

Model Curriculum

Paddy Farmer

SECTOR: AGRICULTURE & ALLIED
SUB-SECTOR: AGRICULTURE CROP PRODUCTION
OCCUPATION: FIELD CROPS CULTIVATION (FOOD CROPS)
REF ID: AGR/Q0101, 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: '**Paddy Farmer**' QP No. '**AGR/Q0101 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)

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Paddy Farmer

CURRICULUM / SYLLABUS

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

Program Name	Paddy Farmer		
Qualification Pack Name & Reference ID.	AGR/Q0101, 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 Rice variety from authentic source: Analyse the geographical conditions, resources available, select the crop variety-high yielding varieties, pest and disease tolerant varieties, hybrid varieties • Grow and manage rice crop: Inputs requirement, Preparation of field, Nursery Preparation, sowing/ transplanting, 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 “Paddy Farmer 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 Paddy cultivation Understand the Role of a Paddy Farmer Get acquainted with the agro-climatic conditions required for rice cultivation Understand different high yielding varieties of rice, hybrid rice, aromatic rice aerobic rice, boro rice etc Understand State farmers' right under PPV & FRA act 2001 (9 rights) 	White Board, Marker, Laptop, projector
2	Seed Preparation in Paddy Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR / No101	<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 Paddy Cultivation Identify & procure quality seeds from authentic sources Undertake seed treatment using appropriate method Undertake nursery preparation & management- plough the soil, make irrigation & drainage channels, weed control, pest & disease management, manure & nutrient application, proper uprooting of seedlings at appropriate stage for transplantation Get acquainted with seedling raising in tray and operation of Paddy transplanter 	White Board, Marker, Laptop, projector
3	Land Preparation and Transplanting in Paddy Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR / No102	<ul style="list-style-type: none"> Prepare the field for paddy cultivation: clean, plough, irrigate, puddle & level the field Prepare irrigation & drainage channels, bunds Adopt advanced practices that would support various methods of sowing/ transplanting: direct seeded method, SRI method, hybrid rice, aromatic rice, aerobic rice and boro rice cultivation Undertake seed dipping for paddy seedlings Demonstrate different transplanting methods 	Marker, Laptop, projector, plough, disc harrow, sub-soiler, tiller, land leveler, cultivator, rice transplanter

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Ensure recommended spacing, number of plants per hill as per the yield requirement & resource availability Ensure safe handling during transplantation Apply manures and fertilizers in appropriate quantity Understand various practices: intercropping, relay cropping, sequential cropping etc Adopt integrated farming system to ensure diversified income 	
4	Integrated Nutrient Management in Paddy Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code AGR / No103	<ul style="list-style-type: none"> Understand the Nutrient requirement for the cultivation of Rice 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 Rice Estimate the quantity & apply fertilizer & micro-nutrients at various stages in appropriate dosage Maintain the record of application of fertilizers and intervals 	White Board, Marker, Laptop, projector, Sprayer, fertilizers, bio fertilizers, polythene/ cloth bags for soil samples, khurpa
5	Weed Management in Paddy Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR / No104	<ul style="list-style-type: none"> Ascertain the type of weeds that afflict paddy crop Understand the hazards of weed in Paddy cultivation Understand the use of chemical herbicides and bio- herbicides Apply the herbicides Understand and perform the Manual/mechanized weeding Maintain & clean field bunds to control weed proliferation 	White Board, Marker, Laptop, projector, chemicals, sprayer, sickle, conoweeder, rotary weeder
6	Integrated Pest & Disease management in Paddy Theory Duration	<ul style="list-style-type: none"> Understand the importance of Integrated Pest and Disease Management Understand the major pests and disease in Paddy crop Understand the Characters & life cycle of 	White Board, Marker, Laptop, projector, chemicals, sprayer, face mask, rubber

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 05:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR / No105	different insect pests <ul style="list-style-type: none"> 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 in the field Practice Integrated Pest and Disease Management- mechanical, biological & chemical methods Understand National and International standards on pesticide residues 	gloves, pheromone traps, light traps, bird perches, sticky traps
7	Irrigation management in Paddy Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code AGR / No106	<ul style="list-style-type: none"> Understand the Water requirement for the cultivation of Paddy Understand the soil texture, porosity etc Understand the effects of seepage/leaching & poor drainage in the field Understand the required optimum moisture level required for tillering, panicle initiation and grain filling Undertake suitable irrigation method depending on the soil type, variety of paddy & water availability Undertake water management at different water depth at different stages of crop Understand alternative wetting and drying Understand water use efficiency concept 	White Board, Marker, Laptop, projector, irrigation equipments, spade
8	Harvesting and Post-harvest Management in Paddy Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR / No107	<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 rice quality & cost dynamics 	White Board, Marker, Laptop, projector, sickle, reaper, combine harvester, thresher, sprayer, fumigants, storage bags, bag sealing machine/tools, weighing machine

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Store the produce and ensure safety from storage pests Identify market & buyers for the produce Make arrangements for transportation of the produce 	
9	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
10	Basic Farm Management & Market Linkages Theory Duration (hh:mm) 15:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code	<ul style="list-style-type: none"> Various types of subsidy/loan/credit available and the process to avail the same Estimate the cost of production of Paddy crop 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 Keep record on the investment and expenditures Calculate B:C Ratio Get acquainted with Agro advisory services facility available through SMS mobile, Radio, TV, etc. Understand the suitable market platform for Paddy crop including e-procurement platform Collect the Market information from the reliable sources & analyze it Understand the right time, place for the market of the produce Understand various uses of paddy by-products- rice straw etc 	White Board, Marker, Laptop, projector, record keeping book

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	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, 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 :“Paddy Farmer” mapped to Qualification Pack: “AGR/Qo101, v1.0”

Sr. No.	Area	Details
1	Description	Trainer is responsible for providing the education and skills development training on Paddy 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>Paddy Farmer</u> ” mapped to QP: “ <u>AGR/Qo101, 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	Paddy Farmer
Qualification Pack	AGR/Qo101, 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 Mark (500)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. AGR/No101 Seed Preparation in Paddy	PC1. Select varieties based on area / ecosystem / season, yield and resistance to pests and diseases	25	1	1	0
	PC2. Identify various vendors / suppliers (including government nurseries / department) of the seed that are certified		1	0	1
	PC3 Ascertain the quality of seed material from each source in terms of 'free from pests and diseases', 'germination percentage' etc.		1	0	1
	PC4. Ascertain the prevailing market rates for the seed material		2	1	1
	PC5. Procure the seed material		1	1	0
	PC6. Identify an appropriate storage space (free of infestation and having congenial climatic conditions for the seed)		1	1	0
	PC7. Store the seed (if there is time lag between procurement and sowing / nursery preparation) as per recommended place and procedure		1	0	1
	PC8. Ascertain the prevalent pests and diseases of paddy in a given agro-climatic zone		1	0	1
	PC9. Ascertain the appropriate pesticides (chemical as well as biological) available for seed treatment		1	0	1
	PC10. Treat the seed as per the dosage recommended by the State Agriculture University / Department or as prescribed by the pesticide manufacturer		1	0	1
	PC11 Read the safety precautions in the reading material provided with the pesticide		1	1	0
	PC12 Keep ready with all the necessary first aids as suggested in the safety measures		1	1	0
	PC13. Use all the necessary safety material and follow all the preventive measures to avoid any injury during use / application of pesticide		1	1	0

	PC1. Thoroughly plough soil		1	0	1
	PC2. Prepare nursery beds as per availability of resources		1	0	1
	PC3. Make Irrigation and drainage channels		1	0	1
	PC4. Broadcast the sprouted seed as per the recommended seed rate		1	0	1
	PC5. Apply manures		1	0	1
	PC6. Take up weed control		1	0	1
	PC7. Net the nursery bed		1	0	1
	PC8. Control pests and diseases		2	1	1
	PC9. Uproot the seedlings for transplantation at the recommended stage for a given variety and soil		1	0	1
	PC10. In case of use of paddy transplanter (mechanisation), grow seedlings in trays as per recommended procedure		1	1	0
			25	9	16
2.AGR/No102 Land preparation and Transplanting in Paddy	PC1. Clean and plough the field	50	5	3	2
	PC2. Submerge the main field with water		2	1	1
	PC3. Puddle and level the field		8	4	4
	PC4. Take up irrigation and drainage channels		5	2	3
	PC5. Preparation of bunds		5	2	3
	PC6. Compact the bunds		5	3	2
	PC7. Take up all other advanced practices that would support various methods of cultivation such as System of Rice Intensification (SRI).		5	2	3
	PC8. Take up seed dipping of paddy seedlings for plant protection, as per recommended procedures		5	3	2
	PC9. Maintain inter-row distance to be decided as per the requirement of inter-cultivation operations, in case use of paddy transplanter		5	2	3
	PC10. Transplanting practices as per recommended procedures including methods such as SRI.		5	3	2
			50	25	25
3.AGR/No103	PC1. Take soil as per the	75	5	2	3

(Integrated Nutrient Management in Paddy)	recommended sampling procedure from the field				
	PC2.Dry the soil and prepare samples as per procedure		5	2	3
	PC3.Pack, label and submit to nearby soil testing laboratory for analysis		4	2	2
	PC4 Collect the soil analysis report from the lab		8	0	8
	PC5.Collect the recommended organic and inorganic fertilizer dosage from Agriculture Department based on the soil analysis report		8	4	4
	PC6.Select appropriately decomposed Farm Yard Manure for soil application		10	7	3
	PC7.Apply the FYM to the soil as per recommended dosage and procedure before planting and during crop cultivation (if required)		10	4	6
	PC8.Adopt various cultural practices that enhances the soil nutrient status for the benefit of crop stand		10	8	2
	PC9.Apply of organic and inorganic fertilisers for macro and micro nutrients as per the recommended dosage, timing and method of application		15	9	6
		75	38	37	
4.AGR/No104 (Weed Management in Paddy)	PC1.Incorporate the weeds and stubbles during summer ploughing and puddling	75	15	9	6
	PC2.Manual weeding / chemical weedicide application at appropriate stages of crop growth		25	15	10
	PC3.Use of bio herbicides for weed control wherever feasible		20	12	8
	PC4.Maintain Field bunds clean to avoid proliferation of weed seeds		15	9	6
		75	45	30	
5.AGR/No105 (Integrated Pest and Disease Management in Paddy)	PC1.Identifying types of pests (stem borers, gall midge, hoppers, hispa and gundhibugetc) in paddy crop	125	10	5	5
	PC2.Identify Stage of crop and pest incidence – and prepare pest calendar		5	3	2
	PC3.Diagnosis: Signs and symptoms of damage (dead		5	2	3

	hearts, burns, feeding marks)				
	PC4. Identify the Pest life cycle duration		5	3	2
	PC5. Identify behavior of the pest (like diurnal or nocturnal, egg laying behavior, attraction to coloursetc)		5	2	3
	PC6. Identify natural enemies of the pests (naids/dragon flies, trichogramma, mirid bug, lady bird beetles, spiders, preying mantidsetc)		5	3	2
	PC7. Identify types of diseases associated (blast, bacterial leaf blight, sheath rot, sheath blight, tungro) in the crop		10	5	5
	PC8. Identify Crop stage and disease incidence disease calendar		5	3	2
	PC9. Identify signs and symptoms of different diseases (leaf spots, discoloured areas, leaf margins drying, stunted growth)		10	5	5
	PC10. Identify mode of transmission (implements, vectors, water, rain, wind)		5	2	3
	PC11. Stubble clearing to drive away the diapausing larvae		5	2	3
	PC12. Use of resistant varieties		5	2	3
	PC13. Seed and seedling treatment		5	3	2
	PC14. Take up planting modification (like System of Rice Intensification SRI or dry sowing)		5	3	2
	PC15. Using various traps (light, pheromone etc)		10	5	5
	PC16. Erecting bird perches		10	5	5
	PC17. Various sprays				
	a. Chemical approaches: As recommended by State Agricultural University		10	5	5
	b. Non-chemical approaches: Neem Seed Kernel Extract, cow dung and Urine spray, panchagavya spray, 5 leaf extract, 10 leaves extract, sour butter milk extract. etc based on pest type		10	5	5
			125	63	62
6.AGR/No106 (Irrigation Management in	PC1. During the standing crop period, moisture stress may be avoided through regular water	50	10	5	5

Paddy)	supply as per recommended procedure				
	PC2.Water drainage may be ensured at appropriate status during / prior to certain crop stages such as fertilizer application, flowering, harvesting etc.,		30	20	10
	PC3.Avoid water loss through seepage and leaching		10	7	3
			50	32	18
7.AGR/No107 (Harvesting & Post Harvest Management in Paddy)	PC1.Harvest the crop at the appropriate stage	75	20	10	10
	PC2.Dry the harvested produce to remove moisture		10	5	5
	PC3.Threshing and Winnowing		10	5	5
	PC4. Maintenance of ideal storage conditions		15	8	7
	PC5. Manage Storage Pests		20	10	10
			75	38	37
8.AGR/N9903 Maintain health & Safety at the work place	PC1.undertake basic safety checks before operation of all machinery and vehicles and hazards are reported to the appropriate supervisor	25	3	1	2
	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.		3	1	2
	PC3.read and understand the hazards of use and contamination mentioned on the labels of pesticides/fumigants etc		3	1	2
	PC4.assess risks prior to performing manual handling jobs, and work according to currently recommended safe practice.		1	1	0
	PC5.use equipment and materials safely and correctly and return the same to designated storage when not in use		3	1	2
	PC6.dispose of waste safely and correctly in a designated area		1	1	0
	PC7.recognise risks to bystanders and take action to reduce risk associated with jobs in the workplace		1	1	0
	PC8.perform your work in a		1	1	0

	manner which minimizes environmental damage all procedures and work instructions for controlling risk are followed closely.				
	PC9.report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger.		1	1	0
	PC10.follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency.		1	1	0
	PC11.follow emergency procedures to company standard / workplace requirements		1	1	0
	PC12. use emergency equipment in accordance with manufacturers' specifications and workplace requirements		3	1	2
	PC13. provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques		1	1	0
	PC14. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate		1	1	0
	PC15. report details of first aid administered in accordance with workplace procedures.		1	1	0
			25	15	10
	TOTAL	500	500	250	250
	Percentage Weightage:			50%	50%
	Minimum Pass% to qualify (aggregate):			60%	