DEPARTMENT OF AGRICULTURAL BOTANY

Course No. : BOT 367
Course Title : PRINCIPLES OF SEED TECHNOLOGY
Course Credits : 2+1=3

Theory :

Seed – definition development of seed, functions and parts of seed, Definition of seed technology, Role and Goals of Seed Technology in Crop Production, Seed Dormancy- causes & methods of breaking the seed dormancy, Principles of Quality Seed Production. Seed purity- Genetic purity, Stages of Seed Multiplication. Methods of seed production- isolation. Field Inspection and Roguing. Seed law and Seed certification. Seed certification agency- structure, role and duties, methods of seed production in self pollinated, often cross pollinated and cross pollinated crops, types of cultivars, Varietal characters , Role of producer, Seed production agencies and seed certification agency in certified seed production. Seed viability and vigour test. Harvesting, drying, processing, seed sampling, seed testing -Purity analysis. Working of STL,. Grow-out test and Electrophoresis. Seed deterioration - types, causes and remedial measures. Seed storage, Pest and diseases seed, seed aging. Marketing, marketing agencies, planning and economics of production.

Practicals :

Study of seed structure. Study of seed dormancy , Causes of seed dormancy and methods of breaking dormancy. Study of seed germination and Factors affecting it. Principles of quality seed production. Stages of seed multiplication. A) Seed production in self pollinated crops- Wheat/ Rice and Groundnut. b) Seed production in often cross pollinated crops – Cotton and Sorghum. C) Seed production in cross pollinated crops – Bajra and Maize. Seed production in vegetable Tomato, Onion and okra. Seed certification procedure. Study of seed processing. Seed Sampling, Working of Seed Testing Laboratory. Physical purity Test, Germination Test. Seed viability and vigour test Seed Health-I (seed pathology. Seed Health-II (Seed Entomology).

Book recommended :

1. Agrawal R.L. (1980). Seed Technology, Oxford and IBH Publecation Co., New Delhi.
2. Agrawal P.K. and Dadlani, M. (1987) . Techniques in Seed Science and Technology, South Asian Publisher, New Delhi.

KKW Nasik

Attention to Prof. A R Gujar, Professor of Botany AC ~~Pune~~ Dhule

Received on 4-12-2009 during meeting at AC Pune.

Teaching schedule, Lesson plan and weight age of each chapter for course No. BOT-~~307~~(2+1), Principles of Seed Technology.

THEORY

No. of Lecture	Topics	Weight age of marks
1.	Introduction to Seed Production, Importance of Seed Production	02
2.	Seed Policy, Seed demand forecasting and planning certified, foundation and breeder and production	05
3.	Deterioration of crop varieties, factors affecting deterioration and their control, maintenance of genetic purity during seed production	05
4.	Seed quality, defination, characters of good quality seed	04
5.	Different classes of seed, production of nucleus and breeders's seed	05
6.	Maintenance and multiplication of pre-release and newly released varieties in self and cross pollinated crops	03
7.	Seed production, foundation and certified seed production in maize (varieties, hybrids, synthetics and composites)	03
8.	Foundation and certified seed production of rice (varieties and hybrids)	03
9.	Foundation and certified seed production of sorghum and bajra (varieties, hybrids, synthetics and composites)	03
10.	Foundation and certified seed production of cotton and sunflower (varieties and hybrids)	04
11.	Foundation and certified seed production of castor (varieties and hybrids)	03
12.	Foundation and certified seed production of tomato and brinjal (varieties and hybrids)	03
13.	Foundation and certified seed production of chillies and bhendi (varieties and hybrids)	03
14.	Foundation and certified seed production of onion, bottle gourd and ridge gourd (varieties and hybrids)	03
15.	Seed certification, phases of certification, procedure for seed certification	05

16.	Field inspection and field counts etc.	03
17,18.	Seed Act and Seed Act enforcement, Central Seed Committee, Central Seed Certification Board, State Seed Certification Agency	05
19.	Central and State Seed Testing Laboratories, Duties and Powers of seed inspectors, offences and penalties	04
20.	Seed control order, seed control order 1983, seed Act 2000 and other issues related to seed quality regulation.	02
21.	Intellectual property rights, patenting, WTO, plant breeders rights	03
22.	Varietal identification through grow-out test and electrophoresis,	04
23,24,25.	Seed drying, forced air seed drying, principle, properties of air and their effect on seed drying, moisture equilibrium between seed and air, heated air drying, building requirements, types of air distribution systems for seed drying, selection of crop dryers and systems of heated air drying, recommended temperature and depth of the seeds, management of seed drying	05
26,27.	Planning and layout of seed processing plant, establishment of seed processing plant, Seed processing air screen machine and its working principle, different upgrading equipments and their use.	05
28	Establishing a seed testing laboratory. Seed testing procedures for quality assessment	02
29	Seed treatment, Importance of seed treatment, types of seed treatment, equipment used for seed treatment (Slurry and Mist-O-matic treater)	05
30,31,32.	Seed packing and seed storage, stages of seed storage, factors affecting seed longevity during storage and conditions required for good storage, General principles of seed storage, constructional features for good seed warehouse, measures for pest and disease control, temperature control	05
33,34	Seed marketing, marketing structure, marketing organization, sales generation activities, promotional media, pricing policy, factors affecting seed marketing	03

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