

OIL SEEDS AND COMMERCIAL CROPS II
(RABI CROPS)

Importance, origin, distribution, climate, varieties improved, agronomic practices, maturing and irrigation, plant protection, harvesting and processing of the following crops under various agro climatic conditions of UP.

Unit I

Cereal Crops - Wheat, Barley, Oat

Unit II

Oilseed Crops - Rapeseed and mustard, Linseed, Sunflower, Safflower

Unit III

Pulse Crops - Chickpea, Fieldpea, Lentil, Rajmash

Unit IV

Fodder Crops - Oat, Berseem, Lucerne

Cash Crops - Potato, Mentha

Practical

Same as the practical course for the field crops-I with suitable alternation of crops included in the syllabus.

BREEDING OF FIELD CROPS

Origin, distribution and breeding objectives, Breeding problems, systematic description and economic importance. Breeding methods adopted and achievements with reference to following crops:

Unit I

Wheat, Rice, Maize, Sorghum and Pennisetum

Unit II

Gram, Pea and Arhar

Unit III

Mustard, Groundnut and Sunflower

Unit IV

Cotton and Potato

Practical

1. Identification of important varieties of above mentioned crops.
2. Systematic description and artificial hybridization in above mentioned crops.
3. Significant research advances made in above mentioned crops.
4. Practical record
5. Viva-voce

SOIL SURVEY, LAND USE PLANNING AND REMOTE SENSING**Unit I**

Physical properties of soil and their determination. Definition and importance of soil conservation in agriculture. History of soil conservation in India.

Unit II

Soil survey, definition. Land use capability classification, different types of soil in India.

Unit III

Soil erosion, definition, types, mechanics and causes of erosion. Factors affecting soil erosion. Agronomical practices for soil and water conservation. Engineering practices for erosion control such as bunding, terracing, temporary and permanent structures for Gully Control. Grassed waterways, water harvesting.

Unit IV

Wind erosion, mechanics, control, sand dune fixation, shifting cultivation. Land survey, measurement of distance, direction and elevation. Role of grasses and Forests in soil conservation, Farm - forestry, Social Forestry.

Practical

1. Familiarization with chain survey equipments.
2. Exercises on chain survey.
3. Familiarization with prismatic compass (P.C.)
4. Open traversing by chain and P.C.
5. Closed traversing by Chain and P.C.
6. Calculation of included angles.
7. Study and adjustment of Dumpy level.(D.L.)
8. Differential leveling by DL.
9. Profile leveling by DL.
10. Calculation of Reduced Level.
11. Construction and design of bunds with Calculation of earth work.
12. Calculation of infiltration rate and bulk density.
13. Visit to soil conservation Research Centre for erosion and control structures.
14. Identification of different types of grasses and forest seeds useful for soil conservation.

**LIVESTOCK PRODUCTION INCLUDING POULTRY, SWINE AND GOAT
FARMING ALONG WITH ANIMAL DISEASES**

Unit I

Importance of livestock in Agriculture. Relationship of plants with Animal Husbandry. Dairying under specialized and mixed farming. Livestock and milk Production statistics, milk distribution. Pasture management. Housing for dairy animals.

Unit II

Breeds, Breeding methods and systems, care and management of milch cows at and after calving; raising of calves, management of heifers and bulls. Maintenance of livestock records milking methods and principles. Clean milk production.

Unit III

Importance, Important Breeds, raising piglets up to age of slaughter. General aspects of breeding, care of sow and boar. Importance, important breeds, raising to kids/lambs, breeding, feeding of goats/sheep. Importance, important breeds, General aspects management of raising broilers and layers, Feeding of different class of birds, Grading of eggs and preservation.

Unit IV

Signs of illness, control measures of diseases, classification of diseases. Modes of transmission, prevention and treatment of diseases of bovine (HS, RP, BQ, Anthrax, Brucellosis, Johne's Disease, Mastitis, Milk fever, FMD), Sheep and goats (enterotoxaemia, coccidiosis, ascariasis), pigs (Swine fever) and poultry (Ranikhet. fowl pox, CRD, Marex, Gumboro). Vaccination programme for Cattle and Poultry.

Practical

Study of external body parts, study of phenotypic and physiological differences between cow and buffaloes, zebu vs taurus, estimation of body weight by measurements, marking for identification, castration, dehorning, Estimation of age, judging, cost of milk production, problems on silo capacity, computation of balanced ration, mixing of feeds, casting and throwing, Grooming, Preparing scheme for green fodder supply round the year. Determining temperature, pulse and respiration rate.

ECONOMIC ENTOMOLOGY

Economic importance of insects, nature and extent of damage, life history and management of the major insect pests of following crops as mentioned against them:

Unit I

Polyphagous pests: *Odontotermes obesus*, *Schistocerca gregaria*, *Holotrichia consanguinea*, *Spilosoma obliqua*, *Spodoptera litura*, *Amsecta spp.*

Pest of Paddy: *Leptocorisa varicornis*, *Hieroglyphus spp.*, *Nilaparvata lugens*, *Nephotettix, spp.*, *Mythimna separata*.

Pest of Jowar, Maize : *Chilo partellus*, *Atherigona soccata*,

Pest of Sugarcane: *Tryporyza nivella*, *Emmalocera depresella*, *Pyrilla perpusilla*, *Aleurolobus barodensis*.

Unit II

Oil seeds pest: *Lipaphis erysimi*, *Athalia proxima*, *Bagrada Cruciferarum*, *Dasyneura lini*.

Pest of Pulses: *Helicoverpa armigera*, *Agrotis spp.*, *Etiella zinckenella*, *Melanagromyza obtusa*, *Phytomyza atricomis*.

Cotton pest: *Pectinophora gossypiella*, *Earias spp.*, *Sylepta derogata*, *Dysdercus koenigii*, *Bemisia tabaci.*, *Amrasca biguttula*.

Unit III

Pests of Fruit Crops: *Drosicha mangiferae*. *Idioscopus spp.*, *Papilio demolius*, *Diaphornia citri*, *Phyllocnistis citrella*, *Othreis Spp.*, *Virachola isocrates*. *Eriosoma lanigerum*, *Quadraspidotus perniciosus*.

Pest of Vegetable crops: *Leucinodes orbonalis*, *Epilachna vigintioctopunctata*, *Raphidopalpa foveicollis*, *Dacus cucurbitae*, *Plutella xylostella*.

Stored Grains Pests: *Sitophilus oryzae*, *Trogoderma granarium*, *Tribolium castaneum*, *Sitotroga cerealella*, *Callosobruchus Chinensis*.

Unit IV

Elementary Knowledge of Apiculture, Sericulture and Lac culture.

Practical:

1. Collection, mounting and preservation of insect pests of various crops.
2. Field and laboratory acquaintance with insect pests, their various stages and damaged materials.
3. Technical Knowledge of honey, silk and lac production.
4. Field application of insecticidal formulations.
5. Practical records and Viva-voce.

Course VI

Semester IV

2+1=3

FRUIT PRODUCTION INCLUDING PLANTATION CROPS

Unit I

Importance, scope and present position of fruit and plantation crops in India; Practices involved in the production of fruits.

Unit II

Production techniques of Mango, Guava, Jack Fruit, Papaya and Banana.

Unit III

Production techniques of Loquat, Ber, Apple and Peach. Kagzi lime, Grape, Litchi and Aonla.

Unit IV

Production techniques of plantation crops: Coconut, Cashew nut, Tea and Coffee.

Practical

Identification of fruits; and plantation crops: Orchard layout and planting; Practice of different propagation methods with special reference to fruits; Practice of training and pruning of fruit plants; Plant protection practices; Visit to Orchards, nurseries and research centers of fruits and plantation crops.

Course VII

Semester IV

0+1=1

CROP PRODUCTION – II