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Wydawnictwo Wyższej Szkoły Agrobiznesu w Łomży
18-402 Łomża, ul. Studencka 19
tel. +48 (86) 216 94 97, fax +48 (86) 215 11 89
e-mail: rektorat@wsa.edu.pl

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Olena Mazur[1]
orcid.org/0000-0003-0132-7470
[1]Vinnytsia National Agrarian University

FORMATION OF PROFESSIONAL COMPETENCE OF FUTURE AGRONOMISTS IN THE PROCESS OF STUDYING THE COURSE «HARVEST PROGRAMMING»

Annotation

Introduction. Actual at the present time is the awareness of the process of forming professional competence, understanding why it is necessary to teach, how and what should be the technology of learning to achieve the goal. Nowadays the specialists, possessing creative professional and managerial thinking, operating with market categories, terms and notions, able to solve successfully the problems of agrarian sector and to work effectively in difficult economic conditions, are needed for the modern stage of agrarian production development. All this causes the necessity of basic research on the problem of preparing students of agrarian universities for their industrial activity.

Purpose. The choice of this article is caused by the need to investigate the role of the subject "Harvest Programming" in the formation of professionality of future agronomists, i.e. specialists of the agrarian sector.

The research method consists of the theory of scientific cognition; conceptual provisions of psychology and pedagogy about the leading role of activity in the formation of personality, the unity of consciousness and productive activity of the subject in the learning process, the principles of professional orientation, the provisions of the role of continuing education in shaping professionalism of personality.

Research results. As a result of studying the educational subject the student must form integral, general, special and program competences. The program of the discipline " Harvest programming" is focused on deep learning of the basic principles of formation of programmed harvest; the influence of life factors on the formation of plant productivity; energy- and resources-saving technologies of growing crops: agrobiological, agrochemical and agronomic bases of harvest programming; types of programs for programmed harvesting and the conditions of their implementation.

Conclusions. In our opinion, the practical training of students should adhere to the following principles: theoretical and practical training should be organically coordinated with each other in content, practical training should cover all aspects of practical activities of the future profession, in the process of forming practical skills should take into account age and cognitive abilities of students, socially useful work, to which students are involved, which can follow the educational tasks.

Key words: harvest programming, lectures, practical, independent work, professional competence.

Introduction

In Ukraine, as well as in most countries of Europe and the world as a whole, there are currently discussions about how to provide a person with the necessary knowledge and skills to meet his harmonious interaction with the technologically developed society. Actual at the present time is the awareness of the process of forming professional competence, understanding why it is necessary to teach, how and what should be the technology of learning to achieve the goal. Nowadays the specialists, possessing creative professional and managerial thinking, operating with market categories, terms and notions, able to solve successfully the problems of agrarian sector and to work effectively in difficult economic conditions, are needed for the modern stage of agrarian production development. All this causes the necessity of basic research on the problem of preparing students of agrarian universities for their industrial activity.

So, the choice of this article is caused by the need to investigate the role of the subject "Harvest Programming" in the formation of professionality of future agronomists, i.e. specialists of the agrarian sector.

The process of professional training in educational organizations has, above all, directed to the formation of readiness for such activities, based on the individual's need for learning and improvement throughout life.

Solution of this problem implies orientation of future worker's training system to humanistic paradigm and personalized education, directed to student's achievement of professionalism in his activity.

The works of such scientists as V. Baidenko, M. Budnikov, V. Zbarsky, M. Diachenko, N. Kuzmina, D. Melnichuk, V. Fedtsov, A. Khutorsky and others have been devoted to this problem. Scientists have investigated the concept of "competence", "competence approach", as well as the organization of training aimed at the final result [1-3].

Research goal

Concludes in the substantiation of theoretical and methodological ideas and practical aspects of agrarian direction, analysis of features of classes and recommendations for improvement of teaching the discipline " Harvest Programming" in higher educational institutions of agrarian conjugation in the formation of professional competence of future agronomists.

The object of the study - professional training of future specialists of the agrarian sphere acquired when teaching the discipline "Harvest Programming". Subject of the study - the content, forms and methods of formation of professional competence of specialists of the agrarian sphere acquired while teaching the discipline " Harvest Programming".

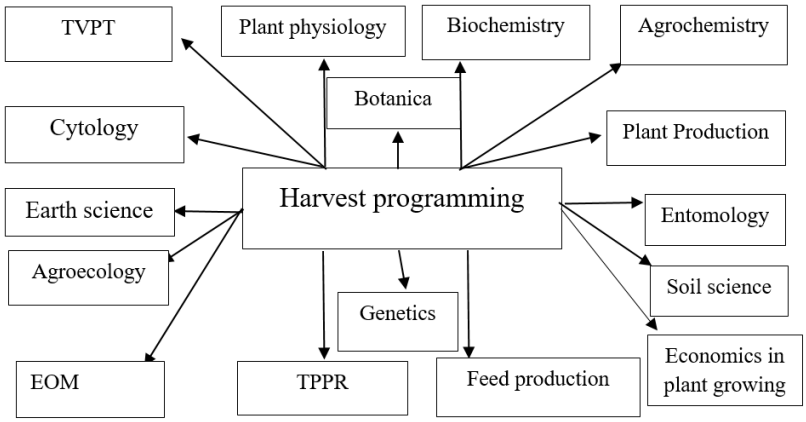
The research goal

The research method consists of the theory of scientific cognition; conceptual provisions of psychology and pedagogy about the leading role of activity in the formation of personality, the unity of consciousness and productive activity of the subject in the learning process, the principles of professional orientation, the provisions of the role of continuing education in shaping professionalism of personality; the unity of cognitive theoretical and practical activities; pedagogical systems of development and self-development of personal professional qualities in the process of activity; theories of individual, personality- and competence-oriented approaches to the training of future specialists in the agricultural sphere in the educational institutions of higher education.

Research results

Educational component of "Yield Programming" is aimed at obtaining by applicants one

of the important and universal competence - synthesis of achievements of a large number of related disciplines: plant science, morphology, systematics, microbiology, plant physiology, land science, agrochemistry, botany, phytopathology and others. (Picture 1). In turn, it is the basis for such sciences as economics and organization of agricultural production, which shows the strong interaction between all scientific directions.



Pic. 1. The structural scheme of interdisciplinary connections
Source: own research

The purpose of teaching the discipline - theoretical justification and practical implementation of the full use of soil and climate resources, the maximum accumulation of solar energy, genetic potential of zoned varieties, material and labor resources, obtaining economically justified crops through the introduction of energy and resource-saving technologies.

Further study of the discipline requires personal professional qualities of future specialists-agrarians, the introduction of innovative-pedagogical technologies, psychological and pedagogical training of teachers and masters of production training of higher educational institutions of agrarian profile [4].

In the implementation of practical training of students in our opinion should follow these principles: a) theoretical and practical training should be organically consistent with each other in content; b) practical training should cover all aspects of practical activity of the future specialty; c) in the process of forming practical skills and abilities should consider the age and cognitive abilities of students; d) practical training is carried out with the use of advanced equipment, modern technology and organization of agricultural production.

Integral competencies (IC): The ability to solve complex specialized problems and practical tasks in agronomy, involving the application of theories and methods of the relevant

science and characterized by complexity and uncertainty of conditions.

General Competencies (GC):

GC 3. the ability to think abstractly, analyze and synthesize.

Special (professional) competences (SC):

SC 5. Ability to evaluate, interpret and synthesize theoretical information and practical production and research data in the field of agricultural production.

SK 6. Ability to apply methods of statistical processing of experimental data related to technological and breeding processes in agronomy.

SC 8. Ability to solve a wide range of problems and problems in the process of growing crops by understanding their biological characteristics and using both theoretical and practical methods.

Program learning outcomes:

PLO 6. Demonstrate knowledge and understanding of fundamental disciplines to the extent necessary to possess relevant skills in the field of agronomy;

PLO 10. Analyze and integrate knowledge of general and specialized professional training to the extent necessary for specialized professional work in agronomy;

PLO 11. Initiate quick and expedient solutions to production problems in accordance with zonal conditions;

PLO 13. To design and organize measures of cultivation of high-quality agricultural production according to the current requirements;

PLO 14. integrate and improve the production processes of agricultural production in accordance with the current requirements;

PLO 15. Plan economically profitable production of agricultural products;

PLO 16. Organize productive and safe working conditions.

The program of the discipline " Harvest Programming" is focused on deep learning of the basic principles of programmed harvest formation; the influence of life factors on the formation of plant productivity; energy- and resourcesaving technologies of growing crops: agrobiological, agrochemical and agrotechnical bases of harvest programming; types of soft harvesting programs and conditions for their implementation (Table 1).

Table 1. Study plan for the academic discipline
Source: own research

№	Topic title	Forms of education and number of hours		Self-work, number of hours
		Lecture classes	Practical classes	
1	Scientific foundations of crop harvest programming and forecasting.	2	1	10
2	Basic methodological principles of harvest programming.	2	2	10
3	Agrobiological bases of harvest programming on FAR inputs	2	2	10
4	Agrochemical basis for harvest programming	2	2	12
5	Agrotechnical basis of programming	2	2	12
6	Harvest resource availability of individual crops by zones of Ukraine and efficiency of their use	2	2	12
7	Methodical features of harvest programming for irrigation	2	2	12
8	Complex effect of limiting factors and conditions.	2	1	12
	Total	16	14	90

Self-work of the student is the main means of mastering the educational material in the free time from the compulsory classes.

Self-work of the student is organized by issuing an individual list of questions and practical problems on each topic, which are not put to class processing and execution of individual assignments (in the form of calculations). Self-work of the student is one of the ways of active, purposeful acquisition of new for him knowledge and skills. It is the basis of his training as a specialist, provides entry into the of cognitive activity methods, interest in creative work, the ability to solve scientific and practical problems. Execution of the applicant's independent work provides, if necessary, consultations or assistance of an appropriate specialist. Educational material of the discipline, provided by the working program for mastering by the applicant in the process of independent work, is taken on the current and final control next to the training material, which was worked out during the classroom lessons. Organization of independent work of applicants provides: planning of the volume, content, tasks, forms and methods of control of independent work, development of educational and methodological support; performance of the

planned independent work by the applicant; control and evaluation of the results, their systematization, evaluation of the effectiveness of the applicant's independent work (Table 2).

Table 2. Types of self-study of the student
Source: own research

№	Type of self-study	Hours	Deadlines	Form and method of control
1	Preparation for lectures and practical classes	20	weekly	Oral and written questioning
2	Preparation of individual questions on the theme of the discipline	24	weekly	Oral and written questioning
3	Individual creative tasks (calculation works)	30	4 times a semester	Observation of performance, discussions, oral defense
4	Preparation for control works and tests	16	2 times a semester	Testing in the SOCRAT system
Total		90		

Individual assignments are performed by the student alone under the direction of the teacher according to an individual study plan.

Individual assignments:

Theme 1: Constituent components of crop patterns of field crops, photosynthetic potential (PP).

Theme 2: Leaf Surface Index (LSI), optimal feeding areas and seeding rates of field crops.

Theme 3: Calculation of programmable biological yield of winter wheat. Agrochemical model of the crop. Providing the implementation of the model of winter wheat with the maximum yield in the individual task using modern growing technologies.

Theme 4: Calculation of parameters of programmed biological yield of spring barley. Agrochemical model of the crop. Ensuring the realization of the model of spring barley with the maximum yield in the individual task by means of the modern cultivation technologies.

Theme 5: Calculation of parameters of programmed biological yield of corn on grain. Model of agrochemical support of the crop. Ensuring the implementation of the model of corn on grain with the maximum yield in the individual task by using modern cultivation technologies. Calculation of parameters of programmed biological yield of millet. Model of agrochemical

support of the crop. Providing the implementation of the model of millet with the maximum yield of the individual task by means of modern cultivation technologies.

Theme 6: Calculation of programmed biological yield parameters of winter rye. Model of agrochemical provision of the crop. Providing the realization of the model of winter rye with the maximum productivity in the individual task by means of modern technologies of growing.

Means of assessment and methods of demonstration of learning outcomes:examination; computational problems; presentations of the student and presentations at scientific events; presentations of the results of completed individual assignments; tests; control works [7].

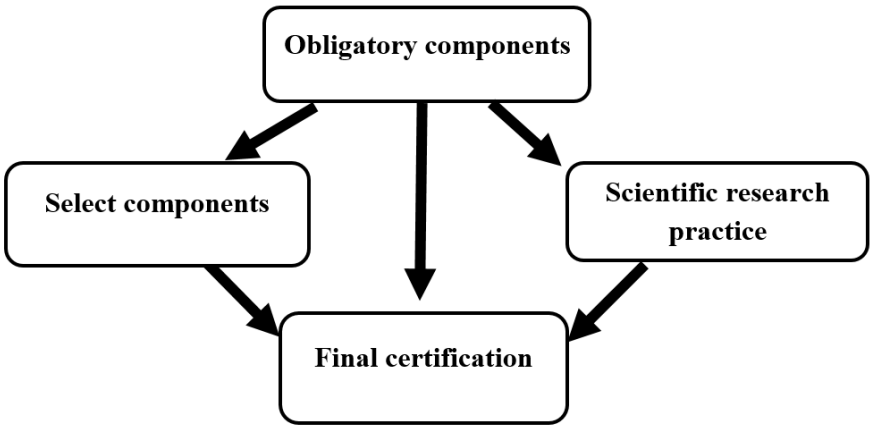
Monitoring and evaluation of learning outcomes. Distribution of scores between the forms of educational process organization and types of control activities: current control - total compliance with the declared competencies according to the results of practical and seminar classes - 40 scores (oral control: questioning, discussions, reports, communications on the topic and written control: test in written form, individual tasks, presentation of material on the topic in written form, etc.); milestone control (test in written form) - 10 scores; scientific, innovative, teaching, educational and other indicators of learning outcomes. Total 100 points. If a candidate during a semester on the results of current and boundary control has earned (received) less than half of the maximum mark in the discipline (less than 35 points), then he/she is not allowed to the exam. In addition, it is mandatory for the minimum number of points according to the results of the current and boundary control is the performance of the final control work by the student [7].

Forms of current and final control: control work, testing, presentations, exams.All principles of students' knowledge control are closely related to each other and together determine the requirements for the forms and methods of testing and evaluating knowledge, that is, determine the system of their control. Check knowledge, skills and abilities can be used in the usual forms of the educational process (lectures, practical classes) and on special, organized for this purpose, classes (protection of projects, tests and examinations). Control activities carried out by the lecturer on the course and out of class time, in addition to the general purpose, which pursues an objective assessment of students, should give the lecturer data to assess the work of his colleagues, who conduct practical classes. At the same time, it is important to pay attention to the creation of an effective system of knowledge control, because it shows the level of training of a qualified specialist in accordance with the requirements of the market. It is possible to achieve effective results in this case through the use of active teaching methods, which will allow to form and improve the practical abilities and skills, defined by the programs of academic disciplines, prepare for active implementation of the acquired knowledge, which significantly increases the quality of training of specialists.

Students in the study and mastering of academic disciplines of the educational and professional program "Agronomy" at the end pass the final certification (Pic.2).

Form of attestation of students of higher education. Attestation of graduates of the educational and professional program "Agronomy" of the first level of higher education in the specialty 201 Agronomy Field of Knowledge 20 Agrarian Sciences and Nutrition. Educational qualification: Bachelor of Agronomy. Professional qualification: Technologist in agronomy is held in the form of a comprehensive state examination or defense of the bachelor's thesis and is completed with the issuance of a document of the established form of awarding the degree of bachelor with the assignment of qualification [8]:

- educational: Bachelor of Agronomy;
- professional agronomy Technologist



Pic. 2. The structural-logical scheme of the educational-professional program
Source: [8]

The attestation is open and public.

Conclusions

In our opinion, the practical training of students should adhere to the following principles:

1. Theoretical and practical training should be organically coordinated with each other in content,
2. Practical training should cover all aspects of practical activities of the future profession,
3. In the process of forming practical skills should take into account age and cognitive abilities of students,
4. Socially useful work, to which students are involved, which can follow the educational tasks.

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