

# The Curran Report

A Review of the Australian Cotton  
Industry Classing Standards

May 1998

JICA Associates  
Glasgow  
Scotland

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**IMPORTANT - PLEASE READ THIS FIRST.**

This report - the Curran Report - was commissioned by the Australian Cotton Industry Council (ACIC) at the request of growers. It was funded by the Cotton Research and Development Corporation (CRDC) and the ACIC's Cotton Classing Steering Committee supervised the project.

The author, John Curran, comes from Scotland and has had a life time of international experience in the purchasing and spinning side of the industry. He reflects an individual independent 'consumer view', without any perceived bias or alignment with growers, ginners, marketers, or traders.

The Curran Report has been accepted by the ACIC Steering Committee as presented by the author, with the following notation.

"John Curran's independence has been totally respected and there has been no attempt to alter or reword any of his opinions or recommendations, regardless of our personal concurrence or otherwise".

**Further Action:**

John Curran has very effectively focussed us on this complex issue - and challenges us, as an industry, to respond.

Response and follow up is essential for the industry to gain the greatest benefit from this project.

Ideally the Report should be considered by regional grower associations and by the various industry groups involved in the total marketing chain. Responses and input from these bodies to the Australian Cotton Industry Council should be conveyed through either Cotton Australia (in the case of regional growers associations) or the Raw Cotton Marketing Advisory Committee (RCMAC) in other cases. The time frame for responses is suggested in the covering letter.

**Grower Association response to:**

Cotton Australia  
Level 2  
490 Crown Street  
SURRY HILLS NSW 2010  
Phone: 02 9360 8500  
Fax: 02 9360 8555

**Industry and other response to:**

Raw Cotton Marketing Advisory Committee  
c/- CRDC  
PO Box 282  
NARRABRI 2390  
Phone: 02 6792 4088  
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The members of the ACIC Cotton Classing Steering Committee are:

Peter Corish  
Ralph Schulzé  
Bob Dall'Alba

John Seery  
Gary Punch

Hans Woldring  
Robert Baird

Gordon Cherry  
Steve Murray

8.10 If the recommendation to establish Australian grade standards is accepted, where do we start.

8.10. 1. Form a representative group to formulate procedures.

8.10. 2. Agree the number of standards (grades) to be established.

8.10. 3. Estimate the likely number of sets of standards that will be required. One suggestion is that, at least initially, the standards are set aside for internal use, available to Grower Associations, merchants and for possible registration with recognised International Cotton Associations.

8.10. 4. Responsibility for procuring bales for box make-up must inevitably be with the merchants under advice/guidance from the CCAA. This will not be an easy task and it is therefore important that immediately the individual grades are agreed that sufficient sample material representing each standard is in the hands of the CCAA for ongoing selection of suitable bales throughout the season.

8.11 The present range of Shipper's types, although not necessarily offered by all shippers are Good Middling, Strict Middling, Middling Plus, Middling, Strict Low Middling Plus, Strict Low Middling, Low Middling Plus and Low Middling.

8.11.1 The above could be put in place reasonably quickly and would form the basis of grade evaluation until official Australian boxes were universally adopted. It would be a beginning towards the 'transparency' within the marketing system that was identified as being required during many of the meetings.

8.12 In the preparation of standard grade boxes for leaf, colour and preparation, allowances will obviously have to be made for 'light spot' and 'spotted cottons'. To incorporate these parameters for each of the prepared standards would add enormously to the task of box preparation. Two boxes, one for light spot and one for spotted interpretation could be prepared and those interpretations applied across the grade range.

8.13 Ideally of course standards/boxes to represent the likely range of light grey and grey cottons should be established. Finding suitable bale material season by season for renewal

1. EXECUTIVE SUMMARY
2. CONSULTANCY - TERMS OF REFERENCE
3. ADDITIONAL POINTS arising from the meeting in Dalby, August 5th, 1997 of the cotton classing project sub-committee
4. SUMMATION OF RECOMMENDATIONS
5. GROWER MEETINGS-main comments arising from the programmed meetings
6. SPINNERS -review of responses to the questionnaire to domestic and international spinners
7. CENTRALISED EVALUATION
8. AUSTRALIAN GRADE STANDARDS
9. GINNING
10. CLASSING ROOM PRACTICES
11. THE CLASSERS ASSOCIATION (ACCA)
12. INDEPENDENT CLASSERS
13. CROP QUALITY STATISTICS REVIEW
14. THE ROLE OF THE CONSULTANT
15. VARIETY DEVELOPMENT
16. BALE SAMPLING -Modular Averaging
17. PREMIUM AND DISCOUNT SHEETS
18. FACTORS AFFECTING FIBRE QUALITY
19. MARKETING REVIEW

## 1.1 The Project - Review Australian Cotton Classing Standards

1.1.1 The review was initiated by the Australian Cotton Industry Council in response to grower concerns and in part dissatisfaction with aspects of the present classing system.

1.1.2 The project was managed by a project sub-committee which included representatives of growers, researchers, classers and shippers.

1.1.3 A meeting (the first at which I was involved) of the Cotton Classing Standards Sub-committee was held August 5, 1997 at Dalby. During this meeting the Committee agreed that the review remit must be changed to Australian 'Cotton Evaluation Standards', the use of the word 'classing' being normally associated with the manual grading of cotton, whereas mechanical testing (HVI) now accounts for the greater part of quality assessment of raw cotton.

1.1.4 The review exercise and its attendant itinerary of meetings and travel were co-ordinated through the good offices of the CRDC, Narrabri and are to be commended for their efforts.

1.1.5 The emphasis of basically all meetings, with growers, merchants, ginners, researchers, local spinners, seed producers etc. was from my perspective, to view the current situation, to attempt to gain a consensus of opinion as to the pluses and the shortfalls, what changes if any were needed and from discussion, questions, answers and opinions expressed formulate ideas and make objective recommendations hopefully to the benefit of the Australian cotton industry generally.

1.1.6 Within the time scale of my visit meetings were held with the representatives of major Associations directly involved in cotton production, marketing and research in Australia. I was also privileged to be invited to attend and on one or two occasions address some of the industry meetings.

1.1.7 The principal Associations or their representatives involved were:-

- Australian Cotton Industry Council
- Cotton Australia
- Australia Cotton Shippers Association
- Australian Cotton Research Institute
- Cotton Research & Development Corporation
- Australian Cotton Growers Research Association
- Australian Wool Testing Authority
- Cotton Classers Association of Australia
- Australian Association of Cotton System Spinner
- Cotton Seed Distributors Limited
- Deltapine Australia

1.1.8 Combined Growers meetings were held at the following locations; the overall attendance was somewhat disappointing;

- Emerald
- Goondiwindi
- Dalby
- Moree
- Narrabi
- Warren

1.1.9 Spinner input to the review both domestic and international was canvassed by means of a questionnaire. The scope of the questionnaire was limited seeking consumer responses to basic questions affecting testing, quality, purchasing basis, reaction to the possible future use of Australian grade standards and any additional comments deemed appropriate, adverse or otherwise. Spinner response to the questionnaire was not as forthcoming as one might have expected.

1.1.10 I was afforded the opportunity of spending time in the classing rooms of a number of the leading shippers and the facility to class their ranges of selling types, current USDA standards and copies of Australian AA, BB & CC standard boxes.

1.1.11 The opportunity to discuss quality of Australian cotton vis-a-vis spinning/manufacturing performance was welcomed during a visit to Bonds.

1.1.12 At the meeting with the Australian Wool Testing Authority discussions revolved around the possibility of the organisation being involved in any proposed centralised evaluation facility.

1.2 The three main factors formulating the thrust of the review were;

1.2.1 Improving consistency and transparency within the classing system and the standard of classing room practice.

1.2.2 The need and/or justification for a centralised classing (evaluation) facility.

1.2.3 Should Australian Grade standards (for leaf, colour and preparation) be initiated to replace the present US standards currently in use.

1.2.4 Inevitably in order to formulate recommendations relevant to the above factors, a number of other factors; primarily ginning, plant breeding and research; required discussion and comment and sponsored additional recommendations.

1.2.5 Visits to a number of gins were undertaken and the Ginners views of their role in the processing chain, the impact of the process itself on fibre quality and discussion as to what improvements could be made and where, were undertaken.

1.2.6 Discussions with plant breeders and cotton researchers were an additional and beneficial input.

1.2.7 Resulting from the meetings held with involved parties, the discussions that took place and the conclusions I arrived at, recommendations to be reviewed by the industry have been made. The more important perhaps of these being,

1. the establishment of Australian Grade Standards to improve consistency of evaluation and greater transparency of this function,

2. the unlikely need for a centralised evaluation facility, and

3. problems associated with fibre maturity and neppiness and SFC as influenced by variety, agronomic conditions and ginning.

1.2.8 Australia, fourth largest exporter of raw cotton in the world, 2.5 million bales exported in season 1996/97, acknowledgement that the Australian cotton industry is producing and marketing cotton that meets the requirements of spinners around the world. The endeavour must be to maintain, indeed improve Australian cotton as a 'premium' quality cotton. This requires co-operation and feedback of information to and from plant breeders, growers, ginners and spinners through the marketing chain.

## 2. AUSTRALIAN COTTON CLASSING STANDARDS

### TERMS OF REFERENCE

#### CONSULTANT

- The objective of the consultant is to report and recommend on a consistent system of classing Australian cotton that is fair to all parties.
- The consultant will examine the likely advantages and disadvantages to Australian cotton growers, shippers, merchants and end users of the introduction and design of any Australian cotton classing standards to replace the presently used USDA standards.
- The consultant will examine what benefits and disadvantages would result for cotton growers, shippers, merchants and end users by the introduction of a centralised and independent classing system.
- The consultant will examine and report on the standard of classing room practice in the Australian cotton industry and recommend any changes (including to standards) that would effect greater consistency and confidence in the system.
- The consultant will recommend what actions need to be undertaken by the Australian cotton industry to facilitate any increased research efforts needed to meet goals consistent with his other recommendations.
- The consultant should advise on the best option to facilitate and introduce any changes to cotton classing standards in Australia.
- The consultant should report on what on-going system or structure is desirable so that the Australian system of cotton classing can adopt and change to the benefit of all parties in a pro-active and timely manner, with a view to introducing greater transparency into the marketing chain and hence greater understanding for producers.
- It is envisaged that the prelude to the report will contain a chapter or part of a chapter explaining the marketing system of the Australian cotton industry.

Questions to be answered arising from the Terms of Reference.  
Refers to consultant questions, and to industry / subcommittee questions

- 3.1 Are the current (annually reviewed) USDA standards appropriate?  
(Australian system does not separate colour and leaf, whereas USDA does)
- 3.2 Is it more appropriate to develop separate Australian cotton classing standards?  
If so, how should they be developed?  
How comprehensive do they need to be, and how often do they need to be reviewed?  
Who should do and who should pay for the initial development and updating?
- 3.3 Are there ways of isolating the integrity of the standards from the differential use of 'Premiums and Discounts'?  
Should P&D's have a single benchmark?  
Should they be applied on manual classing?, on HVI?  
Or on a pre agreed combination of both?, as at present.
- 3.4 If HVI parameters are to become increasingly important in the trade, should they not be better incorporated in the classing standards?
- 3.5 What 'new' fibre measurements may the trade require in the future?  
Can we modify our classing system to pre-empt these changes?
- 3.6 Sampling: should we be moving away from 'side sampling' to 'blended whole of bale' sampling?  
Should we consider new technology in this area?

### 3.7 Centralised classing

- 3.7.1 Is there value in having a centralised classing system? Would such a move be universally accepted?
- 3.7.2 Would centralised classing lead to duplicated classing (and costs)?  
Would the possible back log in classing disadvantage ginning and timely marketing?
- 3.7.3 To be truly independent centralised classing would need to be remote from merchants and the industry generally. Where? Capitalised and run by whom? Government?
- 3.7.4 Are there alternative and, more acceptable ways of achieving consistency in classing, other than centralised classing?

### 3.8 Classing Practice:

- 3.8.1 What are the deficiencies in current Australian cotton classing practice?
- 3.8.2 What could be done to improve them?
- 3.8.3 Can improvements be made in training, or in personal development?

### 3.9 Dispute Resolution

- 3.9.1 Is the dispute resolution system recently adopted, the most appropriate?
- 3.9.2 If not, what is the most appropriate?

### 3.10 Communication

- 3.10.1 Do cotton farmers understand the classing/HVI/type marketing interaction?
- 3.10.2 If not, how should it be addressed? A simple independent publication?
- 3.10.3 How should the recommendations resulting from this study be appraised (and owned) by the broad industry (in particular by farmers)?
- 3.10.4 How should the views of spinners (consumers) be considered? Especially overseas mills and traders not domiciled in Australia?

#### 4. SUMMATION OF RECOMMENDATIONS

1. The flow of information and dialogue from spinners to growers should be improved, as a matter of urgency.
2. There is no apparent need for the establishment of a mandatory centralised evaluation facility
3. The idea of establishing a separate grower orientated cotton evaluation facility should be explored. Due consideration should be given to a) the need versus the cost justification and b) if such a facility is established by what date should it be self supporting.
4. Any independent classing facility established should include an HVI test line.
5. Australian grade standards (boxes) should be established. These should cover the range equivalent to USDA Good Middling to Low Middling, plus reference boxes to establish light spot and spotted cotton descriptions.
6. Colour; as part of the overall description of grade; should become a separate parameter of the manual class for grade.
7. Until such time as Australian grade standards are established, grade boxes for colour should be prepared based on merchants selling types, for the Australian cotton equivalent, through the range Good Middling to Low Middling. Leaf and preparation should be as per USDA standard boxes.
8. Investigation of fibre maturity should be initiated as part of the recently agreed ginning research project.
9. Thought should be given to changes in the current G5 micronaire range.
10. Ginning researchers should attempt to benchmark nep and SFC
11. CRDC should make considerable effort to establish opportunities for international collaboration in research of neppiness and SFC.

12. The existing Classers Association should continue as at present, as the optimum means of ensuring that best practices apply to both manual class and mechanical testing across the industry as a whole.
13. An annual compilation of data should be produced as a statistical review of the total annual crop quality. This should measure and show total crop quality by each tested parameter.
14. Cotton field consultants should be further involved in post-harvest activities. Reviewed against pre-season decisions taken.
15. Testing within the CRDC Variety Trial Protocol should be extended and included as part of the Annual Fibre Quality Review.
16. Bale by bale testing should continue until a reliable 'module averaging system' for Australian conditions has been developed.
17. Investigation of the possibility of standardising P&D sheets should take place as soon as practicable.

5.1 Grower participation at the scheduled meetings, whilst vocal, was disappointing in numerical terms. Attendance levels amounted to approximately 7.5% of the total number of growers.

5.1.2 The above attendance figures, one might argue, hardly constitute a mandate for change.

5.1.3 Of those growers attending approximately fifty percent expressed general satisfaction with the current marketing (including evaluation) system. There have been occasions when individuals consider that evaluation decisions made, have been wrong or unfair. This does not occur every season nor does it apply to one specific merchant. Over a period therefore it would appear that an acceptable balance is being achieved. Increasing merchant competition in the marketing of Australian cotton adds to this balance.

5.2 Opinions regarding the main points at issue i.e. a) centralised evaluation and b) Australian grade standards were varied.

That there is a need for improvement and some change is widely recognised as is the need for greater transparency in the total marketing system from grower to spinner.

5.3 From the growers perspective the main points for consideration are:-

- 5.3.1. Inconsistencies in the valuation of their cottons,
- 5.3.2. Potential for apparent 'conflicts of interest' with those merchants classing cotton,
- 5.3.3. Apparent inequalities in the use of the present P & D sheets,
- 5.3.4. Improvement in communications from spinners as to the performance of Australian cotton during manufacturing,
- 5.3.5. Lack of incentives to produce other than 'base' cotton,
- 5.3.6. The need for a facility capable of 'on the spot' settlement of quality disputes between grower and merchant, and
- 5.3.7. Lack of transparency in the present total marketing system.

Other points arising from the meetings included:-

1. The need to establish standards for specific quality parameters regarding 'Neppiness and bark' benchmarking.
2. Fibre maturity testing vis-a-vis low micronaire cottons
3. The need for improved education regarding the role and impact of Ginning and Marketing.

5.4 The majority of growers consider themselves to be isolated from the final consumer, the spinner, and undoubtedly this is the case. From the authors experience spinners generally are somewhat reluctant to approach growers with constructive criticism or ideas for improvements. The merchants experience is certainly one of being informed only when a claim is being made. The marketeers are the only individuals or group who are in a position to constructively sponsor dialogue and feedback between growers and spinners. It is the authors belief however, that the majority of dialogue would be regarding 'quality claims not accolades'.

5.4.1 The opportunity to create wider dialogue, if not already in place, should be pursued where possible. One opportunity for such contact could be when overseas spinners visit Australia; and some do visit annually. The chance to meet in a constructive 'open forum' with Australian growers to discuss and explore issues of mutual interest would prove beneficial to all concerned.

5.4.2 The number of farmers now involved in cotton growing has increased some 60% in the last ten years. Many acknowledge that their understanding of classing, HVI testing and the marketing of cotton is limited. Expertise in these fields is available and a guideline brochure could easily be produced by the Cotton Industry Council, to both inform and educate. It is likely that initially more would be gained from the improved contacts with spinners than understanding of the role of marketing.

#### Recommendation

Improve the flow of information and dialogue from Spinners to Growers. The Australian Cotton Conference should take the opportunity to highlight in its programme International Spinner participation and invite involvement and comment. Other similar opportunities should be explored and exploited where possible (e.g. the ITMF Spinners Committee).

6.1 Input to the review from customers, i.e. spinners, was considered to be an integral part of this report. A questionnaire was therefore prepared and circulated to both domestic spinners and a number of international spinners who are traditionally large consumers of Australian cotton. The questionnaires and responses were anonymous, and respondents have not been identified.

6.1.2 The geographical spread of consumer nations covered by the survey included Australia, Japan, Indonesia, Taiwan, Korea and Italy.

6.1.3 The questionnaire itself is attached as an addition to this section of the report and the responses obtained are contained within it for clarity.  
Responses have been shown under each question heading.

6.2 The main points arising from the spinners responses are as follows:-

1. (Question 2)  
The basis of spinner purchasing decisions is divided equally between Shipper's types and US descriptive grades.
2. (Question 3)  
Less than half of spinners surveyed specify seed variety when contracting .
3. (Question 4)  
All spinners surveyed specify length, strength and micronaire parameters.
4. (Question 7)  
80% of spinners surveyed have their own HVI line and utilise a combination of HVI and physical class for internal quality control.
5. (Question 11)  
80% of spinners surveyed would consider using Australian grade standards as purchase bases if they were to be established.

6. (Question 12)  
Nep and short fibre content (SFC) - Without a doubt the principal point of adverse comment among spinners surveyed. All spinners without exception consider Australian cotton to be 'neppy' and in the majority of responses - 'high in SFC', This issue (Nep and SFC) prompted; from a major consumer in the Far East; the response to question No 13. "What are your on going concerns in the use of Australian cotton?".... a response to the effect that "high nep and SFC could negatively impact on the quantity of Australian cotton they use".
7. (Question 12)  
Nep, short fibre content and preparation are considered to be problem areas by 90% of spinners surveyed.
8. (Question 14)  
Bale identity information  
Bale tag identification of seed variety, area of growth, gin identification and whether irrigated or non-irrigated, is information which all spinners surveyed consider would be helpful to them in making purchase decisions.  
Gin identification is considered the most important bale identity information by all spinners surveyed.
9. (Question 15)  
Colour of Australian cotton (i.e. its comparative whiteness and brightness compared to competitive varieties) is not considered a problem by 90% of the spinners surveyed.
10. And finally there is room for improvement in the general marketing chain according to 80% of spinners surveyed.

One notable issue which surprised the author is this. In responding to the questionnaire, the 90% of spinners who indicated their concern about high nep and short fibre content made no reference to fibre maturity in their comments. It can only be assumed that this is a parameter which is not yet separately tested, and yet there is little doubt that it is, or can be, a major contributory factor to the problem of neppiness and SFC.

**Australian Cotton Market Review**  
**Questionnaire to Spinners - Domestic & International**

1. General Background Information

APPROX COUNT RANGE	CARDED	COMBED	RING	OPEN END	SOLID MIX	BLENDED
	8's-40's	12's-80's	Spinners responses cover all of the above conditions			

2. Do you purchase on the basis of shippers types or USDA Description grades?

SHIPPERS TYPE	USDA GRADE DESCRIPTION
50%	50%

3. In contracting for the purchase of Australian cotton do you specify a particular seed variety?

YES	NO
45%	55%

and if you do, do you pay a premium for this inclusion in your contract?

YES	NO

4. In contracting do you include specific parameters i.e. staple, mic, strength as minimum and/or ranges?

STAPLE LENGTH	MICRONAIRE	GTEX STRENGTHS
100%	100%	100%

5. Do you require/contract shippers HVI test data supplied for each shipment?

YES	NO
55%	45%

6. If yes to number 5, is this on the basis of 100%, 50% or modular averaging?

100%	50%	MODULAR AVERAGE	N/R
75%	0%	25%	5

7. Do you have an internal HVI line for routine testing?

YES	NO
80%	20%

8. On average how do your HVI test results compare with those supplied by the shipper?

SIMILAR	MARGINAL HIGHER/LOWER	SIGNIFICANT HIGHER/LOWER	N/R
60%	30%	10%	2

9. If or where there are differences in results, in which test parameter does the difference most frequently occur?

LENGTH	MIC STRENGTH	GTEX STRENGTH	N/R
13%	50%	37%	3

10. Is your internal control/evaluation of cotton supplies based on?

HVI TEST ONLY	HVI PLUS PHYSICAL CLASS NO RETEST	ON DELIVERIES	N/R
0%	80%	10%	1

11. If Australian grade standards were established would you consider purchasing on the basis of these standards or continue on the basis of existing shippers type?

YES	NO	CONSIDERING
20%	0%	80%

12. We are aware of some adverse comments regarding Nep and Short Fibre Content (SFC) in Australian Cotton and that preparation is the cause of some concern. How do you view this question of Neppiness and Preparation?

NO PROBLEM	* INCREASING ACCRUAL OF NEPS /SFC	*NEP	*HIGH SFC
6%	33%	33%	28%

13. If your comments are in these categories what are your on going concerns in the case of Australian Cotton?

COMMENTS	see below	N/R
		1

14. Do you request/receive or would you consider it to be helpful to have details of seed variety, area of growth, gin identification and whether irrigated or non-irrigated included as information on the bale tag?

ALREADY RECEIVING	WOULD BE HELPFUL YES	WOULD BE HELPFUL NO
0%	100%	0%

15. Do you consider the colour of Australian Cottons being comparatively whiter and brighter compared to for example USA Cotton varieties?

AN ADVANTAGE	NO PROBLEM	A DISADVANTAGE
10%	80%	10%

16. Are you satisfied with your suppliers of Australian Cotton, the marketing process and the general support of your supplier?

TOTALLY SATISFIED	ROOM FOR CHANGE/ IMPROVEMENT	NOT SATISFIED
20%	80%	0%

### Q 13 COMMENTS..... RESPONSES

Comments below arising from this question are summarised to avoid copying each individual response;

'unsuitable for high quality fine combed ring yarns'  
'reduce saw gin speeds'  
'improve harvesting'  
'fewer problems than with US cotton'  
'only a small amount of Australian cotton would be used'  
'reduce nep number and SFC'  
'cotton is weaker and micronaire lower than US equivalents'  
'nice colour, nep is high, SFC causes significant problems'

As to the questionnaire sample size, two domestic and twenty-two international spinners had copies distributed. Replies were received from one domestic and eight international spinners, low response levels in spite of faxed reminders being sent. On the basis of these numbers one can justifiably question the representativeness and statistical integrity of the responses. Could the implication be that those who did not reply have no problems? Regardless of this fact no overwhelming conclusions are being drawn from this data in isolation. Rather, the responses are helpful in that they support comments made elsewhere during the research conducted in preparation for this report. In the context of low response rates one could draw a parallel with the low grower attendance's at grower meetings.

The spinners responses, in spite of low numbers, do however give an indication of areas worthy of attention in order to maintain or improve consumer satisfaction in the use of Australian cotton.

NB The notation N/R refers to the number of 'no responses' to the specific question.

*Should / Would Centralised Evaluation be mandatory ?*

7.1 An issue which commanded considerable focus during the research programme with growers was the issue of centralised evaluation. The perceived main advantages of the establishment of such a centralised evaluation (Classing) system from the growers perspective were;

- 7.1.1. the perception of removal of bias from evaluations
- 7.1.2. the perception that consistency of evaluation would be improved
- 7.1.3. that cotton evaluated would be certificated - a perceived advantage by growers in cases of a dispute over quality with a buyer (merchant)
- 7.1.4. the perception of greater transparency in the process, particularly if combined with Australian grade standards. These could; in theory; circumvent the need for sales to spinners being based on merchants types.

7.2 The fundamental issue however behind the growers interest in the establishment of such a facility is this - *"Why do we need centralised evaluation?"*

7.2.1 The growers primary concern, apart from maximising yield, is to produce 'base quality cotton'. The criteria for 'base' i.e. 1<sup>3/32</sup>" staple, 24g/tex minimum, G5 micronaire in a normal/average season are met and it is grade that is the principle cause of quality disputes between grower and merchant. The evaluation of grade of Australian cottons with the present HVI lines is not accurate enough when related to USDA standard boxes which are currently in use. Equally and as suggested elsewhere in this report (page 23) physical class for Australian Cotton against USDA boxes can be subject to marginal differences of interpretation.

Question: in view of the above comments; *'Is there a requirement for a centralised physical classing facility, (ultimately based on the use of Australian Grade Standards) without HVI ?'*

A considerably less costly undertaking. In the short term, yes, but in anticipation of improvements to HVI grade evaluation of Australian Cottons, the author does not consider such a facility to be needed.

7.2.2 A secondary although relevant observation is that where a quality dispute occurs for grade under the present system, satisfactory settlement is not likely to be reached if one party relates to manual class and the other to HVI class.

7.2.3 A few merchants indicated their agreement with the establishment of a centralised evaluation facility. One might suspect however that this may be because no existing HVI line was in operation in these cases.

7.3 A centralised evaluation facility would certainly level the playing field however it would not give total consistency. Variations in results between different HVI lines i.e. reproducibility, in one location will continue as before. For the foreseeable future the physical classing of cotton for grade (leaf, colour and preparation) will continue and being a subjective assessment will continue to produce inconsistencies.

7.3.1 Growers should anticipate that on occasions one grade difference between one merchant's grade call and another's for the same bale/lot will occur. However, if a bale/lot is marginally off a given box or only marginally higher than the next lower box the question of "will it pass? ; or be down graded or up graded to the next box?" is only natural. Certainty in such cases can not be absolute, as classing is a subjective judgement by an individual. This is not to imply, however, that such a bale/lot cannot be 'fairly' and 'proportionally' discounted or premiumed.

7.4 The majority of Australian cotton merchants indicated during our research that if a centralised evaluation facility was established, they would continue to use their own facilities for both HVI testing and physical classing. These merchants have established faith in their systems. They market cotton to their customers on the basis of the customers 'spec' requirements and their ability to match those 'specs' from their known and established evaluation facilities and experience. The author believes that this is a totally acceptable situation and unlikely to change.

7.5 How well or otherwise the merchants fulfil this classing function is for the consumers, the spinners, to assess. The spinners response to the Questionnaire, see section 6, previously mentioned and the specific question (No.16) relating to satisfaction or otherwise with the marketing of

Australian cotton implies general satisfaction but allows that there is still ample room for improvement.

7.6 The establishment of a centralised evaluation facility would mean that the testing of all cottons would be mandatory. Being mandatory would imply a degree of bureaucracy and as such would probably require Government intervention. This is a situation that no one in the cotton industry relishes.

7.6.1 The alternative to a Government operated and controlled facility could be to utilise the services of e.g.

7.6.1.1. The Australian Wool Testing Authority Ltd. who during two meetings expressed a very positive interest in participating in the centralised evaluation of raw cotton.

7.6.1.2. An internationally recognised cotton controller company.

7.6.2 For either of the above facilities to operate fully, again testing of all cottons would require to be mandatory. This is not practical!

7.7 In view of the first recommendation at the end of this chapter it is not proposed to attempt to detail the likely costing of such a facility. But a facility capable of handling the evaluation of some 30,000 plus bales daily would require the following minimum standards for bale by bale testing:-

1. 35 HVI lines
2. 40-50 operating personnel (including Classers) - such personnel are not currently available in Australia. For HVI operation, training could be implemented reasonably quickly but to develop 'real expertise' would take a number of seasons. Physical classing expertise would need to come from outside Australia, most probably from the USA during their close season. This is not considered to be a satisfactory way forward.

7.8 The current domestic expertise in cotton classing remains with the merchants and for the foreseeable future is likely to remain so. Ultimately, no doubt, the accuracy of mechanical (HVI or similar) evaluation of grade (leaf/trash and colour, NOT preparation) will be improved to the degree that cotton

evaluation will in future be based on mechanical testing. We are not yet at this stage, however. Indeed reproducibility of results between different test lines for most tested parameters still requires significant improvement before such 'progress' can be made.

7.9 If there is to be no centralised evaluation facility, what are the alternatives from the growers point of view for independent evaluation of their cottons?

7.9.1 The present lack of a facility for an 'on the spot, independent, full evaluation' facility, to settle differences between grower and merchant, is a bone of contention for many growers. There is in place a 'Review Committee' but because of work pressure during the season, this tends in practice to become an end of season facility.

7.9.2 The view was expressed at a number of the separate grower meetings that a grower initiated evaluation facility should be established. This could possibly be totally funded and controlled by the local Growers Association or some alternative proposition could be explored.

7.9.3 If the consensus of opinion among growers is that such a facility is needed then thought should be given to establishing such, and the following it is suggested should be the criteria

Firstly, is there a need or justification for the establishment of an independent grower evaluation facility?....if so,

1. Such a centre should be a total Australian cotton growers facility i.e. not a localised facility.
2. Location should be centralised and independent, a consensus of opinion from Growers Associations should determine where such a centre would be located.
3. Evaluation has to be on the basis of HVI line(s) and physical classing.
4. The ITMF publication 'HVI Users Guide' is an obvious reference for correct installation.
5. Ideally the staff operating such a centre should be permanent in order to build experience and confidence. This confidence

however will also be dependent upon the use made of the facility by growers.

6. Formal certificated test results will or should ensure confidence. Such certification might at a later date be available to spinners but this would depend on the availability of location identifiers (bale tags) to the spinner.
7. The centre should be fully involved in all round-robin testing currently undertaken in Australia and in at least one international round-robin test programme e.g. Bremen.
8. The physical classing should be part of the self regulating function of the Classers Association.
9. It is difficult to determine the acceptability or otherwise of test data from such a centre on the part of the marketeers. Only time and confidence will decide this. Many merchants do accept 'independent classing' - there is no reason why a new entity could not be deemed independent.
10. Alternatives to a purely growers orientated facility could be:-
  - (a) A facility established by the Australian Wool Testing Authority Ltd. During meetings held with AWTAL they suggested that possible funding for a limited initial facility could be at their expense, if appropriate. It is assumed that such costs as were incurred would be recoverable presumably by charges to growers for bale by bale testing.
  - (b) Evaluation could be undertaken by an independent Cotton Controllers company e.g. SGS or Wakefield
  - (c) Adapting or expanding the fibre evaluation facilities at ACRI (Myall Vale)
11. The facility if established should include instrumentation for testing fibre maturity. It is believed to be in the long term interest of growers to monitor this test parameter. To this could be added testing for nep. Some growers may argue that this is not specifically their problem. However, in the long run it is (if the views of spinners indicated in their response to the questionnaire are to be taken seriously i.e. nep is a serious problem).

Recommendation

Any advantages from a Centralised Evaluation facility would be outweighed by the likely bureaucracy needed to implement its functioning. I therefore do not foresee the need for such an entity.

Recommendation

Investigate the need/justification for establishing a grower evaluation facility, geared to the needs of the total cotton growing industry.

## 8. AUSTRALIAN GRADE STANDARDS (Boxes)

- 8.1 The range of USDA grade standards are accepted world-wide in establishing comparative grade values for many growths of cotton. This includes growths in which the colour, and type of trash and preparation are not similar. Spinners relate to these USDA standards in describing and contracting their quality requirements. For some spinners they also use USDA standards in their purchasing of Australian cottons (ref. response to the Australian Cotton Market Review questionnaire).
- 8.2 The USDA grade standards are not totally consistent and vary marginally for leaf/trash and colour from one prepared total set and their subsequent replacements. Again in the context of HVI testing, the accuracy of interpretation of grade and colour for US cottons is '*marginally*' more consistent than is the case with Australian cottons. No doubt there is the facility for the existing HVI set-up to be adapted to an improved interpretation of Australian grade and colour standards. This should be pursued with the manufacturers. It is worth noting that whilst the colour, grade by grade of the USDA standard boxes can and do vary marginally from one replacement set to another, the colour tiles used for HVI colour calibration have not changed.
- 8.3 Australian cotton when compared to US cotton is generally whiter and brighter and trash/leaf is smaller and more peppery when compared to USDA boxes.
- 8.3.1 There is little doubt that these differences do create problems for the Classer in classing Australian cottons. Strict adherence to the guidelines for classing cottons against USDA boxes create anomalies e.g. if a cotton is whiter than a slightly creamier US box it is not equal and can be discounted. Introduce Australian grade standards and this contradiction disappears.
- 8.4 Subjectively (physical class) equating finer more peppery leaf of Australian cottons against the USDA standards is inaccurate even among expert Classers. The current P & D values between grades for leaf/trash, ignoring colour and preparation for the moment, are wider in the authors view, than is necessary.

8.5 The question of colour in classing Australian cottons against USDA boxes creates more problems and potential inaccuracies in interpretation than the assessments of leaf and preparation. A given bale or lot when assessed against a USDA box can or will be down graded because it is whiter in colour.

8.5.1 It is interesting to note that in response to the question regarding colour in the research questionnaire to spinners, the overwhelming opinion is that the colour of Australian cotton is not a problem, indeed one spinner indicated it to be an advantage (one only, a disadvantage).

8.5.2 The recommendation that colour be assessed as an individual parameter of grade, if implemented, will inevitably mean a considerable rearrangement and re-evaluation of the present P & D sheets. Whilst colour remains part of 'the grade', inconsistencies and grade quality disputes will continue, certainly whilst the bases for grade evaluation are USDA standards.

8.6 The introduction of Australian grade standards would alleviate many of the inconsistencies in grading

#### Range of grade standards

8.7 In establishing a range of standards the quality of an 'average' Australian cotton crop must obviously be the base. The required range should be Good Middling (equivalent) to Low Middling (equivalent) anything below this latter to be 'Below grade'. Seven to eight standards (boxes) should be established within the above range.

8.8 The establishment of the standards should be a total industry endeavour, combining representatives of growers, merchants and local spinners. The costs being born by growers and merchants.

8.9 The first attempt at establishing standards namely the AA, BB and CC boxes did not get off to an auspicious start in spite of good intentions. There were complaints; justified or otherwise; of lack of involvement by some parties as well as a lack of communication and publicity.

The starting off point therefore for this new endeavour must be communication and involvement.

8.10 If the recommendation to establish Australian grade standards is accepted, where do we start.

8.10. 1. Form a representative group to formulate procedures.

8.10. 2. Agree the number of standards (grades) to be established.

8.10. 3. Estimate the likely number of sets of standards that will be required. One suggestion is that, at least initially, the standards are set aside for internal use, available to Grower Associations, merchants and for possible registration with recognised International Cotton Associations.

8.10. 4. Responsibility for procuring bales for box make-up must inevitably be with the merchants under advice/guidance from the CCAA. This will not be an easy task and it is therefore important that immediately the individual grades are agreed that sufficient sample material representing each standard is in the hands of the CCAA for ongoing selection of suitable bales throughout the season.

8.11 The present range of Shipper's types, although not necessarily offered by all shippers are Good Middling, Strict Middling, Middling Plus, Middling, Strict Low Middling Plus, Strict Low Middling, Low Middling Plus and Low Middling.

8.11.1 The above could be put in place reasonably quickly and would form the basis of grade evaluation until official Australian boxes were universally adopted. It would be a beginning towards the 'transparency' within the marketing system that was identified as being required during many of the meetings.

8.12 In the preparation of standard grade boxes for leaf, colour and preparation, allowances will obviously have to be made for 'light spot' and 'spotted cottons'. To incorporate these parameters for each of the prepared standards would add enormously to the task of box preparation. Two boxes, one for light spot and one for spotted interpretation could be prepared and those interpretations applied across the grade range.

8.13 Ideally of course standards/boxes to represent the likely range of light grey and grey cottons should be established. Finding suitable bale material season by season for renewal

purposes could prove difficult. The CCAA from their experience must decide the feasibility of this exercise.

8.14 In a normal growing season the incidence of light grey and greyer cottons is limited and therefore should be left to the Classers discretion and in any case would apply only to cottons 'off colour' to a low middling equivalent standard.

8.15 A question was raised at one of the grower meetings as to whether colour photographs (to actual size) could be used as alternatives to actual boxes. In the authors period of employment with COATS this was tried for roller ginned cotton. The illustration of leaf was less of a problem than was colour and in part preparation. The more uneven lie of the cotton created shadows which distorted interpretation. As however this exercise was many years ago, modern photographic techniques may well be able to overcome this problem. The idea is worthy of exploration and consideration.

8.16 The likely maximum usability of a prepared set of grade boxes will be two years assuming the normal deterioration of colour. Renewing standards will therefore be a continuous venture. The feasibility of annual renewal should be reviewed by the CCAA.

8.17 Part, at least, of the cost involved in preparing Australian Standard boxes should be recoverable by payment for the sets to a central fund established to cover the cost of the total exercise. How much is recoverable would depend on

- (i) a decision as to whether the standards would remain for internal use only or become universally available and
- (ii) if the latter, the demand versus the on cost of preparation of additional sets.

8.18 The following page is an illustration of grades breakdown based on the Australian AA, BB and CC actual boxes and descriptive grades (for cottons below CC) based on USDA boxes, produced by the C.C.A.A.  
**Introduce Australian Grade Standards and this contradiction disappears.**

I had the opportunity to view the AA, BB and CC boxes and for interest classed them as follows against the current USDA grade boxes in use

AA	leaf/trash - preparation -	Strict (SM) to Good Middling topside SM
BB	leaf/trash - preparation -	Middling Strict Low Middling (SLM)
CC	leaf/trash - preparation -	$\frac{1}{2}$ grade off SLM (due pin trash) SLM

Colour in each case was whiter/brighter than the equivalent USDA box, but had deteriorated i.e. much creamier than current crop cottons.

When it comes to split grades e.g. BC, assessment becomes even more subjective in that the comparative value of the constituent parameters of 'grade' namely colour, leaf and preparation have to be off-set. Further reference to this point is made elsewhere in this report.

The Table below serves to illustrate this point, i.e. the permutating of the three factors affecting 'grade' to arrive at a single subjective value of a given piece of cotton.

GRADE	COLOUR	LEAF	PREP
AA	A	A	A
AB	A	B	B
	A	B	A
	A	A	B
	B	B	B
BB	B	B	B
	BC	B	C
		B	C
CC	B	B	C
	C	C	C
	C	D	D
CD	C	C	D
	C	D	C
	D	D	D
	D	D	D
DD	D	D	D
	DE	D	E
		D	D
EE	D	E	D
	E	E	E
	E	E	E
BG	less than 61		

Recommendation

Australian grade standards for leaf, colour and preparation should be established.

Recommendation

In the classing/evaluation of Australian cotton, colour should be assessed as an individual parameter of grade.

Recommendation

The establishing of Australian grade standards will take time. In the meantime an idea for consideration and in keeping with recommendations elsewhere in this report i.e. that (i) colour be a separate evaluation parameter of grade and

(ii) that colour should not be a discountable parameter for grading against USDA boxes is-

'that sets of boxes are prepared for colour only based on the present Shippers selling types for their range 'Good middling to low middling'. Grading for leaf/trash and preparation continue to be based on the relative USDA standards boxes.'

- 9.1 During the research period one specific question regarding ginning was paramount. *"Are we ginning for yield or for ultimate quality?"*
- 9.1.1 It would seem that so long as 'base quality' is produced then the ginner in the interest of the grower is through putting for yield. Lack of incentives within the existing P & D sheets is offered as the principle reason for this.
- 9.2 The process of ginning produces nep and short fibre and influences preparation. The Ginners whilst accepting this premise pose the questions -
- 9.2.1. "To what extent does the actual ginning process cause the problems?"
- 9.2.2. "Of the total 'faults' produced, what percentage is directly attributable to the ginning process?"
- 9.2.3. "To what extent does farm management and activity contribute to the problem?"
- 9.2.4. "What is the impact of different varieties on nep and SFC production?"
- 9.2.5. Finally, " Will someone tell us the answers?"
- 9.3 Research is needed to help Ginners optimise the ginning process in the interests of improving the quality of Australian Cotton.
- 9.4 Independent of this review, a research project has been agreed which will investigate the ginning process as it affects Australian cottons.
- 9.4.2 A reasonable amount of research has and is being undertaken by a number of merchants on the subject of neppiness. Hopefully their input will be made available to the researchers and prove helpful to those involved in the new project.
- 9.5 Once 'over picking'; which is undoubtedly here to stay; influences the overall maturity/micronaire and subsequently impacts upon the nep and short fibre content of any bale of

cotton, it would be helpful to conduct research to determine the actual impact. Hopefully researchers will have the opportunity, preferably immediately prior to the pickers going in, to investigate on plant variation within the scope of their research.

9.6 It has been suggested that in addition to the 'once over' picking principal, the undernoted factors may have a significant influence on final fibre quality and are therefore worthy of investigation and research within this new study;

9.6.1. Variety development for shorter growing periods

9.6.2. The artificially speeded maturing of cotton prior to picking

9.6.3. Higher picking speeds

9.6.4. Higher ginning throughput speeds.

9.7 The contention of at least some ginners is that 90% of the problems associated with nep, short fibre content and preparation start in the paddock. If this proves to be the case then growers have to recognise this fact, in the long term interests of Australian cotton and its acceptability to consumers as a premium cotton.

9.8 It was interesting to compare figures for micronaire testing for the '96/'97 crop from several different sources. It was noted that whilst the bulk of the crop fell within the G5 range, up to 50% of the crop in some areas was within the 3.5-3.8 range. Unfortunately no figures for maturity levels for these same cottons were available.

9.9 Referring once more to the agreed ginning research project. It is to be hoped that some attempt will be made by the researchers to establish 'norms' i.e. acceptable ranges, for neps and SFC. It may prove almost impossible to establish acceptable 'norms' if the debate involved both growers and spinners.

9.10 Until such time as the means exists to objectively, and with confidence, test these parameters and establish norms the status quo will remain. The initiative, therefore, must come from spinners in spite of their general reluctance to pay more.

9.11 Tightening of the G5 micronaire range and ongoing monitoring of fibre maturity should go some way towards improving the cotton quality in respect of nep and SFC reduction.

ADDITIONAL COMMENTS

Recommendation

Investigation of fibre maturity must be an important part of the research project.  
Is there instrumentation available for this?

Recommendation

Thought must be given to changes in the G5 micronaire range to 3.7-4.5.  
It is accepted that Australian Cotton varieties are bred to mature at a lower micronaire than US bred varieties.  
Spinners requirements, the significance of micronaire and its relevance, will vary according to whether final product manufacturing uses ring spun or open end yarns.

Recommendation

Ginning research should include an attempt by researchers to 'benchmark' neps and SFC and a comparison of these factors with similar competitive growths.

Recommendation

Nep and SFC are a problem associated with all cotton, especially machine picked cotton, and an international collaborative research programme to address neppiness and SFC with a view to improving cotton's competitiveness with synthetics would obviously be beneficial.  
CRDC should be encouraged to pursue their efforts to develop such collaboration.

- 10.1 The physical classing expertise available to the Australian cotton industry, certainly among the majority of the merchant community, is first class. Expertise has been built up over many years. This degree of expertise cannot be attained as a result of a limited number of weeks of instruction at a classing school.
- 10.1.2 The efforts made to maintain these standards of expertise through the self regulatory Classers Association are to be commended.
- 10.1.3 As to how well this expertise is applied in the day to day operations of a 'classing office' is not for the author to judge and indeed would be almost impossible to assess. Comments from some growers during meetings, however, indicated that there is some doubt in their minds as to the application of the available expertise. In such cases if anomalous operation can be verified then one would have to most likely question the practice or application rather than the expertise.

## 11. THE CLASSERS ASSOCIATION

- 11.1 It was suggested during the research that the ongoing need or otherwise for the Classers Association to continue to exist was somewhat dependent on the recommendations of this report.
- 11.1.2 The work involved in establishing Australian grade standards will require a co-ordinating Classers input, expanded to include grower representation.
- 11.1.3 The Association should continue its work to maintain the standard of expertise among its members and continue, if not expand, the HVI round-robin testing to include all HVI lines currently in use in Australia.
- 11.2 Fibre maturity is recognised as an important factor in total fibre value. To date it is not incorporated as a test parameter within the existing rapid test facilities. Development of such a test facility should be encouraged and incorporated, when reliable technology is available, within HVI testing.
- 11.2.1 Routine testing, based on instrumentation currently available, will no doubt continue as a measure of this parameter.
- 11.3 It is recognised, as has been previously stated, that Australian Cotton varieties are bred to mature at a lower micronaire value than e.g. US bred varieties. However it is stating the obvious to note that it is the maturity of the final product that is important to the consumer.
- 11.4 The impact of fibre maturity on total fibre strength is also a factor for consideration. The author does not believe that the mechanics of normal HVI testing for strength lends itself to the selective testing of the less than fully mature fibres within any given sample. A Stelometer instrument will however achieve this, if one tests fibre bundles progressively, through the discard from the bundle preparation.

### Recommendation

Whilst there is a continuing need for the physical evaluation of cotton, and this is likely to be the case for the foreseeable future, then I believe the Classers Association should continue its work.

12.1 If the idea of a grower orientated cotton evaluation centre is agreed, then presumably the need for independent classing facilities is arbitrary.

Recommendation

Any independent facility should include an HVI test line, installed and operated to the recommended standards if it is to be able to claim to operate fully.

This should be part of the round-robin test programme.

### 13. CROP QUALITY STATISTICAL REVIEW

- 13.1 Test data for such a review should be based on information from routine merchant testing. This should show the breakdown of results for each tested parameter related to the number of bales handled within the calculation. Operation and Presentation of the overall review should be undertaken by an independent body e.g. an accountancy firm or law practice in order to ensure confidentiality, and for it to have value as a document for internal use by the whole cotton industry.
- 13.2 Such a review should also prove useful to plant breeders. By way of example it is to be hoped that, in the context of this past season, plant breeders have been made aware of the fact that a very high percentage of this seasons crop for micronaire fell within the 3.5-3.7 range.

#### Recommendation

It is in the long term interests of the entire Australian cotton industry to initiate, establish and maintain an annual statistical review of all the tested quality parameters of the total Australian crop.

## 14 THE ROLE OF THE CONSULTANT

14.1 In a number of cases, the role of the consultant/agronomist in applying their expertise to the process of producing a bale of cotton appears to end when the pickers go in. Three isolated but relevant comments which were made during one or two of the arranged meetings are it is believed worthy of quoting here,

14.1.1. "Its pretty rare for me to override my agronomist's decision, especially with the timing of defoliation"

14.1.2. "No agronomist ever came into the classing room or visited a gin"

14.1.3. "Agronomists charge by the acre - not by yield or quality"

14.2 Post ginning discussion between grower and his consultant as to the effects of pre-ginning decisions vis-a-vis impact on the total quality of the final product can only be beneficial.

### Recommendation

Cotton field consultants should be encouraged, by the industry in general, to become further involved in post-harvest activities. Particularly regarding reviews of total quality and total values as results leading from pre-season assumptions and decisions.

- 15.1 The research and work of seed companies has brought about considerable improvements in the quality of cotton produced in Australia. The demand for finer, longer, stronger varieties whilst increasing yield and reducing growing cycles has to a great extent been met.
- 15.2 Different varieties have been developed to meet different conditions and improve the quality of the cotton produced. The quality produced will of course vary to a degree depending on planting location and growing conditions during any particular season. The majority of growers plant several different seed varieties to spread their risk.
- 15.3 A question which was asked on a number of occasions in discussions with growers, spinners and merchants was "have we gone fine enough or too fine in variety development"?
- 15.3.1 It is interesting to note that in the '1997-98 Variety Guide - Grower Information' the average guide micronaire for the ten varieties listed is 4.0. The '96/97 crop, possibly a slightly better than average crop, (based on merchant comments during research), produced anything up to 50% of cotton in the 3.5 to 3.8 range. What were the maturity readings for this range of cottons? How do they compare with the indicated average for the ten varieties in the Variety Guide of 90.3 maturity ratio?
- 15.4 The above observation is made to illustrate the obvious need for factual data provided as feedback to plant breeders as a guide to future varietal development based on spinners quality requirements both domestic and crucially overseas, as well as the impact of their work on profitability to the growers.
- 15.5 The findings and recommendations from the Ginning Research Project will no doubt be of considerable value to CSD and Deltapine, in this regard.

#### Recommendation

The CRDC Variety Trial Protocol should require that every variety from every trial should be fibre tested at a central facility. Tests for neppiness, SFC and maturity should be included in addition to normal HVI testing. Results should be published as part of the Annual Fibre Quality Review.

16.1 Blended whole bale sampling is unlikely to accurately reflect the true leaf/trash/bark content of a complete bale. One has to assume that statistically side sampling of a module gin run will be a truer representation of the average grade of that modules production.

16.1.1 Is there a case therefore for modular averaging for quality evaluation? For grade probably yes. But in viewing test data (limited admittedly) of bale by bale testing of each bale in a number of modules, the variation in staple length and micronaire particularly; and to a lesser degree in fibre strength; would not be conducive to preparing even- running shipment lots.

l	%Area	Cnt	Len	Un	SFI	Str	F1	Mic	Rd	B	C-G
1	0.1	14	1.13	81.7	8.3	30.3	8.5	3.6	81.7	8.3	11 = 2
1	0.2	25	1.12	80.7	9.7	28.3	9.7	3.4	80.6	8.7	21 = 1
1	0.1	12	1.10	80.4	10.3	28.4	8.4	3.6	81.7	8.7	11 = 2
2	0.3	17	1.16	82.3	7.2	31.1	8.4	3.5	81.2	8.6	11 = 2
1	0.2	7	1.13	81.5	8.6	29.9	8.2	3.6	81.4	8.5	11 = 2
1	0.1	15	1.13	80.1	10.3	27.0	8.3	3.5	80.7	8.6	21 = 1
1	0.1	9	1.14	80.8	9.3	30.8	8.5	3.5	80.3	9.1	11 = 2
1	0.1	21	1.17	82.0	7.5	34.9	8.1	2.4	79.9	8.5	21 = 1
1	0.1	12	1.15	81.1	8.8	30.5	8.0	3.5	80.8	8.2	21 = 1
1	0.1	19	1.16	81.2	8.6	27.6	8.5	3.5	77.5	7.6	31 = 2
1	0.1	19	1.18	81.7	7.7	29.7	8.5	3.5	80.6	9.0	11 = 2
1	0.1	21	1.12	79.6	11.0	27.0	8.6	3.7	80.9	8.5	21 = 1
1	0.0	7	1.12	81.9	8.2	28.6	8.6	3.5	81.2	8.4	21 = 1
1	0.2	20	1.12	82.7	7.2	27.7	8.7	3.5	81.6	8.5	11 = 2
1	0.1	17	1.15	80.0	10.2	29.0	8.3	3.5	81.3	8.8	11 = 2
1	0.1	10	1.16	82.4	7.1	31.1	8.4	3.5	81.5	8.5	11 = 2
1	0.1	10	1.15	82.6	7.0	33.3	7.7	3.5	80.3	8.2	21 = 2
1	0.1	22	1.14	80.9	9.2	27.0	8.8	3.6	81.5	8.6	11 = 2
1	0.1	12	1.12	82.7	7.2	28.2	8.5	3.6	81.0	8.8	11 = 2
1	0.2	22	1.14	79.3	11.1	27.3	9.2	3.5	80.4	8.8	21 = 1
1	0.1	17	1.11	79.6	11.2	29.3	9.4	3.5	81.4	8.4	11 = 2
1	0.1	20	1.13	81.7	8.3	29.2	8.5	3.6	80.9	8.5	21 = 1
4	0.1	17	1.15	82.5	7.1	26.6	9.2	5.5	80.0	8.0	11 = 2
1	0.1	8	1.11	80.5	10.1	25.7	9.3	4.3	79.7	8.3	21 = 2
1	0.1	19	1.12	81.0	9.3	20.4	8.3	4.7	80.8	8.8	11 = 2
4	1.1	0	1.12	81.3	9.0	30.0	8.9	3.2	78.5	8.2	31 = 1
1	0.2	16	1.12	80.6	9.8	26.8	9.0	3.5	78.9	8.4	21 = 2
1	0.2	14	1.09	78.1	13.2	26.5	8.2	3.6	81.3	8.6	11 = 2
1	0.1	8	1.10	83.1	7.0	30.8	8.7	3.5	80.2	8.4	21 = 1
1	0.1	13	1.10	81.1	9.5	27.9	8.5	3.6	81.1	8.8	11 = 2

I	%Area	Cnt	Len	Un	SEI	Str	F1	Mic	Bd	B	C-G
1	0.1	6	1.13	81.9	8.1	27.7	8.1	3.6	81.5	8.9	11 = 2
1	0.1	10	1.14	80.6	9.5	29.3	7.9	3.5	81.6	9.0	11 = 2
1	0.0	8	1.09	79.6	11.4	27.0	8.9	3.5	81.2	9.2	11 = 2
1	0.0	0	1.11	80.5	10.1	27.5	9.4	3.5	79.4	8.4	21 = 2
1	0.1	10	1.10	80.5	10.2	30.0	8.2	3.5	80.4	8.8	21 = 1
1	0.2	11	1.10	81.1	9.5	29.3	8.5	3.5	80.5	8.7	21 = 1
1	0.1	10	1.07	79.4	11.9	26.7	9.6	3.4	79.5	8.1	21 = 2
1	0.0	9	1.12	80.6	9.8	27.7	8.3	3.5	78.3	7.9	31 = 1
1	0.1	9	1.10	78.9	12.1	25.2	9.4	3.6	81.0	8.8	11 = 2
1	0.0	6	1.08	80.7	10.2	27.0	9.1	3.5	81.2	8.8	11 = 2
1	0.1	10	1.12	80.7	9.7	28.0	8.3	3.5	80.4	8.6	21 = 1
1	0.0	2	1.11	81.3	9.1	28.6	8.7	3.5	81.5	9.0	11 = 2
1	0.1	12	1.14	81.4	8.6	29.3	8.5	3.4	80.4	8.8	21 = 1
1	0.0	8	1.10	80.5	10.2	26.2	9.5	3.5	81.2	8.9	11 = 2
1	0.0	8	1.10	80.9	9.7	27.1	8.2	3.4	81.3	8.9	11 = 2
1	0.2	11	1.09	78.8	12.4	27.5	8.7	3.4	80.6	8.9	11 = 2
1	0.0	6	1.13	80.3	10.0	27.9	8.7	3.4	81.3	8.8	11 = 2
1	0.1	6	1.08	79.4	11.0	26.7	9.0	3.1	81.0	8.9	11 = 2
1	0.0	5	1.11	80.4	10.2	27.3	9.2	3.5	81.2	8.8	11 = 2

### Recommendation

Until a reliable module averaging system is developed and then adapted to Australian conditions, bale by bale testing should be maintained. CCAA should familiarise themselves with current USDA research in modular averaging of fibre quality parameter.

## 17. PREMIUM AND DISCOUNT SHEETS

17.1 The P&D Sheets were one of the most contentious issues raised during the research meetings. A quote to illustrate this was extracted from one of the grower meetings, and is representative of many of similar comments made across all grower meeting venues.

*"The P & D sheets are all D's and no P's"*

This is supported here by some personal observations by the author subsequent to reviewing the P&D sheets of some seven marketeers. It was interesting to note that there were six potential premium payments and 134 discount potentials excluding those discounts for non-base micronaire and strength and faults outwith the norms. If these were added the total discounts number 145.

17.2 The preponderance of discount levels reflect three main aspects from a marketeers point of view

17.2.1. the actual or anticipated international market selling/quality value of those cottons produced that are non 'premium' qualities.

17.2.2. a degree of risk management cover in the forward purchasing of a growers cotton one, two, three seasons down the line.

17.2.3. the greater variation in crop quality season to season of Australian cotton due to climate conditions and a more variable weather pattern when compared to e.g. California SJV cotton - i.e. somewhat greater quality reliability of the latter

These are acceptable facts that growers should recognise and of course many do.

17.3 There are inconsistencies within the range of P & D sheets e.g. 75 cent points variation for the same grade, in only one case is there a small premium for staple longer than  $1\frac{3}{32}$  " in all other cases 'base' is  $1\frac{3}{32}$ ,  $1\frac{1}{8}$ ,  $1\frac{5}{32}$  etc. Plant breeders are encouraged to develop longer varieties, planting varieties are offered on the basis of indicated staple length  $1\frac{3}{32}$  to  $1\frac{5}{32}$  " the average crop produces cottons  $1\frac{1}{8}$  /  $1\frac{5}{32}$  and some spinners contract on the basis of  $1\frac{1}{8}$  " staple (ref: some spinners responses to market research questionnaire).

17.3.1 If there is a market for  $1\frac{1}{8}$  cottons and such cottons warrant a market premium the P & D sheets should reflect the value. As to micronaire and fibre strength, the current G5 range and 24g/tex discount cut off point are not contentious. Should the decision be made to tighten the G5 micronaire range to 3.7 -4.5 then obvious changes will need to be made to the P & D sheets.

17.4 There should perhaps be an argument for premiums for higher fibre strength cottons e.g. 28-30 g/tex and 31 and higher. This however, would only be justifiable if spinners recognised and paid the price - this would be for the marketer to attempt to exploit.

17.5 There is little doubt that growers perceive their role as one of maximising yield and producing 'base value cotton', the contention being that there is little incentive to produce other than 'base'.

17.5.1 We should be asking the questions "What do the consumers of Australian cottons, the spinners, require and expect of Australian cotton?" "What is the market for SM and GM cotton, for  $1\frac{1}{8}$  staple, 30g/tex and better?" In part at least the marketers will have a feel as to the answers to such questions in that many spinners will specify in contracting e.g. staple  $1\frac{1}{8}$  minimum 30g/tex being 'specs' better than normal crop average quality specs. Presumably such qualities are contracted at a premium. What is the average quality of Australian Cotton? and where does it fit from the consumers point of view in comparability with competitive cottons in general terms?, are further questions to be asked. There is of course no single answer to these questions, spinners needs from a cotton will vary and crop qualities themselves vary. However there does seem a need to attempt to establish generic promotion of Australian Cotton such as is implied for some competitive cottons e.g. US SJV.

17.6 Separating colour as a separate parameter of the evaluation of grade will it has been suggested, mean considerable changes within the existing systems. There might be fewer problems with this if perhaps there was a standardised interpretation of the individual values attributable to each of the three parameters that affect grade i.e. colour, leaf and preparation, e.g. 30% leaf, 30% colour and 40% preparation. How is grade evaluated currently on physical class for these three separate parameters ?

- 17.7 The quality value differentials applied within the present range of P & D sheets reflect the actual or anticipated international market value for a given piece of cotton. They are arbitrary, in the sense that they are not based objectively on 'spinning value differences'. Alternatively, it could be argued, that if a spinner is prepared to pay say 2 cents/lb more for one cotton versus another then that reflects spinning value difference.
- 17.8 Application of value differences should in no way impinge on the integrity of the standards 'interpretation' of value differences is subject to classing room practices.
- 17.9 With the present criteria for meeting 'base' value cotton i.e. 3.5 - 4.9 mic,  $1\frac{3}{32}$ " staple and minimum 24g/tex most of the differential values within the P & D sheets apply to grade. Grade is in the main currently assessed by manual classing, not HVI, and therefore by inference there is almost a single benchmark for P & D's. HVI is the means of evaluating length, mic and strength. The combination of HVI and manual class will therefore remain the basis of P & D values for the foreseeable future.
- 17.10 Within the current P & D sheets the basic grade is Middling. There is debate as to whether this should be changed to Strict Low Middling i.e. as in the US. With the proposed establishment of Australian grade standards this would no longer be a point of discussion. 'Base' grade would become a standard equitable to approximately the BB box.

#### Recommendation

There are currently value differences between the various issued P&D sheets for the same grade, based on the class against current USDA standards. The ranges of shippers selling types, type for type, are basically equatable although from my experience of classing various Shipper ranges there are slight and perhaps inevitable differences. These small differences could account for the differing values on the P&D sheets. Total comparability is therefore only attainable when Australian Grade Standards are in place. There is, however, a case for investigating standardisation of value differences within the P&D sheets i.e. industry wide.

## 18. FACTORS AFFECTING FIBRE QUALITY

18.1 The following factors are of a general nature but certainly relevant to the overall review and any discussion reference cotton quality.

18.1.1 The factors can be broadly categorised as follows;

1. Genetic
2. Environmental
3. Agronomic
4. Harvest Related
5. Ginning
6. Handling & Storage
7. Spinning & Post Spinning

### 18.2.1. Genetic Factors

The breeding and selection process establishes the range of potential fibre quality parameters. Basic fibre quality differences between varieties can be very significant. However it is not consistent across the range of environmental, agronomic and other variables, although some varieties may be more stable than others. The interaction between genetics and the environment (and other factors) is extremely complex.

Without an effective varietal maintenance programme fibre quality and other performance criteria can deteriorate.

### 18.2.2. Environmental Factors

Differences in temperatures and solar radiation during any part of the season, within a region, and between regions (and seasons), can cause significant fibre quality differences. This also applies to the whole range of environmental factors including length of season, excessive heat,; frost and hail damage; rainfall; weather exposure of opened cotton etc.

Environmental effects also extend to the crop microclimate. Here such things as excessive fertilisation and irrigation can cause significant differences in crop microclimate and hence fibre quality.

### 18.2.3. Agronomic Factors

Moisture stress, waterlogging, nutritional problems, pest damage and disease can all affect fibre quality. Pests which cause stickiness in the cotton can have a dramatic effect. Planting date and stand density and rank late growth and weeds are also contributing factors. Often management decisions which delay crop maturity also harm fibre quality.

In all of these cases there is a genetic interaction with both the agronomic and environmental factors, e.g. some varieties can 'compensate' for fruit loss, or setback, better than others.

### 18.2.4. Harvest Related Factors

Picking: once over harvesting obviously blends later maturing bolls in with the probably better main crop. In doing so it usually reduces the average quality of some fibre parameters and also results in poorer fibre uniformity.

Excessive moisture at picking time, especially where it ends up in the module can cause a significant reduction in grades and fibre quality.- and the value of the cotton.

Excessive leaf and green bolls can also contribute to these module problems, as can poor module protection, or any form of contamination (including 'stickiness', foreign matter, etc.)

Spindle twist and 'barking' also contribute to lower grades.

### 18.2.5. Ginning Factors

A ginner cannot turn poor quality seed cotton into high quality raw cotton. However a competent ginner can modify or fine tune the process to minimise further deterioration. Inappropriate equipment or equipment settings, speeds, heat, drying etc. can exacerbate problems such as neppiness, SFC and poor 'preparation'. Inappropriate ginning can also reduce fibre length, cause seed coat fragments to be generated and/or result in poor ginning outturn. A large number of factors contribute to a Ginners assessment of 'appropriate' and most of these are influenced by the condition of the pre-ginned seed cotton. Growers should not worsen the problem by seeking unrealistic gin out-turn or grade results. Nor should Ginners jeopardise quality for throughput.

### 18.2.6. Handling & Storage Factors

Although Australian cotton is rated highly for low contamination by the ITMF, every effort must be made to even further reduce contamination and things like 'country damage'. Microbial degradation of cotton fibres must be minimised. Particularly in prolonged wet conditions, a number of microbes can attack the cotton fibre in the field. This deterioration can extend into bale storage, especially if the bale moisture and/or storage humidity is too high. This degradation, often called Cavitoma, is unacceptable to consumers.

### 18.2.7. Spinning & Post Spinning Factors

As in the cotton gin, fibre quality problems e.g. neppiness, can be exacerbated or contained in the spinning mill. Again it is a question of experienced judgement and appropriate management. Such things as correct pre-blending to absorb differences can be critical.

Appropriate machine settings and procedures will also be influenced by the end use of the yarn, e.g. whether it is to be woven or knitted etc. The preferred fibre specifications for ring spinning and open end spinning also differ. Thus different mills have different needs and criteria for the range of fibre quality parameters. What is 'poor quality' to one, may be highly acceptable to another - the challenge of marketing!

19.1 Marketing of the Australian cotton crop is a continuing success story. In simple terms the following background factors affect the effort required and the simple ability to market the crop;

- Cotton is the largest fibre market in the world today, with a circa 48% market share.
- Worldwide cotton production is around 18million tonnes and has been so for about 10 years.
- The Cotton market is a mature one, with all that implies for volumes and prices.
- It is also extremely competitive, not just between producers of cotton, but also due to the increasing level of introductions of synthetic fibres. In particular it should be noted that at this time it is unclear how close future advances in synthetic fibre development will be to the characteristics of natural fibres, particularly cotton.
- Prices for cottons, comparatively, have fallen in real terms in recent times.
- Productivity and quality improvements have maintained Australian Cottons profitability and competitiveness.
- Thus far the effectiveness of those marketing Australian Cotton can be measured by the degree to which Australian Cotton has increased its volume share in a continuing competitive market.
- The Australian Cotton market is driven by the International Market.
- Cotton market has expanded, but at largely decreased price levels. Per capita worldwide cotton consumption has remained steady at about 3.4kg.

19.2 The Australian Cotton crop size has increased from 100,000 bales in the 1970's to 2.7 million bales produced in season 1996/1997. A 2700% improvement in some 20 years. Over 92% of the crop is exported, and earns valuable export sales for the Australian economy. Australia is currently the fourth largest exporter of cotton in the world.

19.3 This success story is the result of a co-ordinated and well communicated co-operation between marketeers and producers in identifying what consumers want and providing it for them. In the former case involving domestic marketeers and the leading world cotton merchants each with established international market links.

19.4 The cotton industry is market driven. It operates without Government interference, in either subsidy or legislation terms. It functions by harnessing the various levels of expertise required from plant breeders through the growing and processing chain to international marketing, to achieve a level of co-operation and mutual respect, in order to succeed in increasingly competitive markets.

19.5 Australian cotton markets have adopted new innovations and developed new areas of expertise in order to succeed. These innovations have enabled Australian cotton to continue to compete favourably, in a market characterised by;

- \* increasing competition between cotton and synthetic fibres,
- \* significant downward pressure on cotton pricing

19.6 New varieties have been researched, developed and introduced in order to satisfy the demands of 'niche' players in sectors large and small. Significant levels of resource; both financial and other; and expertise has been harnessed to promote Australia as a producer of 'premium' quality cotton.

19.7 Consumers from diverse markets; Europe through India to the Far East; by their continued and increasing demand provide confirmation of the increasing quality of Australian cotton.

19.8 In Australian Cotton we have in the last few decades achieved a level of success which has been attainable only because of this high level commitment, interaction and communication with the market and within the cotton producing chain within Australia.

19.9 The goal however must be to maintain and develop this demand, to build on this solid foundation of achievement already obtained. Continuously improving the quality of Australian Cotton, maintaining strong links with markets and to those with access to markets and market makers, and above all improved and enhanced communications within the breeding and growing chain will achieve this goal. It will not be easy. It is likely to be the case that in a increasingly competitive maturing market the task will become more difficult.

19.10 Changes in the developer, producer or marketer segment of this co-operative force will of necessity change the nature of the co-operation and impact upon the potetial or likely results.

19.11 Continuing pressures to constantly co-operate, communicate and act in concert should be maintained as these are in the best interest of all involved in the development, production and marketing of Australian Cotton. These elements have been a significant part of the success story so far and the reasons for their existence are unlikely to diminish in the near future.

19.12 As with any commodity, promotion is an important marketing tool. It would seem opportune to establish an "Australian" generic brand identity under which all Australian cotton can be marketed. This identity would need researching, but should aim to consolidate some of the gains achieved thus far, into a recognisable identity, with values and strengths consistent with the markets expectation of cotton from Australia in recent times. This device would allow for further development of "Australian Values" for cotton produced by the Australian market, and may lead to the establishment of secondary or ancillary markets, which event would be beneficial to the total Australian Cotton market. However with the current range of planting and varieties, the 'generic brand identity' chosen would be likely to be environmental or national characteristic rather than varietal.

19.13 If the establishing of a single 'brand' identifier is to be considered further, the likely inferred quality image created would require to be maintainable season to season within reasonable limits.

19.14 Spinners associate a certain cotton to its total quality (a combination of fibre length, strength, fineness/maturity, colour and amount of foreign matter and increasingly important degree of neppiness and short fibre content). In this context Australian cotton is considered to be at the top quality end of saw ginned cottons produced worldwide. Possible opportunities exist here therefore for establishing the generic identity.

19.15 The merchants have two main endeavours;

1. to contract to consumers a large export availability annually &
2. promoting Australian cotton.

19.15.1 Ignoring general worldwide market and financial conditions and prices, consumer confidence is maintained basically by the quality of the product, the regularity of quality of shipments and thereby confidence in their suppliers. However experience would seem to indicate that many spinners feel

somewhat isolated from their suppliers in that often there is a lack of contact or discussion between technicians ie. the spinners and quality controllers and merchant technical personnel. Such contact should promote feedback and the opportunity to formulate more specific opinions as to both current and future fibre quality 'specs', for the production of high quality yarns, probably for niche markets and be an important input to plant breeders and growers.

19.16 Promotion of quality could be further enhanced by encouraging increased contact between spinners and growers. A two way learning process - spinners awareness of the grower efforts in producing premium quality cotton and growers in turn ideas of total fibre quality requirements for the manufacturing process.

19.17 One would envisage the need for a centralised promotional entity to encourage these 'branding', promotional and communication activities.

19.18 At the end of the day it may be that Australian Cotton producers require to address themselves to potential yield reductions to be able to realise a market rate increase as per US California 'SJV' in recent times. In this latter context it is interesting to note a recent suggestion in certain quarters that Acala plantings maybe reduced in favour of Pima plantings in California. Continuing emphasis on profitable niche markets in a maturing market with downward pressure on prices is not helped by the perception of its output in purely generic terms. Opportunities for closer contact, communication and conversation with the various levels of consumer in the total market should be taken where they occur.

19.19 The possibilities for expansion of Pima plantings and sales should not be excluded from the general marketing exercise. Recent years have seen an increase in demand worldwide for this style of cotton.

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