

# Model Curriculum

## Agriculture Machinery Operator

**SECTOR: AGRICULTURE & ALLIED**  
**SUB-SECTOR: AGRICULTURE CROP PRODUCTION**  
**OCCUPATION: FARM MACHINERY, EQUIPMENT  
OPERATION AND MAINTENANCE**  
**REF ID: AGR/Q1103, 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: '**Agriculture Machinery Operator**' QP No. '**AGR/Q1103 NSQF Level 4**'

Date of Issuance: April 24<sup>th</sup>, 2017

Valid up to: March 31<sup>st</sup>, 2020

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



Authorised Signatory  
(Agriculture Skill Council of India)

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# Agriculture Machinery Operator

## CURRICULUM / SYLLABUS

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

<b>Program Name</b>	<b>Agriculture Machinery Operator</b>		
<b>Qualification Pack Name &amp; Reference ID.</b>	AGR/Q1103, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites to Training</b>	Class 8, preferably		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li>• <b>Prepare for operation of farm machineries:</b> Understand the working of different types of farm machinery and their components</li> <li>• <b>Select power operated farm implements to be used:</b> assist in selection of farm machinery to be operated</li> <li>• <b>Operate power tiller</b> during different operation on various crops.</li> <li>• <b>Carry out land shaping and plant protection equipment:</b> select land shaping equipment, operate the plant protection equipment</li> <li>• <b>Carry out minor repair and periodical maintenance of agriculture machineries:</b> periodic checking, tightening, greasing, cross-checking for any leakages etc</li> <li>• <b>Practice health and safety at the work place:</b> Well versed with health and safety measures in terms of personal as well as others' safety</li> <li>• <b>Identify hand operated farm implements and alternative sources of farm energy to be used</b></li> </ul>		



Sr. No.	Module	Key learning outcomes	Equipment Required
		irrigation pump, reversible plough and trolley etc. <ul style="list-style-type: none"> <li>• Illustrate different system such as clutch lever, speed gear lever, left hand and right hand turning levers, pto shaft, forward gears 1 to 3, reverse gear</li> <li>• Explain the function of decompression lever and starting engine</li> <li>• Operate the power tiller</li> <li>• Carry out the turning of machine at 90, 180 and 360 degrees</li> <li>• Check-up the fuel level, oil level, wheel air pressure, air cleaner, fan belt tension, leakage in power tiller</li> <li>• Check proper working of all controls, gauges, and symbols</li> <li>• Perform pre-start up checks</li> <li>• Carry out maintenance and servicing of the equipment on a regular basis</li> <li>• State use of power tiller for inter-cultural operations in a manner to optimize the overall productivity</li> <li>• Ensure integrated pest management for control of insects and diseases</li> </ul>	
3	<b>Select power operated farm implements to be used</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 26:00  <b>Corresponding NOS Code</b> AGR /N1107	<ul style="list-style-type: none"> <li>• State importance of power operated farm implements</li> <li>• Describe tractor and power tiller- functions, types, its components</li> <li>• Illustrate the power operated implements used for various farm operations</li> <li>• Illustrate the sowing and planting equipments, inter row weeding and inter cultivation machineries/ equipments, harvesting and threshing equipments, crop processing equipments</li> <li>• Illustrate the use, important parts, capacity, cost of operation, construction detail, types, precautions while using and handling of these equipments</li> <li>• Carry out handling, minor repair and periodical maintenance of different components of farm machineries / implements</li> <li>• Illustrate the dangerous machines (regulation), act 1983</li> </ul>	Plough, sub soiler, rotavator, seed cum fertilizer drill and planters, paddy planter and seed drill, Fertilizer applicator, power weeder, high clearance weeder, diggers, self propelled vertical conveyor reaper, tractor drawn vertical conveyor reaper, forage harvester and thresher, combine harvester, chaff cutter, maize sheller, de, , dryer, two trolley, diggers, self propelled vertical conveyor reaper, tractor drawn vertical conveyor reaper and reaper binder rake, baler
4	<b>Operate the power tiller</b>  <b>Theory Duration</b>	<ul style="list-style-type: none"> <li>• Identify different parts of power tiller</li> <li>• Explain the pre-start checks – like</li> </ul>	Power tiller, tools, attachments









## Trainer Prerequisites for Job role: “Agriculture Machinery Operator” mapped to Qualification Pack: “AGR/Q1103, v1.0”

Sr. No.	Area	Details
1	<b>Description</b>	Trainer is responsible for demonstrating the agricultural machine and educating to the users on the operation of farm machinery
2	<b>Personal Attributes</b>	Trainer should be Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills.
3	<b>Minimum Educational Qualifications</b>	10+2 with Science
4a	<b>Domain Certification</b>	Certified for Job Role: “Agricultural Machinery Operator” mapped to QP: “AGR/Q1103, v1.0”. Minimum accepted score is 80%.
4b	<b>Platform Certification</b>	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102”. Minimum accepted % as per respective SSC guidelines is 80%.
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• B Tech in Mechanical / Agriculture engineering</li> <li>• B Sc Agriculture with 1 year of relevant work experience and 2 years of total work experience</li> <li>• Diploma / ITI (Mechanical / Agriculture engineering) with 3 years of relevant work experience</li> <li>• 10+2 with Science and having any Certificate course in Farm Mechanization with 5 years of relevant work experience</li> </ul>





	PC11. carry out maintenance and servicing of the equipment on a regular basis		6	2	4
	PC12. check if the liquid ballast on each tyre, and the inflation pressures are within the limits specified by the tyre manufacturer (for wheeled power tillers)		6	1	5
	PC13. test for maximum power and pull of the power tiller by testing for factors such as fuel consumption, temperature of engine oil, coolant, transmission oil, wheel slip forward speed		6	1	5
	PC14. identify and understand the production of crops in different season		6	2	4
	PC15. identify new techniques ensuring good soil health condition for the crop		6	2	4
	PC16. ensure different weed management tools/implements		6	2	4
	PC17. identify new inter-cultural operations techniques used for weeding, hoeing, topping, nipping of buds, pruning, shading and earthing up etc		6	2	4
	PC18. identify new farming techniques for integrated pest and disease management		6	2	4
			<b>100</b>	<b>30</b>	<b>70</b>
<b>2. AGR/N1108 Select power operated farm implements to be used</b>	PC1. ensure that proper implements for the power tiller are available so that the power tiller is capable of performing field operations which maybe stationary and/or mobile	<b>100</b>	10	3	7
	PC2. select the power operated implement based on the type of activity to be carried out		10	3	7
	PC3. use the following implements for seed bed preparation		10	3	7
	— plough				
	— sub soiler				
	— rotavator				
	— land shaper and leveler		10	3	7
	PC4. use the following implements for improved sowing and planting				
	— seed cum fertilizer drill and planters				
	— paddy planter and seed drill				
	— fertilizer applicator		10	3	7
— vegetable planter					
PC5. use the following equipments for inter row weeding and inter cultivation	10	3	7		

	— power weeder				
	— high clearance weeder				
	— plant protection equipments				
	PC6. use the following equipments for harvesting and threshing				
	— diggers				
	— self propelled vertical conveyor reaper		10	3	7
	— tractor drawn vertical conveyor reaper				
	— forage harvester and thresher				
	— combine harvester				
	PC7. use the following equipments for crop processing				
	— chaff cutter				
	— maize sheller		10	3	7
	— de husker/huller				
	— sugarcane crusher				
	— dryer				
	PC8. use the following equipment for transportation				
	— two/four wheel trolley		10	3	7
	PC9. ensure safety measures are undertaken during the operation of these equipments		10	3	7
	PC 10. ensure proper storage of these equipments during off season and when not in use		10	3	7
			<b>100</b>	<b>30</b>	<b>70</b>
<b>3. AGR/N1109 Operate power tiller</b>	PC1. achieve weight balance of tiller by adding the manufacturer's recommended ballast for the attachment before starting operations	<b>100</b>	11	3	8
	PC2. ensure pre-start checks		11	4	7
	PC3. ensure handles and grips are free of mud and grease before operation of the machinery		11	3	8
	PC4. avoid changing gear or suddenly pressing one of the side clutches or brakes which can cause the tiller to swing to either side or lift upwards during operation		12	4	8
	PC5. maintain protective shield at rear of rotary in good condition as it protects the operator from stones and mud thrown up by rotary blades		11	3	8
	PC6. take the tiller in reverse when going down a slope		11	3	8
	PC7. ensure that control linkages are in good condition and control levers are operating smoothly before start of operation		11	4	7
	PC8. avoid using side clutch and ensure disengagement of rotary when moving up or down slopes or crossing bunds		11	3	8





1. AGR/N1118	PC1. analyze the constructional features of all hand tools and implements	<b>100</b>	16	5	11
	PC2. analyze the conditions under which the implements and tools could be used		16	5	11
	PC3. carry out proper identification and operation and maintenance of all tools such as:		17	5	12
	— wheel hand hoe				
	— seed drill				
	— fertilizer broadcaster/applicator				
	— maize sheller				
	— grain cleaner cum grader				
	— seed treater				
	— other horticulture tools				
	PC4. identify sources of alternative farm energy such as:				
	— solar energy for equipments such as threshers, cleaners, graders, chaff cutters				
	— solar cooker				
	— lamp or solar light/lamp				
	— heater or solar dryer				
	— battery charger				
— pumps					
— solar agricultural dryers					

	PC5. apply and use alternative sources of energy where possible by ensuring proper care and maintenance		17	5	12
			17	5	12
	<b>GRAND TOTAL</b>	<b>100</b>	<b>100</b>	<b>30</b>	<b>70</b>