Model Curriculum for Recognition of Prior Learning (RPL)

Cereal Crop Cultivator

Sector: Agriculture

Sub Sector: Agriculture Crop Production

Occupation: Field Crops Cultivation (Food Crops)

QP Code: AGR/Q0105

Version: 3.0

NSQF Level: 3

Cereal Crop Cultivator

CURRICULUM / SYLLABUS

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

Program Name	**Cereal Crop Cultivator**
Qualification Pack Name & Reference ID.	AGR/Q0105
Version No.	3.0
Pre-requisites to Training	"Min. Educational Qualification: 10th grade or equivalent OR 8th grade pass with 3 years of relevant experience in Agriculture and allied sectors OR Previous NSQF Level 2.5 with 1.5 years of relevant experience in Agriculture and allied sectors OR Previous NSQF Level 2 with 3 years of relevant experience in Agriculture and allied sectors" Age: 16 Years
Training Outcomes: Orientation and Soft Skill	After completing this programme, participants will be able to: • 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	**After completing this programme, participants will be able to:** • Describe the process of selecting and preparing the site and sow the cereal seeds. • Demonstrate the process of carrying out macro and micronutrient management of field crops. • Describe the process of managing weed growth in crop fields. • Demonstrate the process of performing integrated pest and disease management for the cereal crop. • Demonstrate the process of performing irrigation management for the field crop. • Demonstrate the process of carrying out harvesting, processing and marketing of cereals. • Explain the basic entrepreneurial activities for small enterprise. • Describe the process of undertaking employability and entrepreneurial practices. • Describe the process of engaging in collective farming/activity. • Demonstrate various practices to maintain personal hygiene, cleanliness, and safety at the workplace. • Demonstrate the process of carrying out the cultivation of wheat. • Demonstrate the process of carrying out the cultivation of rice. • Demonstrate the process of carrying out the cultivation of maize. • Demonstrate the process of carrying out the cultivation of millet.

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**	• 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**	• 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**	• 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**	• 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**	• 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 9 out of 9 National Occupational Standards (NOS) of "Cereal Crop Cultivator" Qualification Pack issued by "Agriculture Skill Council of India".

Module 1: Introduction to the role of a Cereal Crop Grower

Bridge Module Mapped to AGR/N0125 v2.0

Terminal Outcomes:

- Discuss the job role of a Cereal Crop grower.

Duration: **01:00**	**Duration**: **00:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the agriculture industry and its sub-sectors. • Discuss the role and responsibilities of a Cereal Crop Grower. • Identify various employment opportunities for a Cereal Crop Grower.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of selecting and preparing the site and sow the cereal seeds

Mapped to AGR/N0125 v2.0

Terminal Outcomes:

- Describe the process of selecting and preparing the site for the cultivation of cereals.
- Describe the process of procuring and preparing the planting material.
- Demonstrate the process of sowing the cereal seeds.
- Demonstrate various practices for effective resource optimisation.
- Demonstrate various waste management practices.
- Discuss ways to promote diversity and inclusion at the workplace.

Duration: 03:00	**Duration: 03:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• State the major cereals and their common varieties, along with their cultivation period and yield • State the vulnerability of different cereal varieties to various pests and diseases and resistance to various abiotic stresses. • Explain the criteria for selecting a site for the cultivation of different types of cereals. • State various agro-climatic zones in India suitable for the cultivation of varieties of cereals. • State the site, climate, soil type, soil fertility, nature of subsoil and soil depth suited for growing cereals. • Describe the process of getting the soil sample tested through an authorised lab to determine the soil's suitability for the cultivation of cereals. • List various inputs required for the cultivation of cereals such as water, fertilisers, pesticides, labour, etc. • Describe the process of preparing the field for sowing cereal seeds. • Explain the criteria for selecting a cereal variety to be cultivated, such as climate along with resistance to various pests and diseases.	• Demonstrate the process of preparing the field for sowing the cereal seeds • Show how to create drainage channels in the field for the effective drainage of water. • Demonstrate the process of treating the seeds with the recommended pesticides and fungicides, using them in the recommended dose. • Demonstrate the process of preparing the seed sowing equipment, setting the correct specifications for use according to the selected cereal crop. • Demonstrate how to sow the cereal seeds using the relevant machinery and tools.

• State the cultivation period, an appropriate time for sowing and yield of different varieties of cereals. • Describe the process of procuring and treating cereal seeds. • State the appropriate temperature and humidity for storing the treated cereal seeds. • Describe different methods for sowing cereal seeds such as broadcasting and mechanised sowing. • State the recommended planting density to be maintained while sowing cereal seeds.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Plough, Disc Harrow, Sub-Soiler, Tiller, Land Leveller, Cultivator	

Module 3: Process of carrying out macro and micronutrient management of field crops

Mapped to ARG/N0108 v3.0

Terminal Outcomes:

- Explain how to determine the macro and micronutrients requirements.
- Demonstrate the process of applying manures and fertilisers to the soil.
- Demonstrate the process of performing soil conservation.

Duration: **04:00**	**Duration**: **03:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the basic concepts of plant nutrition and soil fertility. • Explain different types of macro and micronutrients, their properties and their functions. • List common symptoms of nutrient deficiency in plants. • Explain different types of green manure and nitrogen-fixing crops. • Describe the process of soil sampling and testing. • Explain the importance of getting the soil tested through a government-approved lab. • Explain how to interpret the soil analysis report to determine the macro and micronutrient requirements of the soil. • Explain different soil types, their advantages and disadvantages with reference to the presence of various nutrients. • State the appropriate time and methods for the application of different types of fertilisers. • Explain the importance of regulating the dose of fertiliser according to the crop cycle. • State the recommended dosage and application time of fertiliser for different types of crops. • Explain the importance of soil	• Demonstrate the process of preparing organic fertilisers such as farmyard manure, vermicompost and inorganic fertiliser solutions. • Demonstrate the process of preparing the mixture of liquid fertilisers for application in the field, using them in the recommended quantity. • Show how to prepare the field for the application of fertilisers. • Demonstrate the process of applying organic and inorganic fertilisers containing the required macro and micronutrients to the soil in the recommended dose. • Show how to regulate the dose of fertiliser according to the crop cycle. • Prepare a sample record of fertilisers used in the field. • Prepare a sample soil nutrition supplementation calendar based on the stages of the crop's growth. • Demonstrate the process of applying mulch and organic fertilisers to conserve soil moisture. • Demonstrate how to use nitrogen-fixing bacteria (e.g., Rhizobium inoculants) to improve nitrogen availability in the soil

conservation and various soil conservation practices. • Explain various varieties of organic and inorganic fertilisers to be applied to the soil to improve its fertility, and nutrient content. • Explain the harmful effects of the over-dosage of fertilizers. • Describe the process of preparing a soil nutrition supplementation calendar based on the stages of the crop's growth. • Explain the regenerative practices like no-till farming, cover cropping, and use of biofertilizers	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Sprayer, Fertilisers, Bio Fertilisers, Cloth Bags for Soil Sample, Khurpa	

Module 4: Process of managing the weed growth in the crop field

Mapped to AGR/N0109 v4.0

Terminal Outcomes:

- Describe the process of identifying weed growth.
- Demonstrate the process of performing weed management.

Duration: 03:00	Duration: 04:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• State the critical period for organic weed control, reducing the dependence on herbicides and weedicides. • Explain the adverse effect of different types of weed such as grass, broad leaves, sedges on crop growth. • Describe different weed control methods such as preventative, intercultural, mechanical, biological and chemicals. • Explain the advantages and disadvantages of different weeding methods. • State the critical period of crop-weed competition. • Describe different manual weeding techniques. • Explain the use of relevant weeding equipment such as hoe and spade. • Explain the use of pre-emergent and post-emergent herbicides. • Explain the difference between blanket and spot application of herbicides. • Describe the process of soil solarisation and pasteurisation. • Explain various environmental norms to be adhered to during herbicide application. • Explain the effects of herbicide residue on the crop. • Explain different ways to minimize pollution caused due to overuse of	• Demonstrate how to maintain the record of observations with respect to weed identification and their growth. • Demonstrate the process of preparing the recommended herbicide/ bio-herbicide solution suitable to the crop. • Show how to spray the herbicide/ bio-herbicide safely in the recommended dose. • Demonstrate the process of removing weeds manually using the appropriate hand tools and implements, as required.

herbicides. • Explain the importance of inspecting the field regularly to identify weed growth. • Explain the appropriate combination of different types of intercultural and mechanical methods for effective weed control such as solarisation and pasteurisation. • Describe the process of selecting and preparing the recommended herbicide/ bio-herbicide solution suitable to the crop. • Explain the importance of retaining the weeds during the weeding process. • Explain the importance of maintaining the herbicides and herbicide application equipment separately to prevent cross-contamination with other chemicals.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Chemicals, Sprayer, Weeder, Hoe, Sickle	

Module 5: Process of performing integrated pest and disease management for cereal crops

Mapped to ARG/N0126 v2.0

Terminal Outcomes:

- Explain the importance of following the relevant preventive measures to control pests and diseases.
- Describe the process of identifying pests and diseases in the cereal crop.
- Describe the process of identifying and applying the necessary treatment.

Duration: 03:00	Duration: 04:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain various types of diseases found in cereal and their symptoms. • Explain different biotic and abiotic factors causing diseases and disorders in plants. • Explain different modes of transmission of disease such as implements, vectors, rain, wind. • Explain the importance of adopting safe production methods for safe produce. • Explain the advantages of biological control of insects, pests & diseases, bio-pesticides and pheromones used in IPM (Integrated Pest Management). • State the minimum residue levels and Protected Health Information (PHI) for different types of pesticides. • Explain the use of the pesticide spraying tools and equipment. • Explain the applicable national and international standards on pesticide residues. • Explain the benefits of using pest and disease-resistant varieties of cereal. • State the recommended practices to be followed to restrict the entry of pathogens into the field through planting material, irrigation water, workers, tools and equipment, and vectors such as whitefly.	• Demonstrate the process of removing the diseased crop to prevent the spread of pests and disease to healthy crops. • Demonstrate the use of light and pheromone traps to identify the presence and population of pests, insects and vectors. • Demonstrate the process of applying the recommended treatment as per the prescription to remove pests and diseases. • Demonstrate the use of relevant PPE. • Prepare a sample record of the use of any pesticides, insecticides and any other treatment.

• Explain the practice of crop rotation with suitable crops. • Explain the importance of identifying and removing the diseased crop to prevent the spread of pests and disease to the healthy crop. • Explain the use of the recommended combination of biological, mechanical and chemical control methods for effective pest and disease prevention such as traps, sticky plates etc. • Explain how to identify different types of pests in cereal crops such as stem borer, leaf folder, Fall Armyworm, Panicle mites etc. • Explain the signs of plant disease vectors and major cereal crop diseases such as leaf spot, leaf blight, anthracnose, Powdery mildew, root rot, rust, yellow mosaic, etc. • Describe the process of determining the stage of pest incidence along with the extent of damage and Economic Threshold Levels (ETL) of the pests. • Explain the use of IPM methods such as light and pheromone traps to identify the presence and population of insects and vectors • Describe the process of determining the causal organism for the disease and its treatment. • Explain how to minimise pollution caused by the overuse of pesticides. • List the banned pesticide formulations.	
Classroom Aids	

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
Chemicals, Sprayer, Face Mask, Rubber Gloves, Pheromone Traps, Light Traps, Bird Perches, Sticky Traps

Module 6: Process of performing irrigation management for field crops

Mapped to NOS AGR/N0111 v4.0

Terminal Outcomes:

- Describe the process of preparing for field irrigation.
- Demonstrate the process of irrigating the field.
- Describe the process of managing water usage.

Duration: 03:00	**Duration: 04:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• State the timing and method of irrigation appropriate for a given soil type and climatic conditions. • State the quantity of water required for the specific crop and its effect on the yield. • Explain various measures to be followed to improve the water quality. • Describe the process of setting up different types of irrigation systems such as surface irrigation, drip irrigation, sub-surface irrigation system. • Explain the advantages and disadvantages of different types of irrigation systems. • Explain the importance of irrigating the field according to the recommended irrigation schedule for the crop and the factors to consider in scheduling irrigation. • Explain the recommended practices to prevent over and under irrigation. • Explain the recommended practices for effective drainage of excess water from the field.	• Demonstrate the process of setting up the appropriate irrigation system such as surface irrigation, drip irrigation, sub-surface irrigation system based on the requirement of the specific field crop. • Demonstrate the process of irrigating the field according to the recommended irrigation schedule for the crop. • Prepare a sample record of field irrigation to ensure irrigation as per the schedule. • Demonstrate how to plug water spills and leakages to prevent its wastage. • Demonstrate how to use water-saving irrigation practices like drip irrigation and rainwater harvesting, wherever applicable

Classroom Aids:
Training Kit (Trainer **G**uide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
NA

Module 7: Process of carrying out harvesting, processing and marketing of cereals

Mapped to AGR/N0127 v2.0

Terminal Outcomes:

- Demonstrate the process of harvesting the cereal crop.
- Demonstrate how to process and pack the cereals.
- Describe the process of managing the inventory and market the produce.

Duration: **03:00**	**Duration**: **03:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the ideal climate and conditions for harvesting cereals. • Explain how to assess the maturity of cereals to ensure their readiness for being harvested. • Describe the manual and mechanical methods for harvesting cereals and the use of relevant tools and equipment. • Explain the importance and ways of maintaining the recommended level of moisture in cereals. • Explain the signs of biological infestation in cereals and the importance of segregating the infested and damaged cereals. • Explain the relevant parameters to sort out the harvested cereals such as quality, colour, size, appearance, etc. • Describe the process of threshing and winnowing different types of cereals. • State the appropriate packing material for packing a variety of cereals, such as jute bags, • Polypropylene (PP) pouches, High-Density Polyethylene (HDPE) packaging, etc. • Explain the importance and ways of protecting the produce from damage and contamination. • State the appropriate temperature and humidity for storing the cereals.	• Demonstrate the process of harvesting the crop using necessary tools, equipment and machinery. • Demonstrate the process of sorting the harvested cereals on the applicable parameters such as quality, colour, size and appearance. • Demonstrate the process of carrying out threshing or winnowing of the harvested cereal crop. • Show how to pack the cereals following the relevant packaging standards and label the packs with the necessary information as per the applicable regulatory requirements. • Show how to weigh the packed cereals to ensure correct weight in the packs and seal them. • Demonstrate the process of applying the recommended treatment in the storage area to remove pests and rodents and store the packed cereals. • Demonstrate how to process the payment using an e-payment method. • Show how to calculate the benefit-cost (B:C) ratio. • Prepare a sample manual and/ or electronic record of the sales and payments.

• Explain the basic inventory management practices. • Describe the process of identifying and negotiating with potential buyers. • State the appropriate mode of transport for transporting a variety of cereals.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Sickle, Harvester, Thresher, Sprayer, Fumigants, Storage Bags, Bag Sealing Machine/ Tools, Weighing Machine	

Module 8: Participate in collective farming/activities

Mapped to NOS AGR/N9933 v1.0

Terminal Outcomes:

- Describe the process of creating PGs/ FIGs/ SHGs and preparing for its operations.
- Demonstrate the process of conducting group meetings and training sessions.
- Demonstrate the process of carrying out collective farming/activities.

Duration: 04:00	**Duration: 02:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the process of preparing for the Producer Groups (PGs)/Farmers Interest Groups (FIGs)/ Self-Help Groups (SHGs) operations such as fundraising, induction of Subject Matter Experts (SMEs), investing in Information and Communication Technology (ICT) products, etc. • Explain how to obtain access to the relevant government development programmes and funds. • Describe the process of commodity convergence with the relevant developmental programmes. • Explain the importance of planning optimal production to meet the market and household food security needs. • Explain the importance of setting the group objectives and deciding the group income-generating enterprises/ activities, methods of operation, benefits, etc. • Explain the importance of organising the PG/FIG/ SHG meetings and training sessions to resolve common concerns and get information about the latest developments in the field of work. • Explain the benefits of various capacity building exercises such as skill development and training programmes. • Explain the importance and process of conducting field trials to identify and resolve problems encountered	• Roleplay to illustrate how to conduct the initial group meetings to introduce the members, discuss the group objectives, group income-generating enterprises/ activities, methods of operation, etc. • Roleplay to illustrate how to organise field trials to identify and resolve problems encountered by group members in the field operations.

by farmers in the field operations. • Explain the concept of the group-owned bank to provide quality seeds, fertilisers, pesticides, tools and equipment to the member farmers. • Describe the process of using the group's credit facility. • Explain various core collective farming activities such as procuring inputs in bulk, large-scale farming, etc. • Explain the concept and benefits of forming forward and backward linkages. • State the relevant value addition practices such as processing, packing, upgrading the quality, etc. • Explain the benefits of connecting with similar groups to address common problems on a large scale.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 9: Hygiene and cleanliness

Mapped to NOS AGR/N9932 v1.0

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**
• 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.	• 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.
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): 24:30** **Practical Duration:** **(hh:mm): 23:30** **Grand Total Bridge Course Duration:** **(hh:mm): 48:00**	**Unique equipment required:** Khurpi, Knapsack sprayer, Sickle, Harvesting Equipment/Harvester as per elective selected, Hand Gloves, Pesticide- Any, Biofertilizers, Fertilizers, Bags for storage, Zinc (MICRONUTRIENTS), Soil testing Kit, Fawda/ Kudal, Weeder, Nematicide, Irrigation Equipment, Pheromone trap, Face Masks, Organic Manure, Plough, Land Leveller, Herbicide- Any, Gumboots, Video recording equipment, Cereal Crop Seeds (As per Electives), Seed drill/ Seed Planter

Grand Total Course Duration: 12 (Orientation session) + 48 (Bridge Course) = 60 Hours, 0 Minutes