



**MANGALORE UNIVERSITY**

**Department of Applied Botany**

**MSc BOTANY**

**BOS506 - SEED TECHNOLOGY**

**Course outcome:**

- The course has basic concepts related to seed structure and germination
- Students will know the seed quality and seed health testing methods
- Various seed processing methods have practical applications. They will know the various methods used in seed processing
- Seed certification and production and marketing procedures will familiarise them with the essential requirements in seed production
- With this, they can be employed in seed production companies
- Students can also establish seed production units and generate employment

Teaching hours: 10/unit

**Unit I:**

Significance of Seed Technology

Seed germination: Structure of monocot and dicot seeds; factors affecting germination; Seed dormancy- types, significance, mechanism, endogenous and exogenous factors regulating dormancy, Orthodox and recalcitrant seed

**Unit II**

Seed quality and health Testing: Implications of seed health testing, ISTA and its role in seed testing. Seed sampling, purity analysis, moisture determination, viability, vigour, incubation tests, bioassays and biochemical procedures, factors affecting incubation test results

**Unit III**

Seed processing: seed drying – methods, types of driers, seed cleaning and upgrading-equipment and their functions; functions of scalper, debearder, scarifier, huller, seed cleaner and grader. Screen cleaners, specific gravity separator, indented cylinder, velvet-spiral-disc separators. Seed treatments- methods of seed treatment, seed treating formulations and equipments, seed disinfestations, identification of treated seeds. Seed Packaging and labelling.

**Unit IV**

Seed certification- objectives of seed certification; seed certification agency/organization and staff requirement; quarantine regulations- import and export, Field Inspection- principles, phases and procedures; reporting and evaluation of observations; pre and post-harvest control tests for genetic purity evaluation (grow-out tests), seed inspection, seed legislation- Seed Act, Seed Rules, seed law enforcement, seed quality regulation in India.

## Unit V

Seed production and Marketing: Management of seed production: general principles of seed production, location of seed production, cropping, selection of cultivars, cultural practices, Longevity and storage of seeds, impact of storage fungi on seeds, transgenic seeds, hybrid seeds. Seed marketing management.

### Suggested Readings

Agarwal RL. 1997. Seed Technology. Oxford & IBH.

Agrawal PK & Dadlani M.1992. Techniques in Seed Science and Technology. 2nd Ed. South Asian Publ.

Agrawal PK. (Ed.). 1993. Handbook of Seed Testing. Ministry of Agriculture, GOI, New Delhi.

Copland LO & McDonald MB. 1996. Principles of Seed Science and Technology. Springer.

Neergaard P. 1988. Seed Pathology. Mac Millan.

Khare Dharendra.2000. Seed Technology, Jodhpur Scientific Publishers.

Ramamoorthy K & Sivasubramanian 2006. Seed Technology Ready reckoner, Agrobios publications

Agarwal P.K. 2015 Principles of seed technology; Indian Council of Agricultural Research

Bhattarai & Mehta 2010. Seed Technology (Processing Storage & Marketing)

Black M & Bewley D 2000. Seed Technology & its Biological basis. Sheffield Academic Press Ltd.

Krishnasamy et.al; 2004. Compendium on Seed Science & Technology. Tamil Nadu Agricultural University, Coimbatore.

Tiwari B 2014 Seed Science and Technology. Oxford Press

Khan Ali 2014. A text book of Seed Science & Technology. Agrotech.

Singh Sharon 2014 Post Harvest Technology and Management

Tiwari 2014 Seed Production and Quality Control. Oxford Press

Reddy 2008. Principles of Crop Production. Kalyani Publishers, New Delhi