Seed Production Programmer (SPPR)
Core Qualification File Syllabus

Details of Theory Syllabus

Sl. No.	CONTENT	DETAILS
1.	Seed and agriculture: (6 Hrs)	1.1. Importance of seed in Agriculture, 1.2. concept on seed & grain, 1.3. Different kinds of seed in crop cultivation, 1.4. Seed class in multiplication program, 1.5. Seed quality index, 1.6. Deterioration pattern and post-harvest handling of seed, 1.7. Concept of seed village, 1.8. Seed producing zone in west Bengal.
2.	Seed structure and development: (5 Hrs)	2.1. Definition of seed, 2.2. Component of seed, 2.3. Procedure for seed development, 2.4. Types of pollination, and pollinating agents, 2.5. Types of fruits, 2.6. Seed maturity.
3.	Seed quality: (6 Hrs)	3.1. Seed Quality concept, 3.2. Seed quality parameters, 3.3. Seed certification, its objectives, agencies, procedures, 3.4. Field inspection procedures, 3.5. Power of seed inspector.
4.	Seed sampling: (6 Hrs)	4.1. Types of samples, 4.2. Procedures for sampling in field and laboratory, 4.3. Idea on seed sampling instruments.
5.	Seed testing: (10 Hrs)	5.1. Importance of seed testing, 5.2. Different kinds of seed test – purity (physical &genetical), germination, viability, seed health, seed moisture, seed vigour.
6.	Seed storage: (7 Hrs)	6.1. Seed types on their storability 6.2. Factors affecting in seed storage, 6.3. Upgrading of seed storability through pre- and post-harvest management, 6.4. Seed borne diseases, 6.5. Storage pests, 6.6. Conservation of planting materials through advance techniques, 6.7. Knowledge on different storing devices, 6.8. Structure of Seed-Godown.
7.	Seed processing: (8 Hrs)	7.1. Seed processing concept and steps, 7.2. Seed drying and various drying method and its management, 7.3. Seed treatment and its methodology, 7.4. Seed packaging.

8.	Seed production of important Agricultural crops: (12 Hrs)	8.1. Seed production of Rice, Wheat, Maize, 8.2. Seed production of Black Gram, Green Gram, 8.3. Seed production of Sesame, Mustard, 8.4. Seed production of Cotton, Potato, Jute.
9.	Seed production of important Horticultural crops: (12 Hrs)	9.1. Seed production of Tomato, Brinjal, Chilli, Bhindi, Onion, 9.2. Seed production of Bottle Gourd, Ridge Gourd, 9.3. Seed production of Cabbage, Cauliflower, 9.4. Seed production of Cucumber, Watermelon
	TOTAL	**72 Hrs**

Note: Practical implication of sl no 8 & 9 of Theory

Detail of Practical Syllabus

SL NO	CONTENT (Any Eight)	DETAILS
1.	Prepare a sample plot for seed production (15 Hrs)	1.1. Area/land/crop/variety selection, 1.2. Maintenance of seed standard, 1.3. Agronomic management, 1.4. Maintenance of Isolation distance, Rouging, Off-type, 1.5. Harvesting, 1.6. Threshing, drying, grading, packing, labelling etc., 1.7. Seed storing.
2.	Study on pollination mechanism of different crops (10 Hrs)	2.1. Study on floral parts, 2.2. Observation on self-pollinated crops, 2.3. Observation on cross-pollinated crops, 2.4. Emasculation techniques for Hybrid seed production, 2.5. Study on pollination and fertilisation mechanism,
3.	Identification of seed sampling and seed testing equipment (10 Hrs)	3.1 Identification of seed sampling equipment in field level, 3.2 Identification of seed sampling equipment in laboratory level, 3.3 Identification of seed testing equipment in laboratory
4.	Seed sample preparation (15 Hrs)	4.1. Preparation of field sample, 4.2. Preparation of Laboratory sample.
5.	Work done on some important seed tests (20 Hrs)	5.1. Assessment of Physical purity, 5.2. Assessment of Genetic purity, 5.3. Evaluation of Seed moisture, 5.4. Assessment on Seed Germination, 5.5. Measure the seed viability and vigour.
6.	Visit to a seed processing plant (10 Hrs)	6.1. Identification of different parts of the processing plant, 6.2. Steps of Seed processing, 6.3. Develop an idea on seed processing specifically on grading.
7.	Projects (16 Hrs)	Any two projects each of 8 Hrs.
Total		**96 Hrs.**

Details of Project (Any two)

Sl. No.	Content (Any two, each 8 Hrs.)	Details
1.	Project I (8 Hrs)	Prepare a seed testing report on Paddy/Wheat/Maize/Bajra/ Barley/Millet/Jowar for seed standard of certified seed.
2.	Project II (8 Hrs)	Prepare a working sample from a seed-lot for seed testing
3.	Project III (8 Hrs)	Prepare a seed testing report on Green gram/Black gram/Lentil/ Pigeon pea/Pea/Soybean/Chick pea for seed standard of certified seed.
4.	Project IV (8 Hrs)	Prepare seed vigour testing report through performance test on Paddy/Wheat/Maize/ Green gram/Black gram/Lentil/ Mustard/ Sesame/Safflower.

OUTCOMES

Outcomes to be assessed	Assessment criteria for the outcome
1. Select the Agro-climatic region, prepare the land,find different steps for seed production.	(1.1) Identify the role of seed in Agriculture. (1.2) Select the procedures of the suitable crop through chart. (1.3) Demonstrate the selection criteria for area, land etc. through displaying of chart. (1.4) Recognize the inappropriate situations for seed production considering crop and land selection by oral conversation. (1.5) Demonstrate the precautions for land selection, crop/ variety selection for successful seed production under environmental stress by oral discussion. (1.6) List out the usual method of different steps for seed production as well as development of environment pollutants related to it.
2. Analyze the Concept on seed structure, seed development etc. in different crops; Pollinating nature of crop; Breeding techniques for hybrid seed production.	(2.1) Describe the reproductive nature of plant by showing original sample. (2.2) Classify the crop varieties through chart display. (2.3) Explain precautionary maintenance in Hybrid seed production through oral discussion. (2.4) Explain the deterioration pattern of a crop variety in field or in storage. (2.5) Describe how to overcome the deterioration of seed purity through chart. (2.6) Identify the quality seed materials, used as seed source in seed production through displaying of the chart.
3. Identify the characteristic of Seed quality, apply Seed certification steps, Seed standard, Field standard and Agronomic management of different crops.	(3.1)Recognize the procedure or steps in field programme by demonstrating in field. (3.2) Explain the seed standard criteria of the specific crop through displaying chart. (3.3) Understand the field standard criteria of the specific crop through demonstrating chart. (3.4) Demonstrate the land preparation schedule through field visit. (3.5) Demonstrate the soil conditions through oral mode.

	(3.6) Describe the soil conditions (soil fertility, organic matter etc.) and its rectification at seed production through oral discussion. (3.7) Identify and select the sowing techniques, isolation distance and drainage system for a crop through oral or displaying chart. (3.8) Identify the volunteer plants, weeds as well as demonstrate the procedure of rouging by field visit. (3.9) Explain the common faults in various steps of seed production viz. seed sowing, isolation, crop development, harvesting etc. through oral discussion or displaying chart. (3.10) Demonstrate through chart and oral discussion in advantages of Field Inspection at different stages of crop growth. (3.12) Plan the systemic maintenance of the crop schedule or crop rotation in seed production.
4. Adopt the procedure of Seed sampling, seed testing for quality maintenance, Concept on seed processing with its steps, Techniques for seed treatment and seed storage.	(4.1) Describe the seed quality parameters (physical purity, genetical purity etc.) by showing chart. (4.3) Illustrate the seed certification programme by chart and orally. (4.4) Collect seed sample as per the procedure in the laboratory. (4.5) Follow the methods for seed testing for quality analysis (viability, vigour, moisture etc.) through practical mode in laboratory. (4.6) Explain the drying procedure, according to the seed structure and shape, through picture. (4.7) Demonstrate the seed processing particularly cleaning and grading techniques of the seed through practical demonstration or displaying chart. (4.8) Demonstrate the tagging and packaging procedure of the specific seed class (FS, CS etc.) in practical mode. (4.9) Explain the seed production principles of self-pollinated, cross pollinated, vegetatively propagated crops by field visit. (4.10) Explain theoretically the seed production principles in Hybrid seed production and fibre crops.
5. Recognize Specific methodology for seed production of important Agricultural and Horticultural crops.	(5.1) Describe the seed production steps of different crops by showing flowchart. (5.2) Select right time for harvesting and harvesting procedure of a specific crop by showing picture or orally. (5.3) Verify steps for seed processing in quality maintenance of seed through displaying of the chart. (5.4) Follow up the upcoming activities as per seed testing reports viz. physical purity, viability, moisture content of the seed.
6. Identify and select seed processing methods by physical verification of processing unit present in Seed Companies/ State Agricultural Universities	(6.1) Identify the name, functions and application time of different processing tools (seed grader, dryer, cleaner etc.), measuring tools/devices (seed counter, balance) through practical mode or by showing of picture. (6.2) Demonstrate the application methods of the hand tools (seed trier, dryer, cleaner etc.) as well as processing unit (scalper, grader, air screen cleaner etc.) in bulk seed production through practical mode or by picture. (6.3) Demonstrate proper use of the equipment in bagging, packaging, sealing, labelling etc. in practical mode.