

Course Curriculum of PG Programme

(Major and Non-credit courses)

MASTER OF SCIENCE IN AGRONOMY

SEMESTER-III



**SHRI VAISHNAV INSTITUTE OF AGRICULTURE,
INDORE**

**SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA,
INDORE**

SYLLABUS
MASTER OF SCIENCE IN AGRONOMY
SEMESTER-III

COURSE CODE	COURSE TITLE	CREDITS
MAJOR		
AGRON 512	Dryland Farming and Watershed Management	2+1
AGRON 591	Master's Seminar	0+1
AGRON 599	Master's Research	0+12



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Agriculture

M.Sc. (Ag.) Plant Pathology

Course Code	Course Name	TEACHING & EVALUATION SCHEME							
		Theory			Practical		Credits		
		END SEM University Exam	Mid term exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	P	Total
AGRON 512	Dryland Farming And Watershed Management	50	30	00	15	05	2	1	2

1. Legends: L - Lecture; P – Practical

2. *Teacher Assessment shall be based on following components: Quiz / Assignment / Project / Participation in Class.

Objective

To teach the basic concepts and practices of dry land farming and soil moisture conservation.

Theory

UNIT I

Definition, concept and characteristics of dry land farming; dry land versus rainfed farming; significance and dimensions of dry land farming in Indian agriculture.

UNIT II

Soil and climatic parameters with special emphasis on rainfall characteristics; constraints limiting crop production in dry land areas; types of drought, characterization of environment for water availability; crop planning for erratic and aberrant weather conditions.

UNIT III

Stress physiology and resistance to drought, adaptation of crop plants to drought, drought management strategies; preparation of appropriate crop plans for dry land areas; mid contingent plan for aberrant weather conditions.

UNIT IV

Tillage, till, frequency and depth of cultivation, compaction in soil tillage; concept of conservation tillage; tillage in relation to weed control and moisture conservation; techniques and practices of soil moisture conservation (use of mulches, kinds, effectiveness and economics); antitranspirants; soil and crop management techniques, seeding and efficient fertilizer use.

UNIT V

Concept of watershed resource management, problems, approach and components.

Practical

- Method of Seed Priming
- Determination of moisture content of germination of important dryland crops
- Determination of Relative Water Content and Saturation Deficit of Leaf
- Moisture stress effects and recovery behaviour of important crops
- Estimation of Potential ET by Thornthwaite method
- Estimation of Reference ET by Penman Monteith Method
- Classification of climate by Thornthwaite method (based on moisture index, humidity index and aridity index)
- Classification of climate by Koppen Method
- Estimation of water balance by Thornthwaite method
- Estimation of water balance by FAO method
- Assessment of drought
- Estimation of length of growing period
- Estimation of probability of rain and crop planning for different drought condition
- Spray of anti-transpirants and their effect on crops
- Water use efficiency
- Visit to dryland research stations and watershed projects

Suggested Readings

1. Reddy TY. 2018. *Dryland Agriculture Principles and Practices*, Kalyani publishers
2. Das NR. 2007. *Tillage and Crop Production*. Scientific Publishers. Dhopte AM. 2002. *Agrotechnology for Dryland Farming*. Scientific Publ.
3. Dhruv Narayan VV. 2002. *Soil and Water Conservation Research in India*. ICAR.
4. Gupta US. (Ed.). 1995. *Production and Improvements of Crops for Drylands*. Oxford & IBH.
5. Katyal JC & Farrington J. 1995. *Research for Rainfed Farming*. CRIDA.
6. Rao SC & Ryan J. 2007. *Challenges and Strategies of Dryland Agriculture*. Scientific Publishers.
7. Singh P & Maliwal PL. 2005. *Technologies for Food Security and Sustainable Agriculture*. Agrotech Publishing Company.
8. Singh RP. 1988. *Improved Agronomic Practices for Dryland Crops*. CRIDA.
9. Singh RP. 2005. *Sustainable Development of Dryland Agriculture in India*. Scientific Publ.
10. Singh SD. 1998. *Arid Land Irrigation and Ecological Management*. Scientific Publishers.
11. Venkateshwarlu J. 2004. *Rainfed Agriculture in India. Research and Development Scenario*. ICAR.