



# Final Report

Off Farm Series | Cotton Research & Development Corporation

## *Part 1 - Summary Details*

Please use your TAB key to complete Parts 1 & 2.

**CRDC Project Number:** **CTFT19**

**Project Title:** Report on the audit of gins in Australia and their compliance to the draft Best Management Practice (BMP) for ginning conducted in April, May and June 2007

**Project Commencement Date:** **Project Completion Date:** 2007

**CRDC Program:** Off-Farm

## *Part 2 – Contact Details*

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## ***Part 3 – Final Report Guide (due 31 October 2008)***

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(The points below are to be used as a guideline when completing your final report.)

### ***Background***

If Australia is to maintain its reputation as a consistent supplier of high quality cotton it will need to ensure that the entire cotton pipeline from growing to ginning and warehousing to transportation and shipping in Australia conforms to industry Best Management Practices (BMP). As part of this process, the ginning sector will need to be assessed independently via a formal audit to determine its compliance with the draft Best Management Practice for Ginning, version 3.0, handbook, compiled in February 2007 by the Australian Cotton Ginners Association of Australia (ACGA). This will allow individual gins to make operational corrections to their practice so that ultimately the industry can achieve consistent and better classing grades.

To this end the ACGA has decided to conduct audits of its member gins through CSIRO Textile and Fibre Technology (CTFT), an organisation that is considered to be independent.

The results of the audit of 28 gins are reported here.

### ***Methods***

During the 2006/07 ginning season 34 gins operated in Australia, of which twenty eight, operated by seven companies, agreed to be audited according to the BMP handbook for ginning (Appendix 1). Fifteen of the audited gins have standard equipment installed that was manufactured by Lummus, twelve by Continental (of which one gin has a number of non standard machines) and one by Consolidated (which is now owned by Lummus).

The audit was conducted from the second week in April to the last week of June and involved a visit by CTFT to the gins listed in Table 1 and assessing their compliance with the requirements listed in the draft BMP handbook for ginning.

**Table 1      Details of Gins participating in Audit.**

<b>Company</b>	<b>Location</b>
Auscott Limited	Moree
Auscott Limited	Narrabri*
Auscott Limited	Warren
Auscott Limited	Trangie
Queensland Cotton	Wee Waa
Queensland Cotton	Cecil Plains
Queensland Cotton	Dalby
Queensland Cotton	Emerald

Queensland Cotton	Moura
Queensland Cotton	Warren
Queensland Cotton	Collymongle
Queensland Cotton	Beardmore
Dunavant	Moree
Dunavant	Dalby
Carroll Cotton	Carroll
North West Ginning	Moree
Koramba	Mungindi
Namoi	Goondiwindi*
Namoi	Mungindi
Namoi	Ashley
Namoi	Hillston
Namoi	Wee Waa #
Namoi	Trangie
Namoi	Boggabri
Namoi	Wathagar

\* Two gins

# Three gins

### ***Results***

The audit findings will now be presented and discussed in this report following the same format used in the BMP handbook for ginning.

### ***Bale Weight and Moisture Management***

#### ***Gin operator***

The majority of gin operators (shift ginners) employed at the gins have either a trade (e.g. fitter+turner/electrician) or a ginning qualification from a NSW TAFE (Moree) or QLD TAFE (Dalby) ranging from certificate 2 to 4, or have gained experience due to being employed in the ginning industry for a number of years. The majority of these operators have been trained in leaf grade assessment although this training was often conducted a number of

years ago. Only a small number of gins were able to produce formal training records for their staff, with none of the gins able to show evidence of training in leaf grade assessment

### ***Moisture measuring equipment***

Moisture measuring equipment is used to determine moisture in modules, gin stands and bales. There are a number of instruments used in the industry to measure moisture;

- Vomax 850/851M moisture monitors/gauges (using microwave radiation) to measure moisture content in modules and the Vomax Model 850/851B to measure the moisture content of the cotton lint in a pressed bale. Eight of the gins have Vomax instruments to determine moisture content in modules and 20 have Vomax instruments to determine moisture in bales. One gin has the two systems linked to adjust moisture addition automatically.
- Hand held moisture measuring meters are used to probe modules and bales to determine moisture content. Twenty gins determine moisture content in modules using these moisture meters and 6 gins determine moisture content in bales using moisture meters.
- Moisture content at the gin stand is measured by all the gins using hand held moisture meters.

All the Vomax instruments are calibrated prior to the start of the ginning season by the manufacturers. Two gins were able to show evidence that hand held moisture measuring meters were calibrated.

Moisture measured in the module, at the gin stand and in the bale is recorded on shift reports including the number of heaters used and the level (temperature) of heat applied.

### ***Bale Scales***

All bale scales and weigh bridges are calibrated prior to the ginning season by a certified service provider or state authority. One gin does not have its own weigh bridge on site but uses the Grain Corporation weigh bridge situated next to the gin. Bale scales are further checked, using check weights, once per shift during the ginning season and recorded on the shift report.

In a number of instances the bale scales used only to weigh mote bales are not calibrated or checked during the season.

None of the check weights used by the gins to check the bale scales is certified as stipulated in the draft BMP.

### ***Other considerations***

All gins have protocols in place for the reporting of wet modules although not formally and no records of communication and consequential action is kept.

### ***Lint Management***

#### ***Bale Management Practices for lint management***

None of the gins have a formalised procedure to ensure that appropriate machine speeds/settings are used to minimise fibre and seed damage and safeguard fibre quality.

Decisions by the ginner are made depending on the quality of seed cotton and the processing performance of the cotton through the gin and from experience and any changes/adjustments made are noted on the shift report.

In all cases the condition of cottonseed is regularly checked visually at the gin stand by the ginner but not recorded. Only 14 gins have reference sample jars of seed with residual lint of 8% to 12% as standards with which to compare collected samples. The residual lint sample jars currently in use are not standardised across the industry. None of the gins record percent (%) residual waste. One ginning company collects seed samples on a fortnightly basis at all their gins for testing at Futari Grain Technology Services for residual lint and chemical analysis. Results from these tests are not recorded or interpreted in any detail.

Leaf grade and colour assessment and in particular trash levels are monitored using the following methods:

- Four gins use the Schaffner IsoTester (a stand alone instrument which is capable of measuring colour and trash of each bale produced at the gin)
- All gins audited grade the cotton visually using sample grade boxes.

In all cases, except for one ginning company, motes from the lint cleaners are fed into a separate processing line, which in some cases includes a cleaning machine, where the motes are further cleaned and baled. One ginning company collects all motes from all their gins during the season and at the end of the season gins all these motes at a specific gin bypassing the gin stand. This produces very clean mote for the spinners to use.

### ***Contamination Management***

With the current emphasis on contamination and having worked closely with the ACGA on a contamination project over the past two years it was disappointing to note that not all the gins kept records of contaminants encountered during the season and kept contaminants collected from modules during the past ginning season. In fact quite a number of gins were unaware of the CSIRO forms that are detailed in Appendix 1 & 2, pg 19 & 20 in the Draft BMP handbook. One company that did not use these forms used their own network system to gather and analyse information on contamination.

A number of companies have included contamination in the staff induction process and also in pre and in season meetings with growers but it is felt that this will need to be further formalised.

None of the audited gins had any protocols for the detection and management of sticky cotton and in discussions with gin staff the impression is that stickiness did not seem to be an issue currently in the Australian ginning industry

### ***Bale Management***

Of the gins audited, four produce Universal density (UD) bales and 24 produce High density (HD) bales, with ten gins using plastic strapping and 18 gins using wire for bale ties. Cotton bales are wrapped with either jute/hessian or cotton bags. Of the 28 gins audited, 14 gins wrap their cotton exclusively in jute/hessian bags of 7.5 oz with the other 14 gins wrapping their cotton with either knitted cotton bags(usually their own cotton) or jute/hessian(grower

cotton) . Once stocks of jute/hessian bale wraps are exhausted these gins will wrap all their bales with cotton bags.

All the gins, with the exception of one, confirmed that bales with damaged coverings are redressed before despatch; however none of the gins have records to verify that this was being done. At a number of gins, bales with damaged coverings were noted in bale storage areas.

All the gins, with the exception of two, have bale holding areas that are concreted, to store at least one week's production, with a few of these areas covered. A number of gins have warehouses on site or transport bales to regional warehouses where bales are stored until sold.

All gins, with the exception of one gin, have module yards that are either fully or partly gravelled with the rest of the module yard being either black or red soil. A number of gins were in the process of gravelling their module yards but the continuing drought has forced gins to cut back on expenses resulting in this work being ceased. Module yards are constructed in such a way that all water run off is collected in dams.

Mote bales are either wrapped with either clear plastic, cotton or jute/hessian bale bags with wire bale ties or not wrapped with cover i.e. naked bales. Mote bales do not have standard bale weights.

Although there are no standards required for "fire" bales in the draft BMP, all gins take fire bales very seriously. Any suspected bales are tagged (with a red tag) and stored in quarantine and close to water. One to five bales produced before and after the suspected fire bale is also tagged and stored with the fire bales to ensure any potential fire has been contained. These bales are kept up to 10 days before being released. Merchants are notified of these fire bales.

### ***Other considerations***

All gins are strictly adhering to the relevant road transport legislation regarding loading, tarping and removal of cotton bales from their premises and also in accepting modules from growers. All gins confirmed that staff, mainly weigh bridge operators, have attended information sessions either at the RTA or internally arranged by the company, however no gins were able to show evidence of this training.

### ***Sample Management***

The Draft BMP for the way samples are collected, packaged and despatched is

in accordance with the requirements stipulated by the Cotton Classers Association of Australia's (CCAA) BMP for Classing. Audits of the classing facilities in 2007 confirmed there are still some issues with sample size and packaging but that these issues are not as frequent as in the past. It is anticipated that once the ACGA agrees and confirms sample size requirements that issues regarding sample size will be eliminated.

Feedback from classing facilities to the gins is currently verbal as the Classing Sample Feedback Form in Appendix 5 of the Draft BMP for ginning is currently not part of the current CCAA BMP (version 5.1, March 2007) and is thus not used.

## ***Environmental Management***

Gins that operate in NSW require EPA licenses to operate as they are classified as **scheduled premises**, whereas in Qld gins do not need EPA licences. These EPA licences stipulate what needs to be monitored and the frequency of monitoring that is required and usually relates to trash, dust, noise and water run off.

The aspect of Environmental Management was not checked during this initial audit but gins were advised to ensure that evidence of compliance to Environmental Management will be required at the certification audit as evidence that licence requirements are met.

Eighteen of the gins audited participate in the National Safety Council of Australia's occupational health and safety program and are audited on a yearly basis to determine compliance with prescribed responsibilities. The other 10 gins manage their health and safety responsibilities by internal company programs.

The majority of cotton seed is sold for feedlots with only a small amount sold for delinting or crushing for oil.

Twenty six gins either compost or mulch their gin trash or employ contractors to do this. Composted gin trash is most often laid on the fields and ploughed back into the ground.

## ***General Comments on the Draft BMP Handbook***

- Not all gin managers/supervisors had seen a copy of the BMP Handbook
- Some gin managers/supervisors only have older versions of the BMP handbook.
- The term 'wet' in reference to a module is undefined.
- For consistency, residual lint sample jars should be prepared and distributed to all the gins in the industry under the auspices of the ACGA to ensure that all gins use the same standards.
- There is no standard method used to visually class cotton, for trash grade and also colour. Only a small number of gins have correct lighting to grade the cotton and that sample boxes used as reference are not standardised across the industry. It is recommended that the ACGA, in consultation with the Cotton Classers Association of Australia (CCAA), agree on minimum requirements for visual classing using sample boxes.
- On page 13 under demonstrating compliance and record keeping in the Lint Management section records for noise seems out of place.
- In the current BMP there is no reference to seed.
- Gin managers/supervisors are aware that the CCAA have a BMP for classing but none have actually seen one before.
- Agree with CCAA on Classing Feedback Form that it should be incorporated into classing and ginning BMP.
- In the Environmental Management section of the draft BMP there is a reference to the Memorandum of Understanding regarding the non – supply of cotton trash for stock feeding. This has not been inserted in Appendix 4.

### ***Conclusion***

This initial audit, to determine the compliance of the ginning sector with the Draft BMP handbook for ginning, was conducted on 83 % of gins that operated in Australia during the 2007 ginning season. This audit will give gins and the ACGA the opportunity to address the issues that have been highlighted in this report and ensure that the BMP will be updated. It will also allow companies the opportunity to address issues at individual gins to ensure that they will comply with the BMP for ginning when next they are formally audited. Following formal audits all gins will be supplied with an audit report and certification from Cotton Australia if they comply with all aspects of the ginning BMP.

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