

AUSTRALIAN COTTON RESEARCH 1990

Ralph Schulze

WHO PAYS FOR RESEARCH. ?

Australian cotton farmers are required to pay a contributory levy towards research. At present that levy is \$1.50 per 225 kg bale. The levy is collected by processors at the point of ginning and is forwarded to the Department of Primary Industry and Energy, Canberra. When allocated by the Cotton Research Council (C.R.C.) to the selected research projects, these funds are matched by an equal contribution from the Federal Government.

With current Australian cotton production around 1.25 million bales this equates to C.R.C. research expenditure of A\$3.2 to 3.5 million per year - allowing for reserves, administration, etc. These C.R.C. funds are used to assist selected projects, and in most cases they are supplementary to funds being spent by the relevant institutions.

In total, C.R.C. funds would account for less than 40% of total cotton research expenditure - which is estimated at A\$10 million.

The Federal Government provides significant research funds to C.S.I.R.O. However these are augmented by assistance from industry. Federal funds, in lesser amounts, are also channelled through other bodies, e.g., Bureau of Rural Resources, Australian Water Resources Advisory Council.

The N.S.W. Agriculture and Fisheries (Dept) and the Queensland Department of Primary Industries are state government funded, and undertake considerable research. They are also responsible for rural extension which plays a major role in transferring research results to farmers.

Universities also use limited funds to assist, what is often innovative, research

There is also some 'unmatched' industry or privately funded cotton research. The Australian Cotton Growers Research Association- **A.C.G.R.A.**- directly assists research by meeting emergency needs. Another example is research undertaken by Cotton Seed Distributors- **C.S.D.**- into variety improvement. In addition, research and development funded and undertaken by commercial **agricultural chemical companies** etc., also flows through to the farmer.

Cotton Consultants and agronomists do considerable applied research on behalf of their farmer clients or employers. Corporate farmers also often undertake experimentation and applied research, and the impact of this flows through to other farmers. Similarly, **cotton processing and marketing organizations** undertake significant development work in ginning , transport and handling, as well as market research.

Through their unselfish dedication and productivity, **Researchers**, are arguably the major contributors, or 'payers', to the total research effort.

In conclusion, both the growers, and the nation, contribute to the cost of cotton research. The nation, as a whole, is a major beneficiary from research. It enables the nation to be more productive, to improve our balance of payments, and thereby to support a better standard of living for all Australians. Research must also aim to sensibly manage and conserve our natural resources.

RESEARCH PRIORITIES.

The **Cotton Research Council** thoroughly considers all submissions put to it . It often seeks opinion from outside the Council to assist in that evaluation.

C.R.C. applies a 'quality standard' and also a priority ranking

system before selecting those projects which the availability of funds enable it to support. Prior to these decisions the projects are also reviewed by the **Australian Cotton Growers Research Association (A.C.G.R.A.)**, on behalf of farmers. Those views are influential, but not dominant. Both C.R.C. and A.C.G.R.A. liaise closely with the various institutions engaged in research- irrespective of the source of research funding- and thereby influence the setting of research priorities.

Ultimately, the growers, plus the government - the two suppliers of funds - have the responsibility to influence the relevance, direction and priorities of research.

Cotton farmers are urged to exercise that responsibility by conveying their views to researchers, and to the members of the two industry research bodies - C.R.C. and A.C.G.R.A.- *see membership lists following research inventory.*

RESEARCH ORGANIZATIONS & INSTITUTIONS.

According to the latest review, the equivalent of 56 full time researchers are working on publicly funded cotton research projects. Nearly half these are funded through the Cotton Research Council.

The major cotton industry research facility is **NARRABRI AGRICULTURAL RESEARCH STATION**. This is a joint facility combining some 20 researchers from N.S.W. Agriculture & Fisheries and C.S.I.R.O.

The main areas of research include- insect ecology; pesticide resistance; spider mites; general entomology; pest management systems; irrigation; nutrition; plant physiology; improved cultural practices; soils; plant breeding; cotton diseases; weed control; economics; farm computer systems; and information transfer. Much of the research is multi-disciplinary, and much of it is done on farms.

The **C.S.I.R.O.** is the major Federal organization which carries out cotton research. Apart from its activities at **NARRABRI**, it also undertakes some basic research (e.g., Biotechnology) in **CANBERRA**. The Divisions of Plant Industry, Entomology, and Soils are the main divisions with a presence in cotton research. The **N.S.W. Agriculture & Fisheries** (Dept.) concentrates most of its research at **NARRABRI**, but also undertakes some cotton research at **TRANGIE**- mainly soils research; at **TAMWORTH** - mainly pesticide resistance; and there is technical support from the Biological & Chemical Research Institute, **RYDALMERE**.

The **Queensland Department of Primary Industries** has had the longest history in cotton research. Research at **TOOWOOMBA** is mainly into insect pest management- including biological control. At **BILOELA** there is some pest research- and it is also the site of the cotton germplasm collection. At **EMERALD** research is aimed at improved farming practices. Technical support, particularly in entomology and soils, is given by researchers based in **BRISBANE**.

Universities play an important -and often innovative - role in cotton research.

Institutions involved- and their main areas of activity - are listed below:

- University of Queensland, St. Lucia.** - mainly entomology.
- University of Queensland, Gatton.**- pesticide application.
- University of Southern Qld., Toowoomba.**- ag. engineering.
- University of New England, Armidale.**- entomology; soils.
- University of Sydney.** - pesticide degradation.
- Macquarie University, Ryde.**- seed priming.
- Australian National University.**- water use efficiency.
- University of Canberra** -remote sensing for irrigation
- Latrobe University (Textile Inst.)**-fibre quality.

The **Australian Cotton Growers Research Association** actively promotes research and organizes seminars and field days. A.C.G.R.A. also organizes the **Australian Cotton Conference** held every two years. This is a major forum for interaction between farmers, researchers, field consultants, and other industry personnel.

Regional cotton grower organizations also contribute ideas and views on local research needs, as well as organizing field days, etc.

Cotton field consultants are used by some 86% of cotton farmers to assist in management. They play an extremely important role in the transfer of research information to growers, and in overcoming the lag time in research adoption.

Regional and specialist extension officers are an important part of the information transfer process, and assist researchers in research adaptation, and in identifying regional problems.

A detailed listing of current cotton research follows.

1. COTTON PLANT BREEDING & GENETICS.

1.1 Aust.Cotton Breeding.	CSIRO Cotton Res. Unit	Dr.N.Thomson
Program OBJECTIVES:	Agric. Research Station	Mr. P.Reid.
Better yield/fibre quality	NARRABRI N.S.W. 2390	
Earlier maturity	Ph. 067.931105	
Wide adaptability incl.dryland.	Fax 067.931186	
Improved disease resistance		
Impr..insect tolerance.		
Impr..agronomic characters.		
1.2.Aust. Cotton Cultivar Trials.	as above.- Narrabri	as above

1.3. Variety Evaluation.**OBJECTIVES.**

Evaluating promising
breeder lines and
introduced vars.in all
areas- commercial conds.
Testing varietal response
to hail damage.

Cotton Seed Distributors

P.O.Box 117

WEE WAA, NSW,2388

Ph. 067.954208

Fax 067.954966

Mr K.Davies

Mr D.Swallow

1.4. Variety trials in Qld.

-supplementary to Narrabri
CSIRO program

Biloela - as below.

Mr.G. Mann

**1.5. Cotton Germplasm
Collection**

Develop and maintain
range breeding material

Agric. Research Station

BILOELA QLD.4715

Ph. 079.921044

Fax 079.923468

Dr.P.Lawrence

2.**BIOTECHNOLOGY****2.1. Genetic Transformation
of cotton****Developing Novel Genes****OBJECTIVES:**

Host plant resistance to pests
Other improved characters.
Gen transformation techniques

C.S.I.R.O.

Div.of Plant Industry

P.O.Box 1600

CANBERRA A.C.T.2601

Ph. 06.2465431

Fax 06.2465000

Dr D. Llewellyn

Ms.Y.Cousins

- | | | |
|--|---|---|
| <p>2.2. Introducing genes for 2,4-D resistance into cotton
 OBJECTIVES. to enable use this herbicide in cotton/ protect from drift damage.</p> | <p>as above
 Mr.A.Millar</p> | <p>Dr B.Lyon</p> |
| <p>2.3. Genetic engineering of <i>Heliothis Nuclear Polyhedrosis Virus</i>
 OBJECTIVE; To improve the effectiveness of this insect biological control agent.</p> | <p>C.S.I.R.O.
 Div of Entomology
 P.O.Box 1700
 CANBERRA A.C.T.2601
 Ph. 06.2465589
 Fax 06.2470217</p> | <p>Dr J. Oakeshott
 Dr P.Christian</p> |
| <p>3. WATER AND IRRIGATION.</p> | | |
| <p>3.1. Irrigation techniques to avoid waterlogging
 OBJECTIVES: To compare slope, run time effects on crop. Compare normal furrow with drip irrigation.</p> | <p>N.S.W.Department of Agriculture&Fisheries
 Agric Research Station
 NARRABRI N.S.W.2390
 Ph. 067.931105
 Fax 067.931186</p> | <p>Dr.A.Hodgson
 Dr.G.Constable</p> |
| <p>3.2. Irrigation management -Farm computer packages.
 OBJECTIVES: Develop packages e.g hydroLOGIC,for P.C.. use by farmers,consultants also: water balance models.</p> | <p>C.S.I.R.O.
 Cotton Research Unit
 NARRABRI N.S.W.2390
 Ph. 067.931105
 Fax 067.931186</p> | <p>Mr.K. Brook
 Mr S Marsden
 Mr A. Wells</p> |
| <p>3.3. Strategies for limited water use.</p> | <p>CSIRO, NARRABRI
 as above</p> | <p>Mr.A.B.Hearn</p> |

3.4. Remote Sensing potential for irrigation management
 OBJECTIVES: To evaluate the potential for aircraft remote sensing for farm use

University of Canberra Dr B.Button
 P.O.BOX1 BELCONNEN Dr.P.Cull
 A.C.T. 2616
 Ph.06. 2522565
 Fax 06.2522999

3.5. Irrigation management in Central Queensland
 OBJECTIVES: Improve irrigation efficiency in region

Dept of Primary Indust Mr G.Keefer
 P.O.Box 89 EMERALD
 Qld.4720
 Ph. 079.821988

3.6. Irrigation management on the Darling Downs
 OBJECTIVES: Regional improv.

Dept of Primary Ind. Mr.J. Bourne
 Pittsworth Qld 4356
 Ph. 076.931177 . also others

4. COTTON NUTRITION

4.1.Nutrition of irrigated. cotton
 OBJECTIVES: Study crop response major & minor nutrients incl. rates,forms, timing of N etc.

N.S.W. Ag & Fisheries Dr. G. Constable
 Ag. Research Station
 NARRABRI N.S.W.2390
 Ph. 067.931105
 Fax 067.931186

4.2.The Fate of Nitrogen Fertilizer used on cotton
 OBJECTIVES: To study losses and fate of Nitrogen applied to Vertisols.

CSIRO Div of Plant Ind. Dr J. Freney
 Box1600 CANBERRA2601 Mr.C.De-Li
 Ph. 06.2465442
 Fax 06 2465000
also- NARRABRI

4.3.Vesicular-arbuscular mycorrhizas- influence on growth, yield of cott.
 research about to commence

Univ of New England Dr J. Brown
 ARMIDALE N.S.W.2351
 Ph. 067. 732343
 Fax 067.733283

4.+ Regional fertilizer experiments - not tabulated as research.

5. IMPROVED CULTURAL PRACTICES - SOIL PREPARATION

5.1. Managing soils to avoid degradation

OBJECTIVES: To develop guidelines and practices to protect soil environment i.e., *SOILpak*.

N.S.W. Ag & Fisheries Mr I. Daniels
Agric Research Station Mr. D. Larsen
NARRABRI N.S.W. 2390
Ph. 067.931105
Fax 067.931186

5.2. Soil damage from tillage & traffic

OBJECTIVES: Study critical moisture levels for cultivation coordinated with *SOILpak*

CSIRO Division of Soils Dr. M Kirby
P.O.Box 639 CANBERRA Mr B. Blunden
A.C.T.2601
Ph. 06.2465322
Fax 06.2475883

5.3. Management of red and grey clay soils in the Macquarie Valley

OBJECTIVES: as per #1

N.S.W. Ag & Fisheries Mr.D.McKenzie
Agric Research Station Ms S.Greenhalgh
TRANGIE N.S.W.2823
Ph.068.887404

5.4. Soil factors affecting irrigated production

OBJECTIVES: Study interactions compaction, aeration etc. coordinated *SOILpak* research

Univ. of New England Dr.D. McLeod
ARMIDALE 2351
Ph.067.732789

5.5. Soil compaction on cotton farms

Soil Con. Branch Dr.D.McGarry
Dept. of Primary
Industries
INDOOROOPILLY Q 4068
Ph. 07.3779566

Note: - See also " Mechanization "

6. PLANT PHYSIOLOGY - AGRONOMY.

- 6.1. High yield packages for cotton.**
 OBJECTIVES; Determine best combinations -ferts, irrig., growth regulants etc for profitable production.
- NSW. Agriculture & Fish Agric Research Station
 NARRABRI 2390
 Ph. 067.931105
 Fax 067.931186
- Dr G Constable
- 6.2. Climatic factors influencing cotton prod.**
- NSW Ag.& Fish (above) CSIRO, Narrabri
- Dr G. Constable
 Mr B. Hearn.
- 6.3. Factors affecting growth and yield compensation**
- CSIRO Cotton Res Unit Agric Research Station
 NARRABRI 2390
 Ph. 067.931105
 Fax 067.9331186
- Mr B. Hearn.
- 6.4. Priming cotton planting seed.**
 OBS; To improve crop establishment (with Cotton Seed Distributors WEE WAA)
- Macquarie University SYDNEY 2109
 Ph. 02.8058158
 Ph. 067.954208
 Fax 067.954966
- Ms. D. Bunn.
 Prof S. Barlow (sup)
 Mr. W. McDonnell

7. CONTROL OF INSECTS - *Heliothis* etc

- 7.1. Management of Pyrethroid resistance in *Heliothis armigera***
 OBS; Contain resistance, extend economic life insecticides
- NSW Agric & Fish Agric. Research Station
 NARRABRI 2390
 Ph. 067.931105
 Fax 067.931186
- Mr. N. Forrester

7.2. Management of Endosulfan resistance in <i>H.armigera</i>.	as above	Mr. N. Forrester
7.3. Heliothis Ecology-quantify local movement	CSIRO Cotton Res.Unit Ag.Research Station NARRABRI 2390 Ph. 067.931105 Fax 067.931186	Dr. G. Fitt
7.4. Heliothis Ecology-fecundity,longevity etc.	CSIRO, NARRABRI as above	Dr. G. Fitt
7.5. Develop Heliothis population dynamics model	CSIRO, NARRABRI as above	Mr. M. Dillon Dr. G. Fitt
7.6. Develop better field sampling techniques-<i>H.spp.</i>	CSIRO, NARRABRI as above	Ms. G. Dillon Dr. G. Fitt
7.7.Development of pesticide resistance in <i>H.armigera</i>	NSW Agric & Fish Agric.Research Station TAMWORTH 2340 Ph. 067.679300	Dr. R. Gunning
7.8 Ecological Genetics of pesticide resistance in <i>H.armigera</i>	CSIRO Div.of Entomology P.O.Box 225 DICKSON CANBERRA 2602 Ph. 06.2464139 Fax 06.2464000	Dr. J. Daly Ms.J. Fisk
7.9..Field Test for Heliothis egg spp. differentiation OBS; Improve field decisions, chemical choice etc,	CSIRO Div of Entomology Box 225 DICKSON 2602 Ph. 06.2465255 Fax 06.2470217	Dr.S. Trowell

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| 7.10 Flight potential of
Heliothis spp. | Dept of Zoology
Univ.of New England
ARMIDALE 2351
Ph. 067.732846
Fax 067 733122 | Mr. M. Coombs |
| 7.11. Heliothis populations
in non crop areas | Dept of Agronomy
Univ of New England
ARMIDALE 2351
Ph. 067.732665
Fax 067.733122 | Dr. P. Gregg |
| 7.12.Ecology & migration
of Heliothis spp. in
inland Australia | CSIRO Div Entomology
Univ of New England
Univ of Queensland
Qld Dept Prim Ind. | Dr. G. Fitt
Dr. P. Gregg
Dr. M. Zalucki
Dr. P. Twine |
| 7.13. Heliothis population
dynamics in S.Queensland | Dept of Prim Industries
P.O.Box 102
TOOWOOMBA QLD. 4350
Ph. 076.314292
Fax 076.347421 | Mr. D. Murray |
| 7.14. Egg Parasites of
Heliothis. | D.P.I.,TOOWOOMBA
as above | Mr. B. Scholz |
| 7.15. Pest management
in raingrown cotton | D.P.I.,TOOWOOMBA
as above | Mr. I. Titmarsh |
| 7.16. Pathology of Heliothis
Potential microbial
insecticides & mixes | Dept.of Prim.Industries
Ento Branch, Meiers Rd
INDOOROOPILLY Q. 4068
Ph. 07.3779356
Fax 07.8703276 | Dr. R. Teakle |

<p>7.17. Control, mating disrupt of Pink Spotted Bollworm <i>Pectinophera scutigera</i></p>	<p>Dept of Entomology Univ. of Queensland St. LUCIA QLD. 4067 Ph. 07.3773649 Fax 07.3715896</p>	<p>Dr.M. Zalucki Mr P.Walker</p>
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8. OTHER INSECT MANAGEMENT - MITES.

<p>8.1. Investigation and control of Spider Mites. <i>Tetranychus spp.</i></p>	<p>CSIRO Cotton Res. Unit Ag. Res. Station NARRABRI 2390 Ph. 067.931105 Fax 067.931186</p>	<p>Mr. L. Wilson</p>
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<p>8.2. Investigation and control of mirids</p>	<p>Dept of Entomology Univ. of Queensland St. LUCIA 4067 Ph. 07.3773650 Fax 07.3715896</p>	<p>Dr. G. Walter</p>
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<p>8.3. Integrated Pest Management. improvements on SIRATAC concepts</p>	<p>CSIRO Cotton Res. Unit NARRABRI 2390 Ph. 067 931105 Fax 067 931186</p>	<p>Mr. B. Hearn</p>
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<p>8.4. Aerial spraying of cotton - coverage/drift Biological buffers to improve environment protection</p>	<p>Univ of Queensland Gatton College GATTON QLD. 4343 Ph. 075.620280 Fax 075.623081</p>	<p>Mr. N. Woods Mr. J. Harden</p>
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|---|---|-------------------------------|
| 8.5. The fate of Endosulfan
sprayed on cotton. | Univ. of Sydney
Dept of Ag Chemistry
SYDNEY, NSW 2006
Ph. 02.6923546
Fax 02.6924203 | Mr. T. Guerin |
| 8.6 Beneficial predators
and parasites in cotton
Supplementary studies | Dept of Prim Industries
INDOOROPILLY Q.4068
Ph. 07.3779353
Fax 07.3710766 | Dr. P. Twine |
| 8.7. Host Plant Resistance
to insects in cotton
Preliminary studies | CSIRO Cotton Res Unit
NARRABRI 2390
Ph. 067 931105
Fax 067.931186 | Dr. G. Fitt
Dr. N. Thomson |

9.

COTTON DISEASES.

- | | | |
|--|--|---|
| 9.1. Diseases of Cotton | NSW Agric & Fisheries
Agric Research Station
NARRABRI 2390
Ph. 067.931105
Fax 067.931186 | Dr.S. Allen |
| 9.2. Alternaria Leaf
Spot in Queensland | Dept of Prim.Industries
P.O.Box 81
EMERALD QLD.4720
Ph. 079.821988 | Mr. G. Harden |
| 9.3. Minimisation seed
borne Bacterial Blight | Cotton Seed Distributors
P.O.Box 117
WEE WAA NSW 2388
Ph. 067.954208
Fax 067.954966 | Ms. K. West
Dr. S. Allen
(NSWAF) |

9.4.. Seed treatments
for seedling disease

C.S.D. - as above

10.. CONTROL OF WEEDS IN COTTON.

10.1. Weed control
in cotton.

NSW Agric & Fisheries Mr.G. Charles
Agric Research Station
NARRABRI 2390
Ph. 067.931105
Fax 067.931186

10.2. Degradation of
herbicides in soil

Dept.of Microbiology Dr. T. Duxbury
Faculty of Agriculture
University of Sydney
SYDNEY 2006
Ph. 02.6924278
Fax 02.6924571

10.3. Mycoherbicides for
Xanthium spp control

NSW Agric & Fisheries Dr. B. Auld
Agric Research Centre
ORANGE 2800
Ph. 063.636700

11.. MECHANIZATION OF PRODUCTION.

11.1. Minimising field
traffic and soil damage

Dept of Ag Engineering Dr M. Porter
Univ.of Southern Qld. Mr. D. Bakker
TOOWOOMBA 4350
Ph. 076.312511
Fax 076.361762

11.2. Comparisons of soil
preparation equipment

as above -USQ. Dr. H. Harris

11.3. Comparisons of ground
spray equipment.

as above USQ Dr. H. Harris
also QDPI, TOOWOOMBA Mr. D. Wollin

11.4. Aerial and ground crop spraying studies.	Univ.of Queensland GATTON 4343 Ph. 075.620280 Fax 075.623081	Mr.J. Harden Mr.N. Woods
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11.5. Erosion control and moisture conservation in raingrown cotton.	I.C.M.S. Research P.O. Box 483 BILOELA Qld. 4715 Ph. 079.921341 Fax 079.923752	Mr. B. Pyke Mr. M. Stone
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NOTE: There is considerable commercially driven research and development in the field of farm machinery design and application.

12. POST HARVEST - HANDLING, STORAGE, GINNING.

Commercial/processor research and development in this field. For further information contact individual Australian processors

13.. COTTON FIBRE TECHNOLOGY.

13.1. Control and measurement of Australian cotton fibre	Latrobe University College of Textiles 25-35 Cumberland Rd. PASCOE VALE, Vic.3044 Ph. 03.3506533 Fax 03.3505132	Dr. J. Leeder
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13.2. Assessment of fibre properties of breeding lines and new varieties	CSIRO Cotton Res Unit NARRABRI NSW 2390 Ph. 067.931105 Fax 067.931186	Mr. P. Reid Dr. N. Thomson
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NOTE: Australian spinning mills also undertake research in this field.

14. COTTON PRODUCTION ECONOMICS.

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| 14.1. Economic optimisation of cotton management | CSIRO Cotton Res Unit
NARRABRI NSW 2390
Ph. 067.931105
Fax 067.931186 | Dr.P. Cox
Mr.B. Hearn |
| 14.2. Monitoring trends in production costs, cotton prices and farm income | Aust.Bureau Agric & Resource Economics
P.O.Box 1563
CANBERRA ACT 2601
Ph. 06.2469479 | Mr.C. Short |
| 14.3. Economic impact of loss of certain pesticides | CSIRO Cotton Res.Unit
NARRABRI NSW 2390
Ph. 067.931105
Fax 067.931186 | Mr.K. Brook |

15. MULTIDISCIPLINARY COTTON RESEARCH.

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|---|--|---|
| 15.1 Cotton management strategies beyond SIRATAC | CSIRO Cotton Res.Unit
NARRABRI NSW 2390
Ph. 067.931105
Fax 067.931186 | Mr.B. Hearn |
| 15.2. Development of micro computer farm management packages. | CSIRO Cotton Res Unit
NARRABRI NSW 2390
as above | Dr.P. Cox
Mr.A. Wells
Ms.S. Griffin |
| 15.3. Development of soil management pack, <i>SOILpak</i> | NSW Agriculture & Fish
as above | Mr.I. Daniels
Mr.D. Larsen |

NOTE: *The following are support and coordination activities.*

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|--|------------------------|-----------------|
| 15.4. Improved efficiency & sustainability of cotton production.-Coordination of disciplinary research | NSW Agric & Fisheries | Mr.R. Scott |
| | Dr.G. Constable | |
| | C.S.I.R.O. | Mr.B. Hearn |
| | Dr.N. Thomson | |
| | Qld. Dept.Primary Ind. | Dr.P. Twine |
| 15.5. Cotton Research: assistance and coordination. | Cotton Res. Council | Mr.E. Jenkins |
| | Dept Prim.Ind & Energy | |
| | BARTON ACT 2600 | Ch. Mr.J. Blood |
| | Ph. 06.2725252 | |
| | Fax 06.2731215 | |

FURTHER INFORMATION.

1. ARRIP DATABASE

The Bureau of Rural Resources is developing a comprehensive database including all current research in all crops and disciplines.

ARRIP	Dr. D. White
Bureau of Rural Resources	
BARTON ACT 2600	
Ph. 06.2724741	Fax 06.2724747

2. THE AUSTRALIAN COTTONGROWER.

This quarterly magazine is the major vehicle for publishing cotton research results- apart from academic journals. It is universally read in the Australian industry and produces a comprehensive Yearbook.

The Australian Cottongrower	Mr. D. Dowling
P.O. Box 766	
TOOWOOMBA Qld. 4350	
Ph. 076.971199	Fax 076 971184

3. *Especially regarding production technology and applied research information may be obtained from extension officers and cotton field consultants practising in the various cotton areas.*

EXTENSION : N.S.W Mr. R. Colton
NSW Dept of Agriculture
P.O. Box K22 HAYMARKET 2000
Ph. 02.2175065 / Fax 02.2175990

Queensland Mr. D. Hamilton
Dept of Prim Industries
P.O. Box 102 TOOWOOMBA 4350
Ph. 076.314292 / Fax 076.347421

COTTON CONSULTANTS (Chairmen of Associations).

N.S.W Mr. G. Brown
P.O. Box 264 WEE WAA 2388
Ph. 067.954428 / Fax 067.954726

Queensland Mr. B. Caffery
1 Ayrton St., DALBY 4405
Ph. 076. 621260

COTTON RESEARCH COUNCIL.

Mr. J. Blood, *Chairman*
Linter Group Ltd.
150 Oxford St.,
COLLINGWOOD Vic 3002
Ph. 03. 4177088

Mr. E. Jenkins, *Ex. Director*
Cotton Research Council
Dept. Prim. Ind.& Energy
BARTON ACT 2600
Ph. 06.2725252
Fax 06.2731215

Mr. R. Armstrong
"Yanco"
CECIL PLAINS Qld. 4407
Ph. 074. 680242

Mr. R. Schulze
P.O. Box 389
NARRABRI NSW 2390
Ph. 067.923080

Mr. R. Williams
 "Merinda"
 WEE WAA 2388
 Ph. 067.957101

Dr. V. Edge
 NSW Agric. & Fisheries
 RYDALMERE NSW 2116
 Ph. 02.6839762

Mr. C. Willcocks
 Dept. Prim. Ind. & Energy
 BARTON ACT 2600
 Ph. 06.2725127

**AUSTRALIAN COTTON GROWERS RESEARCH
 ASSOCIATION Inc.**

Mr. R. Williams, *Chairman*
 - as above,

Mr. D. Anthony, *V. Chairman*
 P.O. Box 303
 NARRABRI NSW 2390
 Ph. 067.931108

Mr. M. Fletcher
 P.O. Box 325
 EMERALD Qld. 4720
 Ph. 079.821986

Mr. F. Barlow
 83 Walker St
 MUNGINDI NSW 2406
 Ph. 067.532336.

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NOTE: 1. The Cotton Research Council will be replaced by a Cotton Research and Development Council, later in 1990.

2. Following the formation of the R & D Corporation, A.C.G.R.A. intends to review its membership to broaden representation and to improve relativity to the new corporation.

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Ralph Schulze July 90.

