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GENERAL ISSUES OF TEACHING METHODOLOGY IN CROP PRODUCTION IN HIGHER EDUCATIONAL INSTITUTIONS

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Annotation. Teaching the discipline "Crop production" to students of agronomic specialties requires a special methodology that provides effective training. The discipline "Crop production" for students is an important factor for providing quality education in the field of agriculture. This course allows students to master the basics of plant cultivation, agricultural technology, breeding and other aspects of crop production.

It can be noted that the methodology of teaching the discipline "Crop production" is an important process that contributes to the successful training of students in the field of agriculture. This course allows students to master the basics of plant cultivation, agricultural technology, breeding and other aspects of crop production. Studying these disciplines gives students not only basic knowledge, but also practical skills that can play a crucial role in their future career in agriculture.

This article discusses the general issues of teaching "Crop production" in higher educational institutions, as well as the relationship of "Crop production" with other sciences.

Keywords: agricultural crops, crop production, sort, hybrid, seeds, agrotechnical complex, biological harvest.

Agriculture is an industry that ensures the food well-being and security of the country. Therefore, there is always an urgent need to train specialists in the agricultural sector [1]. The methodology of teaching the discipline "Crop production" is an important aspect of teaching students of agronomic and agricultural specialties. This discipline is associated with a wide range of knowledge and skills related to plant cultivation, agriculture and rural crops [2].

The main issues of the methodology of teaching crop production are as follows: tasks, content, methods and forms of organization of training, material equipment of the educational process on the subject of "Crop production" [3, 4].

The methodology of "Crop production" includes:

1) research on the history of teaching this subject in agricultural universities;

2) the study of modern methods of teaching crop production and generalization of the experience of teachers of this subject;

3) determination of the content of the subject "Crop production";

4) determination of the cognitive and educational significance of crop production, its tasks and place in the system of vocational training;

5) research of methods and organization of educational work, ensuring an increase in the effectiveness of theoretical and practical training in crop production, the development of students' agronomic thinking and practical skills, and skills necessary for work in the specialty;

6) establishing links of crop production with other academic subjects;

7) development of material and technical equipment that ensures the effectiveness of the educational process [3, 5].

The task of the teaching methodology of the subject "Crop production" is to help the teacher in the educational process on training specialists for such important branch of agriculture, as crop production [3, 4, 6]. The teaching methodology of this subject helps to solve the issues that arise in the educational process in connection with the development of science and practice of agricultural production.

Connection of the teaching methods of crop production with the sciences "Crop production", "General and Vocational pedagogy". The connection of the teaching methods of crop production with the sciences "Crop production" and "General and vocational pedagogy" is important to ensure quality education of students, future agronomists and specialists in agriculture.

Since the methodology of teaching plant growing is a pedagogical discipline aimed at teaching students the basics of plant growing and methods of growing plants [7], while "Plant growing" is a specialized scientific discipline that studies various aspects of growing and caring for plants [8]. Special academic subjects taught at universities in the specialty "Agronomy" are developing simultaneously with the development of agricultural sciences and agricultural production [2, 3, 8]. The methodology of teaching crop production, especially in the selection of scientific material and systematization of knowledge, skills and abilities, is mainly influenced by the science of "Crop production". The issues of the content of this subject are solved by the methodology of teaching crop production in accordance with the learning objectives set for the university [2, 7, 18].

In determining the content of an educational subject, an important role also belongs to the general pedagogy of a vocational school, pedagogical psychology.

On the basis of the achievements of didactics and vocational pedagogy, a private methodology is developed rules, instructions, techniques aimed at improving the process of teaching the subject [10].

Vocational and technical pedagogy in the process of its formation and development borrows many of the provisions of pedagogy developed in relation to secondary schools [10-12].

Research methodology. Methods of teaching crop production. To improve the process of crop production, it is necessary to study the content of educational material on the subject, forms of organization of educational work, teaching methods and other issues. To study the regularities of the educational process, the following methods are used: theoretical research, observation, experiment, conversation, study and analysis of students' works, documentation of the educational institution [5].

Theoretical research consists in the study of literary sources, the development of a hypothesis or theory, the analysis and generalization of pedagogical phenomena.

Theoretical research can precede observation and experiment. As a result, of observation or experiment, it is possible to confirm or refute theoretical proposals, develop them and make changes.

Observation is a method of cognition of phenomena based on the direct relatively long and systematic perception of objects and processes of the surrounding reality by the researcher, registration of the sides of the phenomenon development that interest him, statement of the state of the sign.

The experiment is an active intervention in the phenomenon under study, a method in which the researcher artificially causes phenomena; the experiment makes it possible to change the conditions to increase the effectiveness of the studied phenomenon.

The experiment should have a clear scheme with the necessary number of variants and repetitions. The experimenter can explore a new version of the curriculum, a form of academic work. Methods of improving the efficiency of mastering theoretical material or the formation of skills and abilities, ways of combining theoretical and practical training of students, etc.

The conversation is used to study pedagogical phenomena, accumulate factors, identify the opinions of students, teachers, agricultural specialists, etc.

The study and analysis of the teaching documentation of the teacher and the students' works (written, graphic, results of work at the experimental site, in the educational and production facilities, study room, thematic and lesson plans, work plans of circles, practice reports, observation diaries, materials of methodological associations, journals, etc.) allows the researcher to judge the system of work teacher, about the quality of students' training [5,12].

The content and principle of selection of educational material. "Crop production" as an academic subject should be in relationship with general education and special subjects.

An important issue of the methodology is the implementation of the organic connection of theoretical and practical training, the systematicity and consistency of the studied material, which is reflected in the curriculum. Based on the requirements of the "Crop Production" program, the student needs to be given theoretical knowledge, practical skills and skills for growing high and sustainable yields of agricultural crops at minimal cost and expense, preserving and increasing soil fertility [18].

Taking into account these requirements, the "Crop production" program provides for the study of the most important agricultural crops: cereals, legumes, root crops, melons, oilseeds and essential oils, spinning, narcotic, as well as fodder sown grasses and plants of hayfields and pastures [18].

The theoretical information that students receive from the teacher is deepened and consolidated in laboratory and practical classes, as well as in the process of independent work on educational material.

During the practice, students acquire the skills and abilities of cultivating crops.

The course "Crop production" can be divided into three parts: theoretical, educational and practical and production-practical [2,3].

The theoretical part aims to study the biology of crops, the patterns of their growth and development, the influence of soil – climatic, agro technical conditions and varietal qualities on yield, as well as issues of economic efficiency of growing field plants [18].

The second part of the course is aimed at mastering the initial production and technological techniques and applying knowledge in practice [18].

The production and practical part of the course, aimed at mastering the skills and abilities necessary for the cultivation of agricultural crops by students [18].

The connection of theoretical training with practice. The course "Crop production" should include material that highlights agricultural theory and practice, its achievements and prospects.

Of particular importance is the content of educational, industrial, technological and pre–graduate practices that directly link study with production [18].

Differentiation of educational material. Uniform training requirements. Students are not excluded from the differentiation of educational material on crop production.

A differentiated approach to the content of the educational material of this subject is necessary due to the diversity of the zonal conditions of our country. Therefore, for example, in universities located in the northern regions of Kazakhstan, the number of hours allocated in the program for the study of flax, hemp is reduced and the time for studying grain crops is increased in some zones, those crops that are not provided for by the standard program at all are studied, for example, sparsely distributed crops – in the areas of its cultivation.

Systematic knowledge, skills and abilities in crop production. The system of educational material on crop production is determined by the logic of science, the technological process of crop production [18] and the tasks set for the university. The sequence of studying the material on crop production and its volume depend on the value of the culture, its distribution, and botanical classification [18].

The relationship of the subject "Crop production" with other academic subjects. «Crop production" as a science that studies the diversity of forms of field plants, the peculiarities of their biology, attitude to environmental factors and methods of growing high yields are associated with general natural science disciplines (botany, soil science, physics, chemistry, meteorological), related agronomic subjects (agriculture, agrochemistry, breeding and seed production, plant protection), mechanization, and also with the economy and organization of agricultural enterprises [2-4].

In the course "Crop production" a significant place is given to the morphological and biological features of cultivated plants. Therefore, the study of each culture is linked to the knowledge of botany – the basis for studying the issues of morphology, anatomy, reproduction, systematics, physiology of cultivated plants [2].

The cultivation of cultivated plants cannot be considered out of connection with the soil. The study of soil composition, structure, properties, regulation of its air, water, heat and food regimes is very important for the proper cultivation of plants. Soil science is closely related to crop production. The study of the physical properties of the soil, the regulation of its regime, which are considered in crop production, is impossible without knowledge of physics [2,5,14,15].

The chemical composition of grain, straw, chaff, fertilizers and fertilizing with mineral fertilizers are crop production issues that directly depend on knowledge of general and agronomic chemistry [5,16,17]. The timing of planting, sowing, frost protection, snow retention, irrigation, harvesting should be established on the basis of long-term observations of the meteorological service [19]. There is a close connection between crop production and agriculture. The grower must know the techniques of tillage, plant care, crop rotation, fertilization, etc. The program of the course "Crop production" provides for the study of plant hybridization, which is closely related to breeding and seed production. Agrotechnics cannot be effective without knowledge of plant protection methods. Therefore, the presentation of the material on each of the crops is closely related to knowledge about pests and diseases, modern methods of combating them. The study of agricultural technology cannot be out of connection with the mechanization of agriculture, that is, the use of machines in preparing soil, seeds for sowing, crop rotation, fertilization, plant care, harvesting, etc.

Crop production is closely connected with the economy and the organization of agricultural enterprises. The issues of economics and organization are logically connected with each agricultural enterprise for the cultivation of agricultural crops. The educational material should be accessible to students both in terms of the depth of disclosure of the essence of the concepts (laws, theories) being studied, and in terms of the total volume. Therefore, when selecting educational material, it is necessary to take into account the stock of students' knowledge in this and related subjects. However, the requirement of accessibility of educational material does not mean that difficult issues should not be resolved. In the course "Crop Production", the disclosure of individual issues is possible, taking into account the students' training in related subjects. The course "Crop production" occupies a central place in the training of agronomists. Therefore, the main purpose of teaching crop production is to provide students with theoretical knowledge and practical skills in growing high and sustainable yields of crops. In general, the objectives of the subject "Crop production" cover not only professional (special- educational) learning goals, but also general education and educational ones. The teacher's understanding of the objectives of studying the course "Crop Production" helps him to correctly approach the disclosure of each topic of the course.

Solving special educational tasks in the presentation of the course "Crop production". When studying the course "Crop production", students receive a sum of knowledge on biology, species and variety diversity of cultivated plants, their importance, zoning, agricultural technology, as well as the economic efficiency of cultivation.

Students learn concepts such as variety, hybrid, sowing standard, physical and biological properties of seeds, post-harvest ripening, agrotechnical complex, gross yield, marketable grain, phases of plant growth and development, technological map of crop cultivation, etc., learn to identify plants by their characteristic features in different periods, biological yield, dry matter content in root and tuber crops, etc.

In addition, under the guidance of a teacher, students draw up technological maps and agrotechnical plans for cultivating crops, get acquainted with the processes of crop processing.

Students acquire technological skills and abilities in preparing seeds and soil for sowing, sowing, crop care, harvesting and primary processing, etc.

Solving general education problems during the presentation of the course "Crop production". In the process of studying the theoretical course and mastering practical skills in crop production, students broaden their general horizons, deepen their knowledge of the plant world, its adaptation to various conditions, the external and internal structure of plants, the study of the origin of cultivated plants, and methods of breeding new varieties.

Hybrids, increasing yields based on the introduction of scientific achievements and best practices, etc. promotes the belief in the power of scientific knowledge. When studying this course, students establish cause-and-effect relationships between wildlife phenomena. They develop theoretical thinking in understanding facts and phenomena. Solving educational tasks, and in the process of presenting the course "Crop production". The principle of educative learning is implemented in the study of any academic subject, including "Crop production".

By mastering the knowledge of this subject, students become convinced of the relationship between objects and natural phenomena. The transition of quantitative changes into qualitative ones, assimilate the laws and concepts of the material world.

Teaching the course "Crop production" as a special discipline should provide students with the scientific foundations of modern methods of growing crops. At the same time, it must be convincingly shown that the yield of each crop is determined not only by the natural properties of the species and variety being grown, but also by the methods of cultivation. Students should be aware of the basic law of agriculture – the law of the physiological equivalence and irreplaceability of plant life factors. It is the basis of the theory of obtaining high agricultural plants.

Teaching students about crop production involves highlighting in theory and in practice the research methods used in crop production (field, vegetation and laboratory). The scientific nature of the training requires disclosure of the main issues of crop production, trends occurring in the world. Properly organized work in the laboratory, on the collection site, in the vegetation houses, in the field contributes to the education of hard work, activity, creative initiative, accuracy, precision, observation, and a sense of teamwork among students.

The principle of scientific learning is interrelated with the principle of accessibility. The teacher's presentation of the scientific foundations of biology and methods of growing crops should take into account the level of theoretical training of students, especially in those subjects related to crop production. The teacher needs to know in advance which questions are most difficult for students and find such methods and techniques that would contribute to a better assimilation of these questions.

The teaching material and presentation methods should be accessible to students. The principle of accessibility attracts special attention due to the problem of individual approach to students in a group learning environment.

When studying the principles of crop cultivation, each position and phenomenon should be expressed to such an extent that students can understand it well and apply it in practice.

The effect of this principle should be taken into account not only when studying theoretical material, but also when solving various practical problems, conducting experiments with plants. When studying the discipline "Crop production", students perform tasks on drawing

up technological maps, agro technical plans for growing crops. To perform these tasks, it is necessary to know not only crop production, but also the economics of the organization of agriculture. Summing up, it can be noted that the methodology of teaching the discipline "Crop production" is an important process that contributes to the successful training of students in the field of agriculture. This course allows students to master the basics of plant cultivation, agricultural technology, breeding and other aspects of crop production. Studying these disciplines gives students not only basic knowledge, but also practical skills that can play a crucial role in their future career in agriculture.

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ЖОҒАРЫ ОҚУ ОРЫНДАРЫНДА ӨСІМДІК ШАРУАШЫЛЫҒЫН ОҚЫТУ ӘДІСТЕМЕСІНІҢ ЖАЛПЫ МӘСЕЛЕЛЕРІ

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Аңдатпа. Агрономиялық мамандықтар бойынша білім алатын студенттерге арналған «Далалық дақылдар өндірісі» пәнін оқыту – ауыл шаруашылығы саласында жоғары сапалы мамандар даярлаудың маңызды бөлігі болып табылады. Бұл пәнді тиімді оқыту үшін арнайы әдістеме қажет, ол студенттердің теориялық білімін тереңдетіп қана қоймай, олардың тәжірибелік дағдыларын да дамытуға бағытталған. «Далалық дақылдар өндірісі» курсы өсімдік өсіру, агротехника, селекция, тұқым шаруашылығы және ауыл шаруашылығы дақылдарын тиімді өндірудің басқа да аспектілерін қамтиды.

Оқыту барысында студенттер топырақ өңдеу, тұқым себу, егістікті күтіп-баптау, өнімділікті арттыру жолдары сияқты маңызды тақырыптармен танысады. Сондай-ақ, зертханалық және тәжірибелік сабақтар өткізу арқылы олар нақты өндірістік жағдайларға бейімделіп, кәсіби дағдыларды меңгереді. Бұл тәжірибелер студенттердің болашақ агроном ретінде өз қызметінде дұрыс шешім қабылдауға мүмкіндік береді.

Пәннің ерекшелігі — оның басқа ғылымдармен, мысалы, топырақтану, агрохимия, экология, биология және ауыл шаруашылығы экономикасымен тығыз байланысында. Осы байланыстарды түсіну студенттерге ауыл шаруашылығындағы күрделі процестерді жүйелі түрде талдауға көмектеседі. Мақалада «Далалық дақылдар өндірісі» пәнін жоғары оқу орындарында оқытудың жалпы мәселелері мен оны жетілдірудің тиімді жолдары қарастырылады.

Тірек сөздер: ауыл шаруашылығы дақылдары, өсімдік шаруашылығы, сорт, гибрид, тұқымдар, агротехникалық кешен, биологиялық өнім.

ОБЩИЕ ВОПРОСЫ МЕТОДИКИ ПРЕПОДАВАНИЯ РАСТЕНИЕВОДСТВА В ВЫСШИХ УЧЕБНЫХ ЗАВЕДЕНИЯХ

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Аннотация. Преподавание дисциплины «Растениеводство» студентам агрономических специальностей представляет собой сложный и многогранный процесс, который требует применения особой методики обучения. Эта методика направлена не только на передачу теоретических знаний, но и на формирование у студентов практических умений и профессиональных компетенций, необходимых для успешной деятельности в сфере сельского хозяйства. Дисциплина «Растениеводство» играет ключевую роль в подготовке будущих специалистов-агрономов, так как охватывает широкий круг вопросов, связанных с выращиванием, уходом и улучшением культурных растений.

В рамках курса студенты изучают основы агротехники, методы повышения урожайности, особенности селекции и семеноводства, а также современные технологии обработки почвы и ухода за растениями. Важным элементом обучения является проведение лабораторных и практических занятий, во время которых студенты приобретают реальные навыки работы с сельскохозяйственными культурами.

Кроме того, большое внимание уделяется взаимосвязи растениеводства с другими дисциплинами — такими как почвоведение, агрохимия, экология, генетика и экономика сельского хозяйства. Эта интеграция знаний позволяет формировать у студентов системное понимание производственных процессов и устойчивого земледелия. В статье рассматриваются общие вопросы преподавания дисциплины «Растениеводство» в вузах, а также пути повышения эффективности учебного процесса и внедрения инновационных методов обучения.

Ключевые слова: сельскохозяйственные культуры, растениеводство, сорт, гибрид, семена, агротехнический комплекс, биологический урожай.