DEPARTMENT OF AGRONOMY
Faculty of Agricultural Sciences
University of the Punjab, Lahore

Course Outline

Programme	BSc. (Hons.) Agriculture (Agronomy)	**Course Code**	**AGR-308**	**Credit Hours**	3 (3-0)
Course Title	**ORGANIC FARMING**				

Course Introduction

Organic farming is an integrated system of agricultural production based on ecological principles, promotion of biodiversity, biological cycles and organic matter recycling to maintain and improve soil fertility and environmental sustainability. The regulations for organic crop cultivation prohibit the use of chemo-synthetic pesticides, mineral fertilizers, growth promoters and Genetically Modified Organism. Indiscriminate use of these chemicals in conventional farming poses a serious threat to the quality of produce as well as the environment. Concern about food safety and security and environmental sustainability is increasing among scientists, administrators and environmentalists. In view of this, the course is designed to train students on organic farming practices, quality analysis of the products, environmental impact assessment, health benefit of organic food etc.

Learning Outcomes

On the completion of the course, the students will be able to:

1. Define basic terminologies regarding organic farming
2. Understand the concept, history, and principles of organic farming
3. Compare organic farming and inorganic farming
4. Identify various techniques to prepare organic fertilizers and natural products to control crop pests.
5. Analyze organic food for quality and quantity

Course Content (Theory)		Assignments/Readings
Week 1	**Unit-I** 1.1. Concept and terminology of organic farming 1.2. History and development of organic farming 1.3. Need of Organic farming in present context and future prospects- barrier	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 2	**Unit-II**	

	2.1. Quality of food and crop productivity under natural ecological systems	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
	2.2. Key indicators of sustainable agriculture, organic farming and climate change	
	2.3. Different ecofriendly farming systems 2.3.1. Biological farming 2.3.2. Natural farming 2.3.3. Regenerative agriculture 2.3.4. Permaculture 2.3.5. Biodynamic farming.	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 3	**Unit-III** 3.1. Principles of organic agriculture	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
	3.2. Relevance of organic farming to Pakistan, global agriculture and future prospects	
	3.3. Advantages 3.4. Barriers	
Week 4	**Unit-IV** 1.1. Input management 1.1.1. Compost production 1.1.2. Vermicomposting 1.1.3. Compost quality	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	1.2. Input management (cont.….) 1.2.1. Compost utilization 1.2.2. Marketing	
	1.3. Organic crop management 1.3.1. Field crops	
Week 5	**Unit-V** 5.1. Organic Crop Management (Cont.….) 5.1.1. Horticulture crops	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	5.2. Organic Crop Management (Cont.….) 5.2.1. Plantation crops	
	5.3. Plant protection measures 5.3.1. Biopesticides	
Week 6	**Unit-VI** 6.1. Plant protection measures (Cont.….) 6.1.1. Natural predators	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	6.2. Plant protection measures (Cont.….) 6.2.1. Cultural practice	
	6.3. Plant protection measures (Cont.….) 6.3.1. Mechanical control	
Week 7	**Unit-VII** 7.1. Rotation design for organic system	Gupta, M., 2004. Organic Agriculture

	7.2. Transition to organic agriculture	Development in India. ABD publishers, Jaipur, India.
	7.3. Farming system	
Week 8	**Unit-VIII** 8.1. Organic Ecosystem & Their Concept 8.1.1. Structure and function 8.1.2. Productivity	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	8.2. Organic Ecosystem & Their Concept (Cont.….) 8.2.1. Decomposition 8.2.2. Nutrient cycling	
	8.3. Organic Ecosystem & Their Concept (Cont.….) 8.3.1. Eutrophication 8.3.2. Biological magnification	
Week 9	**MIDTERM EXAM**	
Week 10	**Unit-IX** 9.1. Improvement of soil health and organic matter	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	9.2. Improvement of soil health and organic matter (Cont.….)	
	9.3. Improvement of soil health and organic matter (Cont.….)	
Week 11	**Unit-X** 10.1. Organic nutrient sources and their fortification	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	10.2. Organic manures	
	10.3. Methods of composting	
Week 12	**Unit-XI** 11.1. Green manures 11.1.1 Bio fertilizers 11.1.2. Types 11.1.3. Methods of application 11.1.4. Benefits and limitations	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	11.2. Nutrient use in organic farming-scope and limitations	
	11.3. Nutrient management in organic farming	
Week 13	**Unit-XII** 12.1. Choice of crops and varieties in organic farming 12.1.1. Crop rotations 12.1.2. Need and benefits 12.1.3. Multiple cropping	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	12.2. Components of organic farming	

	12.2.1. Crop rotation 12.2.2. Maintenance and enhancement of soil fertility through biological nitrogen fixation	
	12.3. Components of organic farming (Cont.….) 12.3.1. Addition of organic manure and use of soil microorganisms 12.3.2. Crop residues 12.3.3. Bio-pesticide 12.3.4. Biogas slurry 12.3.5. Waste	
Week 14	**Unit-XIII** 13.1. Maintenance of buffer zone	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	13.2. Organic Farm Management 13.2.1. Land preparation - Tools and Technique 13.2.1. Preparation of seed bed , manuring, sowing, watering and raising of seedling	
	13.3. Crop Management 13.3.1. Pest control: Cultural, Biological and Mechanical method 13.3.2. Integrated Pest Management(IPM) 13.3.3. Crop rotation: need and benefits 13.3.4. Harvesting and Post Harvesting Management	
Week 15	**Unit-XIV** 14.1. Certification and Marketing 14.1.1. Inspection, Certification & Labelling procedure 14.1.2. Marketing & Export	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	14.2. Processing, - economic consideration and viability	
	14.3. Standards of organic food and marketing	
Week 16	**Unit-XV** 16.1. Quality analysis of organic foods	Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
	16.2. Antioxidants and their natural source	
	16.3. Organic food and human health	
Course Content (Practical)		**Assignments/Readings**
Week 1	1. Preparation of organic manures	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 2	1.2 Humus	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.

Week 3	1.3 Sewage sludge	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 4	1.4 Organic compost	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 5	1.5 Vermicompost	Sathe, T.V. 2004, Vermiculture and Organic Farming.Daya Publishers.
Week 6	1.6 Farm waste recycling	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 7	1.7 Organic mulches	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 8	1.8 Bio-fertilizers	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 9	**Mid Term Exam**	
Week 10	2.1 Identification and Application of different green manuring crops	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 11	2.2 Identification and Application of different Compost	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
	2.3 Identification and Application of Vermicompost	Sathe, T.V. 2004, Vermiculture and Organic Farming. Daya Publishers.
Week 12	2.4 Identification and Application of crop residue incorporation	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 13	3.1 Methods used to control weeds using cultural practices / organic products	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 14	3.1 Methods used to control weeds using cultural practices / organic products (Cont…)	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 15	3.2 Methods used to control insects using cultural practices / organic products	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
Week 16	3.3 Methods used to control crop diseases using cultural practices / organic products	Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.

Week 17	FINAL TERM EXAM

Textbooks and Reading Material

1. Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.
2. Sathe, T.V. 2004, Vermiculture and Organic Farming. Daya Publishers.
3. Alvares, C. 1996. The Organic Farming Source Book. The Other India Press, Mapusa, Goa.
4. Gupta, M., 2004. Organic Agriculture Development in India. ABD publishers, Jaipur, India.
5. S.P. Palaniappan, K. Annadurai, 1999. Organic Farming- Theory and Practice, Scientific Publishers, Jodhpur, India.
6. Dr. Pratiksha Raghuvanoki. Handbook of Organic Farming.
7. Organic Farming: The Ecological System- Agronomy Monograph 54, ASA, USA.
8. Subha Rao, N.S. 200, Soil Microbiology, Oxford & IBH Publishers, New Delhi
9. Dongarjal R. P. and Zade S.B. 2019. Insect Ecology and Integrated Pest Management, Akinik Publications, New Delhi.
10. Guideline of National Project on Organic Farming, Department of Agriculture and Cooperation, INM Division, Ministry of Agriculture, Govt. of India
11. Dushyent Gehlot. 2005. Organic Farming- standards, accreditation, certification and inspection. Agribios, India.

Teaching Learning Strategies

1. Multimedia
2. White Board
3. Group discussion
4. Quiz/Assignments
5. Demonstration/Activity
6. Internet (web sited literature)
7. Field Tours

Assignments: Types and Number with Calendar

1. Preparation of Organic Compost-Over ground compost, Pit compost, Liquid compost, Vermi compost (Mid-term)
2. Visit to Organic farm to study the various components, identification and utilization of Organic products (Final-term)

Assessment			
Sr. No.	**Elements**	**Weightage**	**Details**
4.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
5.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
6.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.