

AGROCHEMISTRY (Horticulture, IInd Year of study, IIIrd + IVth SEMESTER)

Credit value (ECTS) 6

Course category : (Imposed)

Course holder:

Assist. Prof. Dr. Mariana Volf

Discipline objectives (course and practical works)

Acquiring thorough by future engineers horticulturists the theoretical and practical issues on relationships soil - plant –fertilizer/ amendments, in close correlation with the control of the supply state with the nutrients of the soil and maintaining or the correction with fertilizers and amendments of the fertility status, through setting of doses judicious and differentiated economic optimum, for the purpose of yields quantitatively and qualitatively superior , effective economic and with the preservation of the environment.

Contents (syllabus)

Course (chapters/subchapters)
The object of study, the history and the importance of agrochemistry
The foundations of agrochemicals of fertilization in relation to the requirements of plants The chemical composition of the plant. Classification of nutrients. The requirements of the plant in nutrients in relation to the species and age. Absorption root of the nutrients in the soil. Features of the nutrition of horticultural plants in connection with the application of fertilisers. The states of nutrition and stress of the horticultural plants and the use of fertilizers.
The foundations of agrochemicals of the fertilization of vegetable crops, orchards and vineyards, in relation to edaphic factors. Soil as the natural environment of nutrition and application of fertilizers The forms of the nutrients in the soil and accessibility for plants horticultural . Colloids of soil, the main factor for retention of nutrients. Processes of retention of nutrients. Attributes agrochemical characteristics of soils with use in horticulture.
Correcting chemical reaction of soils by amendment. Correcting chemical reaction of acid soils. Correcting chemical reaction of saline and alkali soils . The use of amendments in greenhouses and solariums.
Fertilizers as a means of increasing the fertility of the soil. Fertilizers - classification, production, consumption, trends. Chemical fertilizers with nitrogen. Chemical fertilizers with phosphorus. Chemical fertilizers with potassium. Fertilizers with macroelements of secondary order. Fertilizers with microelements. Complex chemical fertilizers. The retention of chemical fertilizers Organic fertilizers. Fertilizers and crop quality
Control of the fertility status of the soil, means of rational use of fertilizers. Testing fertility status by chemical analysis of the plants. Testing fertility status by chemical analysis of the soils. Mapping agrochemical.
The principles of the rational and economic use of fertilizers in horticulture. The determination of fertilizer doses for horticultural plants.
Chemicalization intensive and the problems of pollution of the environment

Practical works
Sampling of soil agrochemical and their preparation for the analysis
Improving the composition of the ionic of acid soils. Determine the forms of acidity in the soil. Determining the doses of lime amendments
Improving the composition of halomorph soils. Determination of total alkalinity of soils. Determination of the sodium adsorbed in the soil. The establishment of doses of amendments with ghips.
Testing the soil fertility status. Dosage forms of nutrients into forms accessible for plants
Recognition fertilizers. Chemical reactions qualitative to identify anions and cations of fertilizers.

Bibliography

- 1. Ioan Avarvarei , M. Goian, V. Davidescu, R.Mocanu, C. Caramete, M Rusu, 1997,** Agrochimie, Editura Sitech, Craiova
- 2. Avarvarei, I., Volf Mariana, 2006,** Metodologia recunoa terii amendamentelor de sol i a îngrîmintelor chimice, Editura „Ion Ionescu de la Brad”, Ia i.
- 3. Budoï, Gh., 2000,** Agrochimie, Solul i planta, Editura Didactic i Pedagogic , R.A., Bucure ti.
- 4. Davidescu, D., Davidescu, Velicica, 1994,** Agrochimie horticol , Editura Academiei, Bucure ti.
- 5. L c tu u, R., 2000,** Agrochimie, Editura Helicon, Timi oara.
- 6. Rusu. M. i colab., 2005,** Tratat de Agrochimie, Editura Ceres, Bucure ti.
- 7. Volf Mariana, 2008,** Agrochimie, Editura Renaissance, Bucure ti

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Oral examination/ Collocutional	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	40%

Contact

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