

B. Sc. 5th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE COURSE (DSE)

OPTION-I

STH516D1A: SEED TECHNOLOGY - SEED LEGISLATION AND CERTIFICATION

Credits: Theory-4, Practical-2

THEORY: LECTURES: 60

UNIT-I

Historical development of Seed Industry in India; Seed quality: concept and factors affecting seed quality during different stages of production, processing and handling; seed quality control: concept and objectives; Central Seed Certification Board (CSCB).

UNIT-II

Regulatory mechanisms of seed quality control- organizations involved in seed quality control programmes; seed legislation and seed law enforcement as a mechanism of seed quality control; the Seed Act (1966), Seed Rules (1968), Seed (Control) Order 1983; New Seed Bill-2004.

UNIT-III

Seed Certification- history, concept and objectives of seed certification; seed certification agency/organization and staff requirement; legal status and phases of seed certification; formulation, revision and publication of seed certification standards; Indian Minimum Seed Certification Standards (I.M.S.C.S.); general and specific crop standards including GM varieties, field and seed standards.

UNIT-IV

Field Inspection- principles, phases and procedures; seed sampling, testing, labeling, sealing and grant of certificate; types and specifications for tags and labels; Introduction to IPRs; Plant Variety Protection and its significance; UPOV and its role; DUS testing- principles and applications; essential features of PPV & FR Act, 2001.

Practical

- General procedure of seed certification; identification of weed and other crop seeds as per specific crops.
- Field inspection at different stages of a crop and observations recorded on contaminants and reporting of results.
- Inspection and sampling at harvesting/threshing, processing and after processing for seed law enforcement.
- Testing physical purity germination and moisture.
- Specifications for tags and labels to be used for certification purpose
- Grow-out tests for pre and post-harvest quality control.
- Visits to regulatory seed testing laboratory, including plant quarantine lab and seed certification agency

Suggested Readings

- Agarwal RL. 1997. Seed Technology. Oxford & IBH.
- Anonymous 1992. Legislation on Seeds. NSC Ltd., Department of Agriculture and Cooperation, Ministry of Agriculture, New Delhi.
- Nema NP. 1986. Principles of Seed Certification and Testing. Allied Pubs.
- Tunwar NS & Singh SN. 1988. Indian Minimum Seed Certification Standards. CSCB, Ministry of Agriculture, New Delhi.

B. Sc. 5th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE COURSE (DSE)

OPTION-II

STH516D1B: SEED TECHNOLOGY - SEED PRODUCTION IN FIELD CROPS

Credits: Theory-4, Practical-2

THEORY: LECTURES: 60

UNIT- I

Basic principles in seed production and importance of quality seed. Floral structure, breeding and pollination mechanism in self-pollinated cereals viz. wheat, barley, paddy.

UNIT- II

Floral structure, breeding and pollination mechanism in cross pollinated cereals viz maize, sorghum, bajra etc.; methods and techniques of quality seed production in cross-pollinated cereals and millets.

UNIT-III

Floral structure, breeding and pollination mechanism; methods and techniques of seed production in pulses (green gram, black gram, field beans, peas etc.).

UNIT- IV

Floral structure, breeding and pollination mechanism; methods and techniques of seed production in major oil seeds (groundnut, rape and mustard) and commercial fibers (cotton and jute).

Practical

- Planning of Seed Production, requirements for different classes of seeds in field crops - unit area and rate.
- Seed production in cross pollinated crop with special reference to land, isolation, planting ratio of male and female lines.
- Synchronization of parental lines and methods to achieve synchrony supplementary pollination.
- Pollen storage, hand emasculation and pollination in Pea, Tomato.
- Detasseling in Maize, identification of rogues and pollen shedders.
- Gametocide application and visits to seed production plots etc.

Suggested Readings

- Agrawal, P.K. & M. Dadlani, 1995. Techniques in Seed Science and Technology (2nd Ed.) South Asian Publ. New Delhi.
- Agrawal, R.L. 1997. Seed Technology (IInd Ed.) Oxford & IBH Publ. Co. Daryaganj, New Delhi.
- Bailly, R. Gregg, Alvin, G. Law, S.S. Virde and Balis, J.S. Seed Processing. Cooperatively published by NSC, New Delhi and Mississippi State University and UNSAID.
- McDonald MB Jr & Copeland LO. 1997. Seed Production: Principles and Practices. Chapman & Hall.