Ministry of Higher Education and Scientific research



**Department of: Soil and water**

**College of: Agricultural Engineering Sciences**

**University of salahaddin**

**Subject: Principles of Plant Production**

**Course Book - 4 th Stage/ Fall Semester**

**Lecturer's name: Kharman mohammed pirdawd**

**Academic Year: 2022 - 2023**

Ministry of Higher Education and Scientific research

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| **1. Course name** | **Spring semister** |
| **2. Lecturer in charge** | **Asst. Lecturer Kharman Mohammed Pirdawd** |
| **3. Department/ College** | **Field crops / Agriculture** |
| **4. Contact** | **e-mail:kharman.mohammed@su.edu.krd** |
| **5. Time (in hours) per week** | **Theory:2 hour****Practicaly:3 hour** |
| **6. Office hours** | **All days from 830 - 200** |
| **7. Course code** |  |
| **8. Teacher's academic profile** | **Education:****B.Sc: field crop /college of Agriculture (2010-2011) / University of Salahaddin /Kurdistan Region /Iraq****M.Sc: field crop / weed control /college of Agriculture (2017) / University of Salahaddin /Kurdistan Region /Iraq****Work History:** **1-Field crop department /College of Agriculture/ University of Salahaddin /Kurdistan Region /Iraq (2011-2014)** **2- Register Unit, College of Education /Makhmoor/ University of Salahaddin /Kurdistan Region /Iraq 2017-until date assistant lecture in 2019**  **3-, I worked at Scientific Affairs and postgraduate studies Unit ,college of Agriculture / University of Salahaddin /Kurdistan Region /Iraq(2021-2022)****As an assistant lecturer, I have teaching:****1. I was lecturer in Academic skill for first year student (Arabic department) at Education college / Makhmoor from 2019-2020****2. I was lecturer in Rainfed Cultivation for fourth year student (Horticulture department) at agriculture college / Rapareen Unversity from 2019-2020** **3. I was assisting lecturer in Graduated Research Method for fourth year student ,from 2020-2021****4. I was assisting lecturer in weed and weed control for fourth year student ,from 2020-2021****5. I am assisting lecturer in Principle plant Production for second year student ,from 2021-2022** |
| **9. Keywords** | **Field crop and Horticulture definition and classification****, factors affecting plant distribution and production, plant management, plant propagation, weeding and plant storing** |
| **10. Course overview:**Plant production is a branch of agronomy which deals with studding the plant in general, its relationship with biotic factors and the effect of soil and the other abiotic factors and the role of them in producing high yield potential and good quality.The fundamental concepts in this subject are: Explaining the definition of the two main branch of plants and theory of crop origins according to Vavilov and DeCandolle ,its branches, the relation between plants and other science ,the role of crops in soil fertility , erosion , Provides food and Impact to environment.It is necessary to throw light on crop management and study factors which cause high yield potential, selecting proper methods in sowing according to soil texture and crop type, using proper tilts type and proper instrument, how to select varieties and proper seed. Study methods for horticulture propagations, cultivating indoor and outdoor specify , type of transplanting ,tree bearings ,factor affecting Alternative and irregular bearing then study the harvesting methods , when to harvest ,why delaying harvest or harvesting before proper time is not proper and methods in storing unprocessed products, which methods is proper with which crop. Study general principles of pruning; Study the pruning methods,Common tree problems**,** when to prune the objectives of pruning and pruning techniques.On the other hand it is very necessary to learn the students to principals of sowing ,how to calculate seed germination ,seed purity and seed index and visit agriculture farm and parks to survey the crops and discussing the types of ploughing instruments and choose the best one according to types of soil, levelling, harrowing …,visit the green houses to know about the floricultures and observing trees and shrubs and observed the differences between them. |
| **11. Course objective:**1- High light on field crops and horticultures, its classification.2-Studying the factors affecting the distribution of field crops and horticulture plants.3-Effect of the main agricultural practices on growth, yield and quality of plants.4-Studying the role of biotic and a biotic factor in limiting yield and quality of plants.5-Study the soil and crop management.6-Study methods for propagation in horticulture plants , which of them is more suitable.7-Harvesting and storage of field crops and horticulture plants.8-Study the pruning methods ,why it’s important to prune ,pruning tequnice, and objectives 9- Study the crop rotation, why it’s important and how illustrate a rotation.10-To study the role of plant production in food security. |
| **12. Student's obligation**The student must have an important role:1. The students must contribute in the scientific discussions in the class.
2. The students must know the importance of quizzes, homework, reports and exams.
3. It is necessary to contribute the student in presentation a scientific subject

Each student attends a report within the lecture program at the end of the lecture. |
| **13. Course objective:** The course will cover texts on Weed plants and their Biology, ecology, weeds impact on crops and environment, weed identification, weed management and Control. Weed control is the segment of weed science that most people are familiar with and where the greater part of education and training is focused. The methods employed to manage weeds vary, depending on the situation, available research information, tools, economics, and experience. Weeds should be everybody’s business, as they affect everyone in one way or another. They not only reduce crop production and increase the cost of agricultural products, but they also cause problems for the general public in many other ways—for example, in regard to health and maintaining home landscaping recreational areas and other non-crop areas. Specific problems include lower crop and animal yields, less efficient land use, higher costs of insect and plant disease control, poorer-quality products, more water management problems, and lower human efficiency. In the future, weed control methods presently being intensively researched will allow expanded weed control options beyond herbicides and mechanical methods in both agricultural and nonagricultural weed management. Biological control by insects and plant disease organisms, predictive modeling of weed/crop interactions, and the use of herbicide antidotes, more competitive crops, allelopathy, and genetic engineering/genomics will become more common as their reliability is improved. The overall objective of additional approaches is to discover new, more environmentally acceptable weed management tools that not only control weeds effectively, but improve our understanding of weed ecology/biology and allow more sustainable management of the agro-ecosystem**14. Forms of teaching**1. General review of previous lecture to refresh some information regarding the lecture.
2. Power point presentations: for the lectures and using explanation diagrams beside photos of both field crops and the horticultures plants.
3. Running conservations to reach the solutions of some presented problems concerning crop production.
4. Performing activities between lecture and students
5. Field trips to the research centres and gardens of Grdarasha fields to survey the crops and discussing the types of ploughing instruments and choose the best one according to types of soil, levelling, harrowing …. etc.
6. Practical lectures to demonstrate the identification of crops and its impact of the crop fields.
7. Making a trip to the green houses to know about the floricultures and observing trees and shrubs and observed the differences between them.
8. Using some videos about the agriculture practices and management.
9. Visiting Erbil silo know how the wheat yield is stored, the important tests down for accept or reject grower yield.
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| **15. Assessment scheme**Breakdown of overall assessment and examinationFinal grades for the course will be based on performance in the following areas:**Item Total Possible Points**Practical examination 30Activity 5 Theory exams 15Final Exam 60 **100 TOTAL POSSIBLE** |
| **16. Student learning outcome:** Explaining and training on determining the main plant properties , methods of ploughing , methods sowing ,then proper time in sowing ,sowing rate ,weeding ,cultivation ,disease control ,methods of cropping ,harvesting and storing products all of these methods will be benefit for our students to improve agriculture in many sides first in providing food ,clothes ,oils, for medicines ,for industrial crops and finally for asrthic so to help our environment buttes and future..  |
| **17. Course Reading List and References** 1. Adams,C.R and M.P.Early (2004).Principales of horticulture. Typeset by Charon Tec Pvt. Ltd, Chennai, India,Printed and bound in Great Britain.
2. Bac. j. S (2003) Fruit Growing .Punjab Agriculture University, Ludhiana.
3. Barbados. M. (2002) Illinois Agronomy Handbook. University of Illinois at Urbana –Campaign.
4. Bisheshwor Prasad Pandey1, Komal Bahadur Basnet2, Madan Raj Bhatta1, Shrawan Kumar Sah2, Resham Bahadur Thapa2, Tanka Prasad Kandel (2013). Effect of row spacing and direction of sowing on yield and yield attributing characters of wheat cultivated in Western Chitwan, Nepal. Vol.4, No.7, 309-316 . Agricultural Sciences doi:10.4236/as.2013.47044.
5. Chapman S.R and Lark P.C (1982) Crop Production Principles and Practices .Montana State University
6. George. A. (2005) Principles and Practices of Horticulture. Third edition
7. Hans L. F. Stuart C. and L. P Thijs (2008) Plant Physiological Ecology. Second Edition. New York.
8. Henry R.J and P.S. Kettle well (1996) Cereal Grain Quality .London
9. Janice J. (2001) Horticultural Reviews. Volume 26. American Society for Horticultural Science.
10. Jonick J.(1972) Horticultural Science .Second Edition ,San Francisco.
11. Khalaf, A.S (2010).Principles of field crops. College of agriculture .University of Dohuk,
12. Khalaf, A.S (2016).Seed and seed technology. College of Agriculture, University of Dohuk, Mahajan .A and R.D.Gupta (2009) Integrated nutrient management (INM) in a sustainable Rice –Wheat cropping system. Springer science and business media .India
13. Martin J.H. R.P.Waldren and D.L. Stamp (2006) Principals of Field Crop Production .Columbus, Ohio
14. Martin J.H. R.P.Waldren and D.L. Stamp (2009). Principals of Field Crop Production (Fourth edition). Pearson Prentice Hall and Martin Waldron Stamp. Langston University.
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| **18. The Topics:**  | **Lecturer's name**  |
| **Week 1**Seeds: Typical seed consists. Seed types. Methods to seed determination and distinction, Advantage of seed identification**Week 2**Seed germination.The necessary condition of germination. Type of germination. Factors affecting germination. Dormancy in seeds. Causes of dormancy. Processofgermination.**Week 3**Visiting Grda-Rasha field. Practical.**Week4**Classification of crop plants. Classification based on climate. Cereals. Some important cereal crops Important Field CropsCereals: Wheat, Barley, Rice, Corn.Pulse crops: Horse bean, Chick pea, Lentil.Oil crops: Sunflower, Sesame.Fiber crops: Cotton, Flax..**Week 5** Examination (First Exam).**Week 6**Soil management (Land preparation). Tillage, Function of tillage. Good plowing conditions. Depth of plowing. Time of plowing. Smoothing and harrowing. Leveling. The right type of equipments must be choosing in relation . The seedbed can be divided . Types of plowing. **Week 7**Visit to Grdarasha field to see weed and survey weed**Week 8**Horticulture. Horticulture classification. Some common classifications used in horticulture. Classification by climatic requirements. Branches of horticulture. **Week 9**Nursery. The importance of nursery. The purpose of constructing nurseries. Type of nurseries. Conditions to establish nurseries. Protected house. Types of container. The most important circles used. Sterilizing soil and pots used for planting and germination**Week 10**Practical Examination (second Exam)**Week 11**Weeds & Weed Control:Weed classification, 1. Natural classification, 2. Artificial classification: According to abounds, According to life cycle, According to poisoning, Persistence of weeds, Weed control methods, 1. Biological control, 2. Chemical herbicides | **Lecturer's name****Miss. Kharman Mohammed****3 hours per a week for all three department** |
| **Week 12**Fertilizers and Fertilizer Application: Kind of fertilizers: Simple and Compound Fertilizers, Organic fertilization. Green manures. Role of Microbial fertility. |  |
| **19. Examination** Practical questions **Q1- Define the crop plants, and write the classification of agronomic? (30 mark)****Q2- Answer the following questions:- (30 mark)** **(Write the mechanisms for droaking dormancy?**1. **Write the difference between (Monocot & Dicot) Germination?**

 **3-Draw the wheat flower & Legume flower?****----------------------------------------------------------------------------------------------------------------**1. Q4- **From an experiment on cotton crop, four fertilizer application treatments used in four blocks and each block = 4.5 m2. If you had the following treatments:**

 **(40 mark)*** 1. **20 kg of P2O5/do.**
	2. **30 kg of P2O5/do.**
	3. **40 kg of P2O5/do.**
	4. **50 kg of P2O5/do.**

**Find out:**1. **The amount of super-phosphate if the rate of P2O5 contains is similar (18%).**
2. **The cost of fertilizers, if the price of (1) kg of super-phosphate =12000 ID.**
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| **20. Peer review** پێداچوونةوةی هاوةڵThis course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section. *(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*ئةم کۆرسبووکة دةبێت لةلایةن هاوةڵێکی ئةکادیمیةوة سةیر بکرێت و ناوةڕۆکی بابةتةکانی کۆرسةکة پةسةند بکات وجةند ووشةیةک بنووسێت لةسةر شیاوی ناوةڕۆکی کۆرسةکة و واژووی لةسةر بکات .هاوةڵ ئةو کةسةیة کة زانیاری ةةبێت لةسةر کۆرسةکة و دةبیت پلةی زانستی لة مامۆستا کةمتر نةبێت |