Australian Government

Department of Education, Employment and Workplace Relations

LMTCG3001A Identify factors that impact on cotton quality

Revision Number: 1

ISC INDUSTRY SKILLS COUNCILS

Creating Australia's Future

LMTCG3001A Identify factors that impact on cotton quality

Modification History

Not applicable.

Unit Descriptor

Unit descriptor   This unit covers the skills and knowledge required to identify the factors that affect cotton quality before, during and after ginning.

Application of the Unit

Application of the Unit	This unit applies to employees in cotton gins. It builds on the knowledge of cotton characteristics gained in LMTCG2001A Identify cotton characteristics to provide a deeper knowledge of the relationship between the natural characteristics of cotton, on farm practices and ginning decisions that can affect the quality of ginned cotton. The unit would normally be undertaken by a full time employee seeking to qualify as a ginner.

Work may be conducted in small to large scale enterprises and may involve individual and team activities. Work is performed within defined procedures under direct supervision.

The application of this unit is according to OHS practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control and recycling.

This unit requires the application of skills associated with communication to check gin records and problem solving, initiative and enterprise to identify and determine features and quality of cotton. This unit also requires the ability to apply knowledge of ginning processes to own work.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites	LMTCG2001A

Employability Skills Information

Employability Skills   This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify basic features of local pre-ginned cotton	1.1 *Species* of *seed cotton* is identified from grower or gin records and seed company information and characteristics checked
	1.2 Assess whether climate and growing conditions prior to harvest are likely to lead to increased *neps* and *trash*
	1.3 Module records regarding date of receival, moisture content at receival, location of module in module yard and *grower details* are accessed
2. Recognise key cotton features necessary to achieve optimum classing outcome	2.1 Importance of cotton *colour* on classing outcome is understood
	2.2 Importance of *leaf grade*, other trash and *stickiness* on classing outcome is understood
	2.3 Influence of *micronaire*, *fibre length* and *length uniformity* on classing outcome is understood
	2.4 Importance of maintaining fibre length and minimising *short fibre content* through the ginning process is understood
3 Identify key cotton features that can be varied through ginning process	3.1 Moisture content target for seed cotton is identified
	3.2 Effect of temperature and speed settings on fibre length, moisture content and trash removal effectiveness is understood
	3.3 Effect of lint cleaners on fibre length and colour is understood

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Demonstrates knowledge of:

- different species of cotton
- different parts of the cotton plant
- components of the cotton boll
- purposes of the ginning process
- main risks to a successful ginning outcome, including contamination, moisture content outside specification, damaged or weak fibres.
- OHS practices, including hazard identification and control measures
- quality practices
- workplace practices
- practices for recording and reporting

Demonstrates skills to:

- access information and records
- visually compare seed cotton to test samples in order to understand the effects of moisture, contamination and fibre damage
- analyse and evaluate information
- read, interpret, and follow information on work specifications, standard operating procedures and work instructions, and other reference material
- maintain accurate records
- communicate within the workplace
- clarify and check task-related information
- carry out work according to OHS practices

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Critical aspects of evidence to be considered	Demonstrates skills and knowledge to: • check and identify seed and ginned cotton • check for and identify trash • access records • protect cotton from contamination both in the module yard and in the gin
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks • identifying improvements • using workplace practices • using OHS practices • recording and reporting accidents and incidents • assessing operational readiness of equipment used and work processes • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions • completing work systematically with attention to detail and without damage to goods and equipment
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent Assessment	This unit may be assessed independently or in combination with other relevant units.

Range Statement

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Legislative/regulatory requirements	All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.
Species	• in the context of this unit refers to either American Upland cotton or long staple varieties of cotton which can also be known as Pima and any specific seed company variations or proprietary brands
Seed cotton	• cotton where the seed has not been removed from the cotton boll through the ginning process.
Neps	• clusters or entanglements of fibres, caused by a number of factors - environment, processing or are inherent in the variety.
Trash includes:	• cotton bark and branch • cotton leaves or parts of leaves • other natural contaminants such as grass and non-cotton leaves and branches • insects • man-made contaminants such as grease, rope, twine, plastic etc.
Grower details includes:	• information identifying the grower • information provided by the grower such as whether the cotton is irrigated or rain grown, spindle or stripper picked and the date of picking. Sometimes time of day when the module is picked is available.
Colour	• a measurement of the whiteness and brightness of cotton fibre
Leaf grade	• the leaf content of the cotton and is graded by classers according to a numbering system with higher numbers indicating more leaf content. A grade of 4 or above usually leads to a discount for the cotton.
Stickiness	• produced by sugary or other deposits in the fibre, produced by insects or the cotton plant itself. Stickiness is important as there is nearly zero tolerance for stickiness by spinners due to its impact on their operation.
Micronaire	• a combined measure of two different fibre attributes: • the thickness (fineness) of the fibre itself (ie its diameter) • the thickness (maturity) of the fibre wall (cotton fibre is a hollow tube).

Fibre length	• fibre or staple length is measured in breaks of 1/32 inches, staple length is primarily determined by variety.
Length uniformity	• the ratio of the mean fibre length and the upper half mean fibre length
	• the lower the value of this ratio the higher the percentage of short fibres.
	The more uniform fibre length the better: Low fibre uniformity increases the 'waste' fibre lost during processing at the spinning mill.
Short fibre content	• an indication of the number of fibres below 0.5 inches in length. Short fibre content of less than 5.4% is desirable to the spinner.
Lint	• the term for the cotton fibres that grow from the cotton seed. Fibres are unicellular (one cell) hairs that develop in cells in the outer skin of the seed coat.
Long fibres	• fibres that remain after the seed is removed during ginning and which form the fibres used for spinning.
Key cotton features	• features that contribute to a higher return for cotton growers and spinners and include:
	• high staple length and length uniformity
	• a low percentage of clusters or entanglements of fibres known as neps
	• high whiteness or brightness of cotton fibres
	• lack of contamination
	• fibre strength
	• high gin turnout which is gin turnout is the measure, in percentage terms of recovered lint from a module of cotton

Unit Sector(s)

Sector   Cotton ginning