

Assessment Evidence Guide

For

“Seed Processing Plant Supervisor”

Level-4

**Perform Collection of Procured Seed at
Processing Plant**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing & Biotechnology (Seed Processing Plant Supervisor)	CS Code:	Level:4	Version:01
Competency Standard Title: Perform Collection of Procured Seed at Processing Plant	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to collect procurement details and maintain collection site as per instruction given by assessor.</p> <p>Assessment Task 2: Candidate is required to receive procured seed and maintain record as per instruction given by assessor.</p> <p>Assessment Task 3: Candidate is required to maintain sanitation and required environmental conditions for collection site as per instruction given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Collect information regarding type/variety of crop on prescribed format</p> <p>Performance Criteria 2: Collect information regarding seed collection mechanism on prescribed format</p>

	<p>Performance Criteria 3: Collect information regarding seed quality on prescribed format</p> <p>Performance Criteria 4: Identify task requirements.</p> <p>Performance Criteria 5: Plan steps to complete tasks</p> <p>Performance Criteria 6: Review planning and organizing process</p> <p>Performance Criteria 7: Organize work as per task requirement</p>
	<p>Assessment Task 2</p> <p>Performance Criteria 1: Collect sample report</p> <p>Performance Criteria 2: Perform purchases according to SOPs</p> <p>Performance Criteria 3: Manage seed to avoid post-harvest losses, as per the requirement</p> <p>Performance Criteria 4: Maintain record</p>
	<p>Assessment Task 3</p> <p>Performance Criteria 1: Follow sanitation of collection site</p> <p>Performance Criteria 2: Maintain required environmental conditions</p> <p>Performance Criteria 3: Follow health and safety guidelines</p> <p>Performance Criteria 4: Use ergonomic workstations to avoid muscle fatigue</p> <p>Performance Criteria 5: Dispose- off waste material according to the safety procedure</p>

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Collect procurement details and maintain collection site as per instruction given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Collect information regarding type/variety of crop on prescribed format			
2.	Collect information regarding seed collection mechanism on prescribed format			
3.	Collect information regarding seed quality on prescribed format			
4.	Identify task requirements.			
5.	Plan steps to complete tasks			
6.	Review planning and organizing process			
7.	Organize work as per task requirement			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		
Each Assessment Task (with performance criteria)				

Assessment Task 2		Description of Assessment Task2		
		Receive procured seed and maintain record as per instruction given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Collect sample report			
2.	Perform purchases according to SOPs			
3.	Manage seed to avoid post-harvest losses, as per the requirement			
4.	Maintain record			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of Assessment Task 3		
		Maintain sanitation and required environmental conditions for collection site as per instruction given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Follow sanitation of collection site			
2.	Maintain required environmental conditions			
3.	Follow health and safety guidelines			
4.	Use ergonomic workstations to avoid muscle fatigue			
5.	Dispose- off waste material according to the safety procedure			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing & Biotechnology (Seed Processing Plant Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Collection of Procured Seed at Processing Plant	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Explain procurement?	
2. Define danger zone?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

3. Explain safety checklist?

4. Define invoice?

5. Define delivery Challan?

6. Explain sanitation?

Answer Key

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Explain procurement?	Procurement involves every activity involved in obtaining the goods and services
2. Define danger zone?	Area around the machines and working person in which there is a potential for being struck by moving equipment or object
3. Explain safety checklist?	A document used during safety inspection for the identification of potential hazards
4. Define invoice?	An invoice is a record of a sale or shipment made by a vendor to a customer
5. Define delivery Challan?	Delivery challan (DC) is a formal document that is created in situations where goods are being transported from one place to another.
6. Explain sanitation?	Condition required to maintain healthy environment through proper disposal of waste and cleanliness of site etc

Assessment Evidence Guide

For

“Seed Processing Plant Supervisor”

Level-4

Operate Basic Seed Processing Machineries

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Operate Basic Seed Processing Machineries	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p style="text-align: center;">Assessment Task 1: Candidate is required to perform pre checks and troubleshoot of machines assign by assessor</p> <p style="text-align: center;">Assessment Task 2: Candidate is required to perform following operations through machines assign by assessor :</p> <ul style="list-style-type: none"> ✓ Seed cleaning ✓ Seed drying ✓ Seed grading <p style="text-align: center;">Assessment Task 3: Candidate is required to perform sanitization and post check of tools/equipment/machines assign by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

<p>Minimum Evidence Required</p>	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Perform pre-checks Performance Criteria 2: Report malfunctioning of machines to supervisor. Performance Criteria 3: Plan equipment utilization for seed processing Performance Criteria 4: Follow safety standards. Performance Criteria 5: Calibrate the tools and equipment properly Performance Criteria 6: Perform trouble shooting</p>
	<p>Assessment Task 2</p> <p>Performance Criteria 1: Perform operations through seed cleaning machines according to SOPs Performance Criteria 2: Perform operations through seed drying machines according to SOPs Performance Criteria 3: Perform operations through seed graders according to SOPs Performance Criteria 4: Follow health and safety guidelines Performance Criteria 5: Maintain records</p>
	<p>Assessment Task 3</p> <p>Performance Criteria 1: Arrange tools and material Performance Criteria 2: Check performance of all tools and equipment Performance Criteria 3: Perform sanitization of tools and equipment as per standard. Performance Criteria 4: Follow standard safety checks before and after use of machinery.</p>

Observation Checklist

Assessment Task 1	Description of Assessment Task 1			
	Perform pre checks and troubleshoot of machines assign by assessor			
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Perform pre-checks			
2.	Report malfunctioning of machines to supervisor.			
3.	Plan equipment utilization for seed processing			
4.	Follow safety standards.			
5.	Calibrate the tools and equipment properly			
6.	Perform trouble shooting			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Perform following operations through machines assign by assessor : ✓ Seed cleaning ✓ Seed drying ✓ Seed grading		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Perform operations through seed cleaning machines according to SOPs			
2.	Perform operations through seed drying machines according to SOPs			
3.	Perform operations through seed graders according to SOPs			
4.	Follow health and safety guidelines			
5.	Maintain records			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of Assessment Task 3		
		Perform sanitization and post check of tools/equipment/machines assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools and material			
2.	Check performance of all tools and equipment			
3.	Perform sanitization of tools and equipment as per standard.			
4.	Follow standard safety checks before and after use of machinery.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing plant Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Operate Basic Seed Processing Machines	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Enlist five seed processing machines?	Empty space for answer

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

2. Define danger zone?	
3. Explain working of seed scalper?	
4. Explain pre-start checks?	
5. Define sanitization?	
6. Define Calibration?	
7. Explain malfunctioning of machine?	

Answer Key

1. Enlist five seed processing machines?	Seed dryer, seed grader, seed sorter, seed separator, destoner, shelling machines, seed coating machines etc.
2. Define danger zone?	Area around the machines and working person in which there is a potential for being struck by moving equipment or object
3. Explain working of seed scalper?	It is used for removal of larger inert matter from seed
4. Explain pre-start checks?	Pre-start checks identify safety deficiencies maintenance problems or damage before the equipment is used.
5. Define sanitization?	The process of making something completely clean and free from bacteria
6. Define Calibration?	Calibration is the process of configuring an instrument to provide a result for a sample within an acceptable range
7. Explain malfunctioning of machine?	The term "machinery failure" or "malfunction" usually implies that the machine has stopped functioning the way in which it was intended or designed.

Assessment Evidence Guide

For

“Seed Processing and Biotechnology”

Level-4

**Perform Drying and Cleaning of Seed at
Processing Plant**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Drying and Cleaning of Seed at Processing Plant	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to perform cleaning of raw seeds given by assessor.</p> <p>Assessment Task 2: Candidate is required to prepare seed for drying as per instruction given by assessor.</p> <p>Assessment Task 3: Candidate is required to perform drying of raw seeds with following procedures as per instruction given by assessor:</p> <ul style="list-style-type: none"> ✓ Air distribution system ✓ Heated air system ✓ Continuous flow dryer <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Arrange tools and equipment Performance Criteria 2: Perform pre cleaning of seed as work instructions Performance Criteria 3: Perform fine cleaning of seed Performance Criteria 4: Maintain record</p> <hr/> <p>Assessment Task 2</p> <p>Performance Criteria 1: Collect and submit seed sample for moisture test Performance Criteria 2: Process seed for drying according to lab report Performance Criteria 3: Maintain record</p>

	Assessment Task 3
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Performance Criteria 1: Arrange tools and equipment

Performance Criteria 2: Dry seed according to air distribution system

Performance Criteria 5: Dry seed according to heated air system

Performance Criteria 8: Dry seed according to continuous flow dryer system

Performance Criteria 9: Follow standard safety checks before and after drying.

Observation Checklist

Each Assessment Task (with performance criteria)				
Assessment Task 1		Description of Assessment Task 1		
		Candidate is required to Perform cleaning of raw seeds given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools and equipment			
2.	Perform pre cleaning of seed as work instructions			
3.	Perform fine cleaning of seed			
4.	Maintain record			

Competent <input type="checkbox"/>	Not Yet Competent <input type="checkbox"/>
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Assessment Task 2		Description of Assessment Task 2		
		Candidate is required to Prepare seed for drying instructed by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Collect and submit seed sample for moisture test			
2.	Process seed for drying according to lab report			
3.	Maintain record			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of Assessment Task 3		
		Perform drying of raw seeds with following procedures as per instruction given by assessor: <ul style="list-style-type: none"> ✓ Air distribution system ✓ Heated air system ✓ Continuous flow dryer 		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools and equipment			
2.	Dry seed according to air distribution system			
3.	Dry seed according to heated air system			
4.	Dry seed according to countinuous flow dryer			
5.	Follow standard safety checks before and after use of machinery			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Plant Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Drying and Cleaning of Seed at Processing Plant	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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candidate Details	Name: Registration/Roll Number: Candidate Signature:
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Enlist different types of seed cleaning?	
2. Define seed Cleaning?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

3. Explain principle of seed drying?

4. What are the two methods of seed drying?

5. Define basic seed drying methods.

6. What is the ideal temperature for seed drying?

7. Which equipment is not used for drying?

Answer Key

1. Enlist different types of seed cleaning?	Winnowing, threshing, sieving and vibration etc
2. Define seed Cleaning?	Removal of any debris or inert matter, low quality, infested or infected seed and seeds of different species
3. Explain principle of seed drying?	Seed drying should reduce the moisture content to safe moisture limits to maintain its viability and vigor during storage
4. What are the two methods of seed drying?	Physical Method Mechanical method
5. Define basic seed drying methods.	Sun drying, hot air drying, contact drying, infrared drying, freeze-drying, fluidized bed drying, and dielectric drying.
6. What is the ideal temperature for seed drying?	100° F
7. Which equipment is not used for drying?	a) Oven b) Heated air system c) destoner

**Assessment Evidence
Guide
For
“Seed Processing Plant
Supervisor”
Level-4
Perform Seed Treatments
(Formative Assessment)**



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing plant Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Seed Treatments	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name:
	Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to prepare seed treatment solutions given by assessor.</p> <p>Assessment Task 2: Candidate is required to apply solutions manually and mechanically as per instruction given by assessor.</p> <p>Assessment Task 3: Candidate is required to perform seed coating by different methods as per instruction given by assessor.</p> <p>Assessment Task 4: Candidate is required to perform storage of treated seed given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Arrange tools/equipment /chemical</p> <p>Performance Criteria 2: Wear PPEs</p> <p>Performance Criteria 3: Prepare solutions for applications as per SOPs</p> <p>Performance Criteria 4: Follow health and safety guidelines</p> <p>Performance Criteria 5: Handle chemicals according to SOPs</p>

<p>Minimum Evidence Required</p>	<p>Assessment Task 2</p> <p>Performance Criteria 1: Arrange tools/equipment /chemical</p> <p>Performance Criteria 2: Treat seed manually as per SOPs</p> <p>Performance Criteria 3: Treat seed mechanically as per SOPs</p> <p>Performance Criteria 4: Collect and submit sample of treated seed for quality check</p> <p>Performance Criteria 5: Maintain record</p>
	<p>Assessment Task 3</p> <p>Performance Criteria 1: Prepare for work</p> <p>Performance Criteria 2: Perform beneficial fungal coating</p> <p>Performance Criteria 3: Perform bacterial inoculum coating</p> <p>Performance Criteria 4: Perform PGPR (Plant growth promoting rhizobacteria) media coating</p> <p>Performance Criteria 5: Perform seed coating with nutrients (macro and micronutrients)</p> <p>Performance Criteria 6: Perform seed coating with natural products</p>
	<p>Assessment Task 4</p> <p>Performance Criteria 1: Arrange tools/equipment /chemical</p> <p>Performance Criteria 2: Perform treatment for storage according to work instructions.</p> <p>Performance Criteria 3: Collect and submit sample of treated seed for quality check</p> <p>Performance Criteria 4: Maintain record</p>

Observation Checklist

Assessment Task 1	Description of Assessment Task 1			
	Prepare Seed treatment solutions given by assessor.			
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools/equipment /chemical			
2.	Wear PPEs			
3.	Prepare solutions for applications as per SOPs			
4.	Follow health and safety guidelines			
5.	Handle chemicals according to SOPs			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2	Description of Assessment Task 2			
	Apply Solutions manually and mechanically as per instruction given by assessor			
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools/equipment /chemical			
2.	Treat seed as per SOPs			
3.	Collect and submit sample of treated seed for quality check			
4.	Maintain record			
5.	Arrange tools/equipment /chemical			
6.	Treat seed mechanically as per SOPs			
7.	Collect and submit sample of treated seed for quality check			
8.	Maintain record			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task3		Description of Assessment Task 3		
		Perform seed coating by different methods as per instruction given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Prepare for work			
2.	Perform beneficial fungal coating			
3.	Perform bacterial inoculum coating			
4.	Perform PGPR (Plant growth promoting rhizobacteria) media coating			
5.	Perform seed coating with nutrients (macro and micronutrients)			
6.	Perform seed coating with natural products			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task4		Description of Assessment Task 4		
		Candidate is required to perform Seed treatment for storage given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools/equipment /chemical			
2.	Perform treatment for storage according to work instructions.			
3.	Collect and submit sample of treated seed for quality check			
4.	Maintain record			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Plant Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Seed Treatments	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Define seed Treatment?	Empty space for answer

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

2. Which fungicide is used for seed treatment? Any three	
3. Name any chemical used for seed fumigation?	
4. Name any common fumigation agents?	
5. Define disinfection?	
6. Enlist various methods for seed treatment?	
7. Define seed pelleting?	
8. Which pesticide is used for seed treatment against insects?	
9. Name any bacterial bio agent can be used for seed treatment?	

Answer Key

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Define seed Treatment?	Seed treatment are the biological physical and chemical agents and techniques applied to seed for protection and improvement for healthy crop production.
2. Which fungicide is used for seed treatment? Any three	Carboxin, thiram, metalaxyl, azoxystrobin
3. Name any chemical used for seed fumigation?	Aluminiumphophide,
4. Name any common fumigation agents?	Hydrogen cyanide, nephthaline, nicotine, methyl bromide
5. Define disinfection?	A process that eliminates many or all pathogenic microorganism
6. Enlist various methods for seed treatment?	Seed coating Seed dressing Seed pelleting
7. Define seed pelleting?	Seed pelleting is a method of seed treatment in which physical shape of seed is changed to enhance palatability and handling
8. Which pesticide is used for seed treatment against insects?	Chloropyriphos, imidacloprid,

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

9. Name any bacterial bio agent can be used for seed treatment?

Psuedomonas, Bacillus and entrobaeteretc

Assessment Evidence Guide

For

“Seed Processing and Biotechnology”

Level-4

Perform Seed Sorting

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Plant Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Seed Sorting	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to perform seed sorting operation given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

<p>Minimum Evidence Required</p>	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Arrange tools and equipment for sorting</p> <p>Performance Criteria 2: Perform pre- and post-checks for required machinery</p> <p>Performance Criteria 3: Calculate production requirement according to demand</p> <p>Performance Criteria 4: Schedule activities according to production demand</p> <p>Performance Criteria 5: Collect seed for sorting</p> <p>Performance Criteria 6: Maintain Records</p> <p>Performance Criteria 7: Follow safety measures according to workplace safety guidelines</p> <p>Performance Criteria 8: Arrange machines/tools/equipment according to sorting requirement</p> <p>Performance Criteria 9: Wear PPEs</p> <p>Performance Criteria 10: Perform sorting operation according to work instructions</p> <p>Performance Criteria 11: Segregate sorted seed according to work instructions</p> <p>Performance Criteria 12: Maintain record of seed sorting (Type of seeds, supplier details, quality parameters)</p> <p>Performance Criteria 13: Maintain records for wasted seed</p> <p>Performance Criteria 14: Maintain stock register according to standard work instructions</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code:..... Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Nature of Activity							
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							
Each Assessment Task (with performance criteria)							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Perform seed sorting operation given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools and equipment for sorting			
2.	Perform pre- and post-checks for required machinery			
3.	Calculate production requirement according to demand			
4.	Schedule activities according to production demand			
5.	Collect seed for sorting			
6.	Maintain Records			
7.	Follow safety measures according to workplace safety guidelines			
8.	Arrange machines/tools/equipment according to sorting requirement			
9.	Wear PPEs			
10.	Perform sorting operation according to work instructions			
11.	Segregate sorted seed according to work instructions			
12.	Maintain record of seed sorting (Type of seeds, supplier details, quality parameters)			
13.	Maintain records for wasted seed			
14.	Maintain stock register according to standard work instructions			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Seed Sorting	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Define seed Sorting?	
2. Define PPEs?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

3. What are the types of seed sorter?

4. What is optical seed sorter?

5. Describe floating method of sorting?

Answer key

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Define seed Sorting?	A mechanical process in which the goal is to achieve a high level of purity and quality in the final product
2. Define PPEs?	Personal protective equipment
3. What are the types of seed sorter?	Color sorter, size sorter, weight sorter etc
4. What is optical seed sorter?	Optical Sorters are among the newest technology in seed and grain processing. This equipment separates particles based on color and is often found at or near the end of the processing line, after mechanical separations, to remove impurities of similar size and density.
5. Describe floating method of sorting?	In this method seed is soaked in water for 15 minutes, if seed sink it is viable. Floated Seed removed cause they are not viable.

**Assessment Evidence
Guide**

For

**“Seed Processing Plant
Supervisor”**

Level-4

Perform Seed Grading

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Plant Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform seed grading	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to perform seed grading operation as per instruction given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

<p>Minimum Evidence Required</p>	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Arrange tools and equipment for sorting</p> <p>Performance Criteria 2: Maintain sanitation at workplace according to SOPs</p> <p>Performance Criteria 3: Perform pre-checks for required machinery</p> <p>Performance Criteria 4: Follow safety measures according to workplace safety guidelines</p> <p>Performance Criteria 5: Calculate production requirement according to demand</p> <p>Performance Criteria 6: Schedule activities according to production demand</p> <p>Performance Criteria 7: Collect sorted seed for grading</p> <p>Performance Criteria 8: Arrange machines/tools/equipment according to grading requirement</p> <p>Performance Criteria 9: Wear PPEs</p> <p>Performance Criteria 10: Perform grading operation according to work instructions</p> <p>Performance Criteria 11: Segregate graded seed according to work instructions</p> <p>Performance Criteria 12: Maintain records</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code:..... Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Nature of Activity							
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1			
	Perform seed grading operation as per instruction given by assessor.			
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Arrange tools and equipment for sorting			
2.	Maintain sanitation at workplace according to SOPs			
3.	Perform pre-checks for required machinery			
4.	Follow safety measures according to workplace safety guidelines			
5.	Calculate production requirement according to demand			
6.	Schedule activities according to production demand			
7.	Collect sorted seed for grading			
8.	Arrange machines/tools/equipment according to grading requirement			
9.	Wear PPEs			
10.	Perform grading operation according to work instructions			
11.	Segregate graded seed according to work instructions			
12.	Maintain records			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Seed Grading	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor:..... Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Seed Grading?	
2. What is grading factor?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

3. Why seed grading is important?

4. Define seed technology?

5. What is the purpose of seed gravity separator?

6. Define danger zone?

Answer Key

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Seed Grading?	The division of seed according to size, shape and color etc. into groups is called grading
2. What is grading factor?	A physical condition or feature that is evaluated to determine the quality of grain
3. Why seed grading is important?	It improves productivity, uniformity, value addition and customer satisfaction.
4. Define seed technology?	It is the science dealing with the methods of improving physical and genetical characteristics of seed.
5. What is the purpose of seed gravity separator?	It is used to separate small seed from large seed through centrifugal force.
6. Define danger zone?	Area around the machines and working person in which there is a potential for being struck by moving equipment or object

Assessment Evidence Guide

For

“Seed Processing and Biotechnology”

Level-4

Perform Seed Extraction

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Seed Processing and Biotechnology (Seed Processing Supervisor)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Seed Extraction	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to perform seed extraction through</p> <ul style="list-style-type: none"> ✓ Manual extraction ✓ Fermentation ✓ Mechanical extraction ✓ Chemical method <p>As per instruction given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

<p>Minimum Evidence Required</p>	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Arrange tools and equipment for extraction.</p> <p>Performance Criteria 2: Select method for extraction according to crop</p> <p>Performance Criteria 3: Schedule activities for smooth processing</p> <p>Performance Criteria 4: Follow health and safety standards Seed</p> <p>Performance Criteria 5: Arrange required tools/equipment as per job requirements.</p> <p>Performance Criteria 6: Schedule fermentation activities</p> <p>Performance Criteria 7: Prepare solution for fermentation</p> <p>Performance Criteria 8: Execute fermentation procedure as per standards.</p> <p>Performance Criteria 9: Follow health and safety standards</p> <p>Performance Criteria 10: Arrange required tools/equipment</p> <p>Performance Criteria 11: Execute manual extraction as per required standard method.</p> <p>Performance Criteria 12: Follow health and safety standards</p> <p>Performance Criteria 13: Maintain records</p> <p>Performance Criteria 14: Arrange machines/equipment's required for mechanical extraction</p> <p>Performance Criteria 15: Schedule activities according to SOPs</p> <p>Performance Criteria 16: Select and operate extractor according to crop requirement</p> <p>Performance Criteria 17: Follow health and safety standards.</p> <p>Performance Criteria 18: Arrange required tools/equipment as per job requirements.</p> <p>Performance Criteria 19: Prepare chemical solution</p> <p>Performance Criteria 20: Perform acid treatment as per standard</p> <p>Performance Criteria 21: Follow safe disposal of chemical waste according</p> <p>Performance Criteria 22: Follow health and safety standards</p>
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Observation Checklist

Assessment Task 1	Description of Assessment Task 1		
	Perform seed extraction through <ul style="list-style-type: none"> ✓ Manual extraction ✓ Fermentation ✓ Mechanical extraction ✓ Chemical method 		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Arrange tools and equipment for extraction.			
2. Select method for extraction according to crop			
3. Schedule activities for smooth processing			
4. Follow health and safety standards Seed			
5. Arrange required tools/equipment as per job requirements.			
6. Schedule fermentation activities			
7. Prepare solution for fermentation			
8. Execute fermentation procedure as per standards.			
9. Follow health and safety standards			
10. Arrange required tools/equipment			
11. Execute manual extraction as per required standard method.			
12. Follow health and safety standards			
13. Maintain records			
14. Arrange machines/equipment's required for mechanical extraction			
15. Schedule activities according to SOPs			
16. Select and operate extractor according to crop requirement			
17. Follow health and safety standards.			
18. Arrange required tools/equipment as per job requirements.			
19. Prepare chemical solution			
20. Perform acid treatment as per standard			
21. Follow safe disposal of chemical waste according			
22. Follow health and safety standards			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)

3. Name acid used in acid extraction?	
4. Which chemical used in alkali method of extraction?	
5. Name three crop for which seed is extracted?	
6. Explain citric acid extraction of seed?	
7. Explain seed extraction through fermentation?	
8. Name any fermentation agent?	

Answer Key

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Define Seed extraction?	Seed extraction is a process of separating seed from flashy part
2. Enlist any three seed extraction method?	Acid method, fermentation method, alkali method, dry method, mechanical extraction and citric acid method etc.
3. Name acid used in acid extraction?	HCL
4. Which chemical used in alkali method of extraction?	Washing soda
5. Name three crop for which seed is extracted?	Tomato, brinjal, chillies, melons and cucumbers etc.
6. Explain citric acid extraction of seed?	In this method 30 gram of citric acid for one liter of pulp with digestion duration of 2 hrs removes the coating of seed
7. Explain seed extraction through fermentation?	Seed extraction through fermentation is a process in which pulp of the seed is degraded by microorganism.
8. Name any fermentation agent?	Lactobacilus, lactic acid, alcohol etc.