

# Model Curriculum

## Banana Farmer

**SECTOR: AGRICULTURE & ALLIED**  
**SUB-SECTOR: Agriculture Crop Production**  
**OCCUPATION: Fruit Crops Farming**  
**REF ID: AGR/Q0301, 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

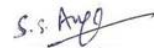
**MODEL CURRICULUM**

Complying to National Occupational Standards of  
Job Role/Qualification Pack: **'Banana Farmer'** OP No. **'AGR/Q0301 NSQF Level 4'**

Date of Issuance: March 15<sup>th</sup>, 2015

Valid up to: March 31<sup>st</sup>, 2016

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



Authorised Signatory  
(Agriculture Skill Council of India)

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# Banana Farmer

## CURRICULUM / SYLLABUS

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

<b>Program Name</b>	<b>Banana Farmer</b>		
<b>Qualification Pack Name &amp; Reference ID. ID</b>	AGR/Q0301, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites to Training</b>	No entry level barrier		
<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>Select the Crop variety:</b> Analyse the Geographical conditions, resources available, select the crop variety, high yielding variety, pest and disease tolerant variety, hybrid varieties</li> <li>• <b>Grow and manage crop:</b> Inputs requirement, Preparation of field, sowing, soil testing, application of fertilizer &amp; nutrients, quality management, crop management</li> <li>• <b>Maintain the quality of the produce:</b> Time of Harvesting, Moisture level of the produce, post harvest practice, packing and transportation.</li> <li>• <b>Become well versed with Environment Health &amp; Safety:</b> Well versed with health and safety measures in terms of personal safety and others as well.</li> </ul>		

This course encompasses 7 out of 7 National Occupational Standards (NOS) of “Banana Farmer” Qualification Pack issued by “Agriculture Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<b>Introduction</b>  <b>Theory Duration</b> (hh:mm) 5:00  <b>Practical Duration</b> (hh:mm) 5:00  <b>Corresponding NOS Code</b>	<ul style="list-style-type: none"> <li>Understand the General Discipline in the class room (Do’s &amp; Don’ts)</li> <li>Understand the Role of a Banana Farmer</li> <li>Study the different varieties of Banana crop</li> <li>Understand and study the Scopes and Opportunities of Horticulture Crops cultivation</li> <li>Learn and practice Basic skills of communication</li> <li>Learn and Practice Basic reading capabilities to enable reading of signs, notices and/or cautions at site.</li> </ul>	White Board, Marker, Laptop, projector
2	<b>Planting material preparation in Banana Cultivation</b>  <b>Theory Duration</b> (hh:mm) 15:00  <b>Practical Duration</b> (hh:mm) 12:00  <b>Corresponding NOS Code</b> AGR/No301	<ul style="list-style-type: none"> <li>Understand the preparation of planting material in Banana Plantation</li> <li>Identify, Select and use the tools and equipments for the plant material preparation</li> <li>Understand the Vegetative propagation</li> <li>Knowledge about basic terms: Pseudostems, minissettings, suckers, pups/buttons</li> <li>Understand the method of division of suckers</li> <li>Understand the tissue culture method</li> <li>Consult the Agriculture Universities for Planting material</li> <li>Procure the planting material</li> <li>Select the Mother plant for vegetative propagation</li> <li>Understand and select the insect pest tolerant variety as a mother plant</li> <li>Practice the treatment of planting material</li> </ul>	White Board, Marker, Laptop, projector, budding knife, grafting knife, dormant scions, Tying material such as grafting tape, adhesive tape, electrician's ber tape or rubber strips
3	<b>Land preparation and plantation in Banana cultivation</b>  <b>Theory Duration</b> (hh:mm) 15:00  <b>Practical Duration</b> (hh:mm) 12:00  <b>Corresponding NOS Code</b>	<ul style="list-style-type: none"> <li>Plan the Layout for Banana Plantation</li> <li>Level the land as per the requirement</li> <li>Understand the crop spacing required for Banana Plantation</li> <li>Understand the Pre-planting activities</li> <li>Perform planting</li> <li>Understand the soil moisture level required for the plant</li> <li>Understand the importance of Nematicides and Fumigants</li> <li>Choose appropriate method for applying the nematicides and fumiagants</li> <li>Apply Nematicides and Fumigants</li> </ul>	Marker, Laptop, projector, land leveler, digger, spade, mulching materials

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	AGR/ N60302	<ul style="list-style-type: none"> <li>Plant the suckers simultaneously with basal dose of fertilisers</li> </ul>	
4	<b>Integrated Nutrient Management in Banana Cultivation</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 15:00  <b>Corresponding NOS Code</b> AGR/No303	<ul style="list-style-type: none"> <li>Understand the Nutrient requirement for the cultivation of Banana</li> <li>Understand and perform the soil sampling for test</li> <li>Understand the Micro and Macro Nutrients in soil</li> <li>Understand the required fertilizer dosage for the nutrient enrichment in soil</li> <li>Understand the method of nitrogen fixation in soil</li> <li>Understand the various soil microorganisms beneficial for the nutrient enrichment in soil</li> <li>Use the bio fertilizer/organic manure in the cultivation of fruit crop</li> <li>Estimate the quantity of fertilizer to be applied at various stages in relation to NPK and other secondary nutrients.</li> <li>Perform the weeding management</li> <li>Maintain the record of application of fertilizers and intervals</li> </ul>	White Board, Marker, Laptop, projector, Sprayer, fertilizers, bio fertilizers,
5	<b>Integrated Pest and Disease Management for Fruit Crops</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 15:00  <b>Corresponding NOS Code</b> AGR/No304	<ul style="list-style-type: none"> <li>Understand the major pests and disease in Banana</li> <li>Understand the Characters of different insect pests</li> <li>Understand the symptoms of and precaution measures for different diseases</li> <li>Follow the Package of Practice for the Banana Cultivation</li> <li>Understand the suitable chemical for the insect pest and diseases attack</li> <li>Identify, select and place the different insect traps in the field</li> <li>Understand the importance of Integrated Pest and Disease Management</li> <li>Perform the Integrated Pest and Disease Management</li> </ul>	White Board, Marker, Laptop, projector, traps, chemicals, mask, sprayer, gloves
6	<b>Irrigation Management and other operations in Banana Cultivation</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 15:00	<ul style="list-style-type: none"> <li>Understand the Water requirement for the cultivation of fruit crop</li> <li>Plan for the Irrigation system</li> <li>Understand the importance of fertigation and perform as and when required</li> <li>Understand the root spreading of the Banana Plant</li> <li>Understand the soil texture, porosity etc</li> <li>Understand the importance of and perform the water drainage in the field</li> <li>Understand the effects of water clogging</li> </ul>	White Board, Marker, Laptop, projector, irrigation equipments,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<b>Corresponding NOS Code</b> AGR/No305	in the field <ul style="list-style-type: none"> <li>Understand the required optimum moisture level in the field for Banana cultivation</li> <li>Prepare Irrigation Schedule</li> <li>Perform the Irrigation Management</li> <li>Understand the importance of Border crops/ tall plants in the Banana Plantation</li> <li>Remove the dry leaves, suckers, water shoots etc</li> </ul>	
7	<b>Harvesting and post-harvest in Banana Cultivation</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 15:00  <b>Corresponding NOS Code</b> AGR/No306	<ul style="list-style-type: none"> <li>Do's and don'ts during crop harvesting</li> <li>Harvesting of the crop: Crop maturity, moisture content during harvesting, Size of the bunch, fingers, colour, time of harvesting etc</li> <li>Understand and practice the proper method of harvesting and handling of fruits</li> <li>Understand about the physical admixture during harvesting and post harvesting process</li> <li>Understand the normal shelf life of the Banana fruit</li> <li>Understand the importance of Post harvest Management</li> <li>Perform the pre cooling technique for the harvested Banana fruit crops</li> <li>Identify and use the tools/equipments required for the storing of fruits</li> <li>Understand the different storage pest</li> <li>Make arrangements for the Transportation</li> </ul>	White Board, Marker, Laptop, projector, pre cooling chamber,
8	<b>Maintain Health &amp; Safety at the work place</b>  <b>Theory Duration</b> (hh:mm) 5:00  <b>Practical Duration</b> (hh:mm) 10:00  <b>Corresponding NOS Code</b> AGR/N9903	<ul style="list-style-type: none"> <li>Perform General safety Rules</li> <li>Gain Knowledge of various health hazards relevant to workplace and basic first aid training.</li> <li>Understand the basic safety checks and other common reported hazards before all farm operation</li> <li>Understand, identify and study the use of equipment, processing machine and materials safely and correctly</li> <li>Understand and handle the emergency situation in workplace and during any farm operation</li> </ul>	White Board, Marker, Laptop, projector, Nose masks, first aid kit,
	<b>Total Duration:</b>  <b>Theory Duration</b> (hh:mm)	<b>Unique Equipment Required:</b> White Board, Marker, Laptop, projector, Record Keeping Book, chemicals, land leveler, digger, spade, mulching materials, insect	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<b>80:00</b>  <b>Practical Duration</b> <b>(hh:mm)</b> <b>100:00</b>	traps, sprayer, mask, gloves, irrigation equipments, pre cooling chamber	

Grand Total Course Duration: **180Hours, 0 Minutes**

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



## Trainer Prerequisites for Job role: "Banana Farmer" mapped to Qualification Pack: "AGR/Q0301, v1.0"

Sr. No.	Area	Details
1	<b>Description</b>	Trainer is responsible for providing the education and skills development training on Banana cultivation from preparation of planting material to harvesting (includes procuring seed material, preparing nursery, cultivation and intercultural operations, harvesting, marketing, etc)
2	<b>Personal Attributes</b>	Trainer should be Subject Matter Specialist. He/ She should have good communication and observation skill, leadership skill, practical oriented skill
3	<b>Minimum Educational Qualifications</b>	Diploma, Bachelor Degree in Agriculture Science/ Horticulture Science
4a	<b>Domain Certification</b>	Certified for Job Role: <u>"Banana Farmer"</u> mapped to QP: <u>"AGR/Q0301, v1.0"</u> . Minimum accepted score is 80%.
4b	<b>Platform Certification</b>	Certified for the Job Role: "Trainer", mapped to the Qualification Pack: "SSC/Q1402". Minimum accepted score is 70%
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• Post graduate with an experience of 1 Year,</li> <li>• Graduate with experience of 3 + Years,</li> <li>• Diploma with relevant experience of 5+ Years.</li> </ul>

### Annexure: Assessment Criteria

<b>Assessment Criteria</b>	
<b>Job Role</b>	Banana Farmer
<b>Qualification Pack</b>	AGR/Q0301, v1.0
<b>Sector Skill Council</b>	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	The marks are allocated PC wise; however, every NOS will carry a weight age in the total marks allocated to the specific QP

Assessable Outcome	Assessment criteria	Total Mark (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. AGR/N 0301 - Planting Material Preparation in Banana Cultivation	PC.1 Identify the Agro-climatic zone in which cultivation is taken up	60	5	2	3
	PC.2 List the varieties that are suitable to the zone		5	3	2
	PC.3 Identify various vendors / suppliers (including government nurseries / department) of the planting material		5	1	4
	PC.4 Ascertain the quality of seedling and material from each source in terms of 'free from pests and diseases', 'survival rate' etc.		5	3	2
	PC.5 Ascertain the prevailing market rates for the planting material		5	2	3
	PC.6 Procure the planting material		2	1	1
	PC.7 Identify an appropriate storage space (free of infestation and having congenial climatic conditions for the planting material)		4	3	1
	PC.8 Store the planting material (if there is time lag between procurement and planting)		2	1	1
	PC.9 Ascertain the prevalent pests and diseases of banana in a given Agro-climatic zone		5	2	3
	PC.10 Ascertain the appropriate pesticides available for Planting treatment		5	3	2
	PC.11 Treat the planting as per the dosage recommended by the State Agriculture University / Department or as prescribed by the pesticide manufacturer		5	2	3
	PC.12 Read the safety precautions in the reading material provided with the pesticide		2	1	1

	PC.13 Keep ready with all the necessary first aids as suggested in the safety measures		5	3	2
	PC.14 Use all the necessary safety material and follow all the preventive measures to avoid any injury during use / application of pesticide		5	3	2
	<b>TOTAL</b>		<b>60</b>	<b>30</b>	<b>30</b>
2. AGR / N 0302 - Land preparation and Plantation in Banana Cultivation	PC.1 Clear the ground, cut up the existing planting material, stack them and burn them	<b>60</b>	2	1	1
	PC.2 Dig a ditch for wet soil that will carry away all the water as per the recommendation		2	1	1
	PC.3 Plough the soil deep, use rotavator to make soil fine as per the recommendation		2	1	1
	PC.4 Demarcate with white powder or by small sticks over the recommended spacing for plantation as per the soil type		2	1	1
	PC.5 Perform mulching by putting down of dry grass and leaves at the end of the rainy season plough the land for 4 -6 times		2	1	1
	PC.6 Use wheat straw and banana straw as a mulch material for increasing the bunch weight and conservation of soil moisture		2	1	1
	PC.7 Use of plastic Mulch instead of trash mulch as per feasibility, requirement & recommendation		2	1	1
	PC.8 Allow the soil to weather for 2 weeks		3	1	2
	PC.9 Get the land levelled using blade harrows		5	2	3
	PC.10 Make furrows in the soil length wise and breadth wise		5	3	2

	PC.11 Dig pits at the intersection of rows and furrows		5	3	2
	PC.12 Select generic / specific nematicides to a given agro-climatic zone		2	1	1
	PC.13 Choose appropriate methods for applying nematicides and fumigants		3	1	2
	PC.14 Apply Nematicides and Fumigants		3	1	2
	PC.15 Use the tissue culture seedlings for plantation from defined source; select the healthy, disease free plants		2	1	1
	PC.16 Plant the suckers simultaneously with basal dose of fertilizers.		5	3	2
	PC.17 Dip suckers in water in which potassium permanganate is mixed with recommended dosage		5	2	3
	PC.18 Place the Suckers in hole		5	3	2
	PC.19 Put compost round the young plant		3	2	1
	<b>TOTAL</b>		<b>60</b>	<b>30</b>	<b>30</b>
3. AGR / N 0303 - Integrated Nutrient Management in Banana cultivation	PC.1 Take soil sample as per the recommended sampling procedure from the field	<b>90</b>	10	5	5
	PC.2 Dry the soil and prepare samples as per procedure		5	2	3
	PC.3 Pack, label and submit to nearby soil testing laboratory for analysis		10	5	5

	PC.4 Collect the soil analysis report from the lab		5	2	3
	PC.5 Collect the recommended organic and inorganic fertilizer dosage from Agriculture Department based on the soil analysis report.		5	3	2
	PC.6 Select appropriately decomposed Farm Yard Manure for soil application		10	5	5
	PC.7 Apply the FYM to the soil as per recommended dosage and procedure before planting and during crop cultivation (if required)		10	5	5
	PC.8 Adopt various cultural practices that enhances the soil nutrient status for the benefit of banana crop stand		10	5	5
	PC.9 Apply organic and inorganic fertilizers for macro and micro nutrients as per the recommended dosage, timing, placement locations and method of application		10	5	5
	PC.10 Remove weeds manually		5	3	2
	PC.11 Take up mulching as per recommended methods / procedures		10	5	5
	<b>TOTAL</b>		<b>90</b>	<b>45</b>	<b>45</b>
4. AGR / N 0304 - Integrated Pest and Disease Management in Banana cultivation	PC1. Identify the types of pests associated (banana weevil, thrips, nematodes, etc)	<b>120</b>	10	5	5
	PC2. Identify the stage of crop and pest incidence – pest calendar		5	2	3
	PC3. Identify the signs and symptoms of damage		5	2	3
	PC4. Identify the pest life cycle – estimate the duration		5	3	2

	PC5. Identify the natural enemies of the pests (naids/dragon flies, trichogramma, mirid bug, lady bird beetles, spiders, preying mantids etc)	10	5	5
	PC6. Identify the types of diseases associated (Sigathoka, Bunchy top, Panama wilt, Bacterial Blight, Cercospora leaf sport etc.,)	10	5	5
	PC7. Identify the crop stage and disease incidence – disease calendar	10	5	5
	PC8. Identify the signs and symptoms of different diseases (leaf spots, discoloured areas, leaf margins drying, stunted growth)	10	5	5
	PC9. Identify the mode of transmission (implements, vectors, water, rain, wind)	5	2	3
	PC10. Clear stubbles to drive away the diapausing larvae	5	3	2
	PC11. Use of resistant varieties	8	4	4
	PC12. Take up seedling / planting material treatment	5	3	2
	PC13. Use various traps (light, pheromone etc)	7	3	4
	PC14. Erect bird perches	5	3	2
	PC15. Do Pest and disease control		0	0
	a. Chemical approaches	10	5	5
	b. Non-chemical approaches	10	5	5

	TOTAL		120	60	60
5. AGR / N 0305 - Irrigation Management and Other Operations in Banana Cultivation	PC1. Use of Irrigation Method based on the availability of the resource and soil type	120	15	7	8
	PC2. Adopt methods of precision farming (Drip Irrigation)		30	15	15
	PC3. Use of existing resource efficiently say use fertigation		15	7	8
	PC4. Prune / remove of dry leave, water shoots as per requirement and procedures		15	9	6
	PC5. Protect the plantation from strong winds by growing tall plants along the farm border or stacking of plants by wooden stick tide or bamboo poles, based on the availability of such material and resource use efficiency		15	7	8
	PC6. Earthing up as per the recommended procedures and timing		15	7	8
	PC7. Remove of female hands		15	8	7
	<b>TOTAL</b>		<b>120</b>	<b>60</b>	<b>60</b>
6. AGR / N 0306 - Harvesting and Post Harvest Management in Banana Cultivation	PC1. Harvest the crop at the appropriate time recommended such as when fingers are fairly evenly rounded etc.,	90	20	10	10
	PC2. Keep the bunch out of light, in cool and shady place		10	5	5
	PC3. Place harvested bunch in well padded basket before transporting to the collection site		15	8	7



	PC4. Keep Bananas refrigerated to delay the process of ripening		5	2	3
	PC5. Store as per the recommended procedures		15	7	8
	PC6. Use Wooden or cardboard boxes / plastic crates / bamboo baskets / gunny bags or any other material as per the market requirement and demand and for handle in an efficient and effective manner		5	3	2
	PC7. Choose means for transportation, say by trucks/lorries / rail wagons for distant markets based on the requirement and cost dynamics involved.		10	5	5
	PC8. Decide on storage or sale based on the prevailing market rates across the markets and the cost of storage		10	5	5
	<b>TOTAL</b>		<b>90</b>	<b>45</b>	<b>45</b>
7. AGR / N 09903 - Maintain Health & Safety at the workplace	PC1. undertake basic safety checks before operation of all machinery and vehicles and hazards are reported to the appropriate supervisor	<b>60</b>	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		5	2	3
	PC4. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practice.		5	3	2
	PC5. use equipment and materials safely and correctly and return the same to designated storage when not in use		5	2	3
	PC6. dispose of waste safely and correctly in a designated area		2	1	1

	PC7. recognise risks to bystanders and take action to reduce risk associated with jobs in the workplace		5	3	2
	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.		2	1	1
	PC10. follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency.		5	2	3
	PC11. follow emergency procedures to company standard / workplace requirements		5	2	3
	PC12. use emergency equipment in accordance with manufacturers' specifications and workplace requirements		5	3	2
	PC13. provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques		5	3	2
	PC14. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate		6	3	3
	PC15. report details of first aid administered in accordance with workplace procedures		4	2	2
	<b>TOTAL</b>		<b>60</b>	<b>30</b>	<b>30</b>
	<b>Grand Total</b>	<b>600</b>	<b>600</b>	<b>300</b>	<b>300</b>
	<b>Percentage Weightage:</b>			<b>50%</b>	<b>50%</b>
	<b>Minimum Pass% to qualify (aggregate):</b>			<b>60%</b>	