
# Best Management Practice for Ginning

## Version 26.0

## Cotton Ginning Best Management Practice Handbook

All members of the Australian Cotton Ginners Association (ACGA) must comply with the current version of the Cotton Ginning BMP handbook. Gins that are operational during the ginning season will be audited via a scheduled formal audit. Several sections in the BMP are critical and are highlighted in the BMP Handbook. Members must comply with all critical issues to be certified. Gins that comply will be certified by Cotton Australia.

The Critical Issues are as follows:

- Certification and Calibration of all Moisture Measuring Equipment, including in-line moisture measuring sensors.
- Certification and Calibration of Weighbridge and Lint Bale Scales
- Certification of Test Weights
- Fire Bales
- Sample Size

This Handbook excludes fuzzy seed storage and handling.

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# 1.0. MOISTURE MANAGEMENT

## 1.1. GENERAL PRINCIPLES

Drying systems can seriously over dry cotton and must be used properly to avoid reducing cotton quality. Drying at low temperatures is much less harmful than drying at elevated temperatures. Larger volumes of drying air allow drying at lower temperatures. The moisture content of seed-cotton is important in the ginning process. When seed-cotton enters the gin plant with high moisture content, it should be exposed to as little machinery as possible (especially extractors) before entering the drying system. Seed-cotton with too high moisture content will not clean or gin properly and will not easily separate into single locks, instead it will form wads that may choke and damage gin machinery or stop the ginning process entirely. Seed-cotton with too much moisture will also form tight twists known as “fishhooks” that remain in the ginned lint and degrade appearance.

If seed-cotton is placed in air of 50% relative humidity and 21ºC, the fibres will tend to reach a moisture content (wet basis) of approximately 6%, the seed will tend to reach a moisture content of about 9%, and the composite mass will approach a moisture content of 8%. The equilibrium moisture content at a given relative humidity is also a function of the temperature and barometric pressure.

When ambient air is used, the relative humidity must be equal to that necessary to achieve the desired equilibrium moisture content of the cotton fibre.

Drying cotton at elevated temperatures may damage the cotton fibre. Cotton should be dried at the lowest temperature that will produce satisfactory market grades and allow satisfactory gin operation. Cotton will scorch at 111ºC, flash at 158ºC and ignite at 238ºC. Under no circumstance should the temperature in any portion of the drying system exceed 177ºC as irreversible damage may occur. Temperatures over 93ºC damage dry fibre and should not be used if possible. There is an optimum fibre moisture content for each process in the gin. The effort required to control moisture will pay dividends in gin operating efficiency and the market value of the baled cotton.

Dryers should be adjusted to supply the gin stand with lint with moisture content up to 8% to preserve fibre quality. Cotton at this moisture level is more able to withstand the stresses of ginning without breaking. However, cotton at 5% moisture content will result in better cleaning and a smoother appearance, which is erroneously preferred by many classing and marketing systems.

Gin cleaners remove more trash at moisture levels below 6 to 7% but not without more fibre damage. Fibre moisture higher than 7% preserves fibre length but results in issues with ginning and poor cleaning.

Fibre length preservation can best be attained with fibre moisture from 6.5 to 7%, however, both cleaning efficiency and ginning rate are reduced at higher

moisture content. As a compromise, moisture content of 6 to 7% is feasible. Ginning below 5% moisture can cause serious damage to the fibres, while ginning above 8% may produce rougher lint, decrease gin capacity, and less effective cleaning. For each 1% reduction in fibre moisture content below 5%, the short fibres increase by almost 1%. Ginning cotton below 5% moisture can lead to decreased yarn strength and yarn appearance and increased short fibres in the card sliver.

The effect of increased short fibre content resulting from over drying outweighs the benefits of foreign-matter removal from the textile mill perspective but not from a market perspective. Many classing systems offer premiums for low trash and smooth appearance features, but these incentives may also encourage over processing at the gin, which produces additional neps and short fibres.[1]

## 1.2. GOALS (CRITICAL)

To have enough moisture to protect the fibre, extract trash, and conserve energy during ginning and at the same time avoiding excess and uneven moisture in the bale (generally 6.0 to 7.5%).

Best Management Practices for moisture management

- ✓ Gin operator is appropriately trained.[2]
- ✓ Dryers should be adjusted to supply lint to the gin stand with a maximum moisture content of 8% to preserve fibre quality.
- ✓ Bale moisture must not exceed 7.5%, at any point in the bale when measured at or near the point of weighing, using moisture measuring equipment.
- ✓ Moisture measuring instruments, including in-line moisture measuring sensors must be regularly checked, and calibrated on a yearly basis.
- ✓ Records of calibration of all measuring instruments must be kept.
- ✓ Heating and drying of cotton are recorded, with the following details required for each module ginned:
    - Heaters on/off
    - Level of heat (if any) applied.
- ✓ The moisture content of at least one bale per module is recorded on the shift report, or other relevant document, with moisture levels at both the gin stand and the bale checked and recorded as above.
- ✓ Weigh bridges must be certified annually by the appropriate State Authority or State-approved service provider; evidence of this must be retained.
- ✓ Bale scales are calibrated and certified annually by a qualified service

[1] Report of an Expert Panel on Ginning Methods – Impact of Ginning on Fiber Quality: The Best Ginning Practices. International Cotton Advisory Committee, September 2001

[2] Minimum level of competence required, e.g., TAFE certificate and/or in-house training requirement.

provider. Evidence of this must be retained.

- ✓ Bale scales are calibrated at least once per shift with check weights that are certified. Calibration must be recorded (e.g., on shift report).
- ✓ The check weights only require a mass value certificate or certificate of accuracy every five years from a qualified service provider, to ensure that they are within tolerances. Evidence of this must be retained.

## 1.3. OTHER CONSIDERATIONS (CRITICAL)

Growers must inform gins of any potential 'wet' modules[3].

Demonstrating compliance and record keeping

- ❒ Records of practices listed above maintained:
  - Gin operator qualification(s) and training
  - Verification of all moisture measuring equipment.
  - Moisture content of cotton at gin stand and in bales.
  - Calibration, certification and taring of bale scales and tare weights.
  - Records of heating and drying cotton, keyed to modules and bales, to be entered in the shift report, or other relevant document.
- ❒ Records of action taken regarding 'wet modules are to be recorded on shift reports.

[3] Ideal moisture 6-10%, Marginal 11-12% and Poor ≥13%

## 2.0. LINT MANAGEMENT

### 2.1. GENERAL PRINCIPLES

The cleaning and extracting system serve a dual purpose. First, large trash components such as burs, limbs, and branches, must be extracted from the seed-cotton before they are broken up and embedded in the cotton and so that the gin stand will operate at peak efficiency and without excessive downtime. Also, cleaners and extractors help open the seed-cotton for more effective drying, which is usually done concurrently with cleaning.

Lint cleaning improves the grade classification (colour, leaf, and preparation) of the lint. However, the extent of grade improvement decreases with each succeeding cleaning. In addition, lint cleaners can blend Light-Spotted cottons to improve their grade. Lint cleaners can also decrease the number of bales that are discounted grade due to the presence of grass and bark content. But they also reduce bale weights and may decrease staple length, thus affecting bale value. In some cases, the net effect of multiple stages of lint cleaning is a loss in lint an increase in neps and short fibre content which decreases its spinning value.

Whether it is done at a gin or a textile mill, cleaning lowers most of the important fibre quality characteristics other than the colour, foreign matter, and appearance, and reduces the amount of usable fibre. Ginners must compromise between trash removal and fibre damage when choosing their cleaning machinery. To deliver the absolute highest quality products for spinning performance, growers and ginners must take care during production, harvesting, ginning, and textile manufacturing to avoid practices that may diminish fibre quality.[4]

### 2.2. GOALS

To produce cotton that has the highest possible fibre length, strength and uniformity and the lowest possible level of neps, trash and short fibre content.

Also, to minimize the amount of heat used for drying to preserve fibre quality and conserve energy.

### 2.3. BEST MANAGEMENT PRACTICES FOR LINT MANAGEMENT

- ✓ The ginner is trained in cotton ginning. The ginner has also been given guidance on the classification of leaf grade by a qualified classer, on site assessment or through Uster® Intelligin training[5].
- ✓ Leaf grade needs to be assessed by either the Uster® Intelligin in-line

[4] Report of an Expert Panel on Ginning Methods – Impact of Ginning on Fiber Quality: The Best Ginning Practices. International Cotton Advisory Committee, September 2001

[5] Guidance on leaf grade assessment should be conducted biannually, with records kept providing proof of training.

measuring system or by means of the USDA Grade Boxes or standards prepared by a local classing facility. These standards must not be older than four years from the date of fabrication.

- ✓ The Uster® Intelligin system must be calibrated at the start of every shift.
- ✓ The operational speeds and settings used during the gin run should also be recorded in the shift report.
- ✓ The condition of the seed-cotton, lint and cottonseed is continuously monitored, and appropriate adjustments made to settings and operations. Trash levels in particular are monitored.
- ✓ The condition of cottonseed, motes and lint is regularly checked to ensure that there is no undue seed damage, seed coat fragments in the lint, excessive lint on the seed, or otherwise lost.
- ✓ For residual lint, reference samples of cotton seed should be available for comparison and verification.

Demonstrating compliance and record keeping

- ❒ Records kept (e.g., gin run control sheets) of all operations, including heat use, moisture levels at key points, cleaning procedures and equipment used for trash level monitoring, operational adjustments made, and other relevant observations, keyed to modules and bales.
- ❒ Provide growers with reports for each gin run which include module number and weight with the corresponding bale number and weight as well as lint turn out%.
- ❒ Records of calibration checks for the Uster® Intelligin must be maintained.
- ❒ Records maintained of inspections made of seed-cotton, lint, seed, motes, trash, together with notations of relevant adjustments made.
- ❒ Evidence that the gin, module yard, bale holding area and surrounding areas are maintained in conditions that will not create safety, fire, and environmental risks.
- ❒ Regular monitoring of residual lint must be undertaken and recorded (e.g., gin run control sheets)[6].
- ❒ Feedback evidence from cotton classers and merchants regarding the presence of seed coat fragments.
- ❒ Similar and timely feedback evidence regarding significant fibre quality matters and evidence of timely operational adjustments where warranted.

[6] Acceptable minimum frequency to be considered during testing phase (e.g., daily, weekly, at change of grower/variety/shift)

## 3.0. CONTAMINATION MANAGEMENT

### 3.1. GENERAL PRINCIPLES

All areas of risk for contaminating the lint will be identified and managed.

### 3.2. GOALS

To produce cotton lint free of contamination.

Best Management Practices for contamination management

- ✓ Growers are formally advised of the role they play in avoiding the incidence of contamination and sticky cotton; pre-season and in-season communication/protocols systems put in place for discussing contamination/sticky cotton issues with farmers.
- ✓ Staff training and induction includes information on their role in eliminating contamination, with a focus on work procedures to prevent machinery parts, tools, and other contaminants, including hydraulic oil, entering the cotton stream (e.g., at the module yard, feeder bay, gin fall and bale pad). Induction/training form to be signed by an employee.
- ✓ Gins must have protocols in place for managing sticky cotton. An example is detailed in Appendix 1.
- ✓ A method for establishing sticky cotton is detailed in Appendix 2.
- ✓ A clear and uncluttered workplace is maintained in and around the gin to reduce the risk of in-house contamination.
- ✓ Gins are encouraged to install sensors to detect and eliminate contaminants prior to the seed-cotton entering the ginning process.
- ✓ The installation of sensors in the module feeder bay or elsewhere is a requirement.
- ✓ An accurate and detailed record (including photos) is kept by each gin of all contamination found in the gin (including plastic wrap caught on module beaters), and any resulting downtime.

Demonstrating compliance and record keeping

- ❒ Records of practices listed above maintained:
  - Grower communication regarding contamination management and sticky cotton protocols
  - Staff training and induction.
  - Maintain records of the incidence of contaminants wrapping on module feeder beaters.

## 4.0. LINT BALE MANAGEMENT (Excluding Mote Bales)

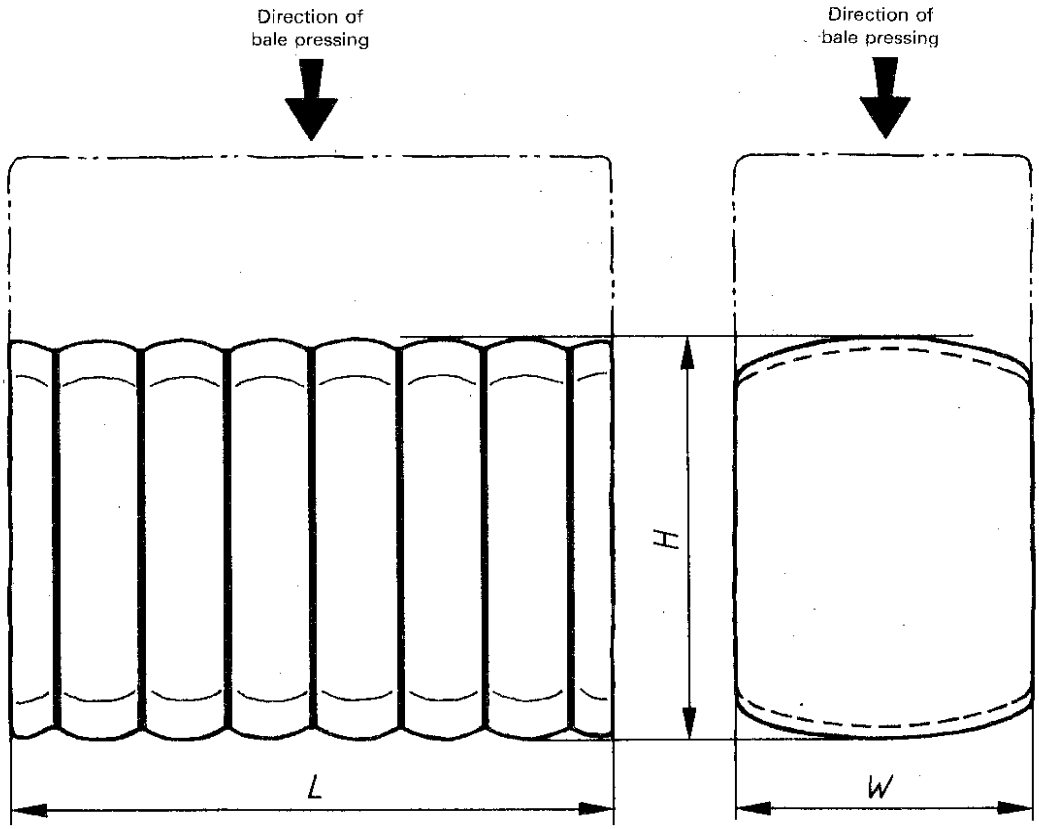
### 4.1. GENERAL PRINCIPLES

Bale packaging is the last step in processing cotton at the gin. The stress on the plastic strap after the bale is released from the press is a function of the uniformity of the lint distribution, bale weight, bale dimensions, density to which the bale was pressed, moisture content, strap length, and other factors. Bale strap strength must be matched carefully to the bale press system to prevent tie breakage and subsequent contamination and handling difficulties.

Bales should be square and fully covered. All bale covering material should be clean, in sound condition and of enough strength to adequately protect the cotton. Each bale is to be numerically identifiable by a bale tag.

### 4.2. BALE DIMENSIONS

- ✓ Lint bale dimensions, as per ISO 8115, for High Density (HD) and Universal Density (UD) bales in length (L), width (W) and height (H) in cm and inch.
- ✓ This does not include mote/moss bales.



| Bale Type | L cm | L inch | W cm | W inch | H cm | H inch | Density kg/m$^3$ |
|---|---|---|---|---|---|---|---|
| HD | 100-115 | 40-42 | 50-60 | 20-24 | 80-90 | 32-36 | 360 to 450 |
| UD | 130-145 | 53-55 | 50-60 | 20-24 | 80-90 | 32-36 | |

- ✓ All bales should be pressed and strapped so that their edges and sides are square.
- ✓ Bale net weights should average 227 kg, with a minimum of 150 kg and a maximum of 260 kg: with the aspirational goal to maintain bale weights between 185 kg and 245 kg.
- ✓ Tare weights are determined prior to the start of the season and circulated to the Australian Cotton Shippers Association.

## 4.2. BALE PACKAGING

No bale covering material, which in the opinion of the ACGA is unduly prone to damage or contamination, will be used to wrap bales.

Lint bales are fully covered in cotton fabric (woven or knitted).

- ✓ Bales are either strapped inside or outside the wrap, with plastic straps as follows:
  - ✓ HD - 6 plastic straps
  - ✓ UD - 6 plastic straps.

- ✓ Bales must be packaged in accordance with the following table:

| Grade A Standard | Grade B Compliant |
|---|---|
| HD Bale<br>Plastic Strap<br>Cotton Wrap | UD Bale<br>Plastic Strap<br>Cotton Wrap |

- ✓ The module yard and bale holding areas are constructed and managed to minimise the risk of weather and other damage.
- ✓ The bale holding area is concreted, and the loading area is well-drained. Evidence of improvement, e.g., roofing (or of planned improvement), where warranted.
- ✓ Bales with damaged coverings must be redressed before despatch from the gin.
- ✓ Contamination claims and country damage[7] reports are traced back to the source and claims confirm improvement.
- ✓ Non-containerised loads of bales leaving the gin must be securely tied down and appropriately tarped, considering the distance to be travelled,

[7] Loss of lint quality due to dust, rain, and packaging damage

the prevailing weather conditions and any agreed arrangements for bale transport.

## 4.3. BALE LABELLING

- ✓ Bale numbering must comply with industry standard nomenclature (see Appendix 3.)
- ✓ Bale tag must be unique and durable. Laminates should be applied post printing to ensure durability/integrity.
- ✓ Bale tag to be placed within the top third of the bale on front and back.
- ✓ Bale tags on front and back of bale must be secured with wire tie or clip.

Note – it is important to identify the front from the back of the bale in order to aid efficiency when stacking to identify front and back of bale – to assist in turning if required for stacking into warehouse.

- ✓ Bale tag fastened to sit flat on the bale.
- ✓ Systems established to ensure identical bale tag number on each side of the bale (e.g., hourly check and log).
- ✓ No BMP status is to be included with the actual bale tag.
- ✓ Systems implemented at the gin to ensure electronic bale data matches physical bale tags.
- ✓ Reporting systems implemented (back to ginning company/bale title holder) in the event data transfer does not conform to industry standard nomenclature.
- ✓ Systems established to ensure bale numbers on title documents (packing lists) match physical bale tags.

## 4.4. FIRE BALES (CRITICAL)

- ✓ The Fire Bale Procedure should be documented and communicated to all staff.
- ✓ Receivers of cotton must be notified of any bales that are suspected of or have the potential to be ‘fire’ bales.
- ✓ The minimum requirement for managing ‘fire’ bales is removing two bales before and two bales after the suspected bale. Bales must be segregated for a minimum of 14 days before release.
- ✓ Fire bales must be identified with red tags which must be left on the bales when leaving the gin yard.
- ✓ Fire bales should be stored in a demarcated area which is removed from other bales and combustible material and accessible by a fire hydrant or hose.
- ✓ Bales identified as fire bales (and/or adjacent bales) by the origin gin and/or contracting merchant must be segregated at the receiving

warehouse for a minimum of 2 days prior to general intake (in addition to isolation days at the gin yard).

- ✓ Bales identified by the receiving warehouse as fire bales must be removed, and the entire incoming trailer segregated for a minimum of 7 days prior to intake into general warehouse.
- ✓ No smoking whilst loading or unloading bales.

## 4.5. OTHER CONSIDERATIONS

Bales will be loaded onto bale trucks, and restrained in accordance with the ***Cotton Australia Load Restraining guide*** *and the* ***Amendment****,* relevant road transport legislation such as ***The chain of responsibility legislation*** as well as; in New South Wales, the ***Roads Transport (General) Act 2005*** and ***Road Transport (Mass, Loading and Access) Regulation 2005***, and in Queensland the ***Transport Operations (Road Use Management) Act 1995*** and the ***Transport Operations (Road Use Management—Mass, Dimensions and Loading) Regulation 2005***.

- ✓ Bale Removal: Bales to be removed from the gin pad within 7 days of the gin invoice issued to the receiving merchant.
- ✓ Bale Loading: Bales must be loaded from well drained pads free of mud and other contaminants. Concrete pads are recommended. Alternatively, road base or suitable free draining, non-contaminating compounds such as compacted gravel may be used. Bale pads must be large enough to accommodate bale production capacity for at least the 7-day non-demurrage, or “free” period.
- ✓ The bottom tier of bales must be loaded three wide onto a flatbed trailer, with width to remain in accordance with National Transport Code requirements and/or State based exemptions granted to the cotton industry.
- ✓ Bale Ranges/Load: Bales should be loaded to avoid multiple bale ranges on trucks, which increase the risk of warehouse intake errors and lost bales. The minimum average acceptable is ≤ 3 bales ranges/load.
- ✓ Systems should be established between the gin and carrier to take bales in sequence, and reporting mechanisms implemented between receiving warehouse, carrier and origin gin if not taken in sequence.
- ✓ Reporting Mechanisms for Country Damage - the duty of care rests with the gin. Ginner to inspect the truck for grease/dirt etc, and not allow load out until satisfied.

Protocols should be established between the ginner and the receiving merchant to ensure that clear lines of communication and authority are established regarding the loading, tarping restraint, and removal of cotton bales from the gin yard.

Demonstrating compliance and record keeping

- ❒ Records of fire bale incidences and notifications to merchants
- ❒ Training of relevant staff (e.g., bale pad loaders, weighbridge staff) in requirements and responsibilities under the relevant road transport legislation.

## 5.0. SAMPLE MANAGEMENT

### 5.1. GENERAL PRINCIPLE

Classing samples will be taken, packaged, and dispatched to the relevant classing facility in accordance with their requirements.

### 5.2. GOALS

To ensure sample is of the correct size and weight for classing.

### 5.3. TAKING SAMPLES (CRITICAL)

A single sample from each side of the bale is the only sample taken at the gin unless otherwise authorized by the purchasing merchant.

#### 5.3.1. SAMPLE SIZE

Samples must have the following dimensions:

**Face** 120 mm x 220 mm
**Height** 140 mm
**Weight** 150 - 200 grams

Samples must not have bolt holes originating from the press.

Each sample requires an identification tag.

#### 5.3.2. SAMPLE ROLL

Sample rolls shall meet the following requirements:

| | |
|---|---|
| Plastic Type | Must be either Virgin or Reused clean plastic. |
| Length | 800 - 900 mm |
| Diameter | 400 - 500 mm |
| Weight | maximum of 13 kg |
| Capacity | maximum of 60 samples, unless end of run. |

Samples should be securely wrapped, in numerical order. The first and last bale tag must be displayed on the outside of roll. Gins are encouraged to secure the rolls with clingwrap rather than masking tape to facilitate recycling.

# 6.0. ROUND MODULE MANAGEMENT

## 6.1. GENERAL PRINCIPLES

To monitor all round modules for plastic wrap damage this may cause plastic contamination issues or water damage to cotton.

## 6.2. GOALS

All damaged or contaminated round modules received from the farm are to be recorded.

Damaged round modules must be processed with care, as plastic wrap may be present in the cotton and plastic contamination can wrap in equipment and continue to contaminate bales until the plastic disintegrates.

When round modules are being placed on the module pads, there is to be no person in the area, this is the same safety procedures that already applies for all types of modules. Care must be taken to prevent the first-round module from rolling off the module pad when unloading from the Moon buggy when starting a new row.

All damaged or contaminated round modules moved from the module pad to the feeder bay by a moon buggy are to be monitored and damage recorded.

# 7.0. SAFETY MANAGEMENT

## 7.1. GENERAL PRINCIPLES

Sound workplace practices and operational arrangements for cotton ginning and occupational health and safety are essential. Employers and employees at all levels within a site are empowered and encouraged to identify health and safety risks issues and suggestions for dealing with these issues.

Everyone is responsible for achieving high standards of health and safety in the workplace. Commitment needs to be made to ensure the following:

Providing a safe place to work

- ✓ Providing safe work systems
- ✓ Providing safe plant and equipment
- ✓ Establishing objectives and targets that drive continuous improvement.
- ✓ People informed and involved in health and safety in the workplace.

## 7.2. GOALS

This goal is to identify the key elements to be undertaken in pursuit of each of the OHS targets and objectives.

The main key elements that need to be present are:

### 7.2.1. Occupational Health and Safety Management System

An OHMS must be in place, which provides a high degree of certainty that work conducted by the company towards health and safety and provides the operation facilities at maximum efficiency and to the required standards.

It provides guidelines for the training of company personnel in OHSE procedures and is used as a tool for continuous improvement.

Risk management is the process of identifying, assessing, and controlling risks, with follow-up reviews establishing the effectiveness of controls.

### 7.2.2. Machine and Equipment Guarding

All ginning equipment and machinery should be fully guarded, all conveyors, augers, belts, chain drives, etc. to be covered or guarded to prevent injury or harm.

### 7.2.3. Fire Safety and Emergency Evacuation

Ensure fire safety controls are in place and emergency evacuation plans are developed and displayed in all areas and all employees have been trained in emergency evacuation procedures.

Processes to cover:

- ✓ Emergency planning
- ✓ Emergency procedures
- ✓ Emergency assembly points

- ✓ Roles and responsibility - fire safety wardens are identified in each area and training is provided. Plus, all employees must be provided with emergency evacuation training.
- ✓ Firefighting equipment - ensure adequate fire extinguishers of the right type (e.g., $CO^2$ powder or dry powder chemical extinguishers for electrical areas) is located in suitable locations and there are suitable working fire hose reels (water) used for general fires (cotton) when required. Ensure that fire extinguishers are serviced and maintained within the prescribed period.

### 7.2.4. Personal Protective Equipment (PPE)

It is essential that employees are provided with the proper type and quantities of PPE to suit the task required. The company has an obligation to ensure all workers are protected, e.g., dust in general, cotton dust, eyes are protected, hearing is protected, feet and hands, etc.

Clear signage must be displayed showing the PPE requirements in each area, this will best be accomplished by using the relevant symbols.

### 7.2.5. Audiometric Testing

Employers must pay and conduct noise assessments for both new and existing employees. An audiologist must conduct these tests. In NSW existing employees must be tested by January 2026 and in QLD by July 2027. Test should be conducted every two years and records kept for at least 3 years.

### 7.2.6. Isolation, Lock Out Tag Out (LOTO) Procedures

When equipment and electrical equipment is faulty or out of service, it must be identified by using 'Danger' and/or ‘Out of Service' tags and records of isolation must be documented (Isolation Register) and kept including all repairs. Equipment that is isolated must not be used under any circumstances. As part of this process a test and tag program for electrical equipment should be introduced as part of the overall electrical safety.

### 7.2.7. Safe work permits

It is to ensure people can safely undertake excavations, work in confined spaces, work at heights and other high-risk work where there are no approved means of safe work without causing injury to themselves and others or damage to plant, equipment, or product. This is where risk assessments and strict controls must be in place to minimise risk.

### 7.2.8. Housekeeping

Operations in the gin and areas outside and around the site should be kept clean at all times. There needs to be a program of regular cleaning in place to ensure a clean and tidy workplace.

### 7.2.9. Training and Induction

Detailed training and induction must be delivered regarding machine safeguarding, fire safety, PPE, isolation procedures, reporting of incidents

and unsafe acts. Visitors are required to sign a logbook in the office, given a short site induction and provided with the necessary PPE.

The content of training and induction needs to be appropriate and must meet the needs of the trainees' language, literacy and numeracy skills, level of existing knowledge and level of detail. Records of training must be established.

### 7.2.10. Accident/ Incident Notification

There must be a system in place which records all the incidents that occur, type of incident, the cause and corrective action taken to rectify the incident. Also, did the person need treatment, how was the person treated and follow up action required.

### 7.2.11. Unsafe Acts

Is an intentional or unintentional violation of an established safe work practice, procedure, method, or system. All employees must be made aware of safety procedures, safety protocols and in particular to the above items. Everyone must understand what the difference is between a safe and an unsafe act in the workplace.

### 7.2.12. Safety Audit

Audits must be conducted to ensure that all stop buttons, safety devices and load break isolators are working. Records of safety audits must be maintained.

# 8.0. ENVIRONMENTAL MANAGEMENT

## 8.1. GENERAL PRINCIPLES

Cotton gins will be operated in a way that minimises their impact on the environment.

## 8.2. GOALS

Compliance with relevant State and Federal laws and regulations

Best Management Practices for Environmental Management:

- ✓ Trash, dust, and noise should be monitored in accordance with licence requirements as stipulated by Environmental Protection Agency (EPA), with operations modified should these exceed acceptable limits.
- ✓ The gin, module yard, bale holding area and their surroundings must be managed, and kept in such a manner as not to create environmental, fire or safety risks.
- ✓ Gins must have a module fire management policy and procedure in place.
- ✓ The requirements of the State Authorities regarding safety, environmental protection, and insurers regarding fire must be fully observed.
- ✓ There are strict guidelines for gin trash storage- see below.

https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wastegrants/rre2021-gin-trash-exemption.pdf and

https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wastegrants/rro2021-gin-trash-order.pdf

- ✓ Gins are only able to release gin trash for feeding cattle if they have sent samples for chemical residue testing, as per test code CR006C, to Symbio Laboratory in Brisbane with results verified by DAFF and added to the approved suppliers list on the CA website.
- ✓ Run-off is formally managed.
- ✓ Round module plastic wrap to be recycled.

Demonstrating compliance and record keeping

- ❒ Records of compliance with the requirements of Statutory Authorities and insurers, regarding licence conditions, OHSE, fire prevention etc. should be kept on site and produced on request.
- ❒ Evidence of appropriate actions beyond these requirements were considered prudent or warranted.
- ❒ Evidence of method of disposal of gin trash

## 9.0. CHEMICAL SUBSTANCES

### 9.1. GENERAL PRINCIPLES

A hazardous substance is defined as any flammable liquid, flammable gas, oxidising substance, toxic gas, oil, grease or other toxic substance or any corrosive substance which either alone or as part of a compound or mixture causes injury or illness to persons if the substance comes into contact with the eyes or skin or if fumes or vapour are inhaled.

### 9.2 GOALS

The goal is to manage hazardous substances in a way that provides a safe workplace, complies with legislation, and does not harm the environment.

- ✓ Safety Data Sheet (SDS) from product manufacturers and/ or suppliers must be maintained for every product on site.
- ✓ Ensure current Register of all hazardous substances used or stored on site is contained in a SDS folder (which can either be in hardcopy or electronically assessable) and HAZMAT box, respectively.
- ✓ Ensure there are identified separate storage areas for all hazardous substances, e.g., correct signage identifying chemicals and storage requirements.
- ✓ Ensure there is separation between non-compatible hazardous substances.
- ✓ Ensure risk assessments using the Risk Assessment for Hazardous Substances are conducted for the use, handling, storage, and disposal of hazardous substances.
- ✓ If the use of the hazardous substance causes a significant degree of risk to health, the Risk Assessment for Hazardous Substances, monitoring records and a health surveillance report must be kept for 30 years.
- ✓ If the use of the hazardous substance does not cause a significant degree of risk to health, the Risk Assessment for Hazardous Substances must be kept for 5 years.
- ✓ Ensure all containers are correctly labelled. Label containers when filling a small container from a larger container, e.g., label a spray bottle when filling it with window cleaner.
- ✓ Ensure there is the correct bunding associated with the hazardous storage to ensure all leaking chemicals are contained.
- ✓ Ensure contractors are trained in the safe usage, handling, storage, and disposal of any hazardous substances the contractor is using in relation to the work the contractor is performing.
- ✓ Ensure the contractor supplies an SDS for any substances that the contractor brings on site.
- ✓ Ensure hazardous substances are disposed of in accordance with Local Government and EPA requirements.

Best Management Practices for chemical substances:

Ensure that the following records are kept and are available and readily accessible for all hazardous substances used on site:

- ❒ Current Hazardous Substances Register.
- ❒ SDS folder containing up to date (within 5 years of publication) SDS's.
- ❒ Identified separate storage area for all hazardous substances, which are clearly signed.
- ❒ Separation between hazardous substances.
- ❒ Adequate bunding is supplied for containing hazardous substances.

For further reference of hazardous substances for storage and transportation refer to the ***Australian Dangerous Goods Codes (ADG Codes)*** as outlined in the ***Storage and Use of Chemicals at Rural Workplaces Code of Practice*** and the ***Guide to the Handling and Transport of Dangerous Goods***.

## 10.0 AUDITING PROCEDURES

All ginning companies that are members of the Australian Cotton Ginners Association will be audited annually, during the ginning season, to determine their compliance to the latest version of the Best Management Practice Handbook for Ginning.

All individual operational gins will be audited whilst operational focusing on the entire BMP Handbook. These audits will be scheduled.

A checklist is used by the auditor which will be completed during the audit. The audit form will be completed in duplicate; one to report back to the individual gin and one to be sent to Cotton Australia with a recommendation to certify/not certify the individual gin. If the individual gin complies with all the critical issues highlighted in the BMP handbook for Ginning, Cotton Australia will forward certification to the individual gin which is valid for one year.

## Appendix 1 Sticky Cotton Protocols

These protocols are based on the grower and ginner working together to identify any modules of cotton that may potentially contain sticky cotton.

For potentially sticky cotton:

Growers whose crops have had insects that may lead to sticky cotton will:

- ✓ maintain a close watch on areas where insect control is more difficult (e.g., under power lines, along tree lines and in areas of re growth
- ✓ maintain a close watch on areas of the top and bottom edges of the field, where whitefly and aphid infestations may be more prevalent.
- ✓ identify areas of the crop that may potentially be sticky cotton and ensure that it is harvested separately, and as late as possible to allow time for the sugars to break-down.
- ✓ place all potentially sticky cotton into separate module(s) that are clearly identified as potentially containing sticky cotton.
- ✓ notify the gin.

The ginner should then:

- ✓ ensure that the modules are identified clearly on the gin run sheet.
- ✓ gin these modules separately, and as late as possible to maximise the time for the sugars to break-down.
- ✓ test every bale from these modules for stickiness (or notify the independent classing room of the need to test every bale)

If sticky cotton is found, it is recommended that post-ginning, a meeting be held between the grower, their consultant, the ginner, and merchant, to discuss the situation with a view to:

- ✓ identifying the cause of the stickiness
- ✓ identifying any improvements in the ways the issue was dealt with.

## Appendix 2 Procedure for Sticky Cotton Detection

Below is a procedure for a indicator of whether cotton is sticky or not, using the Universal AB Indicator. Classing facilities in Australia currently use this method as a indicator of sticky cotton.

Procedure

1. Separate10% of samples within a module where necessary and place in a classing tray.

2. Place a plastic sheet on the table surface.

3. Place samples in classing tray or onto plastic sheet on the table surface.

4. Use all safety equipment provided (gloves, mask, safety glasses)

5. Hold the spray bottle approximately 35 cm from the cotton and spray a fine mist on the samples.

Reaction

1. The solution creates a colour change on the cotton samples.

2. Allow 30 seconds for the correct colour change.

3. If colour changes to blue/green, report no or zero stickiness.

4. If colour changes to yellow; report low levels of stickiness.

5. If colour changes to orange; report medium levels of stickiness.

6. If colour changes to red; report high levels of stickiness.

7. If only part of the sprayed surface changes to orange or red then it will be reported as low levels of stickiness.

## Appendix 3 Bale Nomenclature

| Ginning Company | Gin Name | Location | Bale Type | Gin Code | Prefix | Numeric |
|---|---|---|---|---|---|---|
| Australian Food & Fibre | Midkin Gin | Moree | HD | AFF02 | 5 | 8 |
| Australian Food & Fibre | Warren Gin | Warren | HD | AFF07 | 7 | 8 |
| Australian Food & Fibre | Narrabri Gin | Narrabri | HD | AFF08 | 8 | 8 |
| Australian Food & Fibre | Narrabri Gin | Narrabri | HD | AFF09 | 9 | 8 |
| Australian Food & Fibre | Trangie Gin | Trangie | HD | AFF10 | 10 | 8 |
| Australian Food & Fibre | Hay Gin | Hay | HD | AFF11 | 11 | 8 |
| Brighann Ginning | Brighann | Moree | HD | BG01 | BG | 8 |
| Carroll Cotton | Carroll Cotton | Carroll | HD | CC | CC | 8 |
| Carrington Ginning Pty Ltd | Carrington | Goondiwindi | HD | RMI01 | RMI | 8 |
| Cubbie Ginnery | Cubbie Ginnery | Dirranbandi | HD | CG | CG | 8 |
| Louis Dreyfus Company | Moree | Moree | HD | LDC01 | 20 | 8 |
| Louis Dreyfus Company | Emerald | Emerald | HD | LDC02 | 21 | 8 |
| Louis Dreyfus Company | Dalby | Dalby | HD | LDC03 | 22 | 8 |
| Namoi Cotton Limited | Mcintyre 1 | Goondiwindi | HD | NAM01 | N | 8 |
| Namoi Cotton Limited | Merah North | Merah North | HD | NAM02 | N | 8 |
| Namoi Cotton Limited | Moomin | Merrywinebone | HD | NAM08 | N | 8 |
| Namoi Cotton Limited | Hillston | Hillston | HD | NAM17 | N | 9 |
| Namoi Cotton Limited | Mcintyre 2 | Goondiwindi | HD | NAM11 | N | 8 |
| Namoi Cotton Limited | Mungindi | Mungindi | HD | NAM12 | N | 8 |
| Namoi Cotton Limited | Boggabri | Boggabri | HD | NAM13 | N | 8 |
| Namoi Cotton Limited | Trangie | Trangie | HD | NAM15 | N | 8 |
| Namoi Cotton Limited/ Sundown Pastoral Company | Wathagar Ginning Company | Moree | HD | NAM09 | N | 8 |
| Namoi Cotton Limited | Kimberley Cotton Company | Kununurra | HD | KC1 | KC | 8 |
| North West Ginning Pty Ltd | North West Ginning | Moree | HD | NWG01 | NW | 8 |
| Northern Cotton Pty Ltd | Northern Ginning | Katherine | HD | NC01 | NC | 8 |
| Queensland Cotton | Queensland Cotton | Cecil Plains | UD | G020 | 2 | 7 |
| Queensland Cotton | Queensland Cotton | Emerald | UD | G040 | 4 | 7 |
| Queensland Cotton | Queensland Cotton | Dalby | HD | G050 | 5 | 7 |
| Queensland Cotton | Queensland Cotton | Wee Waa | HD | G060 | 6 | 7 |
| Queensland Cotton | Queensland Cotton | Moura | HD | G090 | M | 7 |
| Queensland Cotton | Queensland Cotton | Beardmore | HD | G100 | S | 7 |
| Mungindi Ginning | Mungindi Ginning | Mungindi | HD | MU01 | 40 | 8 |
| Collymongle Ginning | Collymongle Ginning | Collymongle | HD | CG01 | 30 | 8 |
| RivCott Ginning | RivCott | Carrathool | HD | RIV01 | RC | 8 |
| Southern Cotton Pty Ltd | Southern Cotton | Darlington Point | HD | SC01 | SC | 8 |