Vegetable Grower (VGGR)
Core Qualification File Syllabus

Details of Theory Syllabus

Sl. No.	CONTENT	DETAILS
1.	Importance of vegetables in our daily life	Definition and example of vegetable crops Importance and scope of vegetables in India and in the World Types and uses of vegetable crops Area, production and yield of vegetable crops
2.	Selection of land; area identification; land preparation	Land selection, crop selection, climatic requirement (season, temperature, rainfall, etc.) of different vegetable crops Soil types and land situations for vegetable crops Land plowing, leveling and basal fertilizer application
3.	Seed and Seedling- source; nursery practices, seed and seedling preparation	Varieties/ planting suitable for different regions Sources for collection of varieties / planting materials Identification of seeds / planting materials of different types / varieties based on characteristics Land preparation, and shaping if required Recommended rate of seeds and planting materials, and their treatment as protective measures Nursery for raising tea saplings Spacing for lines / furrows / holes in main field Sowing of seeds / planting of saplings following standard spacing
4.	Preparation of field, lay out and transplanting of vegetable crops	Land plowing, leveling and basal fertilizer application Transplanting time and method of vegetable seedlings from nursery
5.	Fertilizer application, irrigation, drainage, weed control and other intercultural operations, plant protection measures against disease, insect pests and physiological disorders	Intercultural operations (thinning, and pruning training) Weed management (manual, chemical, and integrated) Nutrient management (recommended doses of manures and fertilizers, their nutrient content, time of application, and integrated nutrient management) Water management and drainage options (surface drainage, contour drains, etc.) Insect-disease management including damage symptoms of major insects (hairy caterpillar; potato tuber moth, potato cut worm, other pests of potato; etc.) and diseases (early blight, late blight, etc. of potato,

		tomato)of different vegetable crops, and their management (use of resistant varieties, cultural practices, use of pesticides, and integrated pest management)
6.	Cultivation of some important vegetable crops – Tomato, Brinjal, Chilli, Bitter gourd, Pointed Gourd, Pumpkin, cucumber, Bottle gourd, Ridge gourd etc.), Okra, Garden pea, Cowpea, Dolichos bean, French bean, Carrot, Beet, Cabbage, Cauliflower, knolkhol, broccoli, Onion , garlic; Palak, Amaranthus and coriander)	Detailed package and practices of cultivation of different vegetable crops
7.	Harvesting, washing and cleaning, sorting, grading; Packaging, transportation; Storage	Harvesting time, method of different vegetable crops Washing, cleaning, sorting, grading processing and packaging of vegetable crops Transportation technique of different vegetables Traditional storage in villages and Cold storage of vegetable crops
8.	Economics of vegetable production	Sale of vegetable crops and supply-chain from producer to consumer Price of different vegetables and export quality standards Cost of cultivation, gross return (economic produce and by-products), net income and benefit : cost ratio Crop insurance (importance, enrolment procedure, premium rate and compensation claims for damage)
	TOTAL	**72 Hrs**

Detail of Practical Syllabus

SL NO	CONTENT (Any Eight)	DETAILS
1.	Land preparation and lay out	1.1 Select land suitable for specific vegetable crops understanding crop sequence 1.2 Collection of soil samples, understand the methods of soil testing, nutrient information in soil health card, and finalize fertilizer application schedule for vegetable crops 1.3 Understand climatic requirement, and agro-advisory services (weather forecasting in print, audio, audio-visual and social media) 1.4 Understand soil type and land situation for different vegetable crops

		1.5 Measurement of land area 1.6 Understand the technical know-how for operation of power tiller 1.7 Prepare land and make lines/furrows/holes following spacings 1.8 Calculate the requirement of manures and fertilizers and apply basal dose 1.9 Land leveling, plowing until it turns uniform texture, basal dose of fertilizer application.
2.	Seed treatment, seed sowing and soil treatment	2.1Select suitable varieties for specific situation and purpose of use 2.2 Calculate seed rate for different vegetable crops 2.3 Understand the methods of seed treatment 2.4 Sow the seeds / plant the saplings following standard methods
3.	Raising of seedling and sapling, sowing and transplanting	3.1 Understand seedling stages of different vegetable crops 3.2 Thin vegetable seedlings to maintain optimum plant population 3.3 Transplanting procedure of different vegetable crops
4.	Intercultural operation-irrigation, drainage, weeding, plant protection and other intercultural operations	4.1 Understand different growth stages of plants 4.2 Identify different types of weeds (grass, sedge and broad leaf) and remove them by manual method 4.3 Demonstrate the use of sprayer in field and its maintenance 4.4 Understand pre- and post-emergence herbicides, calculate their requirement as per recommended dose and spray for chemical control 4.5 Understand integrated weed management 4.6 Topdress fertilizers to the standing crops 4.7 Understand critical stages of crop growth and irrigate vegetable crops following suitable methods (flood, furrow and sprinkler) 4.8 Drain out excess water in case of heavy rainfall (surface drainage, contour drains, etc.) 4.9 Identify major insects and diseases, understand their damage symptoms 4.10 Adopt insect-disease management through manual and chemical methods and understand integrated pest management 4.11 Calculate required quantity of pesticides, and their applications 4.12 Understand hazards of agro-chemicals on health (skin diseases, breathing problems, etc.) and environment (residual effect in soil, pollution in near-by water bodies), and safety measures to be taken (use of gloves, masks, etc.). 4.13 Pruning and training operations for determinate and indeterminate varieties of vegetable crops
5.	Harvesting, cleaning, packing,	5.1 Determine the optimum time of harvesting based on crop stage 5.2 Understand and practice different harvesting methods (manual and mechanical) of vegetable crops

	storage and preparation for market	5.3 Estimate the yield of vegetable produces 5.4 Sorting, grading and packaging of vegetable produces for marketing and storage 5.5 Seed extraction and drying for seed production
6.	Preparation of project on Vegetable production	6.1 Project on cold storage or processing unit of vegetables 6.2 Calculate cost of production, gross return, net income and B:C ratio of different vegetable production 6.3 Calculation on premium rate and claims for damage of vegetable crops under crop insurance programme 6.4 Visit nearest regional market for specific vegetable crops and understand the supply-chain and price variation 6.5 Understand market-chain for different vegetable crops 6.6 Prepare a flow chart for tea showing the steps from land selection to packaging and marketing
7.	Projects (16 Hrs)	7.1 Any two projects each of 8Hrs.
Total		**96 Hrs.**

Details of Project (Any two)

Sl. No.	Content (Any two, each 8Hrs.)	Details
1.	Project I (8 Hrs)	Project on a model tomato- based farm including economics [Example: land in farm, facilities, crop sequence, crop management, production, processing, marketing and economics]
2.	Project II (8 Hrs)	Project on a model potato-based farm including economics [Example: land in farm, facilities, crop sequence, crop management, production, storage, marketing and economics]
3.	Project III (8 Hrs)	Project on production-processing-marketing chain of vegetable crops [Example: land in garden, facilities, crop management, production, processing, grading, marketing-chain, man power involved and economics]
4.	Project IV (8 Hrs)	Project on a production unit for value-added products of vegetable crops [Example: types of value-added products, production unit, process of production, quality, marketing and economics]

OUTCOMES

Outcomes to be assessed	Assessment criteria for the outcome
Recognize and recall the the importance of vegetable crops, identify the morphological characteristics and the area of cultivation and production	(1.1) Explain different types of vegetable crops along with examples and their uses. (1.2) Find the role of vegetable crops producers. (1.3) Identify the morphological characteristics (leaf, stem, flower, economic part, etc.) of vegetable crops. (1.4) Prepare maps or mark areas on maps showing the area of cultivation of different vegetable crops along with their production.
2. Identify cultivation land suitable for vegetable crops, agro-advisory services available and select the different farm implements as per applications.	(2.1) Explain the suitable conditions of cultivation (land, soil and weather) of vegetable crops. (2.2) Define agro-advisory services and state its importance. (2.3) Identify different farm implements (power tiller, seed drill, nail weeder, sprayer, etc.) (2.4) Describe the name, functions and purpose of use of different farm implements. (2.5) Select and Apply different methods of land preparation.
3. Recognize types and varieties of vegetable crops and interpret in land preparation, seed treatment, and sowing / planting methods	(3.1)Explain the plant characteristics and important traits (like fruit yield and quality) of suitable varieties of different vegetable crops. (3.2) Describe different ways of land preparation and shaping required for different vegetable crops. (3.3)Identify the seeds/planting materials of different varieties of different vegetable crops), their sources of collection, and suitability for different regions. (3.4) Plan how to make a nursery for raising vegetable saplings. (3.5) Demonstrate the operation of power tiller for land preparation. (3.6) Calculate the seed requirement of vegetables for the unit area. (3.7) Demonstrate the methodology of seed treatment. (3.8) Perform the sowing/transplanting of the seeds/seedlings independently in the field/garden following standard spacing.
4. Plan and execute crop management activities for vegetable crops	(4.1) Observe and memorize different growth stages of vegetable crops (like early growth/establishment, vegetative, reproductive and near-harvesting) and the intercultural operations to be carried out in the fields of vegetable crops (4.2) Demonstrate intercultural operations of the vegetable crops in the field like thinning, earthing up etc. (4.3) Recognize different methods of weed management (manual, chemical and integrated) in the fields of vegetable

	crops. (4.4) Identify different types of weeds (grass, sedge and broad leaf) in the field along with their types and common names. (4.5) Perform weed control activities (manual, chemical or integrated) and to estimate the quantity of herbicides required for the purpose. (4.6) Identify common manures (like cattle dung, rural compost, farm yard manure, vermicompost, etc.) and fertilizers (like urea, single super phosphate, muriate of potash, di-ammonium phosphate, NPK-Sufala, etc.) along with their nutrient content, doses and time of application. (4.7) Demonstrates nutrient management in the field. (4.8) Demonstrate the use of a sprayer. (4.9) Practice different irrigation methods (like flood irrigation, furrow irrigation, sprinkler/drip irrigation etc.) and drainage options (like surface drainage, contour drains, etc.) suitable for the vegetable crops. (4.10) Identify the major insects (like fruit and shoot borer of brinjal, hairy caterpillar of legumes,, cabbage semilooper, diamond back moth, white fly, aphid, thrips, mite of capsicum, okra, tomato) and disease symptoms (Target leaf spot, early blight, late blight, bacterial wilt, fungal wilt, anthracnose, downy mildew, powdery mildew etc.) in vegetable crops and to suggest suitable control measures (manual, chemical and integrated methods). (4.11) Identify major insect-disease management including estimating the required quantity of pesticides and their applications in fields. (4.12) Collect the data on insurance, premium rate, crop damage situations and claims vegetable crops. (4.13) Collect soil samples and explain soil testing, soil health card and fertilizer application schedule. (4.14) Explain the hazards of agro-chemicals on health (skin diseases, breathing problems, etc.) and environment (residual effect in soil, pollution in near-by water bodies), and safety measures to be taken (use of gloves, masks, etc.). (4.15) Illustrate the entire working process of a vegetable field from land selection to packaging and marketing through pictures or process flow diagram.
5. Apply various harvesting techniques and methods for important vegetable crops.	(5.1)Determine the optimum harvesting time based on crop growth-age. (5.2)Select the ways of harvesting vegetable crops. (5.3) Identify the methods of estimating the yield of vegetable crops based on land conditions.

6. Summarize post-harvest activities of vegetable crops.	(6.1) Sort the vegetables as per size and bagging of the same. (6.2) Demonstrate pre-cooling of vegetables and bagging/packaging of the same (6.3) Perform the extraction procedure (manual and mechanical) of seeds of vegetable crops. (6.4) Perform the procedure for drying of seeds and storage of vegetable crops.
7. Paraphrase the storage environment, quality parameters and ability for grading of economic produce	(7.1) Select the quality parameters of vegetable crops (like colour, shape, size etc.). (7.2) Identify the cold storage conditions for different vegetables. (7.3) Illustrate the entire working process of a cold storage unit through pictures or process flow diagrams.
8. Analyze marketing strategy skill and economics of production for vegetable corps	(8.1) Identify various marketing channels (such as kishan mandies, retailers, processors, etc.) and price competitiveness (on-farm value to on-market value) of different vegetable crops. (8.2) Select the Finalise the role of vegetable crops, the prices and export quality standards, sale and their supply chain. (8.3) Identify the markets and buyers at local and regional level for vegetable crops produce. (8.4) Calculate the economics of production and net profit (such as cost of cultivation, gross return, net income and benefit: cost ratio) for vegetable crops (8.5) Determine the importance, enrollment procedure and compensation claims in crop insurance programmes.