

The Impact of Agriculture on the Environment

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Subject code: IAE

Academic year: 2.

Lectures: 20

Seminars: 30

ECTS: 4

Aims of the course:

The Student will:

- be capable of finding adequate data on agricultural effects on the environment, checking and critically applying them;
- master the basics of environmental factors in agriculture and will be able to integrate their knowledge with other professional fields (ecology, biology, biodiversity, spatial planning, etc.);
- develop skills for interdisciplinary reflection on agricultural effects in space and its use for agricultural purposes;
- develop the ability to participate in discussions on the agricultural effects in an environment;
- be able to understand and resolve conflicts in the field of agriculture in the wider Slovenian area;
- know the principles of environmental assessments of their impacts and some basics of monitoring the actual state of the environment;
- be capable of using information-communication technologies and information systems for monitoring the actual state of the environment;
- be able to share their knowledge about environmental contents to a wider public in oral and written form.

Subject content:

Agriculture and the environment

- introduction (starting point) and general part;
- the main factors of environmental burden in agriculture;
- sorts of agricultural production regarding their possible impact on the environment, conventional production, integrated farming, organic farming;

Nitrogen and nitrogen compounds

- General facts about nitrogen used in agriculture, nitrogen cycle, forms and transformations of nitrogen, sorts of nitrogen fertilizers, causes of pollution with nitrogen compounds, problems caused by nitrogen compounds in the environment, possibilities to prevent discharge of nitrogen compounds into the environment.

Phosphorus

- General facts about phosphorus used in agriculture, phosphorus cycle, phosphorus losses in the environment, sorts of phosphorus fertilizers, problems caused by phosphorus in the environment, possibilities to prevent excessive environmental burden caused by phosphorus.

Soil erosion

- Sensitivity of soil for degradation and erosion, impacts of erosion on the environment, measures for erosion prevention;

Organic waste

- Organic waste in agriculture - general facts, farm waste, non-agricultural waste on cultivated agricultural areas, measures for prevention of negative impacts of the use of organic waste.

Air emissions

- Emissions and agriculture - general facts: ammonia emissions (NH₃), methane emissions (CH₄), emissions of carbon dioxide (CO₂), undesirable odours in agriculture;

Plant protection products (PPP)

- PPP and agriculture - general part, division of PPP, eco-toxicological properties of PPP, destiny and behaviour of PPP in the environment, risk assessment of the use of PPP, measures for reduction of negative impacts of PPP in the environment.

Genetically modified organisms (GMO) in agriculture

- GMO and agriculture - general part, risks and advantages of using GMO, sorts of GMO in agriculture, risk assessment of the use of GMO in the environment.

Legislation applied in the field of agriculture and environmental protection in Slovenia

- Types of acts and other regulatory provisions, review of regulations applied to agriculture, review of regulations in the field of the environment, review of the regulations in the medical field, other regulations.

Good agricultural practice (GAP)

- GAP - general part, GAP and protection of surface water bodies and groundwater, GAP and soil conservation, GAP and air protection, GAP and biodiversity, GAP of breeding farm animals, GAP and food safety.

Teaching methods:

Lectures, individual and group products, problem-oriented discussions in smaller and bigger groups, field work

Study obligations

Oral or written exam and seminar paper

Literature

Currently, there is no adequate study literature for the study subject Impacts of Agriculture on the Environment available in the form of books or scripts. In case this study subject will be performed, a new book or script will be necessary. Along with lecture notes, there is a list of recommended literature below in form of individual articles and publications in the Slovene and some foreign languages:

- * Merrington, G., et al. 2002. Agricultural pollution. Environmental Problems and Practical Solutions; Spon Press. London and New York, 243 s.
- * Šarić, T., Gadžo, D. 1998. Uticaj poljoprivrednih hemikalija na okolinu; IGP Garmond i Ekobih, Sarajevo, 130 s.
- * Zakonski in podzakonski akti s področja kmetijstva ter varstva okolja (*Acts and regulatory provisions in the field of agriculture and environmental protection*).