ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

III SEMESTER **AGRICULTURE AND RURAL DEVELOPMENT** Time: 3hrs/week

AGRO 201(2) **CROP PRODUCTION TECHNOLOGY – I** Marks: 100

w.e.f AJ 2022-2023

**OBJECTIVES**

* To study about the understand the principles and practices that underpin modern crop practises
* To study about Optimize and manipulate crop scheduling.
* To study about Exploit understanding in plant sciences.
* To study about to implement best practises.

**Course Outcomes**

At the end of the course, students will be able to

**CO1:** Explain importance and special features of cereal crops in Andhra Pradesh.

**CO2:** Outline the agronomical conditions for the cultivation of agricultural cereal crops.

**CO3:** Summarize agronomical conditions to grow millet crops.

**CO4:** Discuss the agronomical conditions necessary for the cultivation of pulses and lentils.

**CO5:** List the agronomical characteristics of various agricultural field crops.

**Theory**

**UNIT-I: (6Hrs)**

1.Cereals – Importance and special features of cereals - Rice- Origin - geographical distribution – nutritional value – area, production and productivity in India and Andhra Pradesh

2. Economic importance - soil and climatic requirements

3. Classification of rice plant types - growth Stages of rice -different types of rice ecosystems

4. Land Preparation –physico – chemical and biological changes under submerged soils

5. Crop establishment techniques in rice - Climate resilient technologies

6. Nutrient management with special emphasis on nitrogen dynamics, micro nutrients -INM

**UNIT – II: (6hrs)**

1. Water management in rice under different rice ecosystems

2. Weed management including weed management in rice nurseries – IWM

3. Harvesting -Yield attributes - yield - post harvest operations - milling of rice

4. Value added products of rice – export potential - rice grain classification, cropping systems in rice 11. Wheat- Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance - soil and climatic requirements - zones of wheat cultivation - growth Stages - Classification

5. Land Preparation - seeds and sowing - nutrient management -water management - weed management - climate resilient technologies

6. Harvesting -yield attributes – yield - post harvest operations – wheat based cropping systems – value addition

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**UNIT-III: (6hrs)**

1. Barley – Origin- geographical distribution - economic importance- classification - area, production and productivity in India and Andhra Pradesh - soil and climatic requirements –-varieties - cultural practices - Harvesting -Yield attributes – yield

2. Maize- Origin- geographical distribution - economic importance - area, production and productivity in India and Andhra Pradesh- soil and climatic requirements - growth stages - Classification of maize

3. Land Preparation – zero tillage - seeds and sowing - nutrient management - water management - weed management - climate resilient technologies21

4. Harvesting - yield attributes – yield - post harvest operations - value addition - cropping systems 18. Millets- Economic importance - constraints and strategies for increasing the production of millets - climate resilient technologies

5. Jowar- Origin - geographical distribution - economic importance - area, production and productivity in India and Andhra Pradesh - soil and climatic requirements - zones of jowar cultivation - growth Stages - Land Preparation - seeds and sowing

**UNIT-IV: (6hrs)**

1. Nutrient management - water management - weed management – harvesting- yield attributes – yield - post harvest operations - value addition- sorghum effect, mid-season corrections - cropping systems

2. Pearl millet – Origin - geographical distribution - economic importance - area, production and productivity in India and Andhra Pradesh- soil and climatic requirements -growth Stages - land preparation - seeds and sowing - Nutrient management - sater management - weed management – harvesting- yield attributes – yield - post harvest operations - value addition - cropping systems

3. Finger millet- Origin - geographical distribution - economic importance - area, production and productivity in India and Andhra Pradesh- soil and climatic requirements, growth Stages - land preparation, seeds and sowing - nutrient management - water management - weed management – harvesting - yield attributes – yield - post harvest operations - value addition - cropping systems

4. Proso millet, Little millet and Kodo millet – Origin - geographical distribution - economic importance - adaptations, soil and climatic requirements - growth Stages - land preparation - seeds and sowing - nutrient management - water management - weed management – harvesting - yield attributes – yield - post harvest operations

5. Foxtail millet, Barnyard millet- Origin - geographical distribution- economic importance – Adaptations - soil and climatic requirements - growth Stages- land preparation- seeds and sowing- nutrient management - water management - weed management- harvesting - yield attributes – yield - post harvest operations

6. Pulses- Economic importance - constraints for achieving higher productivity of pulses, strategies for improving the pulse production in India - climate resilient technologies

7. Pigeonpea- Origin - geographical distribution - economic importance- area, production and productivity in India and Andhra Pradesh - soil and climatic requirements - growth Stages - land Preparation - seeds and sowing – varieties - nutrient management - water management - weed management – harvesting- yield attributes – yield - post harvest operations - cropping systems

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**UNIT- V: (6hrs)**

1. Greengram – Origin - geographical distribution - economic importance - area, production and productivity in India and Andhra Pradesh - soil and climatic requirements growth stages - land Preparation- seeds and sowing – varieties nutrient management -water management- weed management- harvesting- yield attributes – yield - post harvest operations - cropping systems
2. Blackgram – Origin- geographical distribution, - economic importance - area, production and productivity in India and Andhra Pradesh - soil and climatic requirements - growth stages - land Preparation - seeds and sowing – varieties-nutrient management - water management- weed management - harvesting- yield attributes – yield - post harvest operations - cropping systems
3. Bengalgram - Origin - geographical distribution- economic importance- area, production and productivity in India and Andhra Pradesh - soil and climatic requirements- growth stages -types of chick pea -land preparation - seeds and sowing- varieties- nutrient management- water management- weed management-harvesting- yield attributes – yield - post harvest operations - cropping systems
4. Lentil, peas- Origin- geographical distribution - economic importance- area, production and productivity in India and Andhra Pradesh - soil and climatic requirements- growth stages-types of lentil and peas - land Preparation - seeds and sowing – varieties- nutrient management- water management- weed management-harvesting- yield attributes – yield - post harvest operations - cropping systems
5. Horsegram- Origin- geographical distribution - economic importance - area, production and productivity in India and Andhra Pradesh - soil and climatic requirements- growth stages - land Preparation- seeds and sowing – varieties-nutrient management- water management- weed management- harvesting- yield attributes – yield - post harvest operations - cropping systems
6. Cowpea- Origin - geographical distribution- economic importance - area, production and productivity in India and Andhra Pradesh - soil and climatic requirements - growth Stages - land preparation- seeds and sowing- varieties - nutrient management- water management- weed management-harvesting- yield attributes – yield - post harvest operations - cropping systems

**References Text books:**

1. Rajendra Prasad. 2006. Text book of field crops production. ICAR, New Delhi.
2. Reddy, S.R. and Reddi Ramu. 5th edition. 2016. Agronomy of field crops. Kalyani publishers, Ludhiana.
3. Gururaj hunsigi and Krishna, K.R. 2007. Scientific field crop production. Oxford &IBH Publishing Co.Pvt.LTD.
4. De Datta, S.K.1981. Principles and practices of rice Production. John Wiley and Sons, New York

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