

National Occupational Standards



Practicing Agrivoltaic Farming

Unit Code: AGR/N1255

Version: 1.0

NSQF Level: 4

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Description

This OS unit is about developing climate risk management strategies for any enterprise including agriculture & allied activities.

Scope

The scope covers the following :

- Plan for the implementation of Agrivoltaics
- Carry out agrivoltaic farming
- Sell and record the output

Elements and Performance Criteria

Plan for the implementation of Agrivoltaics

To be competent, the user/individual on the job must be able to:

- PC1.** Identify the activity for implementing under agrivoltaics system- permanent grassland, arable farming, horticulture, aquaculture, etc
- PC2.** Assess the feasibility and viability of implementing agrivoltaics including crop suitability, crop yields and cost competitiveness in the selected piece of land,
- PC3.** identify potential funding sources and the activities they support, eligibility and selection processes
- PC4.** Determine the eligibility for any subsidies or concessional financing available under any Government scheme
- PC5.** Select the sustainable partnership model for agrivoltaics
- PC6.** Choose the right partner for the implementation of agrivoltaics
- PC7.** Arrange for finances for the implementation of agrivoltaics

Carry out agrivoltaic farming

To be competent, the user/individual on the job must be able to:

- PC8.** Select the open or closed agrivoltaics system
- PC9.** Select the structure of the agrivoltaics- Interspace PV/Overhead PV/ Vertical PV/ PV greenhouse
- PC10.** Select the PV module orientation—Fixed/Single axis/Dual axis
- PC11.** Coordinate with the manufacturer for the installation of the Agrivoltaic structure
- PC12.** Select the most suitable design and configuration as per the specific requirement with reference to panel height, orientation, spacing
- PC13.** Make careful selection of the crop and variety as per the local agroclimatic conditions
- PC14.** Make careful selection of the crop and variety as per the local agroclimatic conditions
- PC15.** Select appropriate crops for each zone for optimum crop output
- PC16.** Carry out crop management activities under shading and interspace conditions
- PC17.** operate the farm equipment and machinery safely considering the proximity to high voltage cabling

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- PC18.** Integrate rainwater harvesting structures with agrivoltaics to overcome water availability challenges
- PC19.** Clean and maintain the PV panels in good condition
- PC20.** Monitor and repair structural decay due to humid micro-environment
- PC21.** Co-manage the resources in the Agrivoltaic system

Sell and record the output

To be competent, the user/individual on the job must be able to:

- PC22.** estimate the crop and power output generated through Agrivoltaics system
- PC23.** sell the crop at a profitable price
- PC24.** Sell the power to the Government at the specified tariff or directly to electricity consumers through open-access route at a mutually decided rate through long-term contracts
- PC25.** Calculate the Benefit: Cost ratio for the crop and power output to the installation and maintenance charges
- PC26.** Maintain proper record of the cost and revenue generated through agrivoltaics
- PC27.** ensure a balance between agricultural and power production imperatives

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Definition of agrivoltaics
- KU2.** Classification of agrivoltaics system
- KU3.** Potential benefits and risks of agrivoltaics
- KU4.** Challenges in wide-scale adoption of agrivoltaics
- KU5.** Government schemes promoting agrivoltaics or solarisation in agriculture
- KU6.** standards for agrivoltaics installations in India
- KU7.** Agrivoltaics projects in India
- KU8.** Common crops and agricultural activities undertaken in the agrivoltaics system
- KU9.** Factors to be considered for selecting crops in an agrivoltaics project- height of the crop, shading effect, and irrigation requirements
- KU10.** Crop micro-environment requirement
- KU11.** crop growth factors like temperature, light flux, and humidity
- KU12.** Potential business models and conditions for deploying agrivoltaics
- KU13.** Technological innovations in agrivoltaics
- KU14.** Favourable conditions for implementation of agrivoltaics
- KU15.** Scientific design of an agrivoltaics system
- KU16.** Factors to be considered for the structural design of the agrivoltaics system
- KU17.** Crop management under shading conditions
- KU18.** Co-management of resources
- KU19.** Safety concerns in farming owing to proximity to high-voltage cabling
- KU20.** Challenges in power production under agrivoltaic system
- KU21.** Water conservation methods

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- KU22.** Rainwater harvesting structures
- KU23.** Maintenance and cleaning requirements of solar panels
- KU24.** Technical and operational challenges in crop management and power production
- KU25.** Book-keeping method
- KU26.** Policy reforms and regulatory requirements from the government

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the information being shared
- GS4.** communicate politely and professionally
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** take quick decisions to deal with workplace emergencies/ accidents
- GS7.** identify possible disruptions to work and take appropriate preventive measures

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Plan for the implementation of Agrivoltaics</i>	10	10	-	10
PC1. Identify the activity for implementing under agrivoltaics system- permanent grassland, arable farming, horticulture, aquaculture, etc	-	-	-	-
PC2. Assess the feasibility and viability of implementing agrivoltaics including crop suitability, crop yields and cost competitiveness in the selected piece of land,	-	-	-	-
PC3. identify potential funding sources and the activities they support, eligibility and selection processes	-	-	-	-
PC4. Determine the eligibility for any subsidies or concessional financing available under any Government scheme	-	-	-	-
PC5. Select the sustainable partnership model for agrivoltaics	-	-	-	-
PC6. Choose the right partner for the implementation of agrivoltaics	-	-	-	-
PC7. Arrange for finances for the implementation of agrivoltaics	-	-	-	-
<i>Carry out agrivoltaic farming</i>	15	30	-	10
PC8. Select the open or closed agrivoltaics system	-	-	-	-
PC9. Select the structure of the agrivoltaics- Interspace PV/Overhead PV/ Vertical PV/ PV greenhouse	-	-	-	-
PC10. Select the PV module orientation—Fixed/Single axis/Dual axis	-	-	-	-
PC11. Coordinate with the manufacturer for the installation of the Agrivoltaic structure	-	-	-	-
PC12. Select the most suitable design and configuration as per the specific requirement with reference to panel height, orientation, spacing	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. Make careful selection of the crop and variety as per the local agroclimatic conditions	-	-	-	-
PC14. Make careful selection of the crop and variety as per the local agroclimatic conditions	-	-	-	-
PC15. Select appropriate crops for each zone for optimum crop output	-	-	-	-
PC16. Carry out crop management activities under shading and interspace conditions	-	-	-	-
PC17. operate the farm equipment and machinery safely considering the proximity to high voltage cabling	-	-	-	-
PC18. Integrate rainwater harvesting structures with agrivoltaics to overcome water availability challenges	-	-	-	-
PC19. Clean and maintain the PV panels in good condition	-	-	-	-
PC20. Monitor and repair structural decay due to humid micro-environment	-	-	-	-
PC21. Co-manage the resources in the Agrivoltaic system	-	-	-	-
<i>Sell and record the output</i>	5	5	-	5
PC22. estimate the crop and power output generated through Agrivoltaics system	-	-	-	-
PC23. sell the crop at a profitable price	-	-	-	-
PC24. Sell the power to the Government at the specified tariff or directly to electricity consumers through open-access route at a mutually decided rate through long-term contracts	-	-	-	-
PC25. Calculate the Benefit: Cost ratio for the crop and power output to the installation and maintenance charges	-	-	-	-
PC26. Maintain proper record of the cost and revenue generated through agrivoltaics	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. ensure a balance between agricultural and power production imperatives	-	-	-	-
NOS Total	30	45	-	25

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National Occupational Standards (NOS) Parameters

NOS Code	AGR/N1255
NOS Name	Practicing Agrivoltaic Farming
Sector	Agriculture
Sub-Sector	
Occupation	Farm Management
NSQF Level	4
Credits	1.25
Minimum Job Entry Age	17
Minimum Educational Qualification & Experience	<p>12th grade Pass (or equivalent) with 1 Year of experience relevant experience in Agriculture and allied sectors</p> <p>OR</p> <p>Completed 2nd year of the 3-year diploma after 10 (diploma in Agriculture/Horticulture/Forestry/Agriculture Engineering/Veterinary Sciences/Animal Husbandry/Dairy Technology)</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level (3.5) with 1.5 years of experience relevant experience in Agriculture and allied sectors</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level (3) with 3 Years of experience relevant experience in Agriculture and allied sectors</p>
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQF Clearance Date	30/04/2024
Reference code on NQR	NG-04-AG-02550-2024-V1-ASCI
NQR Version	1
CCN Category	2