

SEMESTER 2nd
MINOR COURSE

SET222N SEED TECHNOLOGY (SEED HEALTH AND FARM MANAGEMENT)

CREDITS: THEORY: 04; PRACTICALS: 02

Objectives: To impart a comprehensive knowledge of seed-borne diseases, pests and their management and to acquaint students with various agricultural field practices vis-à-vis seed health.

UNIT I

Introduction and importance of seed pathology; Brief account of seed borne fungi, bacteria, viruses and nematodes; Mechanism of seed infection and transmission of seed pathogens; Important seed borne diseases caused by Bacteria, Fungi, Viruses and Nematodes. Influence of environmental factors on seed borne diseases; Methods of controlling seed borne diseases (cultural, physical and chemical). Role of bio-pesticides for control of seed borne diseases.

UNIT II

Introduction to seed Entomology; Losses caused by insect damage and its economic implications; Insect herbivory, their nature of damage and management of following crops: Paddy – Grasshopper, Maize – Army worm, Pea – Pea pod borer. Study of insect and nature of damage of some store grain pests. Methods of insect pest control (cultural, mechanical, physical and chemical). Seed quarantine- concept, objectives and procedure. Seed Quarantine set up in India.

UNIT III

Different production practices/field practices as tillage, irrigation, sowing, transplanting, harvesting and threshing. Concepts of crop rotation. mixed cropping, multiple cropping and dry land farming. Scope and basic principles of Seed Farm Management.

UNIT IV

Maintenance of soil fertility. Manures and fertilizers, Different types of fertilizers used in crops. farmyard manure, compost, green manures, vermi-compost and biofertilizers. Weeds- Different type of weeds, classification of weeds. Weed management.

PRACTICALS:

1. Detection of fungal/bacterial pathogens of some common crop seeds by visual/stereoscopic microscopic examinations and or washing techniques.
2. Detection of seed borne fungi of some common crops (Maize, Paddy, wheat) by any incubation method.
3. Collection and identification of insects (Grass hopper, Rice weevil, Kharpa beetle).
4. Plant protection equipments- their operation and maintenance.
5. To study the morphology and mouth parts of grasshopper, leaf minor, Rice weevil, Kharpa beetle.
6. To study the garden soil characteristics (pH, bulk density, water holding capacity).
7. To study some common weeds of crop plants and crop seed nurseries.
8. Description and chemical formula of some recommended seed fungicides and insecticides using charts/photographs.
9. Field visits.

SUGGESTED READINGS:

- Agarwal VK & Sinclair JB. 1997. *Principles of Seed Pathology*.
- Boca Raton. Neergaard P. 1988. *Seed Pathology*. Mac Millan.
- Karuna V. 2007. *Seed Health Testing*. Kalyani.
- Karuna vishunavat (2009) Fundamentals of seed pathology.
- Reddy SR. 2000. *Principles of Crop Production*. Kalyani.
- Bilal Ahmad Wani (2021) Seed Technology and Management” Kushal Publishers