the ability to assess the environmental impact of various agricultural technologies;

- development and consolidation of skills for continuous improvement of their professional level through the introduction of education and self-education;

- development and consolidation of the ability to act in a socially responsible and conscious manner.

The purpose and objectives of the research and production practice are to provide master's students with the skills of socio-political and cultural work in the labor collective of the farm, to foster a sense of responsibility for the work assigned, etc.

Organization of the practice (*basic requirements for participants*)

Students undergo scientific and production practice in farms with which the relevant bilateral agreements have been concluded (<https://agro.snau.edu.ua/kafedri/ooop-stale-silskogospodarstvo-ta-prodovolchabezpeka/praktichna-pidgotovka-practical-training/>) or can independently choose an object for scientific and production practice. In case of independent choice, the student concludes a corresponding agreement no later than one month before the start of the internship (Appendix A.B.).

Before the start of the internship, the student receives from the university supervisor the methodological materials (guidelines, program, diary, etc.), an individual task for the implementation of the internship program (Appendix B). Receives and approves methods for conducting experimental research and collecting material on the topic of the qualification work.

The head of the practice (supervisor) is appointed by an order of the university. The responsibilities of the university supervisor include:

- control of the preparedness of the practice sites, availability of proper working and living conditions;
- ensuring that all organizational activities are carried out before students leave for practice: instruction on the procedure for practice and safety, providing students with the necessary documentation (program, diary, research topic, methodological recommendations, etc;)
- Providing necessary consultations on internship and experimental research on the topic of the thesis;
- Participation in the work of the commission for acceptance of field experiments;
- participation in the work of the commission appointed by the dean's office for the defense of students' practice reports;

- report to the department on the results of the internship with comments and suggestions for improving its organization and implementation;

In accordance with the terms of the agreement, the company appoints a head of practice from the company (organization, institution). The responsibilities of the head include:

- organizing familiarization and study of safety, labor protection and internal regulations of the institution by students with registration of relevant instructions;
- creating the necessary working and living conditions for student interns;
- creating conditions for the implementation of the internship program and conducting experimental research on the topic of the thesis;
- participation in the work of the commission for acceptance of field experiments;
- accounting for the entry into production of student interns;
- creating conditions for mastering new equipment, advanced technologies, modern methods of labor organization, etc;
- ensuring control over the student's compliance with the internal regulations.
- assessing the quality of trainees' work with the provision of objective characteristics of professional knowledge and skills in relation to production and public work, performance of individual tasks, organizational skills, participation in the development of new equipment and technologies, etc;
- Reporting to the management of the enterprise (organization, institution) on the results of the research and production practice.

The timing and place of the master's student's research and production practice is determined by the university's order. During the practice, the **student is obliged to:**

- arrive at the internship exactly on time, set by the order of the university;
- fully fulfill all the tasks provided for by the internship program and strictly follow the rules of labor protection, safety and internal regulations of the enterprise;

conduct planned experimental research on the topic of scientific work (including registration of the experiment and its commission acceptance)

- systematically keep a practice diary;
- take an active part in the public, cultural and mass life of the enterprise;
- be responsible for the work performed.
- prepare and provide documentary support for the practice report.

The report is the final form of control over the results of the practice. The report is evaluated by the supervisor from the practice base (mentor) and submitted for review to the university supervisor. The mandatory elements of the report, which are certified by the signature of the supervisor (from the company) and the seal, are:

- *practice diary*;
- student profile*.

The report is defended before a committee formed by the dean of the faculty. The composition of the commission and the terms of certification are determined by the relevant order of the dean.

A student who fails to complete the internship program in part or in full for valid reasons may have the deadline for completing it postponed to another period with the scholarship preserved. A student who has not completed the internship program in full or in part without valid reasons may be granted the right to repeat the internship at another time.

A student who fails to complete the program of scientific and production practice and is not certified by the commission based on its results is expelled from the number of students of Sumy National Agrarian University.

2. PROGRAM AND METHODOLOGICAL GUIDELINES FOR RESEARCH AND PRODUCTION PRACTICE

On the basis of the educational and professional program of master's training, a plan of scientific and industrial practice is developed, which indicates all types of work to be performed by students, the procedure, terms and place of their implementation. The practice plan is approved by the student's supervisor from the university and adjusted with the supervisor of the practice from the practice base.

During the internship, the student should follow the next algorithm:

- Arrival at the company (institution), execution of documents, safety briefings and internal regulations;
- Familiarization with the organization (institution), its structural units
- Practical professional work in the specialty and experimental research
- Preparation of documentation, practice report
- Departure from the organization (institution) of practice

During the period of practical professional work in the specialty and experimental research, the student acquires advanced environmentally friendly and cost-effective technologies for growing crops, learns to observe crops during the phases of plant development, assess the condition of crops, determine their height and density, determine the reserves of productive moisture in the soil, determine the forecast of the emergence, development and spread of pests and diseases.

Collectively plans and organizes field and other experiments, creatively and adequately analyzes and statistically processes the results obtained. Participates in the organization and conduct of field, vegetation and laboratory research.

Master the methods of setting up experiments in crop production, vegetable growing, fruit growing, etc. and has the methods and techniques of morphological and genetic analysis of soils in the field, methods of calculating the technological, commercial, economic and energy efficiency of weed control measures and their environmental acceptability; Has the basic principles of soil monitoring as an

integral part of environmental control, production of environmentally friendly products and ensuring proper living conditions for humans and other living organisms.

Learns to calculate fertilizer rates and the system of their application to obtain the planned yield of field, vegetable and fruit crops.

Master the methods of calculating the balance of nutrients and the system of full provision of field, vegetable crops and gardens with mineral nutrition and moisture.

Analyzes the effectiveness of certain types and forms of fertilizers when used for specific crops on specific types of soils and be able to apply fertilizers in conjunction with plant protection products.

He/she is directly involved in the certification and rationalization of workplaces and agronomists, and studies the work on staff development and training in sanitary rules when working with pesticides. He calculates the cost-effectiveness of protective measures.

Master the system of environmental and labor protection measures.

Learns to determine the need for material and technical means, overalls, personal protective equipment for working with pesticides, pay attention to the control of the farm over compliance with the rules of environmental protection, safety, occupational sanitation and fire safety, and ensure the necessary working conditions. Pays attention to safety and industrial sanitation when using plant protection products on the farm, preventing occupational injuries and diseases. Analyzes the range of chemical and biological products and others included in the "List of Pesticides and Agrochemicals Permitted for Use in Ukraine", the specifics of their use in the treatment of seeds, planting material, care of crops during the growing season and during storage of crops. Master the State Standards for products, seeds and planting material; master the methods of calculating the economic efficiency of pesticide use against pests.

The student studies special literature and other scientific and technical information, achievements of domestic and foreign agricultural science.

During the internship, the student studies laws and regulations of the government on the agro-industrial complex, methodological and regulatory materials related to agronomy (in particular, the Laws of Ukraine: "On Soil Protection", "On Plant Protection", "On Plant Quarantine", "On Pesticides and Agrochemicals", "On Labor Protection"), job descriptions and regulations.

He studies land and labor legislation, environmental law, land and labor markets, fire safety rules, industrial sanitation, and environmental protection measures.

Analyzes the basic physical, physicochemical, mechanical, and water properties of soils and their agroecological assessment. Studies soil biota and its role in the soil formation process. She forecasts soil quality to prevent soil degradation.

Together with the farm's specialists, he ensures the protection of crops from pests in adaptive farming systems under specific production conditions.

Studies and carries out the rational use of chemicals in integrated plant protection against pests. Analyzes the effectiveness of the use of physical, mechanical and biophysical means in integrated plant protection. Analyzes samples of soil, plants, chemicals and reclamation products.

He studies the world's best practices in the areas of the company's activities.

3. METHODOLOGICAL ADVICE ON COLLECTING EXPERIMENTAL MATERIAL FOR SCIENTIFIC WORK

To complete a research paper, you must do the following:

- master the methodology of conducting phenological observations of the growth and development of crops and obtain the necessary experimental material on the chosen topic of the research work;

- to know the methodology for analyzing records and observations of the phases of crop development and to obtain a number of experimental data that are related to the topic of the work;

- study the basic physical, physicochemical, mechanical, and water properties of soils and provide their agroecological assessment;

- know the norms of fertilizers and the system of their application to obtain the planned yield of field, vegetable and fruit crops, etc;

- master the methodology for assessing the resistance (tolerance) of crop varieties and hybrids to pests and obtain the necessary experimental data on the topic of work;

- to analyze working conditions, the state of occupational injuries in the farm, analysis of budget allocations allocated to labor protection in the farm;

- know the measures to protect the environment from pollution by pesticides, mineral fertilizers and other toxic substances on the farm.

4. REQUIREMENTS FOR THE STRUCTURE, CONTENT AND RECOMMENDATIONS FOR WRITING A REPORT ON THE SCIENTIFIC AND PRODUCTION PRACTICE

The report must contain information about the student's accomplishment of all sections of the research and production practice program, as well as a scientifically based critical analysis of the farm's production activities.

It is mandatory to cover the student's personal participation in the production activities of the farm.

The report on the research and production practice must be written according to the plan:

Introduction

Section 1. General characteristics of the agricultural enterprise.

- 1.1. Location, specialization and main economic indicators of the farm
- 1.2. Soil characteristics.
- 1.3. Characterization of climatic conditions.

Chapter 2. Farming system in an agricultural enterprise.

- 2.1. Structure of farmland and sown areas.
- 2.2 Types and species of crop rotations.
- 2.3. Soil cultivation system, application of organic, mineral and bacterial fertilizers.

Chapter 3. Characterization of the state of seed production on the farm

- 3.1 Procedure for seed supply, variety change and variety renewal.
- 3.2. Organizational and agronomic measures for growing high quality varietal seeds.
- 3.3 Features of harvesting seed crops and post-harvest seed preparation.

Chapter 4. Resource-saving technologies for growing crops on the farm.

- 4.1 Technologies for growing winter wheat, barley, corn (for grain and silage), peas, sugar beets, potatoes, flax, sunflower and other crops.
- 4.2 Technologies for growing fodder crops.

4.3. Technologies for growing vegetable, fruit and berry crops.

4.4. Technologies for growing vegetable crops in closed ground.

Chapter 5. Organization of protection of agricultural plants from harmful organisms on the agricultural enterprise.

5.1. Technological maps and work plans for the cultivation of cereals, legumes, industrial, vegetable and fruit and berry crops, etc.

5.2. Characteristics of the machine and tractor fleet, special machines for plant care and their state of readiness for work.

5.3. Availability, condition and characteristics of pesticide storage facilities.

5.4. The state of provision of the farm with biological products, pesticides, accounting and procedure for their use.

5.5. Phytosanitary condition of agrocenoses of agricultural plants on the farm.

5.6. Work plan for the protection of agricultural plants from pests for the next year on the farm.

Section 6. Status of livestock production on the farm

(Indicate the main breeds of animals, their number, productivity; organization of production processes on livestock farms; Analyze the main indicators of production and sales of livestock products in the farm).

Section 7. Technology of storage and processing of crop production

7.1. Features of post-harvest processing of grain masses with a description of technological measures.

7.2. Brief description of granaries, modes and methods of storage of grain masses for various purposes;

7.3. Brief description of the simplest (pits, trenches) and stationary storage facilities for long-term storage of potatoes, vegetables and fruits. The optimal modes and methods of storage of products are indicated;

7.4. Brief description of the enterprises for processing agricultural raw materials and the range of products.

Section 8. Legal issues of production (describe the procedure for establishing and registering an agricultural enterprise, indicating which state authorities carried out the registration and what documents were submitted for registration of the farm; give a brief description of the main provisions of the farm's Charter, such as the organizational and legal form of management, financial and economic activities of the farm, management bodies of the farm, liquidation and reorganization of the farm; describe contractual relations, indicate the types of agreements concluded by the farm.)

Section 9. Labor protection.

9.1. Analysis of the state of labor protection in the farm.

9.2. Norms and rules of safety during the performance of basic agricultural work in crop production and animal husbandry.

9.3. Safety requirements for the use, transportation and storage of pesticides on the farm.

9.4. Personal protective equipment for workers when working with pesticides.

9.5. Analysis of occupational injuries in the economy.

9.6. Fire safety standards.

Section 10. Environmental protection.

10.1. Organization of environmental protection in Ukraine. Basic legal documents on environmental protection.

10.2. Protection of land, subsoil, water, air, flora and fauna.

10.3. Measures to protect the environment in the cultivation of crops.

10.4. Justification of the need to use chemical protection of agricultural plants in integrated systems, taking into account the phytosanitary condition of crops.

Conclusions and suggestions (In the conclusions, the student must indicate the name and location of the farm (enterprise) where he/she did the internship, under whose supervision, what he/she learned, whether the basis for the internship program is sufficient, the possibility of its further use for the specified purpose, living conditions, specific proposals for improving the scientific and production internship).

List of information sources used to write the report (the list includes only sources referenced in the text of the report).

Attachments (attached photos, drawings, diagrams that reflect individual production processes on the farm, the student's direct participation in technological processes).

The title page of the report is followed by the "Table of Contents" with the initial pages of the sections and subsections.

5. PREPARATION OF A PRACTICE REPORT

In the course of the internship, students prepare a report on the practice. The report should consist of the following parts: textual, documentary, and bibliography. The textual part of the report consists of an introduction, main body and conclusions.

The introduction should justify the purpose, objectives of the research and production practice and its practical significance.

The main body of the report should be divided into sections and topics with separate issues highlighted. In this part, the student gives a brief description of the question and describes the work done (linking the text part with the documents attached to the report in the appendices (documentary part)). Covering the issues envisaged by the internship program, but which are not used at the enterprise, the student must theoretically describe the procedure for their implementation. The text part should be concise without unnecessary descriptive phrases of a general nature.

In the conclusions, the student justifies his or her proposals for improving accounting and economic work at the enterprise.

The total volume of the text part of the report should not exceed 70-80 pages of handwritten text.

The documentary part includes copies of primary documents, accounting registers, and financial statements grouped according to topics. In the documentary part of the report (in the appendices), it is not allowed to cite primary documents and registers without filled-in details.

The textual and documentary parts of the report must be interrelated. When referring to a document, the student writes in brackets next to the document title: see appendix.

The report is printed on one side of white paper of A-4 format. The size of the fields: - left - 30 mm; - top - 20 mm; - bottom - 20 mm; - right - 1.5 mm.

Each section of the topic must be titled and written in capital letters. Do not put a full stop at the end of the section and topic titles. The number of each section and topic should be placed immediately before the title in accordance with the internship program. A new section should be written on a new page, regardless of the amount of text on the previous page. The titles of sections and paragraphs in the table of contents and text must be the same.

The numbering of pages, sections, subsections, paragraphs, subparagraphs, figures, tables, and formulas is given in Arabic numerals without the number sign.

The first page of the report is the title page, which is included in the general page numbering (Appendix D). The title page does not have a page number, and the following pages have a page number in the upper right corner of the page without a period at the end.

Such structural parts of the report as the table of contents, introduction, conclusions, and list of references do not have a sequential number. Please note that all pages containing these structural parts are numbered in the usual way. Only their headings are not numbered, i.e., you cannot write: "1. INTRODUCTION" or "Section 6. CONCLUSIONS". The section number is placed after the word "SECTION", no period is placed after the number, and then the section title is written on a new line.

Subsections are numbered within each section. The subsection number consists of the section number and the ordinal number of the subsection, separated by a dot. The subsection number must be followed by a period, for example: "2.3." (third subsection of the second section). Then, on the same line, the subsection heading is given.

The table of contents is presented at the beginning of the report. It contains the titles and numbers of the starting pages of all sections, subsections and paragraphs (if they have a title), including the introduction, general conclusions, appendices, references, etc.

Conclusions are the final part of the report. They contain a brief summary of the relevance of the assessments and generalizations made during the analysis, as

well as the author's proposals. Reading the text of the conclusions should form an idea of the degree to which the author of the report has achieved the goals and objectives of the report. The length of the conclusions is 3-5 pages.

6. RULES FOR WRITING A DIARY ON RESEARCH AND INDUSTRIAL PRACTICE

The diary is the student's main document during the internship. The student records all the information received in the diary, which makes it possible to better master theoretical knowledge and practical skills. The diary of scientific and production practice is a reporting document on the student's performance of the practice program.

During the internship, the student should briefly record in the diary everything that he or she has done during the day to fulfill the calendar plan of the internship. The trainee keeps daily entries in the diary (Appendix D), which indicate the date, the name of the technological process (work) in which he or she was directly involved, describe the main constituent elements of the process (work), varieties, hybrids of crops, predecessors, quality of preparation and soil condition, composition of the unit, variable output rate and actual work performed per shift, quality of work, difficulties, shortcomings in the course of implementation and ways to overcome them, deviations in the implementation of certain technological processes from the recommended ones, etc. It is necessary to indicate what exactly the trainee did in the organization of the specified technological process (work), it is necessary to record your own observations and analyze each working day, note the identified shortcomings, their causes and methods of elimination, and give suggestions for improving the quality of work. In addition, it is necessary to keep a Journal of observations and records in the field experiment with crops (Appendix G) and to conduct testing of scientific research (Appendix H).

In cases where due to adverse weather conditions the implementation of the internship program becomes impossible, the intern must work with reports on the production activities of the farm for previous years, a field history book, recommendations for the rational use of fertilizers, plant protection products and other materials required to write a report on scientific and production practice.

Regardless of the type of occupation, the student notes in the diary participation in public and cultural work.

At least once a week, the student is required to submit the diary for review to the company's internship supervisor, who checks the diary, gives comments, additional tasks, and signs the entries made by the student.

Upon completion of the internship, the diary is submitted to the internship supervisors from the company and the university.

Without a completed diary filled out in accordance with the requirements, the report will not be accepted for defense and the research and production practice will not be credited, because the diary is the basis for writing all sections of the report.

The diary must be competently written, aesthetically designed, certified by the signatures of the head of the enterprise and sealed and submitted to the relevant department for review and defense within a week after the end of the internship. Based on the content of the diary and its review by the teacher, the student is allowed to defend the report.

7. PREPARATION OF A PRESENTATION FOR THE DEFENSE OF THE RESEARCH AND INDUSTRIAL PRACTICEREPORT

The main purpose of the presentation is to provide a concise and visual presentation of the main results of the internship. When creating a presentation, students must solve two important tasks:

1. Create a short-annotated summary of their presentation.
2. Present the research results and their main points. It is recommended to make a presentation for the practice using the following software MS POWERPOINT.

Presentation structure:

Slide 1 - name of the farm where the internship took place, name of the speaker, year of defense;

2nd slide - administrative location of the internship site, brief information about the management team, structural units;

Slide 3 - the main goal and objectives of the internship;

The following slides describe the actions and events in which the student participated as a result of the internship.

The last one or two slides should contain general conclusions and recommendations.

The number of individual presentation slides depends on the specifics of the student's report. When developing a presentation, it is recommended to adhere to the following requirements:

- the duration of the report is 10-15 minutes;
- use keywords and phrases, not sentences;
- one key concept on one slide;
- textual material is presented in diagrams and organizational charts, numerical material - in tables or diagrams (graph - demonstration of changes in time, pie chart - demonstration of the relationship of the part to the whole, bar chart - demonstration of comparisons);

- the material is illustrated with graphic images; the logic of presentation and literacy are observed;

- the student's report complements the information on the slide, not duplicates it; animation effects do not interfere with perception, but focus on the necessary points of the report;

- the text is easy to read (minimum font size - 20, bold);

- background, text and diagram colors are appropriate and comply with the rule of primary colors and their shades;

- the design template is the same for all slides of the presentation;

- the contrast between text, background and graphics is maintained.

8. FORMS AND METHODS OF CONTROL

During the practice, the current and final control of the performance of individual units and the entire practice program is carried out by the student. At enterprises, institutions and organizations that are the basis of practice, the student is obliged to comply with the working hours of the enterprise, institution, organization. The supervisor of the internship from the institution controls the start and end time of the intern's work, checks compliance with the calendar schedule of the internship and the quality of the tasks and assignments. The duration of working time of students during the internship is regulated by the Labor Code of Ukraine and is no more than 40 hours per week for students aged 18 years and older (Article 50 as amended by Law No. 871-12 of 20.03.91 as amended by Law No. 3610-12 of 17.11.93). At the end of the internship period, the head of the internship site evaluates the student and submits a review (Appendix E). The university supervisor checks the organization and progress of the internship.

The student intern is obliged to keep a practice diary in which he/she makes working notes during the practice. The diary, properly executed and certified by the signature and seal of the supervisor, is attached to the report.

After the review of the internship report, it is defended. The final assessment of the results of the practice takes into account the preliminary assessment of the supervisors from the university and the practice site, the results of the defense and the student's characterization.

The main indicators of student performance that are taken into account when evaluating the results of the internship:

- completeness and quality of implementation of the individual practice plan;
- attitude to professional activity;
- completeness and correctness of reporting documentation;
- characterization and evaluation of the activity by the supervisors of the practice appointed by the university and specialists of the practice base;

- a set of new knowledge, skills and abilities acquired by the student as a result of the practice and reflected in the reporting documentation;

- timeliness of submission of reporting documentation.

The final result of the report is evaluated on a 100-point scale. Evaluation criteria are defined in the internship programs and correspond to the appropriate grading scale.

Scale of evaluation: national and ECTS

The amount of points	Evaluation ECTS	Score on the national scale
90 – 100	A	excellent
82-89	B	well
75-81	C	
69-74	D	
60-68	E	acceptably
35-59	FX	unsatisfactory with the possibility of reassembly
1-34	F	unsatisfactory with obligatory re-study

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ANNEXES

AGREEMENT № _____
on the practice of students of higher education
Sumy National Agrarian University

Sumy “ _____ ” _____ 20 ____ .

Sumy National Agrarian University, henceforth «**University**», in the person of the rector **Volodymyr LADYKA**, which operates on the basis of the Charter, on the one hand and

_____,
(name of the enterprise, organization, institution)

later on «**Enterprise**», in person _____,
(position, surname, patronymic of the manager in full)

which (which) acts on the basis _____,
(company charter, order, mandate)

on the other hand (with the joint mention of the parties - «**Parties**», concluded this agreement on the following

I. THE SUBJECT OF THE AGREEMENT

1.1. Organization of practice for students of higher education of the second (master's) level of the Faculty of Agrotechnologies and Natural Resource Management of SNAU on the Practice Base _____ in accordance with the terms of this Agreement.

II. PARTIES' OBLIGATIONS

2.1. The practice base is committed:

2.1.1. To accept for practice students of higher education according to the curriculum of the second (master's) level

№	Code and name of specialty / name of EPP	Course	Type of practice	P.I.B. of the student / students	Terms of practice	
					beginning	end

2.1.2. Notify SNAU about the arrival of the student(s) for practice.

2.1.3. Appoint by order, from among the highly qualified specialists of the enterprise, the head of the practice.

2.1.4. Organize internships for SNAU student(s).

2.1.5. Create appropriate conditions for student(s) to complete an internship program, prevent the use of student(s) labor for purposes not provided for in the educational and professional program.

2.1.6. Create safe working conditions for student(s) at each workplace, as well as appropriate conditions for practical training at the production/workplace, compliance with the rules and norms of labor protection, life safety and industrial sanitation in accordance with the legislation.

2.1.7. Provide student(s) with safe working conditions at a specific workplace. Conduct mandatory occupational health and safety briefings. Train apprentices in safe work practices as needed. Provide special clothing, protective equipment, medical and preventive care according to the standards established for full-time employees.

2.1.8. Provide interns and practice managers from the institution of higher education with the opportunity to use laboratories, offices, workshops, libraries, online resources, technical and other documentation necessary for the implementation of the practice program.

2.1.9. Provide accounting of interns' departures to work. All violations of labor discipline, internal regulations and other violations that occurred during the internship should be reported to SNAU.

2.1.10. At the end of the internship period, give a written description of each intern, as well as assist in the preparation of the internship report and the preparation of all necessary documents.

2.1.11. Provide applicants with the opportunity to collect information for course/diploma works based on the results of the company's activities, which is not a commercial secret, based on the referrals of cyclic commissions.

2.1.12. Additional conditions

2.2. SNAU is committed:

2.2.1. To properly fulfill the terms of this Agreement.

2.2.2. Before the start of practice, submit the practice program to the practice database for approval, and no later than a week later - the list of applicants who are sent to practice.

2.2.3. Appoint qualified teachers as practice managers and carry out educational and methodical management of it in accordance with the Regulation on the practice of students of higher education of the Sumy National Agrarian University.

2.2.4. Ensure that all organizational measures are carried out before the interns' departure: briefing on the practice and safety techniques, provision of relevant documents required for the practice (direction, program, diary, individual task, etc.).

2.2.5. To ensure compliance by student(s) with labor discipline and the rules of the internal labor regulations of the practice base. To participate in the investigation by the commission of the practice base of accidents, if they happened to the applicants during the practice.

2.2.6. Additional conditions

III. RESPONSIBILITIES OF THE PARTIES

3.1. The parties are responsible for non-fulfillment of their obligations regarding the organization and conduct of practice in accordance with the current legislation of Ukraine.

3.2. All disputes arising between the parties under the Agreement shall be resolved in accordance with the current legislation of Ukraine, including, but not limited to, the labor legislation of Ukraine.

IV. TERM OF VALIDITY AND OTHER TERMS

4.1. This Agreement enters into force from the date of its signing by the parties and is valid until “_”_20__.

4.2. The Agreement is terminated:

4.2.1. upon mutual agreement of the parties;

4.2.2. prematurely at the initiative of one of the parties in case of violation of the terms of this Agreement by the other;

4.2.3. in other cases provided for by the current legislation of Ukraine.

4.3. Amendments and additions to the Agreement are made by mutual agreement of the parties through renegotiation or conclusion of additional agreements to it.

4.4. In order to fulfill certain provisions of this Agreement, the parties may enter into additional agreements, which after their signing become an integral part of this Agreement.

4.5. The parties undertake to observe the confidentiality and prescriptions of the current legislation of Ukraine regarding information, documentation, knowledge, and experience that became known during the practice.

4.6. Practice during martial law in Ukraine and quarantine, established in accordance with the current legislation of Ukraine, can be partially conducted online.

4.7. The contract is concluded in the Ukrainian and English languages in two authentic copies having the same legal force, one for each party.

V. LEGAL ADDRESSES AND SIGNATURES OF THE PARTIES:

<p>University: Sumy National Agrarian University 40021, Sumy, H. Kondratieva str., 160, s/a IBAN UA 768201720313211002201005656 in the State Treasury of Ukraine, MFO 820172, USREOU 04718013, TIN № 047180118194, Certificate of VAT № 25764558</p> <p>Rector _____ Volodymyr LADYKA</p> <p>M.II.</p>	<p>Enterprise:</p> <hr/> <p>Legal/Physical Address: _____, _____ region., _____ district, city. _____, str.</p> <hr/> <p>s/a IBAN UA _____ in (name of bank)</p> <hr/> <p>USREOU _____ MFO _____</p> <hr/> <p>(position) _____ (signature) _____ (Name SURNAME)</p> <p>M.II.</p>
--	---

COOPERATION AGREEMENT No. _____

Sumy

20__ year

Sumy National Agrarian University, hereinafter referred to as the 'University', represented by the Rector Volodymyr LADYKA, acting on the basis of the Statute, on the one hand, and _____, hereinafter referred to as the 'Enterprise', represented by _____, acting on the basis of _____, on the other hand (hereinafter collectively referred to as the 'Parties'), have entered into this agreement as follows:

1. SUBJECT OF THE AGREEMENT

- 1.1. The Parties to this Agreement, based on _____ carry out joint activities in the following areas:
- 1.2. Organization of the educational process with the implementation of the dual form of education during bachelor's, master's, and postgraduate studies.
- 1.2.1. Organization of practical training of higher education seekers in the process of production activities of the enterprise.
- 1.2.2. Implementation of programs for passing production, pre-diploma practice in production taking into account the peculiarities of the enterprise.
- 1.2.3. Conducting defenses of reports on passing industrial practices directly at the base of the educational and practical center of SNAU with the participation of university teachers and production specialists.
- 1.2.4. Conducting course and diploma projects according to production assignments.
- 1.2.5. Targeted training of graduates for the enterprise.
- 1.2.6. Conducting joint scientific and innovative programs.
- 1.2.7. Joint organization and conduct of trainings and practical classes at the enterprise involving higher education seekers and university teachers.
- 1.2.8. Internship and professional development of university teachers in mastering modern technologies used in production.
- 1.2.9. Conduct joint activities in the development and implementation of advanced technologies, projects, recommendations aimed at improving the forms and methods of agricultural production management.
- 1.3. The Parties may, by mutual agreement, engage in coordinated, mutually beneficial activities in other areas of cooperation.

2. RIGHTS AND OBLIGATIONS OF THE PARTIES**2.1. The 'Enterprise' undertakes:**

- 2.1.1. To accept higher education seekers for industrial, pre-diploma practice, or dual form of education (according to agreed educational plans and schedule of practice).
- 2.1.2. To create conditions for higher education seekers to undergo practice or dual form of education:
- provide instruction on labor protection issues (introductory and on the job) with registration in respective journals;
 - provide higher education seekers with special clothing, footwear, personal and collective protective equipment, and inventory (if necessary);
 - provide accommodation conditions during the period of practice or dual form of education;
 - provide meals for higher education seekers within the enterprise's dining program;
 - create all conditions for higher education seekers to fulfill practice or dual form of education programs;
 - assign a specialist (mentor) from the enterprise to each higher education seeker;
 - provide opportunities for higher education seekers to work in vacant positions according to production needs in accordance with the Labor Code and the Law "On Higher Education."
- 2.1.3. To provide conditions for teachers' internships:
- provide opportunities for internships and professional development at the enterprise;
 - conduct practical classes at the enterprise involving higher education seekers and university teachers;
 - provide instruction on labor protection issues (introductory and on the job) with registration in respective journals;
 - provide special clothing, footwear, personal and collective protective equipment, and inventory (if necessary).

- 2.1.4. To provide higher education seekers, teachers who have entered into agreements for practice, internships, or dual forms of education, with conditions for practice, internships, or dual forms of education in accordance with Ukrainian legislation.
- 2.2. The 'Enterprise' has the right to:**
- 2.2.1. Annually receive an information base (questionnaires) regarding higher education seekers for practice or dual form of education.
- 2.2.2. Demand high-quality completion of tasks from higher education seekers according to technology requirements, compliance with sanitary and hygiene rules, labor protection requirements.
- 2.2.3. Initiate joint research through involvement of highly qualified scientific potential of the university and implement their results into production.
- 2.2.4. Obtain a database of graduates (bachelors and masters) with individual questionnaires.
- 2.2.5. Organize, if necessary, educational sessions at the enterprise.
- 2.2.6. Organize, if necessary, a 'Career Day' at Sumy NAU and colleges.
- 2.2.7. Provide financial support to Sumy National Agrarian University for the development of its material base (through additional agreements).
- 2.2.8. Participate in idea contests, projects, business plans, and financially reward winners whose work is recommended for implementation in production.
- 2.3. The 'University' undertakes:**
- 2.3.1. One month before the start of the educational process, to familiarize the enterprise administration with the working educational programs, transfer the plan and information base of higher education seekers for practice or dual form of education.
- 2.3.2. To provide, one month before the start of practice, the practice program for higher education seekers.
- 2.3.3. In accordance with the provisions on educational activities and production practice, organize:
- conducting basic safety and labor protection briefings;
 - conducting medical examinations and issuing medical records;
 - ensuring compliance and implementation of the educational program by higher education seekers.
- 2.3.4. To assign responsible persons for cooperation with the enterprise, who monitor:
- the attendance of educational activities and practice by higher education seekers according to the schedule and programs;
 - compliance with labor discipline, technological regimes, sanitary and hygiene rules, safety, and labor protection.
- 2.3.5. To organize the completion of course and diploma works by higher education seekers according to the enterprise's requests.
- 2.3.6. To conduct individual interviews with higher education seekers and graduates.
- 2.3.7. To conduct research projects on the enterprise's order, inform the enterprise about the results of research works, and use them with the enterprise's consent (through additional agreements).
- 2.3.8. To provide targeted training for graduates for the enterprise upon employment, considering specific needs.
- 2.4. The 'University' has the right to:**
- 2.4.1. Coordinate with the Enterprise the timing of conducting activities at the production site.
- 2.4.2. If necessary, with the consent of the parties, make changes to the established schedule of the educational process.
- 2.4.3. To monitor the implementation of the educational program by higher education seekers at the enterprise.
- 3. LIABILITY OF THE PARTIES FOR NON-PERFORMANCE OF THIS AGREEMENT**
- 3.1. In case of violations of labor discipline rules, labor protection, and safety regulations, failure to comply with the requirements of educational process supervisors, violators among the seekers are not allowed to continue their practice and/or internships at the enterprise.
- 3.2. The enterprise is responsible for creating safe working conditions and ensuring that higher education seekers acquire practical skills and abilities from the university.
- 3.3. The parties are responsible for failure to fulfill their obligations regarding the organization and conduct of practice in accordance with the current legislation of Ukraine.
- 3.4. All disputes arising between the parties are resolved in accordance with the established legislation.
- 4. TERM OF THE AGREEMENT AND OTHER CONDITIONS**
- 4.1. The Agreement shall enter into force upon its signing by the parties and shall be valid until the " ____ " _____ 20 _____.

- 4.2. Changes and additions to this Agreement may be made by mutual agreement of the parties, which shall be formalized in writing by an additional agreement, which becomes an integral part thereof.
- 4.3. The Agreement may be terminated prematurely by mutual agreement of the parties, as well as in case of non-performance of obligations by one party under the Agreement, the other party has the right to demand early termination of the agreement unilaterally.
- 4.4. The Agreement is drawn up in two copies - one copy for the University and one for the Enterprise, each having equal legal force.

5. DETAILS AND SIGNATURES OF THE PARTIES:

<p>University: Sumy National Agrarian University 40021, Sumy, Herasima Kondratieva St., 160, Account IBAN UA 768201720313211002201005656 in the State Treasury Service of Ukraine, MFO 820172, USREOU 04718013, ITN № 047180118194, Certificate of VAT № 25764558</p> <p>Rector _____ Volodymyr LADYKA (seal)</p>	<p>Enterprise: _____ Legal/Actual Address: _____, _____ region, _____ district, _____ city _____ of _____, _____ St. _____ Account _____ IBAN _____ UA _____ at (name of the bank) _____ USREOU _____ MFO _____ _____ (Position) _____ (Signature) _____ (Name Surname) (seal)</p>
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Annex C**Example of an individual task for the implementation of the program of scientific and production practice**

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
 SUMY NATIONAL AGRARIAN UNIVERSITY
 FACULTY OF AGRICULTURAL TECHNOLOGY AND ENVIRONMENTAL
 MANAGEMENT

Specialty 201 "Agronomy"

Department _____

(name of the department)

INDIVIDUAL TASK

to fulfill the student's internship program ___ course _____ group

1. Subject of the practice (report) _____

2. Deadline for the student to submit the completed report to the department _____

(year, month, day)

3. Initial data for the practice: _____

4. List of tasks to be performed during the internship _____

5. Timetable for completing the practice and preparing the report

Stages of the practice	Date of completion of the stage	A note on the completion of the stage

Student intern _____

(last name, initials, signature)

Head of practice from Sumy NAU _____

(last name, initials, signature)

Annex D

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY
FACULTY OF AGRIOTECHNOLOGY AND NATURAL RESOURCE
MANAGEMENT

specialty 201 "Agronomy"

REPORT
ON THE COMPLETION OF RESEARCH AND PRODUCTION PRACTICE
IN

company name, district, region

from " _ " _____ 20__ . till " _ " _____ 20__ .

Full name of the student intern _____

course, group _____

Report submitted _____

date _____

Report defended _____

score, date _____

Head of practice from the enterprise _____

(Position) (signature) (Name Surname)

Sumy 20____

Annex E

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
 SUMY NATIONAL AGRARIAN UNIVERSITY
 FACULTY OF AGRIOTECHNOLOGY AND NATURAL RESOURCE
 MANAGEMENT

Diary

(type and title of the practice)

student _____
(last name, first name, patronymic)

Faculty of Agrotechnology and Natural Resource Ma _____

Department, cycle commission _____

educational degree ____ « *Master* » _____

specialty _____ « *Agronomy* » _____

_____ *Im* _____ course, group _____

Head of practice from the enterprise _____
(Position) (signature) (Name Surname)

Sumy 20____

Continuation of the annex E

Student _____
(last name, first name, patronymic)

arrived at the enterprise (organization, institution)

„_____” _____ 20_____

(signature, stamp)

(position, surname and initials of the responsible person)

left the company (organization, institution)

„_____” _____ 20_____

(signature, seal)

(position, surname and initials of the responsible person)

Continuation of the annex E**Sample design of the diary of scientific and production practice**

Date	Content of the work performed	Comments from the head of the practice	Signature of the head of the practice

Head of the practice base _____
 (signature) (position, surname, initials)

« _____ » _____ 20 ____.

Continuation of the annex E**Calendar schedule of the internship**

№	Titles of works	Weeks of internship				A note on the execution
		1	2	3	4	
		5	6	7	8	
1	2	3	4	5	6	7
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
...						
...						
...						

Head of Practice:

from Sumy NAU
(scientific supervisor)

_____ (signature) _____ (last name and initials)

from an enterprise (organization, institution)

_____ (signature) _____ (last name and initials)

CHARACTERISTICS OF A STUDENT INTERN

(last name, first name, patronymic, course, specialty, faculty)

Complete internship at _____

(name of the farm, enterprise, institution, location)

from « » 20 till « » 20 _____

Name the types of work in which the trainee participated, the degree of skills and abilities demonstrated, and his or her attitude to work

Fulfillment of public assignments, contact with the team

Comments on the implementation of the internship program and the trainee's organizational skills, readiness for independent work

Professional remarks

Disciplinary remarks _____

Number of absences from work _____

Evaluation for practice " _____ "

(excellent, good, satisfactory, unsatisfactory)

Head of practice from the enterprise (organization, institution)

(signature) (last name and initials)

« _____ » _____ 20 _____

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY
FACULTY OF AGRIOTECHNOLOGY AND NATURAL RESOURCE
MANAGEMENT

(name of the department)

JOURNAL

observations and records in a field experiment with crops

(name of the experiment)

Location _____

Head of the experiment _____

Performers: _____

Continuation of Annex G

1. General information about the study (Scheme of the experiment, explication of the land area of the experimental site, schematic plan of the experiment location)

1. Location of the experiment _____

2. Crop _____

3. Copt _____ reproduction _____

4. Year of the experiment establishment _____

5. Year of crop accounting _____

6. Title of the topic and section _____

7. Name of the experiment _____

8. Head _____

9. Performers: _____

Continuation of Annex G

Scheme of the experiment

Variant number	Contents of the options
1	
2	
3	
4	
5	
6	
...	

Explication of the land area of the experimental plot:

Parameters	Size, m		Amount	Area, m ²
	length	width		
Sowing plot				
Accounting part of the site				
Side protection strips of the plots				
Final protective strips of the plots				
Protective strips along the perimeter of the experiment				
Roads between tiers of plots				
Total area under the experiment				

Schematic layout of the experiment:

(indicate on the plan the location and numbering of plots and repetitions, cardinal points, slope direction, distance from permanent points on the field).

Area of the plot:- _____ m², including its accounting part - _____ m².

Repeatability ___ multiple. The area under the experiment ___ ha.

** Other items of the Journal of observations and records in the field experiment with crops are determined jointly with the supervisor from Sumy NAU.*

SUMY NATIONAL AGRARIAN UNIVERSITY
FACULTY OF AGROTECHNOLOGY AND NATURAL RESOURCE MANAGEMENT
 Department _____

ACT
REGISTRATION AND ACCEPTANCE OF EXPERIMENT
 (field/laboratory/etc.)

Title of the experiment: « _____

 _____ »

Performer: _____
Head from Sumy NAU _____
Manager from the farm _____

Plan of the experiment *

1. **Background** (without fertilizers and fertilizing) - control;
 2. Background + N₄₅P₄₅K₄₅
 3. Background + foliar fertilization;
 4. Background + N₄₅P₄₅K₄₅ +
- Number of varieties - 1; Number of repetitions - 3; Placement of variants and repetitions - systematic; Plot size (m) 20.0 x 5.6
 (*the information is provided as a sample and should be relevant to the research topic)

Scheme of the experiment.

<i>Repeatability</i>	<i>Experimental variants</i>			
	<i>1 (κ)</i>	<i>2</i>	<i>3</i>	<i>4</i>
1				
2				
3				

The area of the accounting plot – _____ m² Total area of the experiment: _____ ha.

Coordinates of the experiment location

location according to GPS navigation data in decimal degrees ("my coordinates" function)

Latitude

Length

		,					
		,					

Performer _____
Signature

Scientific supervisor _____
Signature

Performing the experiment
«APPROVED»

Marks of the commission for acceptance of field and laboratory experiments in 20_____

Trotsenko Volodymyr Ivanovych

Bakumenko Olga Nikolaevna

Onychko Viktor Ivanovych

Mishchenko Yuriy Hryhorovych

Melnyk Andrii Vasyllovych

Masyk Ihor Mykolayovych

Osmachko Olena Mykolaivna

Datsko Oksana Mykolaivna

Cross-cutting program of scientific and production practice and methodological instructions for its implementation by applicants of the Faculty of Agrotechnology and Environmental Management of the second level of higher education (Master's degree), specialty 201 - "Agronomy"

Editorial and publishing department of Sumy National Agrarian University, 160 G. Kondratieva St., Sumy, Ukraine.

Signed for printing: _____2024. Format A5: Keyboard Times New Roman
Edition: _____ copies Order _____ Printed sheets_____