

Model Curriculum for Recognition of Prior Learning (RPL)

Vegetable Grower

Sector: Agriculture

Sub Sector: Agriculture Crop Production

Occupation: Vegetable Crop Cultivation

QP Code: AGR/Q0405

Version: 2.0

NSQF Level: 4

Vegetable Grower

CURRICULUM / SYLLABUS

This program is aimed at training to Recognition of Prior Learning (RPL) candidates for the job of a “Vegetable Grower”, in the “Agriculture” Sector/Industry and aims at building the following key competencies amongst the learners

Program Name	Vegetable Grower
Qualification Pack Name & Reference ID.	AGR/Q0405
Version No.	2.0
Pre-requisites to Training	"Min. Educational Qualification: 12th Grade or equivalent OR 10th Grade pass with 3-years of relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level 3.5 with 1.5-years of relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level 3 with 3-years of relevant experience in Agriculture and allied sectors related activities Age: 18 Years
Training Outcomes: Orientation and Soft Skill	After completing this programme, participants will be able to: <ul style="list-style-type: none">• Identify personal strengths and value systems: safe work habits, achievement motivation, time management, anger management, stress management.• Prepare for employment and self-employment: preparing for an interview, effective resume writing, basic workplace terminology.• Illustrate the basics of entrepreneurship and identify new business opportunities• Develop personality and learn general ethics and discipline• Learn about health and safety hazards and hygiene at work place• Learn effective communication skills• Learn about importance of RPL certification and process of assessment

Training Outcomes: Bridge Course	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Prepare land and planting materials for vegetable cultivation • Plant a vegetable farm • Perform soil nutrient management in vegetable crops • Demonstrate how to carry out Weed control and management in vegetable crops • Demonstrate how to carry out integrated pest and disease management in vegetable crops • Show how to carry out Irrigation management in vegetable crops • Discuss ways to utilize the resources optimally in an eco-friendly manner • Discuss the basic entrepreneurial activities for a small enterprise • Explain the health, hygiene and safety measures to be adopted at the workplace • Apply the techniques for cultivation of cole crops • Apply the techniques for cultivation of leafy vegetables • Apply the techniques for cultivation of Underground (Bulb, Underground , Tuber) crops • Apply the techniques for cultivation of cucurbit crops • Apply the techniques for cultivation of Legume vegetables • Apply the techniques for cultivation of okra
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Orientation and Soft Skill Details

Sr. No.	Module	Key Learning Outcomes	Equipment Required
A.	Orientation, General Discipline, doubts/gaps in Domain Training and Health and Safety		
1.	Orientation, General Discipline, doubts/gaps in Domain Training and Health and Safety Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 00:00	<ul style="list-style-type: none"> • Domain Training (clarifying any doubts/gaps regarding Job Role) • Understanding Qualification Packs, NOS • Understanding about NSQF framework and applied level descriptors • Understand skill development ecosystem, roles of various stakeholders • Recognize the importance of general discipline in the classroom (dos and don'ts) • List expectations from the program • Outline the objectives of the RPL and importance of skill and certification • Identify risks to health and safety at the workplace and measures to be taken to control them 	White Board, Marker, Laptop, projector,
B.	Soft Skills and Entrepreneurship Tips specific to the Job Role		
1.	Entrepreneurship Theory Duration (hh:mm) 02:00	<ul style="list-style-type: none"> • Discuss the concept and significance of entrepreneurship and the characteristics of an entrepreneur • List the traits of an effective team and team dynamics • Resolve problems by identifying important problem-solving traits • Discuss how to identify new business opportunities within your business • Follow the entrepreneurial process and explain the entrepreneurship ecosystem • Identify key schemes of the govt. and banks to promote entrepreneurship • Define the relationship between entrepreneurship and risk appetite and entrepreneurship and resilience • Importance of book keeping and accounts management. • Understand market dynamics and value chain of agri products. • Understanding formation of cooperatives, FPO, FPC and enterprise creation 	Laptop, white board, marker and projector, SWOT activity: pen and paper individual exercise, charts, coloured pens, Group Activity: poster making on entrepreneurship ecosystem. Activity: SMART Goal writing

2	Personal Strengths and Value Systems Theory Duration (hh:mm) 01:00 Practical Duration (hh:mm) 00:00	<ul style="list-style-type: none"> • Self-Improvement, inculcate leadership qualities. • Importance of Discipline in managing small business. • Discuss how to maintain a positive attitude • List your strengths and weaknesses • Describe the importance of honesty in entrepreneurs • Discuss the benefits of time management and applied techniques • Apply tips for anger management and stress management • Effective interpersonal skills, listening and speaking skills. 	Workbook exercises on health standards, Laptop, activity on strengths and weaknesses, white board, marker, projector
3	Preparing for Employment and Self-Employment Theory Duration (hh:mm) 01:00 Practical Duration (hh:mm) 00:00	<ul style="list-style-type: none"> • Follow the steps to prepare for an interview • Create an effective Resume • Conduct mock interviews • Identify the most frequently asked interview questions and how to answer them 	Laptop, white board, marker, projector, sample CVs, Mock interviews, role plays, role play briefs, FAQs, quiz on basic workplace technologies.
C.	Familiarization with Assessment Process and Terms		
1	Familiarization with Assessment Process and Terms (hh:mm) 02:00	<ul style="list-style-type: none"> • Familiarization about assessment process • Understanding the need of assessment • Preparation tips for assessment • Doubt clearance session 	
	Total Duration: Theory Duration (hh:mm) 12:00 Practical Duration (hh:mm) 00:00	Laptop, white board, marker and projector, SWOT activity: pen and paper individual exercise, charts, coloured pens, Group Activity: poster making on entrepreneurship ecosystem. Activity: SMART Goal writing	

Bridge Course Details

This course encompasses 09 out of 09 National Occupational Standards (NOS) of “Vegetable Grower” Qualification Pack issued by “Agriculture Skill Council of India”.

Module 1: Introduction to the horticulture sector and the job

Bridge Module, Mapped to NOS AGR/N0414 v1.0

Terminal Outcomes:

- Describe the agriculture industry and its various sub-sectors
- List the career options available for a vegetable grower.
- Discuss the key responsibilities of a vegetable grower

Duration: 01:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Discuss the agriculture industry and the horticulture sub-sector.● Explain the career opportunities in commercial vegetable cultivation● List the key responsibilities of a vegetable grower.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook.	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Fundamentals of growing vegetables

Mapped to NOS AGR/N0414 v1.0

Terminal Outcomes:

- Describe the vegetable growing scenario in India
- Describe the criteria and conditions for vegetable growing

Duration: 02:00	Duration: 02:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">• Describe the classification of vegetables grown in India and their common varieties.• List the various agro-climatic zones of India along with the types of vegetables grown there.• Explain the criteria for selection of vegetables and their varieties for cultivation.• Describe basics of plant anatomy, morphology, physiology - photosynthesis, respiration, water relations, transpiration.	<ul style="list-style-type: none">• Categorize given set of vegetables based on the cultural and climatic requirements.• Create a chart of agro-climatic zones of India and vegetables grown there.• Draw diagrammatic representations of a plant and its processes.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Nil	

Module 3: Preparation of land for vegetable growing

Mapped to NOS AGR/N0414 v1.0

Terminal Outcomes:

- Prepare the site for growing vegetables

Duration: 02:00	Duration: 02:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Describe the site conditions suitable for vegetable growing.● Explain the climate, soil-type, fertility and depth suited for growing various vegetables.● State the primary and secondary sources of water.● Explain the importance of quality of water required for vegetable growing.● Explain how topography of the landscape affects water flow, rainfall pattern, irrigation and drainage.● Evaluate the risks associated with vegetable growing and the accompanying precautions.	<ul style="list-style-type: none">● Analyze soil sample to determine its suitability for vegetable growing.● Evaluate the given vegetable(s) and their variety to check their suitability to the local biotic and abiotic conditions.● Prepare the site to make it suitable for vegetable growing.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook.	
Tools, Equipment and Other Requirements	
Soil samples	

Module 4: Preparation of the planting material

Mapped to NOS AGR/N0414 v1.0

Terminal Outcomes:

- Prepare planting materials for growing vegetables

Duration: 02:00	Duration: 02:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Classify different planting materials such as seeds, seedling, bulbs, tubers, Underground stock, etc. as per the type of vegetable and agro- climatic conditions.● Describe how pests, diseases and abiotic stress affect resistance and vulnerability of planting material.● Distinguish between transplanting and direct sowing methods.● Describe the criteria for selecting healthy planting material.● Describe methods of treatment of planting material.● Explain the procedure for grafting, budding and inarching of planting materials● Describe appropriate storage methodology for the planting material.	<ul style="list-style-type: none">● Segregate healthy and unhealthy planting material from a given sample.● Apply pesticides and fungicide as per the prevalent pests and diseases.● Demonstrate grafting, budding and inarching of planting materials.● Demonstrate the steps of storing the planting material in a safe and hygienic manner.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook.	
Tools, Equipment and Other Requirements	
Vegetable seeds and seedlings, planting material, pesticide and fungicide, grafting and budding knives, storage bags for seedlings.	

Module 5: Preparation for planting

Mapped to NOS AGR/N0415 v1.0

Terminal Outcomes:

- Discuss how to plan for planting a vegetable crop
- Prepare the beds for vegetable planting

Duration: 02:00	Duration: 02:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe various types of vegetable farms, their land characteristics and planning considerations. • Explain the basic layout for farms. • Describe the various factors (tilth, soil structure, depth of preparation, seasonality, timing of cultivation, etc.) that affect the establishment of plants. • Describe the methods of soil preparation and improvement. • Describe the tools and techniques used for land preparation. • Determine the types of beds prepared as per vegetable crop and external conditions. 	<ul style="list-style-type: none"> • Design a layout of a farm. • Prepare a sample crop calendar for a specific crop as per given climatic conditions. • Mark the positions of plants and farm features on field from the plan. • Demonstrate primary cultivation methods such as ploughing, harrowing, digging, etc. • Demonstrate secondary cultivation methods such as hoeing, raking, mulching, etc. • Demonstrate the preparation of seedbeds for the planting material as per the soil type. • Study a Soil Health Card and apply its recommendations. • Apply organic or other recommended nutrients to improve the nutrient levels in the soil.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Hoe, rake, sickle, scythe, spade, weeder, mulching materials, fertilizer, organic soil nutrients, rope, tapes, ranging poles/rods, sand, pegs, Personal protective equipment used during cultivation operations e.g. Boots, hat/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, sun protection (sun hat, sunscreen).	

Module 6: Planting a vegetable crop

Mapped to NOS AGR/N0415 v1.0

Terminal Outcomes:

- Plant the vegetable crop as per the plan

Duration: 02:00	Duration: 03:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Describe appropriate planting conditions required for vegetable crops.● Describe various vegetable planting systems.● Describe various planting techniques to ensure proper support to the plant such as using a planting board, using stakes, etc.● Discuss the permaculture principles for planting.● Explain the importance of planting depth and spacing to achieve the optimum planting density.● Describe the immediate aftercare required by vegetable crops post sowing/planting.	<ul style="list-style-type: none">● Select the planting material from a given sample that is in an appropriate condition for planting.● Plant the seeds/planting material as per the given plan.● Demonstrate transplantation of seedlings at appropriate time, stage and with appropriate spacing.● Demonstrate aftercare for the new plantings.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Hoe, rake, sickle, scythe, spade, weeder, mulching materials, planting materials like seeds or seedlings, watering can, Personal protective equipment used during cultivation operations e.g. Boots, hat/hard hat, overalls, gloves, protective eyewear, hearing protection, respirator or face mask, sun protection (sun hat, sunscreen).	

Module 7: Soil nutrient management

Mapped to NOS AGR/N0401 v 2.0

Terminal Outcomes:

- Identify the macro and micronutrients in soil
- Test the soil nutrition levels
- Apply organic and chemical fertilizers

Duration: 03:00	Duration: 03:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Describe the basic macro and micro-nutrients and their role in plant growth.● Describe the importance of soil testing.● Explain the need and process of application of farmyard manure.● Describe the method of preparation of vermicompost.● Discuss the recommended dosage and application time of fertilizer for different vegetable crops.● Describe various methods of fertilizer application.● Describe the land use practices that improve the soil organic matter such as crop rotations, manure application, pasture management, tillage practices, mulching etc.	<ul style="list-style-type: none">● Demonstrate the method of soil sampling.● Calculate the quantity of fertilizers required for a given crop with inputs from the Soil Health Card.● Prepare a sample integrated nutrient management system for a vegetable crop i.e. efficient utilization of chemical fertilizers, use of bio-fertilizers and addition of organic material.● Demonstrate the application of organic and inorganic fertilizer in correct dosage.● Demonstrate land use practices that improve the soil organic matter such as tillage practices, mulching, etc.● Demonstrate measures to minimize losses of soil, nutrients, and agrochemicals through erosion, runoff and leaching.● Prepare a sample record of the soil health and plant nutrition activities undertaken.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Organic and inorganic fertilizers; rake, hoe and spray, micronutrients, agrochemicals;	

Module 8: Weed control and management

Mapped to NOS AGR/N0402 v3.0

Terminal Outcomes:

- Identify weeds and maintain their records
- Discuss how to manage weeds at various stages of plant cycle

Duration: 02:00	Duration: 03:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Describe various types of weeds (broadleaf, grass weed etc) and the need for maintaining the record of weeds.● Describe different weed control methods, their advantages and disadvantages.● Describe the critical stages of weed control.● Describe procedures involved in soil solarization and pasteurization.	<ul style="list-style-type: none">● Prepare a weed herbarium for keeping records of the weed● Demonstrate the process of controlling weeds during ploughing.● Demonstrate the use of bio and chemical herbicides for weed control.● Demonstrate the use of new and innovative methods of soil solarization and pasteurization.● Demonstrate the use of mechanized weed control equipment.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Weedicides, Pesticides, fungicides, weeding machine, sickle, mulching materials.	

Module 9: Integrated pest and disease management

Mapped to NOS AGR/N0403 v2.0

Terminal Outcomes:

- Identify the common vegetable pests, diseases and their control methods
- Apply organic and chemical pesticides for the treatment of pests and diseases

Duration: 04:00	Duration: 03:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Describe the major vegetable crop diseases such as leaf spot, purple blotch, bacterial wilt, common scab, late blight etc. and how to identify them.● Describe the different modes of transmissions of disease such as implements, vectors, water, rain, wind.● Describe the types of pests (cutworm, nematode, leaf miner fly, potato tuber moth, aphid) found in vegetable crops.● Identify stages of crop and disease and pest incidence.● Discuss how to adopt the natural enemies of the pest such as lady bird, ground beetles, hoverfly etc. for pest control.● Describe the use of resistant varieties and crop rotation for infestation prevention.● Describe various types of biological, mechanical and chemical control along with their advantages and disadvantages.	<ul style="list-style-type: none">● Identify symptoms of disease and extent of damage on infested plant samples.● Demonstrate the cultural practices adopted for the prevention of pest and diseases.● Prune the plants affected by diseases.● Demonstrate the use of various types of traps (mechanical and manual).● Demonstrate the use of various types of biological, mechanical and chemical control measures.● Demonstrate the safe use of various sprays for pest and disease control.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Pesticides, traps, sprayer, masks, gloves.	

Module 10: Irrigation management

Mapped to NOS AGR/N0404 v 3.0

Terminal Outcomes:

- Schedule irrigation for the vegetable crop
- Irrigate the vegetable crop

Duration: 02:00	Duration: 03:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">● Describe the importance of water testing● Describe characteristics of good irrigation system.● Explain different methods of irrigation.● Explain the frequency of irrigation required at various stages of plant growth.● Explain the ill-effects of excess moisture/water content.● Describe importance of spread of water in the Underground zone.● Describe various types of micro irrigation equipment (misters, drippers, sprinklers, foggers, etc).● Describe the various moisture measurement equipment.● Discuss the purpose, usage and advantages of irrigation practices for specific crops.● Explain methods that can be adopted for conserving water.	<ul style="list-style-type: none">● Calculate the number of days of irrigation required for the given vegetable crop based on the crop stage.● Prepare sample irrigation schedules as per water requirements of the plant and its holding capacity.● Demonstrate preparation of irrigation channels.● Demonstrate working of the micro irrigation systems such as drip irrigation, etc.● Demonstrate the use of moisture measurement tools.● Demonstrate water drainage techniques to be adopted in the field.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Micro irrigation system, irrigation equipment, hose, bucket.	

Module 11: Basic entrepreneurial activities

Mapped to NOS AGR/N9908 v 3.0

Terminal Outcomes:

- Explain how to handle accounts and marketing activities
- Discuss how to gather information relevant to sales and marketing

Duration: 01:00	Duration: 01:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">• Describe how to do basic accounting practices such as calculating expenses incurred, total cost of production etc.• Explain how to determine market value of the produce.• Explain how to determine the demand and supply of produce in the market.• Describe how to identify target customers and assess their needs such as amount required, purpose, quality, expectations, etc.• Explain relevant regulations related to marketing and sale of the produce.• List various trading channels of produce and their margin of profit.• Discuss various subsidies/ funds offered by the Government, authorized state units and other financial institutions involved with the promotion and sale of produce.• Describe strategies for choosing and exploiting marketing channels related to the produce such as retailers, vendors, whole-sellers (mandi), e-trading platforms, related companies, marketing associations, cold storage owners, exporters, etc.	<ul style="list-style-type: none">• Prepare a sample market survey report related to the supply and demand of the price, prevailing prices in different markets, etc.• Calculate the cost of production, transportation and marketing of the sample produce.• Prepare the pricing scheme for the produce for different type of buyers.• Collect information related to various subsidies/funds offered by the government, authorized state units and other financial institutions involved with the promotion of the produce.• Demonstrate the method of recording sale and purchase of items in the given format.• Demonstrate the method of recording quantity, quality, date of manufacture and batch number of the sample produce.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Nil	

Module 12: Hygiene and cleanliness

Mapped to NOS AGR/N9903 v4.0

Terminal Outcomes:

- Discuss how to adhere to personal hygiene practices
- Demonstrate ways to ensure cleanliness around the workplace

Duration: 00:30	Duration: 00:30
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">• Explain the requirements of personal health, hygiene and fitness at work.• Describe common health related guidelines laid down by the organizations/ Government at the workplace• Explain the importance of good housekeeping at the workplace.• Explain the importance of informing the designated authority on personal health issues related to injuries and infectious diseases.	<ul style="list-style-type: none">• Demonstrate personal hygiene practices to be followed at the workplace.• Demonstrate the correct way of washing hands using soap and water, and alcohol based hand rubs.• Demonstrate the steps to follow to put on and take off a mask safely.• Show how to sanitize and disinfect one's work area regularly.• Demonstrate adherence to the workplace sanitization norms.• Show how to ensure cleanliness of the work area.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Personal Protective Equipment, cleaning equipment and materials, sanitizer, soap, mask	

Total Duration: Theory Duration: (hh:mm): 23:30 Practical Duration: (hh:mm): 24:30 Grand Total Bridge Course Duration: (hh:mm): 48:00	Unique equipment required: Zinc (Micro nutrient), UREA, Tomato Seeds*, Gumboots, Rubber gloves, Ridge furrow maker, Masks, Potato Rhizome*, Pesticide, Onion Seed or seeds of any bulb crop*, Mulching Material, MOP, Knapsack sprayer, Khurpi, Video Recording Equipment, Insect Traps, Growth Regulator, FYM, Fawda/ Kudal, Irrigation Equipment, Digger, DAP, Compost, Cocopeat tray / Pro tray (Nursery), Bags for storage, Any type of Herbicide, 50 % shade net
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Grand Total Course Duration: 12 (Orientation session) + 48 (Bridge Course) = 60 Hours, 0 Minutes