Agrochemicals means of soils conservation (1st Year of study, 2nd Semester)

Credit value (ECTS) 5

Course category
Synthesis (Imposed)

Course holder:
Assist. Prof. Dr. Mariana Volf

Discipline objectives (course and practical works)

The concepts presented in the lectures of the course and the practical works have as the main objective learning and substantiation by future engineers in the field of agricultural, of the theoretical and practical issues that are in interconnection of the relationships soil - plant - fertilizers/amendaments. Their presentation is done 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 of their but in accordance also with the necessities and the specific consumption of the plants in nutrients. Purpose of learning these concepts lies in the capability of the students to determine the correct and to apply dosages optimum economic of chemical fertilizers/amendaments and the rules for fertilizer organic, through the use of mathematical models to lead to the achievement of certain crops to the desired level, for the plants of culture.

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 and in agreement with edaphic factors. 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. Nutrient balance of plants. Characterization of the soil system as a source of elements necessary for plant nutrition. Fractions of the soil. The complexes organo-mineral. Colloids of soil, the main factor of retention of nutrients. Processes of retention of nutrients.
Correcting chemical reaction of soils by amendment. Correcting chemical reaction of acid soils. Correcting chemical reaction of saline and alkali soils
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. Organic fertilizers
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. The establishment of rules of organic fertilizers. Determining dose optimal economic of macro-and microelements, for field crops and intensive crops.

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

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3. **Budoi, Gh**., 2000, Agrochimie, Solul şi planta, Editura Didactică şi Pedagogică, R.A., Bucureşti.
4. **Davidescu, D., Davidescu, Velicica**, 1994, Agrochimie horticolă, Editura Academiei, Bucureşti.
5. **Lăcătuşu, R**., 2000, Agrochimie, Editura Helicon, Timişoara.
6. **Rusu. M. şi colab.**, 2005, Tratat de Agrochimie, Editura Ceres, Bucureşti.
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Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Oral examination	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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