Field Crops Department

Agricultural Engineerig Sciences College

Salahaddin University

Subject:Crops Breeding

Course Book – (Year 4)

Lecturer's name: *Dr. Namam Bahram Ismael*

MSc. Zhala Baqi Taha

Academic Year: *2023-2024*

Course Book

1. Course name	**Plant breeding**
2. Lecturer in charge	**Namam Bahram Ismael** **Zhala Baqi Taha**
3. Department/ College	**Field Crops / Agricultural Engineering Sciences**
4. Contact	**e-mail:** namam.ismail@su.edu.krd **Tel: 07504495126** **e-mail:** e-mail: zhala.taha@su.edu.krd **Tel: 07503482505**
5. Time (in hours) per week	**Theory: 2** **Practical: 3**
6. Office hours	**8**
7. Course code	
8. Teacher's academic profile	**Theory** • **Date of Birth: 14 January 1973** • **Place of Birth: Erbil** • **Nationality: Iraqi** • **Marital status: marriage** • **Sex: Female** **Education:** • **B.Sc. field crops - agricultural college- Mosul university - 1994** • **M.Sc. crop breeding from agricultural College- Salahaddin University - 2003** • **PhD in crop breeding- College of science- Mosul university – 2012.** **Practical** I finished my B.Sc. in Erbil Salahaddin University – Agriculture college- 2006-2007; I started working as a lab

	assistant in my university directly because I was the first one of the top student in plant production department, then I apply for post-graduation M.Sc. through (HCDP) program, finished it in Turkey kahramanmaras university – Bioengineering and science department. Nowadays I am working as assistant lecturer in agriculture college – Forestry department.
9. Keywords	**Breeding – introduction – selection - hybridization**

10. Course overview:

Plant Breeding refer to search for new varieties from economical plants superior on old varieties, this superiority leads to increase this plants value for human need .Plant breeding as science: Branch of agricultural science search for genetic characters improvement of plants which have economic value for human. or Plant breeding is an art and science, which tell us ways and means to change the genetic architecture of plants so as attain a particular objective.

All hybrids and varieties for all crops with high yielding, adaptation for new environment, resistance to disease, developed by plant breeding. We studied objectives of plant breeding and all methods of plant breeding , variations between plants, inbreeding, heterosis or hybrid vigor, sterility and incompatibility, mutation and plant breeding, cells culture and seed production & distribution.

11. Course objective:

To know and learn plant breed method for self and cross pollinated plants.

How to obtain or get the genotypes and genetic variance. How to use the selection plant varieties and hybrid producing program. How to breed plant to resistance of insects .

12. Student's obligation

The objective is for the student to understand plant breeding, method of plant breeding , mutation breeding and gene engineering .

13. Forms of teaching

2. Self-study

Teaching Media

1. PowerPoint presentations
2. Texts and teaching materials
3.data show
4. white board

14. Assessment scheme

During the semester, the students are required to conduct two tests in theoretical lectures. There are 10 marks test and 5marks for activities, quizzes and 50 marks for final exam

Practical

Mid-term practical exam: 30 %

Laboratory participation: homework and weekly quizzes 5%

15. Student learning outcome:

Students will communicate effectively

b. use effective strategies to organize thoughts, develop a message and document sources for article reviews and the discussion web
c. learn to present a message skillfully when reviewing plant breeding articles
d. clearly and effectively express ideas and actively listen to the ideas of others during discussions

2. Students will think critically

a. read plant breeding articles and text with comprehension
d. evaluate and analyze arguments from more than one perspective in order to prepare for debates and discussions

16. Course Reading List and References:

- plant breeding – Philips -1986
- اساسيات تربية النبات –احمد عبد المنعم -1992
- تربية النبات – عدنان العذاري - 1986

17. The Topics:	Lecturer's name

1- History of plant breeding, definition and objectives. 2 – Variations between plants. 3 – Methods of plant breeding. 4 – Methods of breeding – self-pollinated plants 5 - Inbreeding. 6 – Breeding of inbred lines. 7 – Heterosis or hybrid vigor. 8 – Methods of breeding – cross pollinated plants. 9 – Sterility and incompatability. 10 – Male sterility & its utilization in plant breeding. 11 – Mutation and plant breeding. 12 – Cells culture. 13 – Seed production & distribution.	Dr. Namam Bahram
18. Practical Topics	
This includes about 8-11 labs on different topics covered in the Practical as follows: Week 1: An introduction to plant Breeding: The breeder characteristic- Plant reproduction methods and its relation with plant breeding. Week 2: Reproduction stages in plant, female gameto genesis- Male gameto genesis. Week 3: Fertilization in Flowering Plants Week 4: Pollination Week 5: Exam 1	Asst. Lecturer. Zhala Baqi

Week 6: Haploid Production Week 7: Cell/Tissue Culture – Hybridization Week 8: Hybridization and Selection Method Week 9: Genetic Variation Components Week 10: Student Seminar Week 11: Field Trip Week 12: Exam 2 Final exam will be determined by the examine board	

19. Examinations:

. **a.** How do we breed improved crop cultivars?

1. Inheritance of trait.
2. Understand the effect of reproductive behavior.
3. Transgenic varieties.

b. What are benefits of increased Vigor?

1. Increased yield
2. Better stand ability
3. Better germination
4. Overall better plant performance

The type of examination will be as follow

1- Choose the correct answer.
2- Discuss the following.
3- Compare between the following.
4- Define the following terms.
5- Answer the following.

Enumerate the followings

20. Extra notes:

21. Peer review

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