



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: **'Pulses Cultivator'** QP No. **'AGR/Qo104 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



Authorised Signatory
(Agriculture Skill Council of India)

Pulses Cultivator

CURRICULUM / SYLLABUS

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

Program Name	Pulses Cultivator		
Qualification Pack Name & Reference ID.	AGR/Q0104, 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 Pulse 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 pulse crops: 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 "Pulses 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 Pulse crops cultivation Understand the Role of a Pulses Cultivator Study different Pulse crops, their nutrient value & demand in the market 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	Prepare seed for pulses Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR / No118	<ul style="list-style-type: none"> Identify and select the appropriate variety based on the agro climatic conditions, climate, soil type and required yield Understand the Seed requirement for Pulse Crops Cultivation Identify & procure quality seeds from authentic sources Undertake seed treatment using appropriate method 	White Board, Marker, Laptop, projector
3	Prepare land and sow pulses Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR / No119	<ul style="list-style-type: none"> Prepare the field for pulses cultivation Apply manures and fertilizers in appropriate quantity Sow seeds at appropriate depth, spacing using recommended seed rate Identify & select crops that can be used as an intercrop Practice intercropping to ensure higher yields and manage weeds 	Marker, Laptop, projector, plough, disc harrow, sub- soiler, tiller, land leveler, cultivator
4	Macro and micro nutrient management for field crops Theory Duration (hh:mm)	<ul style="list-style-type: none"> Understand the Nutrient requirement for the cultivation of Pulse crops Understand and perform the soil sampling for soil test Understand the Micro and Macro Nutrients in soil 	White Board, Marker, Laptop, projector, Sprayer, fertilizers, bio fertilizers, polythene/ cloth

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR / No108	<ul style="list-style-type: none"> 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 Pulse crops Estimate the quantity & apply fertilizer & micro-nutrients at various stages in appropriate dosage Maintain the record of application of fertilizers and intervals 	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 pulse crops Understand the hazards of weed in Pulse 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 / No403	<ul style="list-style-type: none"> Understand the importance of Integrated Pest and Disease Management Understand the major pests and disease in Pulse crops Understand the Characters & life cycle of different insect pests Understand the life stages of plants at which it is vulnerable to pests & diseases, symptoms of and precautionary measures to be adopted Prepare & apply biopesticides Apply suitable chemical for the insect pest and diseases attack Identify, select and place different insect traps in the field Practice Integrated Pest and Disease Management- mechanical, biological & chemical methods Understand National and International standards on pesticide residues 	White Board, Marker, Laptop, projector, chemicals, sprayer, face mask, rubber gloves, pheromone traps, light traps, bird perches, sticky traps
7	Irrigation management for field crops Theory Duration	<ul style="list-style-type: none"> Understand the Water requirement for the cultivation of Pulse crops Understand the soil texture, porosity etc 	White Board, Marker, Laptop, projector, irrigation equipments, spade

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR / No404	<ul style="list-style-type: none"> Understand the effects of water clogging & poor drainage in the field Understand the required optimum moisture level in the field for Pulse crop cultivation Ascertain appropriate method of irrigation Ascertain critical growth stages of pulse crops Prepare Irrigation Schedule as per the crop stage and ensure timely irrigation Undertake suitable irrigation method depending on the soil type, variety of pulse crop & water availability Understand water use efficiency concept 	
8	Manage harvest and Post-harvest for pulses Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR / No410	<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, cleaning, drying of the harvested produce Understand various methods of storage and their influence on pulses 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, bag sealing machine/ tools, weighing machine
9	Basic Farm Management Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR /N9901	<ul style="list-style-type: none"> Estimate the cost of production of Pulse crops Estimate the required investment Practice Farm management- Soil testing, selection of crop variety, Crop Calendar, Crop rotation, intercroops, schedule for fertilizer, pesticide/chemical application, irrigation schedule, harvesting schedule etc Identify the near market area and keep update on the market prices 	White Board, Marker, Laptop, projector, record keeping book

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Keep record on the investment and expenditures Calculate B:C ratio 	
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 Pulse crops including e-procurement platform Collect the Market information from the reliable sources Understand the right time, place for the market of the produce Analyze the market information 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 :“Pulses Cultivator” mapped to Qualification Pack: “AGR/Qo104, v1.0”

Sr. No.	Area	Details
1	Description	Trainer is responsible for providing the education and skills development training on Pulses 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>“Pulses Cultivator”</u> mapped to QP: <u>“AGR/Qo104, 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	Pulses 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/No118 Prepare seed for Pulses	PC1. identify and select the appropriate variety based on the agro climatic conditions, climate, soil type and required yield	60	5	2	3
	PC2. identify the various sources of seed procurement (government, private vendors) and choose the appropriate certified vendors		3	1	2
	PC3. ascertain the right quality of seed on the parameters like tract suitability, expected yield, amenability to soil type and time of planting, disease and pest resistance, etc.		5	2	3
	PC4. be aware of the prevalent seed prices for the various seed types		4	2	2
	PC5. procure the appropriate seed		4	2	2
	PC6. identify the appropriate storage space for the seeds post the procurement		4	2	2
	PC7. store the seed (if there is a time lag between the procurement and sowing) in the appropriate storage place and recommended storage practice		3	1	2
	PC8. ascertain the type of threats the pulses seed can be subject to like various pests and diseases depending on the agro climatic conditions		4	2	2
	PC9. identify the hard seeds from the batch of obtained seeds		4	2	2
	PC10. ascertain the correct seed treatment method to be adopted like fungicide treatment, acid treatment, etc		4	2	2
	PC11. ascertain the correct fungicides and other appropriate chemicals to be used for the treatment		10	5	5
	PC12. treat the seed with the correct dosage of the chemicals that have been recommended		2	1	1
	PC13. read the safety precautions in the reading material provided with the pesticide		4	2	2
	PC14. keep ready with all the necessary first-aid materials as suggested in the safety measures		4	2	2
	PC15. use all the necessary safety material and follow all the preventive measures to avoid any injury during use /		4	2	2

	application of chemicals				
			60	30	30
2.AGR/No119 Prepare land and sow pulses	PC1. plough the land by tilling to have a uniform tilth	60	5	3	2
	PC2. provide appropriate ridges and furrows in the land to prevent water logging		5	2	3
	PC3. provide drains in appropriate intervals		5	2	3
	PC4. form levelled and uniformly graded land		5	3	2
	PC5. ensure prepared field is free from unwanted vegetation		8	4	4
	PC6. use appropriate land preparation equipments like ploughs, disc harrows, etc.		5	2	3
	PC7. apply fertilizers and manures in prepared soil in right proportion		4	2	2
	PC8. apply at the appropriate distance in the prepared field		6	3	3
	PC9. maintain the right pH value in the soil		3	2	1
	PC10. adopt the correct seed rate to sow the seeds		6	3	3
	PC11. sow the seeds at appropriate depth and spacing in rows depending on the seed variety used		4	2	2
	PC12. practice intercropping to ensure higher yields and manage weeds		4	2	2
			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	2
	PC2. regulate the chemicals during soil preparation so that the land does not become congenial to weeds		10	5	4
	PC3. plant appropriate intercrops varieties that will smother the weed growth		10	5	4
	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	1
	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 behavior		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	5
	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		6	4	2

	pheromone traps, light traps, bird perches, sticky traps, etc. according to the cultivar				
			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/No120 Manage harvest and post harvest for pulses	PC1. observe the symptoms for maturity like pods ripening, shells drying, etc. at right time to ascertain the time for harvesting	90	6	3	3
	PC2. ascertain the moisture content (typically 15%-20%) in the grain to see if it is appropriate for harvesting		8	4	4
	PC3. treat the crop with appropriate chemicals (like chemical defoliants) prior to harvest wherever applicable		8	4	4
	PC4. harvest the crop at the appropriate stage		8	4	4
	PC5. harvest the crop in right time in the day		5	2	3
	PC6. use the appropriate type of harvest – manual or mechanized –depending on the type of pulses and land holding size		5	2	3
	PC7. perform threshing of the harvested pulses		6	3	3
	PC8. perform pre-cleaning of the harvested pulses using appropriate methods		5	2	3
	PC9. ensure the cleaned pulses are dried		8	5	3
	PC10. sort the cleaned pulses and keep ready for storage		5	2	3
	PC11. store in dry location in appropriate storage structure for pulses		4	2	2
	PC12. manage storage pests		5	3	2
	PC13. identify the right market for sale of produce		5	3	2
	PC14. analyze the right time for sale considering the periodical demand for the produce		6	3	3
	PC15. coordinate and negotiate with		6	3	3

	procurement assistant of the buyer for best price				
			90	45	45
8.AGR/N9901 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 cultivated)		2	1	1
	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 market		1	0	1
			30	16	14
9.AGR/N9902 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		1	1	0

	input dealers			
	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 analyzing market information	1	0	1
	PC10. evaluate the authenticity of information received	2	1	1
	PC11. analyze 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 to be 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 management, weed management, pest and diseases management and irrigation management	2	1	1
	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	30	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		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. recognize risks to bystanders and take action to reduce risk associated with jobs in the workplace		3	2	1
	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>	