

MANGALORE UNIVERSITY
Department of Applied Botany

BOS556 - POST HARVEST TECHNOLOGY

Course outcome:

- A detailed account on seed processing is included. Using this, they can set up seed processing units
- Methods and knowledge on seed storage, seed certification and quarantine regulation will be useful if they get jobs in seed production companies
- The course also has topics in post harvest processing of food grains, fruits, vegetables, flowers etc. This will enable them to be employed in agriculture based industries
- Various food quality monitoring tests will make them suitable to be employed in food industry with further training
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Teaching hours: 10/unit

Unit I

Seed biology and Physiology: Pollination, fertilization, embryogenesis, morphology and physiology in relation to seed infection.

Unit II

Seed processing: importance, equipments used in preparation of seed for processing- threshing, shelling, debearding and scalping. Seed drying- drying methods, types of driers, seed cleaning and upgrading, types of cleaners / graders , grading of seeds, seed treatment- importance, common pesticides used, types of seed treaters, analysis of treated seed and assay of protectants.,

Unit III:

Principles of Post Harvest technology: Causes of post-harvest losses; biochemical changes of crops after harvesting; aspects of packaging, seed storage- methods, traditional and modern insulation, air conditioning, humidification, fumigation, seed storage losses. post-harvest treatment; seed certification, quarantine regulations, field and seed inspection.

Unit IV

Food Processing– General principles and method of preservation; modern techniques in food processing, Biological and physico-chemical principles of food materials in relation to processing; Unit operation in Post-Harvest processing , Processing of food grains, animal feed, seeds, fruits and vegetables, flowers, spices. parboiling of wheat and paddy.

Unit V

Food quality monitoring: quality assurance for the agro-industries, Rheological techniques and instrumentation for measuring the mechanical properties of foods, food textural qualities, Food specifications, grades, and standards; Sensory test methods flavor, color, texture. Food borne infections and intoxications, Methods to control, detect, and enumerate microorganism in food; Food legislation and safety: Food laws and regulation.

Suggested Readings

Agrawal PK & Dadlani M. (Eds.). 1992. Techniques in Seed Science and Technology. South Asian Publ.

Baskin CC & Baskin JM. 1998. Seeds: Ecology, Biogeography and Evolution of Dormancy and Germination. Academic Press.

Basra AS. 2006. Handbook of Seed Science and Technology. Food Product Press.

Bench ALR & Sanchez RA. 2004. Handbook of Seed Physiology. Food Product Press.

Bewley JD & Black M. 1982. Physiology and Biochemistry of Seeds in Relation to Germination. Vols. I, II. Springer Verlag.

Bewley JD & Black M. 1985. Seed: Physiology of Seed Development and Germination. Plenum Press.

Copeland LO & Mc Donald MB. 1995. Principles of Seed Science and Technology. 3rd Ed. Chapman & Hall.

Khan AA. 1977. Physiology and Biochemistry of Seed Dormancy and Germination. North Holland Co. Kigel J & Galili G. (Eds.). Seed Development and Germination.

Marcel Dekker. Murray DR. 1984. Seed Physiology. Vols. I, II. Academic Press. Sadasivam S & Manickam A. 1996. Biochemical Methods. 2nd Ed. New Age