

**WORKING PROGRAM OF THE DISCIPLINE**

**Name of the discipline**

**Plant Protection**

**Products**

**Recommended for the direction of training/specialty**

**35.06.01**

**«Agriculture»**

**Focus of the Program (Profile)**

**06.01.07 «Plant**

**Protection»**

## 1. Goals and objectives of the discipline:

The objectives of the discipline are to estimate efficacy of modern chemicals in pest, diseases and weed management and their influence in plants and environment.

- study of the basic laws of the dynamics of populations of harmful organisms, the specifics of the formation and development of agroecosystems;
- study mechanism of action of different groups of chemical pesticides;
- mastering the complex application of various plant protection products, taking into account the ecological situation;
- reduction of losses of agricultural products from pests, diseases and weeds at various stages of production and storage
- testing of new chemicals in different agricultural crops

## 2. Place of discipline in the structure of OP VO:

The discipline "Plant Protection" refers to the variable part of the OOP and the professional cycle of the direction "Agriculture" of block 1 of the curriculum.

Table 1 shows the previous and subsequent disciplines aimed at the formation of discipline competencies in accordance with the competence matrix of OP VO.

Table № 1

**Prior and subsequent disciplines aimed at the formation of competencies**

№	Code and name of competence	Preceding disciplines	Subsequent disciplines (groups of disciplines)
<b>General cultural competences</b>			
1	<b>GCC-1</b> - possession of the methodology of theoretical and experimental research in the field of agriculture, agronomy, plant protection, selection and genetics of agricultural crops, soil science, agrochemistry, landscape development of territories, technologies for the production of agricultural products	Modern methods of pest diagnostics	
<b>General professional competencies</b>			
2	<b>GCC-3</b> - the ability to develop new research methods and their application in the field of agriculture, agronomy, plant protection, breeding and genetics of agricultural crops, soil science, agrochemistry, landscape development of territories, technologies for the production of agricultural products,		

	taking into account the observance of copyright		
Professional competencies (type of professional activity _____)			
1	PC-1 - the ability to understand modern agricultural problems and use fundamental agricultural concepts in the field of professional activity to formulate and solve new problems	Modern methods of pest diagnostics	
Professional specialized competencies of specialization			
2	PC-6 - the ability to apply the methodological foundations of the design and implementation of laboratory agricultural research using modern equipment and computing systems (in accordance with the goals of the graduate student training program), the ability to generate new ideas and methodological solutions	Modern methods of pest diagnostics	

### 3. Requirements for the results of mastering the discipline:

The process of studying the discipline is aimed at the formation of the following competencies:

General professional competencies:

GCC-1 - possession of the methodology of theoretical and experimental research in the field of agriculture, agronomy, plant protection, selection and genetics of agricultural crops, soil science, agrochemistry, landscape development of territories, technologies for the production of agricultural products

GCC-3 - the ability to develop new research methods and their application in the field of agriculture, agronomy, plant protection, breeding and genetics of agricultural crops, soil science, agrochemistry, landscape development of territories, technologies for the production of agricultural products, taking into account the observance of copyright

Professional competencies:

PC-1: the ability to understand modern agricultural problems and use fundamental agricultural concepts in the field of professional activity to formulate and solve new problems

PC-6 - the ability to apply the methodological foundations of the design and implementation of laboratory agricultural research using modern equipment and computing systems (in accordance with the goals of the postgraduate training program), the ability to generate new ideas and methodological solutions

As a result of studying the discipline, the student must:

**Know:**

- patterns of formation of chemical pesticides;
- patterns of formulation of chemical fungicides;

- patterns of formulation of chemical herbicides;
- the influence of individual environmental factors on chemicals efficacy;
- principles of combining different groups of chemicals

**Be able to:**

- to determine the phase for application of chemical pesticides;
- to evaluate the influence of various environmental factors on chemical pesticides migration;
- evaluate the necessity of chemical treatment on different crops;
- determine economic thresholds for different stages of pests, diseases and weeds and use them when making decision about chemical treatment

**Own:**

- building skills and methods for assessing the effectiveness of chemical pest control on various crops

Total amount of credits 4

Type of educational work	Total hours	Semesters			
		4			
<b>Classroom Lessons (Total)</b>	80	80			
Including:	-	-	-	-	-
<i>Lectures</i>	40	40			
<i>Practical lessons (PL)</i>	40	40			
<i>Seminars (S)</i>					
<i>Laboratory work (LW)</i>					
<b>Independent work (Total)</b>	37	37			
<b>Exam</b>	27	27			
Total work rendered	hrs units	144	144		

**5. Content of the discipline**

**5.1. Contents of discipline sections**

№	Name of the discipline section	Section content (topics)
1.	<b>GCC-1</b> <b>GCC-3</b> <b>PC-1</b> <b>PC-6</b>	<ul style="list-style-type: none"> <li>- the ability to professionally operate modern equipment and devices (in accordance with the objectives of the master's program);</li> <li>- the ability to understand the essence of modern problems of agronomy, scientific and technical policy in the field of safe crop production;</li> <li>- possession of methods for assessing the state of agrophytocenoses and methods for correcting the technology of cultivation of agricultural crops in various weather conditions</li> <li>- is able to understand the essence of modern problems of agronomy, scientific and technological policy in the field of production of safe crop products;</li> </ul>

		- ready to use the modern achievements of world science and advanced technology in research work;
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## 5.2. Sections of disciplines and types of classes

№	Name of the discipline section	Lec.	Practicum	Lab work	Seminar	IW	Total Hours
1.	Main groups of chemical fungicides, mechanism of action	8	8			7	23
2.	Main groups of chemical pesticides, mechanism of action	8	8			7	23
3.	Main groups of chemical herbicides, mechanism of action	8	8			7	23
4.	Chemical growth regulators	8	8			7	23
5.	Efficacy of chemicals on different crops	8	8			9	25
	Exam						27
		40	40			37	144

## 6. Laboratory workshop (if available)

№	№ of Discipline section	Name of laboratory work	Total work rendered (hour.)
1.			
2.			
...			

## 7. Practical exercises (seminars) (if available)

№ п/п	№ of Discipline section	Topics for practical lessons (seminars)	Total work rendered (hour.)
1.			
2.			
...			

## 8. Material and technical support of the discipline:

*(describes the material and technical base necessary for the implementation of the educational process in the discipline (module)).*

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## 9. Information support of the discipline

*(the list of information technologies used in the implementation of the educational process by discipline (module) is indicated, including a list of software and information reference systems (if necessary))*

a) software

- Windows 7 Corporte
- Microsoft Office.
- Adobe Acrobat.
- Microscopes.
- Herbarium material.

- Visual tabular material.
- Collection of phytopathogens.
- MStat program

b) databases, reference and search systems

1. [www.elibrary.ru](http://www.elibrary.ru)
  2. [www.glossary.ru](http://www.glossary.ru),
  3. <https://cyberleninka.ru/>
  4. [http://bvi.rusf.ru/sista/alf\\_1047.htm](http://bvi.rusf.ru/sista/alf_1047.htm)
  5. [www.cnshb.ru](http://www.cnshb.ru)
  6. <http://www.uchvuz.ru>
  7. [http://bvi.rusf.ru/sista/alf\\_1047.htm](http://bvi.rusf.ru/sista/alf_1047.htm)
  8. [www.cnshb.ru](http://www.cnshb.ru)
  9. Educational portal of RUDN University (<http://web-local.rudn.ru>);
  10. Online university library: <http://www.biblioclub.ru>
  11. National digital resource "RUCONT": <http://rucont.ru>
  12. IQlib: <http://www.iqlib.ru>
  13. ScienceDirect: <http://www.sciencedirect.com>
  14. Sage Publications: <http://online.sagepub.com>
  15. Web of Science: <http://www.isiknowledge.com>
  16. University information system RUSSIA: <http://www.cir.ru/index.jsp>
- Consultant <http://www.studmedlib.ru>

## 10. Educational and methodological support of the discipline:

*(the availability of printed and electronic educational and information resources is indicated)*

a) main literature

1. Chulkina V.A. and others. Ecological foundations of integrated plant protection, Moscow: "Kolos", 2007
2. Popov V.Ya. Chemical protection of plants, Moscow: "Kolos", 2006

b) additional literature

1. Protection of plants from diseases. Under ed. Shkalikova V.A., Moscow. Publishing house "Kolos", 2001
2. Protection of plants from pests. Under ed. Isaicheva V.V., Moscow. Publishing house "Kolos", 2001

## 11. Methodical instructions for students on mastering the discipline (module)

*(includes guidelines for the organization and implementation of the CDS in the study of the discipline, determines the requirements and conditions for completing tasks).*

*For example: guidelines for the implementation of practical work; recommendations for completing assignments on the topics covered (sections); recommendations for the design of settlement, graphic works; recommendations for the implementation and design of abstracts, essays; methodological manuals, instructions and recommendations for the implementation of tests, course projects (works); recommendations for preparation for qualification tests, etc.*

## 12. Fund of assessment tools for intermediate certification of students in the discipline (module)

*Materials for assessing the level of mastering the educational material of the discipline "....." (evaluation materials), including a list of competencies indicating the stages of their formation, a description of indicators and criteria for evaluating competencies at various stages of their formation, a description of the assessment scales, typical control tasks or other materials necessary to assess knowledge, skills, skills and (or) experience of activity, characterizing the stages of the formation of competencies in the process of mastering the educational program, methodological materials that determine the procedures for assessing knowledge, skills, skills and (or) experience of activities that characterize the stages of the formation of competencies are developed in full and are available for students on the discipline page in TUIS RUDN.*

### Developers:

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