

# National Vocational Certificate Level 2 in Agriculture (Cotton Processing)



Competency Standards



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## Competency Standards – Cotton Processing

**Module-1:** Weigh seed cotton (Phutti) delivered at factory

**Overview:** These competency-standards will ensure that the trainee will be able to weigh the seed cotton delivered at Ginning Factory by brokers/commission agent or directly by farmers.

Competency Unit	Performance Criteria	Knowledge Criteria
<b>A-1:</b> Weigh seed cotton accurately on weighing machine	<p>P.1: Identify the types of weighing machines, i.e. Weigh Bridge (a. Manual, b. Electronic), Bora weighing scale.</p> <p>P2 Demonstrate the weighing procedures for industrial standards and satisfaction.</p> <p>P.3: Demonstrate the process of calibrating each weighing system.</p>	<p>K.1: Explain the weighing procedure of each type of industry/national standard weighing machine.</p> <p>K.2: Explain the calibrations of each weighing machine.</p>
<b>A-2:</b> Issue receipts for seed cotton delivered in the factory	<p>P1: Explain the layout of the typical receipts of cotton factory showing truck number, factory serial number, quality/ variety of seed cotton and name of supplier/grower.</p> <p>P2: Demonstrate the processes to accurately complete common types of receipts for seed cotton deliveries and to maintain records.</p>	<p>K.1: Explain of the layout and purpose of various copies of receipts for determining fair weight.</p> <p>K.2: Explain the importance of keeping accurate records of receipts and the process of keeping receipt and record of counter foil.</p>
<b>A-3:</b> Make payments for delivered seed cotton	<p>P.1: Demonstrate the procedural steps of payment i.e. adhoc payment which is around 70 to 80 % of the net payment, etc.</p> <p>P.2: Demonstrate the procedures for completing various payment systems (cash, bank draft or cheques) of the factory.</p>	<p>K.1: Explain the different purpose of adhoc payment.</p> <p>K.2: Explain the industry standard payment procedure for the various payment systems used in the industry.</p>

<p><b>A-4:</b> Maintain records of seed cotton and respective payments</p>	<p>P 1: Demonstrate the standard procedure to maintain the manual record of arrival of Phutti and payment in a register.</p> <p>P.2: Demonstrate the procedures to update the seed cotton records manually as well as in computer.</p>	<p>K.1: Get the skills of record keeping in specific files.</p> <p>K.2: Know the adhoc phase and its record keeping.</p>
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**Module-2:** Inspection of delivered seed cotton for quality standards

**Overview:** These competency standards will ensure that the trainee has gained skills to inspect seed cotton which is delivered in the ginning factory to ensure required quality standards.

Competency Unit	Performance Criteria	Knowledge Criteria
<b>B-1:</b> Check moisture ratio	<p>P.1: Calculate the presence of moisture contents in the seed cotton.</p> <p>P.2: Demonstrate the application of moisture assessing equipment.</p> <p>P.3: Demonstrate the standard industry procedures to minimize the moisture in the cotton.</p>	<p>K.1: Explain the configuration of moisture ratio in the seed cotton.</p> <p>K.2: Explain the calibration and appropriate way of taking reading through the moisture meter.</p>
<b>B-2:</b> Check diseased cotton ratio	<p>P.1: Identify the diseased and healthy seed cotton at the arrival stage.</p> <p>P.2: Measure the percentage of diseased cotton in the heap of seed cotton.</p>	<p>K.1: Explain the merits and demerits of classification of cotton for having good quality seed cotton.</p> <p>K2 Explain the procedures for calculating the percentage of diseased cotton</p> <p>K3 Describe the importance of adverse effects of higher limits of diseased cotton ratio in any heap.</p>
<b>B-3:</b> Check non fiber foreign matters in Seed Cotton	<p>P.1: Identify the types of contamination in seed cotton in different organic and non-organic forms.</p> <p>P.2: Demonstrate the procedure to apply the different equipments i.e. Dandari, Khillari, etc. used for checking/separation of non-fiber elements.</p>	<p>K.1: Explain the importance of segregation of non-fiber matters.</p> <p>K2 Describe common types of fiber and non-fiber contaminants</p>
<b>B-4:</b> Calculate trash percentage	<p>P.1: Identify various types of trash.</p> <p>P.2: Determine the trash percentage in a given sample.</p>	<p>K.1: Describe the various trash exemption percentages by region. (For instance, around 2.5 % in Multan).</p>

<p><b>B-5:</b> Maintain records of complete inspection</p>	<p>P.1: Demonstrate the net weighing and record keeping procedures for total payment</p> <p>P.2: Record the presence of moisture, diseased cotton and trash by using correct record keeping.</p> <p>P.3: Perform the record keeping of inspection in computers along with pictorial expressions.</p>	<p>K.1: Tabulate various thresholds of contamination, diseased cotton and trash.</p> <p>K.2 Explain the procedures and formats for recording complete inspections.</p>
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**Module-3: Make heaps of seed cotton (Phutti)**

**Overview:** These competency standards will ensure that the trainee will be able to make cotton heaps in accordance with national and international standards

Competency Unit	Performance Criteria	Knowledge Criteria
<b>C-1:</b> Grade Seed Cotton	P.1: Describe the various criteria for grading seed cotton i.e. colour, contamination ratio, trash ratio, diseased cotton ratio, shells, matured, immatured etc. for the grading of cotton.	K.1: Explain the appropriate uses of different grades of cotton.  K.2: Explain the grade wise deduction procedure to maintain quality.
<b>C-2:</b> Make grade wise heaps of seed cotton	P.1: Describe the different uses of each grade of cotton for making heap.  P1 Grade seed cotton samples and prepare heaps	K.1: Explain grade wise heaping of cotton for good quality lints.  K.2: Explain the appropriate use of each grade of cotton.
<b>C-3:</b> Selection of platform for heaps	P.1: Identify the features of a suitable place for making heaps.  P.2: Demonstrate the different methods to avoid contamination in the heap from outside and other abnormalities, i.e. weather, hazards, etc	K.1: Having knowledge of minimizing possible contaminations in heap i.e. jute, sutli, plastic cord, etc. of non-cotton bags.
<b>C-4:</b> Maintain records of graded seed cotton	P.1: Complete / or maintain the record keeping of graded seed cotton.  P.2: Explain the benefits of avoiding inappropriate use of grades for optimal output.  P.3: Ascertain the record of grade wise deduction in each heap.	K.1: Explain the processes of heap-wise grading record keeping.  K2: Explain the record keeping for getting quality cotton lint.



**Module-4:** Prepare for ginning

**Overview:** These competency standards will ensure that the trainee be able to prepare cotton for ginning.

Competency Unit	Performance Criteria	Knowledge Criteria
<b>D-1:</b> Spread cotton	P1 Describe the characteristics of the appropriate place to spread cotton  P.2: Demonstrate the various equipment items used for cotton spreading.	K.1: Explain the importance of spreading cotton.  K.2: Identify the factors for the selection of appropriate place for cotton spreading.
<b>D-2:</b> Let the seed cotton dry	P.1: Identify the secure/ specific place for drying cotton according to standard criteria.  P.2: Perform the standard industry techniques to make the seed cotton dry.  P.3: Check the required level of drying seed cotton.	K.1: Explain the advantages of dry seed cotton.  K.2: Explain the required level of drying seed cotton.
<b>D-3:</b> Pick non fiber foreign matters	P.1: Diagnose the non-fibre elements in the seed cotton.  P.2: Evaluate various methods for disposing the non-fibre foreign matters from seed cotton.	K.1: Identify the common kinds of non-fiber foreign matter found in seed cotton.
<b>D-4:</b> Feed cotton to suction pipes	P.1: Monitor the working of suction pipe.  P.2: Explain the important role of suction pipe.  P.3: Demonstrate the processes of feeding process through suction pipe.	K.1: Explain the condition and functioning of suction pipe.

**Module-5:** Pre cleaner machines

**Overview:** These competency standards will ensure that the trainee will be able to have knowledge and skill of pre-clean machines

Competency Unit	Performance Criteria	Knowledge Criteria
E-1: Check pre cleaning machines	P.1: Demonstrate the performance and process of pre-cleaning.  P.2: Monitor the proper working of pre-cleaner machines.	K.1: Explain the functions and importance of pre-cleaner machines.  K.2: Explain the procedure of cleaning of pre-cleaner machine.
E-2: Clean screens after every one hour	P.1: Examine the condition of the various screens.  P2 Demonstrate the correct procedures for cleaning the screens.	K.1: Explain the importance of periodical cleaning.  K.2: Explain the operation of the equipment involved in processing.
E-3: Dispose of waste material	P.1: Describe / or demonstrate the correct way of disposal of wastage received from seed cotton.	K.1: Explain the usefulness of safe disposal of wastage.  K.2: Know the kinds of disposable elements.

**Module-6:** Perform ginning

**Overview:** These competency standards will ensure that the trainee will be able to perform standard cotton ginning.

Competency Unit	Performance Criteria	Knowledge Criteria
<p><b>F-1:</b> Check sharpness of gin saws</p>	<p>P.1: Demonstrate the appropriate methods of assessment and sharpness of gin saws.</p>	<p>K.1: Know and explain the different methods of assessing the sharpness of gin saws.</p> <p>K.2: Identify the different parts of machine.</p> <p>K.3: Explain the importance periodical inspection of gin saws.</p>
<p><b>F-2:</b> Check gin speed</p>	<p>P.1: Check the speed of ginning machine regularly.</p>	<p>K.1: Explain the harm that results from inadequate ginning speed.</p> <p>K.2: Describe the ginning process with particular reference to gin speed.</p> <p>K3: Explain the importance of ginning speed.</p>
<p><b>F-3:</b> Handle cotton seeds properly</p>	<p>P.1: Examine the cotton seed quality obtained</p> <p>P2: Measure the left over lint in cotton seed as per limits after ginning.</p>	<p>K.1: Get learning and competency of handling the cotton seed.</p> <p>K.2: Get sufficient awareness about the quality of cotton seed (as per limits) as well as performance of machine parts.</p>
<p><b>F-4:</b> Prevent seed cotton from extreme weather conditions</p>	<p>P1: Demonstrate and explain the different methods to maintain the ideal temperature</p> <p>P.2: Demonstrate different methods to prevent damage from extreme weather.</p>	<p>K1 Explain how weather and temperature effect seed cotton</p> <p>K.2: Identify the required temperature for seed cotton.</p> <p>K.3: Explain the hazards of extreme weather.</p>

**Module-7:** Perform pressing

**Overview:** These competency standards will ensure that the trainee will be able to perform cotton pressing pressing.

Competency Unit	Performance Criteria	Knowledge Criteria
<b>G-1:</b> Use moisture meter	<p>P.1: Demonstrate the proper use of the moisture meter.</p> <p>P2: Examine the performance of various systems of moisture for maintaining lint at international standard of 8.5 percent.</p>	<p>K.1: Explain the hazards of excess moisture in cotton.</p> <p>K.2: Describe the required standards of moisture presence.</p> <p>K.3: Explain the importance of moisture meter.</p>
<b>G-2:</b> Prepare proper packing	<p>P.1: Demonstrate the lot-wise packing of cotton lint.</p> <p>P2: Explain the dangers of inappropriate packing.</p> <p>P3 Demonstrate the use of steel wire and cloth for packaging</p>	<p>K.1: Explain different methods of packing acceptable to industry.</p> <p>K.2: Describe the different packing materials that are used for cotton packaging.</p> <p>K.3: Describe the methods of using steel wire and cloth for packing.</p>
<b>G-3:</b> Apply stamps and labels	<p>P.1: Demonstrate the application of all types of labels.</p> <p>P2: Demonstrate the allotment and application of unique numbers.</p>	<p>K.1: Explain the importance of labelling and stamping.</p> <p>K.1: Explain the processes for labelling and allotting unique numbers.</p>
<b>G-4:</b> Weigh bales of cotton lint	<p>P.1: Describe and explain the variety and working of common weighing machines.</p> <p>P.2: Demonstrate the procedure of Kaatla (random weight checking ) and identify its objectives.</p>	<p>K.1: Explain the methods of random weight checking of bales.</p>
<b>G-5:</b> Make proper stacking of cotton bales	<p>P.1: Explain and demonstrate the different types of stacking methods.</p>	<p>K.1: Describe industry standard for safety from weather hazards by proper stacking.</p>

		K.2: Explain the importance of stacking in the lot wise sequence of serial number.
<b>G-6:</b> Maintain records	<p>P.1: Perform the documentary handling of all transactions.</p> <p>P.2: Demonstrate the processes of record keeping.</p> <p>P.3: Demonstrate the periodical summary statistics of the flow.</p>	<p>K.1: Explain the importance of maintaining lot wise record.</p> <p>K2: Explain the periodical summary statistics of the flow.</p>

## **List of training material and equipment**

- 30 pens
- 30 workbooks
- 30 handouts
- 30 charts of proper dress & foreign elements
- 30 pictures of diseased cotton & white cotton
- 30 Scarf
- 30 Gloves
- 30 Samples of yellowish cotton.
- 30 Sample of healthy cotton.
- 30 Pictures of cotton factory.
- 30 Samples of different varieties of cotton
- 30 chart showing various parts of cotton plants
- 30 Pictures of dirty cotton and white cotton
- 30 Charts for demo of proper place and foreign elements
- 30 Pictures of loaded cotton bags.
- 30 Demo charts of unloading.
- 30 Demo chart of safety measures
- 30 Pictures of non fiber matters.
- 30 Pictures of different weighing machine.
- 30 Coloured Charts, demo of proper weighing
- 30 Example of the calculation of net weights.
- 30 Physical presence of various weighing machines.

30 Charts for procedural chain  
30 Flow chart of distribution of receipts  
30 Samples of registers and cheques/drafts.  
30 Samples of journal, ledger & folio.  
30 Charts and demo of record keeping.  
30 Actual files, registers and computers  
30 Charts of moisture limits  
30 Pictures, of diseased & healthy cotton  
30 Classification Charts  
30 Display sign boards for use of proper places for non fibre matters. 30 Pictures of trash.  
30 Table of appropriate trash percentage.  
30 Samples of seed cotton with and without moisture  
30 Actual seed cotton of various grades.  
30 Coloured Pictures of different grades and grading standards  
30 Picture of seed cotton heaps.  
30 Samples of non-cotton bags  
30 Sample ledgers  
30 Pictures of paved place.  
30 Charts of Spreading cotton.  
30 Samples of foreign matters,  
30 Samples of seed cotton contaminated with foreign matters  
30 Pictures of pre cleaning  
30 Pictures of dispose able wastage



30 Charts for demo of disposing off

30 Pictures of ginning saws

30 Pictures of ginning speed

30 Pictures of various forms of cotton as affected due to extreme weather. 30 Pictures of moisture meter,

30 Operating charts of weighing machine

- Complete Ginning Plant
- Weighing machines

**Note:** *In case that the training center cannot provide a complete ginning plant and/or weighing machines by itself, for practical training purposes a cooperation with cotton processing companies has to be ensured.*



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