

01S1-RWWUINR PLANT GROWTH REGULATORS IN CROP PRODUCTION AND IN FERTILIZATION ECTS: 2.0

HOURS PER SEMESTER/WEEK: LECTURES: 10/1; CLASSES: 20/2

COURSE CONTENTS

LECTURES: History of discovery, definition and classification of natural and synthetic growth regulators. Biosynthesis of growth regulators and their transport in the plant. Physiological effects of growth regulators. The use of growth regulators in agricultural, horticultural and forestry practice, use in the regulation of mineral nutrition of plants. Influence on uptake and transport of nutrients and their distribution in the plant. Interaction with mineral fertilisation. The use of growth inhibitors and retardants. Anti-stress effects of growth regulators and biostimulants

CLASSES: Effect of auxin on seedling rooting and root growth. Effect of gibberellin on seed germination and plant elongation growth. Cytokinins as hormones that delay plants senescence. Effect of blastocollins on seed germination. Effects of auxins and gibberellins on bud development. Effect of ethylene on seedling development. Effect of 2,4-D on monocotyledonous and dicotyledonous plants. Effect of autumn application of retardants on habit of oilseed rape.

EDUCATIONAL PURPOSE: To acquaint students with the possibilities and principles of using exogenous growth regulators and biostimulants in plant production.

LEARNING OUTCOMES

Knowledge. Knows the classification of natural and synthetic growth regulators. Can explain the effects of growth regulators on plant growth and development. Can explain the mechanism of anti-stress effects of growth regulators and biostimulants on crop plants.

Skills. Acquires skills for practical use of growth regulators and biostimulants in crop production. Knows the types and mechanism of action of preparations of growth regulators

Social competences. Is aware of the effect of growth regulators and biostimulants on the amount and quality of crop yields Exercises caution when using growth regulators and biostimulants

TEACHING FORMS AND METHODS

Lectures. Information lecture with multimedia presentation.

Classes. Laboratory exercises: presentation method.

FORM AND CONDITIONS FOR VERIFICATION OF LEARNING OUTCOMES

Lectures. Written test - credit with a grade.

Classes. Presentation - a credit with a grade, report on laboratory exercises - a credit with a grade.

BASIC LITERATURE

1) red. L. Jankiewicz, Regulatory wzrostu i rozwoju roślin, wyd. PWN, 1997, t. 1 i 2 ; 2) Piskornik Z., Fizjologia roślin dla wydziałów ogrodniczych, wyd. AR Kraków, 1994, t. 1 i 2 ; 3) Starck Z. Chołuj D., Niemyska B, Fizjologiczne reakcje roślin na niekorzystne czynniki środowiska, wyd. SGGW Warszawa, 1995

ADDITIONAL LITERATURE

1) praca zbiorowa, Biostimulators in modern agriculture, wyd. wyd. Wieś Jutra, Warszawa, , 2008 ; 2) praca zbiorowa, Ćwiczenia z fizjologii roślin, wyd. UWM Olsztyn, 2006 ; 3) praca zbiorowa, Przewodnik do ćwiczeń z fizjologii roślin, wyd. AR Poznań, 2000

THE TEACHER/S CONDUCTING THE CLASSES:

prof. dr hab. inż. Jadwiga WIERZBOWSKA jawierz@uwm.edu.pl

Department of Agricultural and Environmental Chemistry

Oczapowskiego 8, 10-744 Olsztyn, POLAND