

Model Curriculum

Operator-Reaper, Thresher and Crop Residue Machinery

SECTOR: AGRICULTURE & ALLIED
SUB-SECTOR: AGRICULTURE CROP PRODUCTION
**OCCUPATION: FARM MACHINERY, EQUIPMENT OPERATION
AND MAINTENANCE**
REF ID: AGR/Q1105, 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: **'Operator-Reaper, Thresher and Crop Residue Machinery'**
QP No. **'AGR/Q1105 NSQF Level 4'**

Date of Issuance: April 24th, 2017

Valid up to: March 31st, 2020

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



Authorised Signatory
(Agriculture Skill Council of India)

TABLE OF CONTENTS

1. Curriculum	04
2. Trainer Prerequisites	10
3. Annexure: Assessment Criteria	11

Operator-Reaper, Thresher and Crop Residue Machinery

CURRICULUM / SYLLABUS

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

Program Name	Operator-Reaper, Thresher and Crop Residue Machinery		
Qualification Pack Name & Reference ID.	AGR/Q1005, v1.0		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	Class 8, preferably		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Operate reaper: handling of reaper during different operation on various crops. • Operate thresher: handling of thresher during different operation on various crops • Carry out field residue management: select appropriate equipment, operate the equipment • Carry out minor repair and periodical maintenance of agriculture machineries: periodic checking, tightening, greasing, cross-checking for any leakages etc • Practice health and safety at the work place: Well versed with health and safety measures in terms of personal as well as others' safety. 		

This course encompasses 4 out of 4 Compulsory NOS (National Occupational Standards), 1 out of 1 Optional NOS of “Operator-Reaper, Thresher and Crop Residue Machinery” Qualification Pack issued by “Agriculture Skill Council of India”.

COMPULSORY NOS:

Sr. No.	Module	Key learning outcomes	Equipment Required
1	Introduction Theory Duration (hh:mm) 02:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> Understand general discipline in the class room and workshop (Do's & Don'ts) Study the scope and importance of farm mechanization industry in India Familiarize with different farm machineries' manufacturers and their brands/models Understand the role of a Operator-Reaper, Thresher and Crop residue Machinery and the progression pathways for the same 	Laptop, white board, marker, projector and video films and Presentations
2	Carry out operation of reaper Theory Duration (hh:mm) 18:00 Practical Duration (hh:mm) 40:00 Corresponding NOS Code AGR/N1115	<ul style="list-style-type: none"> State the importance of reaper Enlist the types of reaper Select vertical conveyor reaper or self propelled reaper based on crop variety, maturity of crop, crop moisture, crop condition and crop density Identify steps of fitting the reaper with the tractor/ engine Mount the reaper in the tractor State the importance of alignment of reaper Check the alignment of the reaper with the prime mover Carry out tightening of nuts and bolts with proper tools Apply lubrication on parts of reaper as per operator's manual Check the level of oil/water in IC engine or tractor Set the adjustment of the reaper as per the operator's manual Prepare agricultural land as per requirement of farm mechanization practices Identify the steps for operating tractor operated /engine operated reaper for harvesting crops Identify precautions to be taken during operation of reaper in field Operate the reaper in field Carry out recording and measurement of operating parameters during operations of the 	Laptop, white board, marker, projector vertical conveyor reaper or self propelled reaper

Sr. No.	Module	Key learning outcomes	Equipment Required
		<ul style="list-style-type: none"> • Ensure lubrication of parts as per operator's manual • Check the level of oil/water in l/c engine or tractor • Start the prime mover and thresher • Measure the speed of the thresher using a prime mover and ensure the desired speed is maintained • Feed crop slowly and uniformly and collect the clean grain after 1 hour of operation • Measure threshing efficiency and change cylinder speed to ensure maximum efficiency • Ensure safety precautions as per operator's manual during operation of thresher • Carry out basic repair and maintenance as per operator's manual • Clean the thresher of grain, chaff, etc. during idle period • Carry out regular lubrication of moving parts to reduce wear and tear • Inspect and tighten all nuts and bolts 	
4	<p>Carry out field residue management</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 40:00</p> <p>Corresponding NOS Code AGR/N1117</p>	<ul style="list-style-type: none"> • Select appropriate farm machinery to facilitate the application of residues such as straw chopper, straw baler, happy seeder, chaff cutter, etc . • Check for proper functioning of the machinery by performing pre start up checks • Carry out rectifying action if necessary • Stack the straw neatly for pickup • Choose the mode of transport for transportation of straw to the storage facility such as tractors, trailers • Check functioning of chain conveyor, pressing rollers, and upper and lower feed rollers • Identify and familiarize self with different sub assemblies and components, materials, construction of straw choppers • Operate the machine as per standard operating instructions given • Identify faults and take corrective action • Pick up straw/hay from the ground using baler teeth • Ensure that once the baler chamber is full with hay/straw, the hay wraps and 	straw chopper, straw baler, seeder, chaff cutter, straw reaper, etc

Sr. No.	Module	Key learning outcomes	Equipment Required
		forms a cylinder <ul style="list-style-type: none"> • Ensure that protective coating has been attached to the cylindrical bundle of hay so that it does not come apart during movement • Transport the bale of straw/hay to the designated area of storage • Select the appropriate hand or power operated chaff cutters • Check for adjustments of chaff cutter such as feeding chute and mechanism, feeding rollers, cutting gap, length of cut, etc. • Identify common faults and take rectifying action • Record the quality of output • Identify the need for repair and maintenance like replacement of gears, sharpening of cutting blade, etc. • Develop inventory for amount of residues generated in different crops • Identify the major uses of crop residues • Quantify proportion of residue of the crops based on cropping systems, soil, and climate 	
5	Maintain Health & Safety at the work place Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR/N9903	<ul style="list-style-type: none"> • Undertake basic safety checks before operation of all machinery and vehicles and report all potential hazards to the supervisor • Enlist the precautionary measures during field operation of farm machinery • Explain the importance and use of protective clothing or equipment • Handle the protective clothing or equipment during use of equipment • Identify appropriate emergency procedures • Report timely to appropriate person • Employ general safety and first aid practice • Familiarize with dangerous machines regulation act 	Personal protective equipment like: Helmet / head gear, Cotton / woolen safety gloves, Safety boots, Safety Harness; First Aid Kit: Bandages, Adhesive bandages, Betadine Solution / ointment, Pain relief spray / ointment, Antiseptic liquid; Phone directory, Search lights, fire extinguisher
	Total Duration: Theory Duration (hh:mm) 70:00	Unique equipment required: vertical conveyor reaper or self propelled reaper, straw chopper, straw baler, seeder, chaff cutter, straw reaper, Personal protective equipment like: Helmet / head gear, Cotton / woolen safety gloves, Safety boots, Safety Harness; First Aid Kit: Bandages, Adhesive bandages, Betadine Solution / ointment, Pain relief spray / ointment,	

Trainer Prerequisites for Job role: “Operator-Reaper, Thresher and Crop Residue Machinery” mapped to Qualification Pack: “AGR/Q1105, v1.0”

Sr. No.	Area	Details
1	Description	Trainer is responsible for educating the trainees –handling of reaper, thresher during different operation on various crops; carry out field residue management and maintenance and minor repair and periodical maintenance of agriculture machineries.
2	Personal Attributes	Trainer should be Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills.
3	Minimum Educational Qualifications	10+2 with Science
4a	Domain Certification	Certified for Job Role: “ <u>Operator-Reaper, Thresher and Crop Residue Machinery</u> ” mapped to QP: “ <u>AGR/Q1105, v1.0</u> ”. Minimum accepted score is 80%.
4b	Platform Certification	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	Experience	<ul style="list-style-type: none"> • B Tech in Mechanical / Agriculture engineering • B Sc Agriculture with 1 year of relevant work experience and 2 years of total work experience • Diploma / ITI (Mechanical / Agriculture engineering) with 3 years of relevant work experience • 10+2 with Science and having any Certificate course in Farm Mechanization with 5 years of relevant work experience

	PC6. carry out adjustments for speed of threshing cylinder, cylinder concave clearance, speed of blower, air flow, sieve slope and stroke length and speed of crank according to operator's manual		5	1	4
	PC7. ensure all nuts and bolts are tightened		4	1	3
	PC8. check the level, alignment of thresher and ensure appropriate belt tension		5	2	3
	PC9. check the proper size of sieve and conclave		5	2	3
	PC10. check the direction of rotation of cylinder		4	1	3
	PC11. ensure lubrication of parts as per operator's manual		4	1	3
	PC12. check the level of oil/water in IC engine or tractor		5	2	3
	PC13. start the prime mover and thresher		5	2	3
	PC14. measure the speed of the thresher using a prime mover and ensure the desired speed is maintained		5	2	3
	PC15. feed crop slowly and uniformly and collect the clean grain after 1 hour of operation		5	2	3
	PC16. measure threshing efficiency and change cylinder speed to ensure maximum efficiency		5	2	3
	PC17. ensure safety precautions as per operator's manual during operation of thresher		5	1	4
	PC18. carry out minor repair and maintenance as per operator's manual		5	1	4
	PC19. clear the thresher of grain, chaff, etc. during idle period		5	1	4
	PC20. carry out regular lubrication of moving parts to reduce wear and tear		5	1	4
	PC21. inspect and tighten all nuts and bolts		4	1	3
			100	30	70
3. AGR/N1117 Carry out field residue management	PC1. select appropriate farm machinery to facilitate the application of residues such as straw chopper, straw baler, chaff cutter, etc. .	100	5	2	3
	PC2. check for proper functioning of the machinery by performing pre start up checks		4	1	3
	PC3. take rectifying action if necessary		4	1	3
	PC4. stack the straw neatly for pickup		4	1	3
	PC5. choose the mode of transport for transportation of straw to the storage facility such as tractors, trailers		5	2	3

	PC6. pick up straw/hay from the ground using baler teeth		4	1	3
	PC7. ensure that once the baler chamber is full with hay/straw, the hay wraps and forms a cylinder		5	1	4
	PC8. ensure that protective coating has been attached to the cylindrical bundle of hay so that it does not come apart during movement		5	2	3
	PC9. transport the bale of straw/hay to the designated area of storage		4	1	3
	PC10. check functioning of chain conveyor, pressing rollers, and upper and lower feed rollers		4	1	3
	PC11. identify and familiarize self with different sub-assemblies and components, materials, construction of straw choppers		5	2	3
	PC12. operate the machine as per standard operating instructions given		5	1	4
	PC13. identify faults and take corrective action wherever necessary		4	1	3
	PC14. select the appropriate hand or power operated chaff cutters		5	2	3
	PC15. check for adjustments of chaff cutter such as feeding chute and mechanism, feeding rollers, cutting gap, length of cut, etc.		5	1	4
	PC16. identify common faults and take rectifying action		4	1	3
	PC17. record the quality of output		4	1	3
	PC18. identify the need for minor repair and maintenance like replacement of gears, sharpening of cutting blade, etc.		5	1	4
	PC19. develop inventory of amount of residues generated in different crops		5	2	3
	PC20. identify the major uses of crop residues		4	1	3
	PC21. quantify the permissible amount of residues of different crops which can be incorporated/retained depending on cropping systems, soil, and climate without creating operational problems for the next crop		5	2	3
	PC22. assess the quality of crop residues and their suitability for various purposes		5	2	3
			100	30	70
4. AGR/N9903 Maintain health and safety at the workplace	PC1. undertake basic safety checks before operation of all machinery and vehicles and report all potential hazards to the supervisor	100	6	2	4

PC2. identify work for which protective clothing or equipment is required and perform those duties in accordance with workplace policy		7	2	5
PC3. read and understand the hazards of use and contamination mentioned on the labels of pesticides/fumigants, etc.		7	2	5
PC4. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices		7	2	5
PC5. use equipment and materials safely and correctly and return the same to designated storage when not in use		7	2	5
PC6. dispose off waste safely and correctly in a designated area		6	2	4
PC7. recognize risks to bystanders and take action to reduce risk associated with jobs in the workplace		7	2	5
PC8. perform work in a manner which minimizes environmental damage all procedures and ensure work instructions for controlling risks are followed closely		7	2	5
PC9. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger		7	2	5
PC10. follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions for emergency evacuation		7	2	5
PC11. follow emergency procedures to company standard / workplace requirements		6	2	4
PC12. use emergency equipment in accordance with manufacturers' specifications and workplace requirements		7	2	5
PC13. provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques		7	2	5
PC14. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate		6	2	4
PC15. report details of first aid administered in accordance with workplace procedures.		6	2	4
		100	30	70
GRAND TOTAL	400	400	120	280

	PC14. check for adjustments of feed rate, operating pressure, moisture content and temperature of oil seeds		6	2	4
	PC15. record the quality of output after milling and oil expelling		6	2	4
	PC16. identify common faults and take rectifying action of milling and oil expelling machinery		5	2	3
	PC17. identify the need for minor repair and carry out regular maintenance		6	2	4
	GRAND TOTAL	100	100	30	70