National Occupational Standards

Essentials of Sustainable usage of fertilizer and soil ameliorants

Unit Code: AGR/N1256

Version: 1.0

NSQF Level: 4

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Description

This OS unit is about Sustainable usage of fertilizer and soil ameliorants for enhancing the soil productivity.

Scope

The scope covers the following :

- Procure fertilizer and soil ameliorant as per the soil test report
- Apply fertilizer and soil ameliorant to the soil
- Carry out after-application activities

Elements and Performance Criteria

Procure fertilizer and soil ameliorant as per the soil test report

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

PC1. coordinate with an authorised lab to get the soil sample tested, ensuring the sample is collected from the field, packed and labelled as per the applicable procedure

PC2. interpret the soil analysis report to determine the macro and micronutrients and soil ameliorant requirements of the soil based on the planned crop variety or coordinate with an expert for the purpose

PC3. source information about new products and technology from relevant sources

PC4. identify the relevant government-certified input suppliers to procure fertilizers and soil ameliorants

PC5. procure the appropriate soil ameliorants and organic/inorganic fertilizers, ensuring they contain the required nutrients in the recommended quantity

Apply fertilizer and soil ameliorant to the soil

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

PC6. prepare a balanced soil nutrition supplementation calendar based on the stages of the crop's growth

PC7. wear appropriate Personal Protective Equipment (PPE) while performing work

PC8. prepare the field for the application of fertilizer and soil ameliorant

PC9. monitor local weather conditions before and during application and modify operations as required

PC10. prepare the recommended quantity of fertilizer for application in the field, ensuring personal safety

PC11. safely apply fertilizers as per the recommended dosage, timing and method of application

PC12. regulate the dose of fertilizer according to the crop cycle

PC13. identify environmental and sustainability issues associated with fertilizer or ameliorant application and minimise impact

Carry out after-application activities

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

PC14. store the fertilizers after use as per the safety instructions

PC15. dispose the expired fertilizers in an environment-friendly manner

PC16. follow procedures for dealing with accidental poisoning
PC17. maintain the record of fertilizers used in the field

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the basic concepts of plant nutrition and soil fertility
KU2. different types of macro and micronutrients, their properties and functions
KU3. common symptoms of nutrient deficiency in plants
KU4. different soil types, their advantages and disadvantages with reference to the presence of various nutrients
KU5. the process of soil sampling and testing
KU6. how to interpret the soil analysis report to determine the macro and micronutrient requirements of the soil
KU7. the process of preparing fertilizer for application in the field
KU8. varieties of organic and inorganic fertilisers to be applied to the soil to improve its fertility, and the nutrient content in them
KU9. the importance of preparing a balanced soil nutrition supplementation calendar based on the stages of the crop's growth
KU10. suitable environmental conditions for the safe use of fertilizers
KU11. the importance of correct usage of the appropriate PPE for applying fertilizers
KU12. safety instructions and warnings regarding the use of fertilizers
KU13. relevant plant protection equipment for applying fertilizers
KU14. how to assess the risks involved in the application of fertilizers
KU15. different methods of applying fertilizers
KU16. recommended dose of fertilizers to apply according to the stage of crop's growth
KU17. optimum application rate for applying fertilizers
KU18. the method of field preparation for the application of fertilizers
KU19. the harmful effects of over-dosage of fertilizers
KU20. the importance of following environmental and ecological best practice to minimize the impact on the environment
KU21. use of the recommended antidotes and treatment methods to treat accidental chemical poisoning
KU22. safe storage and disposal of fertilizers

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Procure fertilizer and soil ameliorant as per the soil test report	**5**	**2**	**-**	**5**
PC1. coordinate with an authorised lab to get the soil sample tested, ensuring the sample is collected from the field, packed and labelled as per the applicable procedure	-	-	-	-
PC2. interpret the soil analysis report to determine the macro and micronutrients and soil ameliorant requirements of the soil based on the planned crop variety or coordinate with an expert for the purpose	-	-	-	-
PC3. source information about new products and technology from relevant sources	-	-	-	-
PC4. identify the relevant government-certified input suppliers to procure fertilizers and soil ameliorants	-	-	-	-
PC5. procure the appropriate soil ameliorants and organic/inorganic fertilizers, ensuring they contain the required nutrients in the recommended quantity	-	-	-	-
Apply fertilizer and soil ameliorant to the soil	**10**	**14**	**-**	**8**
PC6. prepare a balanced soil nutrition supplementation calendar based on the stages of the crop's growth	-	-	-	-
PC7. wear appropriate Personal Protective Equipment (PPE) while performing work	-	-	-	-
PC8. prepare the field for the application of fertilizer and soil ameliorant	-	-	-	-
PC9. monitor local weather conditions before and during application and modify operations as required	-	-	-	-
PC10. prepare the recommended quantity of fertilizer for application in the field, ensuring personal safety	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. safely apply fertilizers as per the recommended dosage, timing and method of application	-	-	-	-
PC12. regulate the dose of fertilizer according to the crop cycle	-	-	-	-
PC13. identify environmental and sustainability issues associated with fertilizer or ameliorant application and minimise impact	-	-	-	-
Carry out after-application activities	**2**	**2**	**-**	**2**
PC14. store the fertilizers after use as per the safety instructions	-	-	-	-
PC15. dispose the expired fertilizers in an environment-friendly manner	-	-	-	-
PC16. follow procedures for dealing with accidental poisoning	-	-	-	-
PC17. maintain the record of fertilizers used in the field	-	-	-	-
NOS Total	**17**	**18**	**-**	**15**

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N1256
NOS Name	Essentials of Sustainable usage of fertilizer and soil ameliorants
Sector	Agriculture
Sub-Sector	
Occupation	Farm Management
NSQF Level	4
Credits	1.25
Minimum Educational Qualification & Experience	12th grade Pass (or equivalent) with 1 Year of experience relevant experience in Agriculture and Allied Sectors OR 10th grade pass and pursuing continuous schooling (for 2-year program) OR 10th grade pass with 3 Years of experience relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level (3.5) with 1.5 years of experience relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level (3) with 3 Years of experience relevant experience in Agriculture and allied sectors
Version	1.0
Last Reviewed Date	30/05/2024
Next Review Date	30/05/2027
NSQC Clearance Date	30/05/2024
Reference code on NQR	NG-04-AG-02648-2024-V1-ASCI
NQR Version	1.0
CCN Category	2