Agrochemistry and modern aspects of fertilizer application
Department of Agriculture, Soil Science and Agrochemistry

Lecturer: **V.I. Prasol**
Semester **3**
Educational level: **Doctor of Philosophy**
Number of ECTS credits: **4**
Form of control: **Credit**
Classroom hours: **104 (Lectures - 44 hours, practical classes - 44 hours, consultations - 16 hours)**

A general description of the subject

The program of the course "Agrochemistry and modern aspects of fertilizer application" helps to master the basic theories and methods of studying mineral nutrition, plant growth and formation of productive part depending on the content, ratio of elements, their impact on metabolism. The course consists of the following parts: Agro-ecological condition of land resources in Ukraine, basic conditions for effective use of fertilizers and methods of their application. Issues of environmental pollution and agricultural products and ways of their elimination are considered in a concise form.

Post-graduate students' mastering the knowledge and understanding of physiological and biochemical processes that make up the nutrition of a plant organism, change them in ontogeny to regulate the production process and ensure obtaining a programmed yield of a given quality

Lecture topics:

1. Introduction. The current agro-ecological state of land resources in Ukraine and the priority tasks of their reproduction.
2. Soil quality, laws of agrochemistry and their use.
3. Diagnosis of plant nutrition.
4. Strategies for the use of mineral fertilizers.
5. Micro fertilizers and their efficiency.
6. The role and importance of organic matter.
7. Technology of use and organization of application of mineral fertilizers.
8. Use of fertilizers in precise agriculture.
9. Fertilization and quality of the environment.

Topics of practical classes:

1. Diagnosis of plants. Determination of nitrogen, phosphorus, potassium in plants.
2. Principles of determining the supply of soil with the available forms of nutrients.
3. Calculation of available nutrients in the soil.
4. Definition of mineral fertilizers and their qualitative assessment
5. Preparation of mineral mixtures.
6. Calculation of fertilizer rates for differentiated application in precision agriculture..
7. Remote methods of diagnostics of mineral nutrition of plants.
8. Diagnosis of plant nutrition using the express laboratory "Agrovector-PF 014".