

**COLLEGE OF AGRICULTURE**  
**Lecture Programme-4<sup>st</sup> Year 1<sup>st</sup> Sem (2016-17)**

**Course: Advance seed technology (PBG-4411)**

**Credit : 3(2+1)**

**Name of Teacher: Dr. R.K. Rathore**

**Class Time: As per time table**

Lecture No.	Title of lecture	Schedule Date
<b>Theory</b>		
1	Introduction – aim, objectives and scope of the course no. PBG-4411(Advance seed technology)	21.07.2016
2	Heterosis: Inbred line production and maintenance, Production of inbreds by various methods, Evaluation of inbreds, Maintenance of inbreds,	28.07.2016
3	Production of hybrids, Emasculation techniques, use of male sterility, Use of self-incompatibility, Maintenance of MS lines,	04.08.2016
4	Production of composites and synthetics, Exploitation of apomixes, Obtaining Licenses for seed production and processing units	11.08.2016
5	Private and public seed production systems, Risk factor analysis in seed business	01.09.2016
6	Setting up of marketing units, Economics of seed production, Supply chain management	08.09.2016
7	Storage and packaging	15.09.2016
8	Model crops for seed production- wheat, maize, pearl millet	22.09.2016
9	Model crops for seed production- gram and moth	29.09.2016
10	Model crops for seed production- guar and cowpea	06.10.2016
11	Model crops for seed production- rapeseed - mustard	13.10.2016
12	Model crops for seed production-cotton	20.10.2016
13	Model crops for seed production- tomato	27.10.2016
14	Model crops for seed production- cucurbits	03.11.2015
15	Model crops for seed production- chilli	10.11.2016
16	Model crops for seed production- seed spices	17.11.2016
<b>Practical</b>		
1	Visit of seed production farm	18.07.2016

2	Different method of emasculation	20.07.2016
3	Hybridization techniques and breeding methodologies	25.07..2016
4	Visit of seed production & experimental units	27.07.2016
5	Seed production of maize, packages and practices, breeding strategies and procedures	01.08.2016
6	Seed production of wheat, packages and practices, breeding strategies and procedures	03.08.2016
7	Seed production of pearl millet, packages and practices, breeding strategies and procedures	08.08.2016
8	Seed production of mungbean and mothbean, packages and practices, breeding strategies and procedures	10.08.2016
9	Seed production of gram, packages and practices, breeding strategies and procedures	17.08.2016
10	Seed production of guar, packages and practices, breeding strategies and procedures	22.08.2016
11	Seed production of cowpea, packages and practices, breeding strategies and procedures	24.08.2016
12	Seed production of mustard, packages and practices, breeding strategies and procedures	29.08.2016
13	Seed production of cotton, packages and practices, breeding strategies and procedures	31.08.2016
14	Seed production of tomato, packages and practices, breeding strategies and procedures	05.09.2016
15	Seed production of cucurbits, packages and practices, breeding strategies and procedures	07.09.2016
16	Seed production of chilli, packages and practices, breeding strategies and procedures	14.09.2016
17	Seed production of spices, packages and practices, breeding strategies and procedures	19.09.2016

18	Visit to seed production farm	21.09.2016
19	Setting up of seed testing laboratory	26.09.2016
20	Setting up of seed testing laboratory	28.09.2016
21	Different tests of seed quality for seed legislation	03.10.2016
22	Different tests of seed quality for seed legislation	05.10.2016
23	Seed processing equipment's	10.10.2016
24	Seed processing equipment's	17.10.2016
25	Setting up of seed processing unit	19.10.2016
26	Setting up of seed processing unit	24.10.2016
27	Visit of ARSS seed production unit	26.10.2016
28	Visit to seed processing unit	31.10.2016
29	Demonstration/visit of inbred plots	02.11.2016
30	Demonstration/visit of inbred plots	07.11.2016
31	Visit to seed processing unit	09.11.2016
32	Visit to seed production farms	16.11.2016

**Course: VERMICOMPOSTING AND ORGANIC FARMING (SCHEM-4411) Credits: 3(1+2)**

**Teacher: Dr. H. P. Parewa**

**Class Time: As per time table**

Lecture No.	Topic	Scheduled Date
<b>Theory</b>		
1.	Vermicompost- Definition and objective of vermitechnology	15.07.2016
2.	Importance of vermicomposting in utilization of Agriculture waste, and organic recycling of nutrients	22.07.2016
3.	Classification of earth worms	29.07.2016
4.	Method of preparation of vermicompost	05.08.2016
5.	Method and doses of vermicompost application for cereals, pulses, trees vegetables	12.08.2016
6.	Role of vermicomposting in organic farming	19.08.2016
7.	Role of vermicomposting in soil fertility	26.08.2016
8.	Concept and definition of organic farming	02.09.2016
9.	Objectives and principle of organic farming	09.09.2016
10.	Scope of organic farming	23.09.2016
11.	Soil health and quality in details	30.09.2016

12.	Role of organic farming in improving soil health and quality	07.10.2016
13.	Definition of biofertilizers and importance of biofertilizers in organic farming, sustainability of soil fertility and productivity	14.10.2016
14.	Types of biofertilizers/microbiological inoculants	21.10.2016
15.	Methods of application and doses of biofertilizers/microbiological inoculants	28.10.2016
16.	Interaction with students	04.11.2016
<b>Practical21</b>		
1.	Identification of glassware's and equipments used in soil science laboratory	18.07.2016
2.	Introduction to common term used in soil, plant and water analysis	21.07.2016
3.	Identification and average nutrient content of important manures	25.07.2016
4.	Identification of earthworms	28.07.2016
5.	Collection and preparation of bedding materials	01.08.2016
6.	Preparation of beds for vermicompost and inoculation of vermiculture	04.08.2016
7.	Separation of vermiculture and vermicompost	08.08.2016
8.	Maintenance of vermiculture	11.08.2016
9.	Preservation and packing of vermicompost	11.08.2016
10.	Determination of nitrogen in vermicompost	22.08.2016
11.	Determination of phosphorus in vermicompost	29.08.2016
12.	Determination of potassium in vermicompost	01.09.2016
13.	Estimation of organic carbon in vermicompost	05.09.2016
14.	Fractionation of vermicompost	08.09.2016
15.	Fractionation of vermicompost (conti..)	
16.	Drawing of flow-sheet chart of vermitechology	19.09.2016
17.	Determination of bulk density of soil	22.09.2016
18.	Determination of particle density of soil	26.09.2016
19.	Determination of infiltration rate of soil	29.09.2016
20.	Determination of water holding capacity of soil	03.10.2016
21.	Determination of organic carbon content of soil	06.10.2016
22.	Preparation of project for vermicomposting (I)	10.10.2016
23.	Preparation of project for vermicomposting (II)	13.10.2016

24.	Visit and reporting about the productivity of soil under organic farming	17.10.2016
25.	Determination of pH & EC of the soil of organic Field	20.10.2016
26.	Determination of organic carbon in soil of organic field	24.10.2016
27.	Determination of N content of organic field's soil	27.10.2016
28.	Determination of P content of organic field's soil	03.11.2016
29.	Determination of K content of organic field's soil	07.11.2016
30.	Identification of different strains of bio-fertilizers	10.11.2016
31.	Isolation of Rhizobium from nodules	17.11.2016

Lecture No.	Topic	Scheduled Date
<b>Theory</b>		
1.	Principle of pH meter, EC meter and Principle of spectrophotometer	18.07.2016
2.	Principle of Flame photometer and AAS and differences between Flame photometer and AAS	25.07.2016
3.	Soil analysis: Objectives, procedure of soil sampling, tools, materials and precautions in soil sampling	01.08.2016
4.	Interpretation of analytical data for evaluation of soil fertility and nutrient index	08.08.2016
5.	Plant analysis: Sampling, stages and plant part to be sampled	22.08.2016
6.	Preparation of plant samples for analysis by ashing and digestion	29.08.2016
7.	Total plant analysis, Quantitative rating of plant analysis data and interpretation of results, critical nutrient concentration, critical nutrient range.	05.09.2016
8.	Nutrient use efficiency	19.09.2016
9.	Rapid plant tissue test for N, P, K and their interpretation as a guide to fertilizer recommendation. Advantage and disadvantage of rapid plant tissue test	26.09.2016
10.	Visual symptoms of nutrients deficiency or toxicity and critical limits of major nutrients in plants (N, P & K)	03.10.2016
11.	Visual symptoms of nutrients deficiency or toxicity and critical limits of major nutrients in plants (Ca, Mg & S)	10.10.2016
12.	Visual symptoms of nutrients deficiency or toxicity and critical limits of micro nutrients (Zn, Cu, Fe) in plants	17.10.2016
13.	Visual symptoms of nutrients deficiency or toxicity and critical limits of micro nutrients (Mn, B, Mo, Cl) in plants	24.10.2016
14.	Errors in soil and plant analysis, precision and accuracy classification and minimization of errors	02.11.2016
15.	Water analysis: Quality criteria, classification	07.11.2016
16.	Suitability of irrigation water. Water quality index	08.11.2016
<b>Practical</b>		
1.	Identification of glassware's and equipments used in soil science laboratory	19.07.2016
2.	Introduction to common term used in soil, plant and water analysis	20.07.2016
3.	Preparation of 1 N solution of H <sub>2</sub> SO <sub>4</sub>	26.07.2016

4.	Preparation of 1 N solution of NaOH	27.07.2016
5.	Standardization of the prepared 1 N solution of H <sub>2</sub> SO <sub>4</sub>	02.08.2016
6.	Standardization of the prepared 1 N solution of NaOH	03.08.2016
7.	Collection and preparation of soil sample	09.08.2016
8.	Estimation of pH and EC of soil and irrigation water	10.08.2016
9.	Estimation of organic carbon in soil	16.08.2016
10.	Estimation of available nitrogen in soil	17.08.2016
11.	Estimation of available phosphorus in soil	23.08.2016
12.	Estimation of available potassium in soil	24.08.2016
13.	Estimation of available sulphur in soil	30.08.2016
14.	Determination CEC of soil	31.08.2016
15.	Estimation of exchangeable sodium in soil	06.09.2016
16.	Estimation of micronutrients (Zn, Mn, Cu and Fe) in soil	07.09.2016
17.	Determination of EC and pH in saturation extract / paste	13.09.2016
18.	Estimation of cations Ca <sup>++</sup> , Mg <sup>++</sup> and Na <sup>+</sup> in saturation extract	14.09.2016
19.	Estimation of anions ( CO <sub>3</sub> <sup>-</sup> and HCO <sub>3</sub> <sup>-</sup> ) in saturation extract	20.09.2016
20.	Plant sampling and sample preparation for analysis	21.09.2016
21.	Digestion of plant material	27.09.2016
22.	Estimation of nitrogen in plant	28.09.2016
23.	Estimation of phosphorus in plant	04.10.2016
24.	Estimation of potassium in plant	05.10.2016
25.	Rapid plant tissue test for nitrate	18.10.2016
26.	Rapid plant tissue test for phosphate	19.10.2016
27.	Rapid plant tissue test for potassium	25.10.2016
28.	Estimation of CO <sub>3</sub> <sup>-</sup> and HCO <sub>3</sub> <sup>-</sup> in irrigation water	26.10.2016
29.	Estimation of Cl <sup>-</sup> in irrigation water	09.11.2016

Lecture No.	Topic	Scheduled Date
<b>Theory</b>		
1.	Soil resources of India; distribution of wasteland and problem soils	20.07.2016
2.	Soil tilth management, soil crusting and their management	27.07.2016
3.	Soil water: classification, and its measurement	03.08.2016
4.	Forces of soil water retention, moisture retention curve and management of soil moisture under different climates	10.08.2016
5.	Quality of irrigation water: Criteria and classification of poor quality water	17.08.2016
6.	Effect of poor quality water on soil and crop growth, management of poor quality water	24.08.2016
7.	Soil air: Composition of soil air, gaseous exchange in soil and management of soil aeration in relation to plant growth	31.08.2016
8.	Soil temperature and thermal regimes in relation to crop growth, factors affecting soil temperature and optimization of soil thermal regimes	07.09.2016
9.	Recycling of Agricultural and industrial organic waste, waste land and their management	14.09.2016
10.	Acid soils, saline and sodic soil: sources, characteristics	21.09.2016
11.	Reclamation and management of salt affected soils	28.09.2016
12.	Highly and low permeable soils: constraints and their management	05.10.2016
13.	Soil Erosion: Extent of soil erosion, types of soil erosion	19.10.2016
14.	Causes of soil erosion, prevention and management of soil erosion	26.10.2016
15.	Water harvesting and watershed management, concept, objectives and approach	02.11.2016
16.	Remote sensing for soil and watershed management	09.11.2016
<b>Practical</b>		
1.	Identification of glassware's and equipments used in soil science laboratory	15.07.2016
2.	Introduction to common term used in soil, plant and water analysis	19.07.2016
3.	Determination of bulk density of soil	22.07.2016
4.	Determination of particle density of soil by R D bottle	26.07.2016
5.	Principle of pH meter and their calibration	29.07.2016
6.	Determination of soil pH	02.08.2016
7.	Determination of soil EC	05.08.2016
8.	Measurement of water holding capacity	09.08.2016

9.	Measurement of field capacity of soil	12.08.2016
10.	Measurement of infiltration rate of normal soil by double ring infiltrometer	16.08.2016
11.	Measurement of infiltration rate of problematic soil by double ring infiltrometer	19.08.2016
12.	Moisture retention characteristics curve in normal, problematic and reclaimed soils	23.08.2016
13.	Preparation of saturation paste of soil	26.08.2016
14.	Preparation of saturated paste extraction of soil	30.08.2016
15.	Determination of $\text{CaCO}_3$ in soil	02.09.2016
16.	Determination of Ca , Mg in saturation extract	06.09.2016
17.	Determination of Na in saturation extract and computation of SAR	09.09.2016
18.	Determination of $\text{CO}_3$ and $\text{HCO}_3$ in saturated extract	13.09.2016
19.	Determination of Chloride in saturated extract	20.09.2016
20.	Determination of Sulphate in saturated extract	23.09.2016
21.	Determination of Boron in soil sample	27.09.2016
22.	Estimation of lime requirement of acid soil by Woodruff method	30.09.2016
23.	Estimation of lime requirement of acid soil by Shoemaker method	04.10.2016
24.	Estimation of gypsum requirement of sodic soils	07.10.2016
25.	Measurement of oxygen diffusion rate (ODR) of normal soil	14.10.2016
26.	Measurement of oxygen diffusion rate (ODR) of problematic soil	18.10.2016
27.	Estimation of water stable soil aggregates of normal soil	21.10.2016
28.	Estimation of water stable soil aggregates of problematic soil	25.10.2016
29.	Determination of saturated hydraulic conductivity of soil	28.10.2016
30.	Field demonstration to study the problematic soil	04.11.2016

Course: AGRON 4411-Applied Weed Management

Credits: 3(2+1)

Teacher: Mr. L. K. Jain

Class Time: As per time table

Discipline: Agronomy

Lecture No.	Topic	Scheduled Date	
<b>Theory:</b>			
1.	Weed definition and damages caused	20.7.16	
2.	Elements of weed prevention and control	27.7.16	
3.	Physical weed control of weeds	03.8.16	
4.	Cultural and mechanical weed control and Soil solarization	10.8.16	
5.	Weed control through agronomic practices	17.8.16	
6.	Biological weed control and Integrated weed management	24.8.16	
7.	Herbicidal weed control and limitations	31.8.16	
8.	Classes and methods of herbicide application	07.09.16	
9.	Sprayers, their component and calibration	14.09.16	
10.	Weed management in rice, wheat, maize and millets	21.09.16	
11.	Weed management in groundnut, linseed. Rapeseed and mustard, soybean	28.09.16	
12.	Weed management in Chickpea, pigeon pea, lentil	05.10.16	
13.	Weed management in Sugarcane and cotton	19.10.16	
14.	Weed management in Cumin, fenugreek, Lucerne, berseem	26.10.16	
15.	Weed management in vegetable crops	02.11.16	
16.	Parasitic weeds and their control measures	09.11.16	
<b>Practical</b>			
Lecture No.	Lecture Title	Tentative dates	
1.	Identification of common weeds	21.7.16	15.7.16
2.	Collection of common <i>kharif</i> weeds and their preservation	28.7.16	22.7.16
3.	Collection of common <i>rabi</i> weeds and their preservation	04.8.16	29.7.16
4.	Collection of common perennial weeds and their preservation	11.8.16	05.8.16
5.	Different practices of manual and mechanical weed control and use of improved implements	01.8.16	12.8.16
6.	Acquaintance with herbicides : their manufacturer and potential uses	08.09.16	19.8.16
7.	Visit to weed control trials and recording observations	15.09.16	26.8.16
8.	Herbicide application equipments and their calibration	22.09.16	02.09.16
9.	Calculation on herbicidal requirement	29.09.16	09.09.16
10.	Herbicide spray in cropped and non cropped areas	06.10.16	16.09.16
11.	Study of phytotoxicity symptoms of herbicides in different crops	13.10.16	23.09.16
12.	Economics of weed control practices	20.10.16	30.09.16
13.	Quantitative analysis of weedy vegetation	27.10.16	07.10.16
14.	Bioassay for herbicide residue estimation	03.11.16	14.10.16
15.	Control measures for <i>Parthenium hysterophorus</i>	10.11.16	02.11.16
16.	Visit to observe weed problem on farmers field and aquatic ecosystem	17.11.16	28.10.16