

Model Curriculum

Wheat Cultivator

SECTOR: AGRICULTURE & ALLIED
SUB-SECTOR: AGRICULTURE CROP PRODUCTION
OCCUPATION: FIELD CROPS CULTIVATION (FOOD CROPS)
REF ID: AGR/Q0102, V1.0
NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

AGRICULTURE SKILL COUNCIL OF INDIA

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Wheat Cultivator' QP No. 'AGR/Qo102 NSQF Level 4'

Date of Issuance: October 20th, 2016

Valid up to: March 31st, 2019

* Valid up to the next review date of the Qualification Pack



S. S. Anand
Authorised Signatory
(Agriculture Skill Council of India)

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Wheat Cultivator

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Wheat Cultivator”, in the “Agriculture & Allied” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Wheat Cultivator		
Qualification Pack Name & Reference ID.	AGR/Q0102, v1.0		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	No entry barrier, 5 th standard pass preferable		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Select & Procure the Wheat crop variety from authentic source: Analyse the geographical conditions, resources available, select the crop variety-high yielding variety, pest and disease tolerant variety, hybrid varieties • Grow and manage wheat crop: Inputs requirement, Preparation of field, sowing, soil testing, application of fertilizer & nutrients, pest & disease management, irrigation management, harvesting of crop • Maintain the quality of the produce: Time of Harvesting, Moisture level of the produce, post harvest practice, storage & transportation • Undertake Basic Farm Management: Crop planning, maintaining crop calendar, financial management, analyze market demand & supply • Become well versed with Environment Health & Safety: Well versed with health and safety measures in terms of personal safety and others as well. 		

This course encompasses 10 out of 10 National Occupational Standards (NOS) of "Wheat Cultivator Qualification Pack issued by "Agriculture Skill Council of India".

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	Introduction Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> Understand the General Discipline in the class room (Do's & Don'ts) Understand and study the Scope and Opportunities of Wheat crop cultivation Understand the Role of a Wheat Cultivator Get acquainted with the agro-climatic conditions required for wheat cultivation Understand State farmers' right under PPV & FRA act 2001 (9 rights) 	White Board, Marker, Laptop, projector
2	Selection of seed for Wheat cultivation Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR / No112	<ul style="list-style-type: none"> Identify and select the appropriate variety (high yielding, pest & disease resistant, hybrid etc) based on the agro climatic conditions, climate, soil type and required yield Understand the Seed requirement for Wheat Cultivation Identify & procure quality seeds from authentic sources Undertake seed treatment using appropriate method 	White Board, Marker, Laptop, projector
3	Land preparation & sowing of seed for wheat cultivation Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR / No113	<ul style="list-style-type: none"> Prepare the field for wheat cultivation- ploughing, planking etc Apply manures and fertilizers in appropriate quantity Ensure proper tith & moisture in the field Demonstrate different sowing methods- line sowing, drilling, dibbling, broadcasting etc Sow seeds at appropriate depth, spacing using recommended seed rate at appropriate time Identify & select crops that can be used as an intercrop Practice intercropping & crop rotation to ensure higher yields and manage weeds Adopt integrated farming system for diversified income 	Marker, Laptop, projector, plough, disc harrow, sub-soiler, tiller, land leveler, cultivator
4	Macro and micro nutrient	<ul style="list-style-type: none"> Understand the Nutrient requirement for 	White Board,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	management for field crops Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR / No108	the cultivation of wheat <ul style="list-style-type: none"> Understand and perform the soil sampling for soil test Understand the Micro and Macro Nutrients in soil Understand the required fertilizer dosage for the nutrient enrichment in soil as per the soil health card Understand the various soil microorganisms beneficial for the nutrient enrichment in soil Use the bio fertilizer/organic manure in the cultivation of wheat crop Estimate the quantity & apply fertilizer & micro-nutrients at various stages in appropriate dosage Maintain the record of application of fertilizers and intervals 	Marker, Laptop, projector, Sprayer, fertilizers, bio fertilizers, polythene/ cloth bags for soil samples, khurpa
5	Curb weed in field crops Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR / No109	<ul style="list-style-type: none"> Ascertain the type of weeds that afflict wheat crop Understand the hazards of weed in wheat crop cultivation Understand the use of chemical herbicides and bio- herbicides Apply the herbicides Understand and perform the Manual/mechanized weeding 	White Board, Marker, Laptop, projector, chemicals, sprayer, weeder, hoe, sickle
6	Integrated Pest & Disease management in field crops Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR / No110	<ul style="list-style-type: none"> Understand the importance of Integrated Pest and Disease Management Understand the major pests and disease in Wheat crop Understand the Characters & life cycle of different insect pests Get acquainted with the stages of crop when it is vulnerable to pests & diseases Understand the symptoms of and precaution measures for different diseases Prepare & apply biopesticides Apply suitable chemical for the insect pest and diseases attack Identify, select and place different insect traps according to the cultivar in the field Practice Integrated Pest and Disease Management- mechanical, biological & chemical methods 	White Board, Marker, Laptop, projector, chemicals, sprayer, face mask, rubber gloves, pheromone traps, light traps, bird perches, sticky traps

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Understand National and International standards on pesticide residues 	
7	Irrigation management for field crops Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR / No111	<ul style="list-style-type: none"> Understand the Water requirement for the cultivation of wheat Understand the soil texture, porosity etc Understand the effects of water clogging & poor drainage in the field Understand the required optimum moisture level in the field for wheat cultivation Ascertain appropriate method of irrigation Ascertain critical growth stages of wheat crops Prepare Irrigation Schedule as per the crop stage and ensure timely irrigation Undertake suitable irrigation method depending on the soil type, variety of wheat & water availability Understand water use efficiency concept 	White Board, Marker, Laptop, projector, irrigation equipments, spade
8	Manage harvest and Post-harvest in Wheat Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR / No114	<ul style="list-style-type: none"> Understand Do's and Don'ts during crop harvesting Harvest the crop at appropriate stage & time keeping in consideration crop maturity, moisture content, climatic conditions etc Understand and practice the proper method of harvesting and handling of harvested crop Understand the importance of Post harvest Management Perform threshing, winnowing, cleaning, drying of the harvested produce Understand various methods of storage and their influence on Wheat quality & cost dynamics Store the produce and ensure safety from storage pests Identify market & buyers for the produce Make arrangements for transportation of the produce 	White Board, Marker, Laptop, projector, sickle, harvester, thresher, sprayer, fumigants, storage bags (Jute bags, HDPE/pp, polythene impregnated jute bag), bag sealing machine/ tools, weighing machine
9	Basic Farm Management Theory Duration (hh:mm) 10:00	<ul style="list-style-type: none"> Estimate the cost of production of wheat crop Estimate the required investment Practice Farm management- Soil testing, selection of crop variety, Crop Calendar, Crop rotation, intercrops, 	White Board, Marker, Laptop, projector, record keeping book

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR /N9901	schedule for fertilizer, pesticide/chemical application, irrigation schedule, harvesting schedule etc <ul style="list-style-type: none"> Identify the near market area and keep update on the market prices Keep record on the investment and expenditures Understand various uses of wheat crop by-products- wheat straw etc 	
10	Assimilating Market Information Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR /N9902	<ul style="list-style-type: none"> Understand the suitable market platform for wheat crop including e-procurement platform Collect the Market information from the reliable sources Analyze the market information Understand the right time, place for the market of the produce Get acquainted with Agro advisory services facility available through SMS mobile, Radio, TV, etc. 	White Board, Marker, Laptop, projector
11	Maintain health & safety at the workplace Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR /N9903	<ul style="list-style-type: none"> Perform General safety Rules Gain Knowledge of various health hazards relevant to workplace and basic first aid training Understand the basic safety checks and other common reported hazards before all farm operation Understand, identify and study the use of equipment ,processing machine and materials safely and correctly Understand and handle the emergency situation in workplace and during any farm operation 	White Board, Marker, Laptop, projector, safety mask, rubber gloves, safety boots, first aid kit
	Total Duration: Theory Duration (hh:mm) 60:00 Practical Duration (hh:mm) 90:00	Unique Equipment Required: White Board, Marker, Laptop, projector, Record Keeping Book, chemicals, plough, disc harrow, sub-soiler, tiller, land leveler, cultivator, polythene/ cloth bags for soil samples, khurpa, weeder, hoe, sickle, pheromone traps, light traps, bird perches, sticky traps, irrigation equipments, spade, harvester, thresher, fumigants, storage bags, bag sealing machine/ tools, weighing machine	

Grand Total Course Duration: **150 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Agriculture Skill Council of India](#))

Trainer Prerequisites for Job role :“Wheat Cultivator” mapped to Qualification Pack: “AGR/Qo102, v1.0”

Sr. No.	Area	Details
1	Description	Trainer is responsible for providing the education and skills development training on Wheat cultivation from selection of crop variety to harvesting (includes procuring seed material, cultivation and intercultural operations, harvesting, marketing, etc)
2	Personal Attributes	Trainer should be Subject Matter Specialist. He/ She should have good communication and observation skill, leadership skill, practical oriented skill
3	Minimum Educational Qualifications	Diploma, Bachelor Degree in Agriculture Science
4a	Domain Certification	Certified for Job Role: <u>“Wheat Cultivator”</u> mapped to QP: <u>“AGR/Qo102, v1.0”</u> . Minimum accepted score is 80%.
4b	Platform Certification	Certified for the Job Role: “Trainer”, mapped to the Qualification Pack: <u>“SSC/Q1402”</u> . Minimum accepted score is 70%
5	Experience	<ul style="list-style-type: none"> • MSc (Agriculture) with relevant experience of 1 Year, • BSc (Agriculture) with relevant experience of 2 Year • Graduate with relevant experience of 3 + Years, • Diploma with relevant experience of 5+ Years.

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Wheat Cultivator
Qualification Pack	AGR/Qo104, v1.0
Sector Skill Council	Agriculture

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre(as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in aggregate
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessable Outcome	Assessment Criteria	Total Marks (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. AGR/No112 Selection of Seed for wheat cultivation	PC1. select varieties based on area / ecosystem / season, yield and resistance to pest and diseases	60	10	5	5
	PC2. identify various vendors / suppliers (including government nurseries / department) of the seed that are certified		5	2	3
	PC3. ascertain the quality of seed material from each source in terms of 'free from pests and diseases', 'germination percentage' etc.		10	5	5
	PC4. ascertain the prevailing market rates for the seed material		10	5	5
	PC5. procure the seed material in appropriate quantity		5	3	2
	PC6. identify an appropriate storage space (free of infestation and having congenial climatic conditions for the seed)		10	5	5
	PC7. store the seed (if there is time lag between procurement and sowing) as per recommended procedure		10	5	5
			60	30	30
2. AGR/No113 Land preparation & sowing of seed for wheat cultivation	PC1. soil testing at authorized centres	60	10	5	5
	PC2. prepare the land with appropriate tilth		8	4	4
	PC3. planking the field after ploughing		8	4	4
	PC4. apply farm yard manure and fertilizers		10	5	5
	PC5. irrigate the land prior to sowing		8	4	4
	PC6. sow seed at appropriate time		5	2	3
	PC7. sow seed at appropriate distance		5	3	2

	PC8. understand various methods of sowing with their suitability		6	3	3
			60	30	30
3. AGR/No108 Macro and micro nutrient management for field crops	PC1. take sample as per the recommended sampling procedure from the field	90	10	5	5
	PC2. dry the soil and prepare samples as per procedure		10	5	5
	PC3. pack, label and submit to nearby soil testing laboratory for analysis		10	5	5
	PC4. collect the soil analysis report from the lab		5	2	3
	PC5. collect the recommended organic and inorganic fertilizer dosage from Agriculture Department based on the soil analysis report		5	3	2
	PC6. ascertain the right organic and inorganic fertilizers to be applied		10	5	5
	PC7. prepare the fields appropriately for the fertilizer application		8	4	4
	PC8. mix the fertilizers in appropriate quantities		10	5	5
	PC9. apply the fertilizers in right dosage, time and intervals of crop growth		22	11	11
			90	45	45
4. AGR/No109 Curb weed in field crops	PC1. ascertain the type of weeds that will afflict the field crop	60	15	7	8
	PC2. regulate the chemicals during soil preparation so that the land does not become congenial to weeds		10	5	5
	PC3. plant appropriate intercrops varieties that will smother the weed growth		10	5	5
	PC4. use appropriate herbicides in the appropriate time		15	8	7
	PC5. use mechanical weeding equipments like hoes, where applicable		10	5	5

			60	30	30
5. AGR/No110 Integrated pest and disease management in field crops	PC1. identify the various pests for the field crops	90	5	2	3
	PC2. identify the stage of crop growth when the pests attack		5	2	3
	PC3. identify the part of the crop where the specific pests will attack		5	2	3
	PC4. identify and document the pest behaviour		4	2	2
	PC5. prepare a pest calendar with all pest characteristics for field crop		4	2	2
	PC6. document the preventive measures for the pests		3	2	1
	PC7. adopt direct pest control methods		8	4	4
	PC8. adopt promotion of natural enemies to the various pests that can control the same naturally		8	4	4
	PC9. identify the various diseases for the field crops		4	2	2
	PC10. identify the stage of crop when it is vulnerable to disease		4	2	2
	PC11. identify the part on the crop where the specific disease will occur		4	2	2
	PC12. identify the symptoms for the diseases		4	2	2
	PC13. identify the mode of disease transfer		4	2	2
	PC14. ascertain the appropriate integrated pest management techniques like trash mulching, de-trashing, egg destruction, bund freeing, water draining, usage of bio-control agents, etc		8	4	4
	PC15. use appropriate pest and disease management chemicals in right quantities		8	4	4
	PC16. use pest and disease resistant varieties		6	3	3
	PC17. practice preventive techniques like pheromone traps, light traps, bird perches, sticky traps, etc. according to the cultivar		6	4	2

			90	45	45
6. AGR/No111 Irrigation management for field crops	PC1. ascertain the right amount of water required based on the physiological need of the crops, soil moisture and climate of the place of cultivation	60	15	7	8
	PC2. ascertain the right amount of water for the field crops in various stages of critical growth		15	8	7
	PC3. use appropriate micro irrigation systems wherever possible and applicable		20	10	10
	PC4. avoid excessive watering		10	5	5
			60	30	30
7. AGR/No114 Harvest and post harvest management in wheat	PC1. harvest the crop at appropriate stage (depending on colour of stem)	90	15	9	6
	PC2. harvest the crop at right time (depending on moisture content)		15	6	9
	PC3. identify the appropriate harvesting method (by manual, mechanised and combines)		5	2	3
	PC4. perform threshing of crop after drying, to loosen the grain seed from husk (if applicable)		10	5	5
	PC5. perform winnowing of the crop to separate grain from chaff (if applicable)		10	5	5
	PC6. pack the crop produce		10	5	5
	PC7. maintain ideal storage condition		10	5	5
	PC8. market the crop produce		10	5	5
	PC9. interact with agriculture / extension expert on best marketing practices		5	3	2
			90	45	45
8. AGR/ Ngg01 Basic farm management	PC1. choose the crop based on agro-climatic condition of the region	30	2	1	1
	PC2. take sample of the soil for testing		1	0	1
	PC3. perform intercropping with suitable and recommended crops (as per the main crop		2	1	1

	cultivated)				
	PC4. perform crop rotation with suitable crops		2	1	1
	PC5. interact with agriculture / extension expert for crop planning		1	1	0
	PC6. choose crop based on the economic advantage		2	1	1
	PC7. maintain crop production activity record		1	1	0
	PC8. maintain crop calendars		1	1	0
	PC9. maintain calendars of weed		1	1	0
	PC10. maintain insect and pest calendar		2	1	1
	PC11. ascertain total cost of production (land, production practices, labour, equipment , fuel, administrative cost etc.)		2	1	1
	PC12. maintain records of investment and expenditure		2	1	1
	PC13. maintain necessary books of accounts		2	1	1
	PC14. identify government schemes and their eligibility for availing themselves of the same		2	1	1
	PC15. identify the nearest market		2	1	1
	PC16. identify local traders, mandis in the villages and nearby and compare the rates		2	1	1
	PC17. identify market rates of the produce season wise		2	1	1
	PC18. arrange cost-effective transportation of produce to the marke		1	0	1
			30	16	14
9. AGR/Ng902 Assimilating market information	PC1. understand the different sources of information at village-level through other farmers, neighbours, relatives, agricultural extension workers, agriculture specialists, concerned government and private departments like gram panchayat, co-operative societies and SHGs etc.	30	1	1	0

PC2. identify different sources of information at market level through commission agents, mandisamitis and input dealers	1	1	0
PC3. identify different sources of information through media sources like radio, newspapers, television, magazine internet, SMS in mobile phones etc.	1	0	1
PC4. identify the appropriate sources of specific market information and proper ways to collect the required information	1	0	1
PC5. identify the reliable source of information	1	0	1
PC6. ascertain methods of collecting information through personal visit, telephone, internet and published reports, magazines and articles, workshops, attending seminars and training by agriculture extension service providers	2	1	1
PC7. ascertain periodicity and cost of assessing market information	2	1	1
PC8. ascertain availability and non-availability of specific market information	1	0	1
PC9. perform documentation for analysing market information	1	0	1
PC10. evaluate the authenticity of information received	2	1	1
PC11. analyse the information for taking decision	2	1	1
PC12. utilize market information for taking cost effective production decisions	2	1	1
PC13. understand quality-wise and variety-wise prices of different products such as seeds, pest, fertilizer, etc	2	1	1
PC14. use market information and decide on crop and area be to sown which could result in better productivity for the season	2	1	1
PC15. utilize market information for taking effective pre-harvesting decisions like seed preparation, land preparation, nutrition	2	1	1

	management, weed management, pest and diseases management and irrigation management				
	PC16. utilize market information for appropriate post-harvesting decision like drying , grading, bagging, transportation, processing and storage		2	1	1
	PC17. decide on marketing parameters like where to sell, when to sell, to whom to sell and what quantity to sell etc. which leads to profit		2	1	1
	PC18. understand benefits derived from market information		1	0	1
	PC19. make projections/future price movements through information sources		1	1	0
	PC20. understand price fluctuations in markets and take appropriate decision		1	1	0
			30	14	16
10. AGR/N9903 Maintain Health and safety at the workplace	PC1. undertake basic safety checks before operation of all machinery and vehicles and hazards are reported to the appropriate supervisor		2	1	1
	PC2. work for which protective clothing or equipment is required is identified and the appropriate protective clothing or equipment is used in performing these duties in accordance with workplace policy.		2	1	1
	PC3. read and understand the hazards of use and contamination mentioned on the labels of pesticides/fumigants etc	30	2	1	1
	PC4. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practice.		2	1	1
	PC5. use equipment and materials safely and correctly and return the same to designated storage when not in use		2	1	1
	PC6. dispose of waste safely and correctly in a designated area		2	1	1
	PC7. recognise risks to bystanders and take action		3	2	1

	to reduce risk associated with jobs in the workplace				
	PC8. perform your work in a manner which minimizes environmental damage all procedures and work instructions for controlling risk are followed closely.		2	1	1
	PC9. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger.		1	0	1
	PC10. follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency.		2	1	1
	PC11. follow emergency procedures to company standard / workplace requirements		2	1	1
	PC12. use emergency equipment in accordance with manufacturers' specifications and workplace requirements		2	1	1
	PC13. provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques		2	1	1
	PC14. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate		2	1	1
	PC15. report details of first aid administered in accordance with workplace procedures.		2	1	1
			30	15	15
	TOTAL	600	600	300	300
	<u>Percentage Weightage:</u>			<u>50%</u>	<u>50%</u>
	<u>Minimum Pass% to qualify (aggregate):</u>				<u>60%</u>