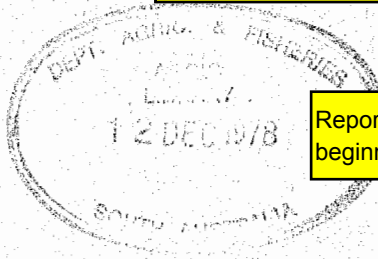
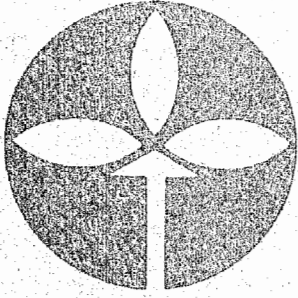


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DEPARTMENT OF AGRICULTURE, SOUTH AUSTRALIA

# Agronomy Branch Report

AGRONOMY BRANCH ANNUAL REPORT

1974-75

Report No. 69

AGRONOMY BRANCH ANNUAL REPORT

1974-75

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- FOREWORD -

This report aims to highlight particular aspects of the work of the Agronomy Branch which were newly introduced or which made conclusive contributions to the progress of Agriculture for the year ending 30th June, 1975. In our report for 1973 (Agronomy Report No. 49), all of the work of the Branch was dealt with. This report, like that for 1974 (Agronomy Branch Report No. 59), has built on that report.

The Branch would like to take this opportunity to acknowledge the valuable help the Branch has received from the Executive and other branches of the Department. The Waite Agricultural Research Institute, the C.S.I.R.O. and other State and the Australian Government departments has also greatly assisted us.

We also wish to thank the many landholders, the employers of various companies and primary producer organisations that have helped us in so many ways.

Chief Agronomist:

A.F. Tideman

Principal Officers:

E.D. Higgs  
M.R. Krause  
J.D. McAuliffe

Senior Leaders:

G.B. Baldwin  
P.R. Birks  
K.G. Boyce  
P.S. Cocks  
E.J. Crawford  
A.J. Dube  
B.J.T. Graham  
T.G. Heard  
M.J. Mathison  
D.C. Ragless  
G.D. Webber

INTRODUCTION

During the year under review, the Agronomy Branch consisting of 96 staff, was responsible for a high level of extension, research and regulatory activities. The extension staff have been involved in servicing all aspects of pasture and crop agronomy throughout the State and in conducting extension education programmes for primary producers.

The research staff have carried out a wide range of important research programmes, and other staff have been responsible for a number of regulatory duties associated with weed and insect control, seed standards and the safe and efficient use of agricultural chemicals.

The following table summarises the extension activities of field staff and research activities of the Branch for 1974-75:-

Extension Activities

Publications	75
Press Releases	245
Radio & T.V. activities	120
Group Meetings, Conferences & Field Days	500
Farm Visits	4,500
Office Interviews	5,690

Research Activities

<u>1. Field Crops</u>	<u>No. Projects</u>
Nutrition & Physiology	2
Breeding & Varietal Evaluation	18
Pathology & Entomology	13
Management	5
Weed Science	9
<u>2. Pasture Projects</u>	
Nutrition & Physiology	12
Breeding & Varietal Evaluation	23
Pathology & Entomology	16
Management	10
Weed Science	9
<u>3. Other (Unclassified)</u>	6

The research sections of the Branch continued to operate at a high peak. The number of projects increased from 91 in 1973-74 to 123 in 1974-75. Most of the increase was due to additional projects in pasture breeding and varietal evaluation, pathology, entomology, pasture management and weed science.

The research staff increased with the appointment of research officers in the Seed Physiology and Crop Agronomy Sections, a project officer in Seed Production and a field assistant in Plant Breeding. Many changes in staff took place, but all positions were suitably filled as vacancies occurred.

Planned extension programmes have continued to form the basis of the work of extension officers in the Branch. A significant development has been the inclusion of officers of the Weeds, Seed Production and Bushfire Prevention groups to further co-ordinate extension efforts. Mid-year, two of the more experienced officers, K.G. Bicknell and T.J. Dillon, joined the team which went to Libya to develop a pilot farm at El Marj for the Libyan Arab Republic. Their districts were manned by temporary assistant advisers. During the year three appointments were made to fill vacancies in the Keith, Lameroo and Loxton districts. On the other hand, two district officers commenced study leave in the new year, one at Hawkesbury and one at Roseworthy. All of this placed a strain on resources which resulted in the Kadina district being serviced from Adelaide.

During the year the new Hector Orchard Weeds Research Unit at Northfield was opened by the Minister of Agriculture. The Unit comprises a glasshouse, potting shed and laboratory.

Further regionalisation of the Branch took place during the year. A field officer of the Cereal Agronomy Section was stationed at Pt. Lincoln and a research officer and field assistant, also attached to the Cereal Agronomy Section, working on alternate crops, were stationed at Struan. A project officer in the pasture seed production group was also stationed at Struan.

Officer training has again features in the Branch activities.

During the year the Chief Agronomist, Mr. A.F. Tideman, attended Session 52 of the Advanced Course of the Australian Administrative Staff College at Mt. Eliza, Victoria.

Two officers attended the Grasslands Conference in Moscow and rounded off their tours with seed collection missions and visiting research institutes. Another officer was sponsored by F.A.O. to visit Algeria and whilst away studied extension in parts of Canada and the U.S.A. A trade fair in China was also attended by an officer of the Branch.

In-service training involved a great number of officers during the year. Twenty-two attended Communication training, 5 attended management, 5 completed scientific writing and 6 completed refereeing courses. In addition 12 officers made interstate study tours.

During the year a considerable amount of time was spent developing the Grain and Plant Products Protection Act and the Pest Plants Act. Both Acts are now in the final stages of preparation.

AGRONOMY ADVISORY SECTION

SECTION LEADER: Mr. G.D. Webber, R.D.A., H.D.R.E.,  
Senior Agronomist

ADVISORY OFFICERS:

- |                      |  |
|----------------------|--|
| Adelaide Office      | - Mr. S.G. Williams, R.D.A.,<br>Assistant Senior Agronomist                                  |
|                      | - Mr. N.R. Matz, R.D.A.,<br>Special Agronomist   |
| Kangaroo Island      | - Mr. R.C. Hagerstrom, R.D.A.,<br>Senior District Agronomist<br>(War Service Land Settlers)  |
| Central District     | - Mr. P.D. Fairbrother, R.D.A.,<br>District Agronomist                                       |
|                      | - Mr. M.A. Schwerdt,<br>Field Assistant  |
| Lower North          | - Mr. W.A. Michelmore, R.D.A.,<br>District Agronomist  |
| Mid South East       | - Mr. P.J. Mowatt, R.D.A., G.D.E.,<br>District Agronomist                                    |
| Murray Districts     | - Mr. K.G. Bicknell, D.D.A.,<br>(Seconded to overseas service, Libya)<br>District Agronomist |
|                      | - Mr. N.M. Brooks, R.D.A.,<br>Acting District Agronomist                                     |
| Northern Mallee      | - Mr. B.C. Bull, L.D.A.,<br>Acting District Agronomist                                       |
| Southern Mallee      | - Mr. J.N. Hannay, R.D.A., R.D.A.T.,<br>District Agronomist                                  |
| Yorke Peninsula      | - Mr. T.J. Dillon, R.D.A.,<br>(Seconded to overseas service, Libya)<br>District Agronomist   |
| Upper North          | - Mr. A.E. Hincks, R.D.A.,<br>District Agronomist  |
| Lower South East     | - Mr. P.L. Marrett,<br>District Agronomist   |
| Upper South East     | - Mr. T. Prance, R.D.A., R.D.A.T.,<br>District Agronomist                                    |
| Lower Eyre Peninsula | - Mr. K.J. Holden, R.D.A.,<br>(Study leave - N.S.W.)<br>District Agronomist                  |

Advisory Officers (Contd.)

Eastern Eyre Peninsula

- Mr. P.M.S. Potter, B.Ag.Sc.,  
District Agronomist
- Mr. J.R. Cawthorne, R.D.A.,  
(Study leave)  
District Agronomist

Upper Eyre Peninsula

- Mr. T.R. Davidson, R.D.A.,  
District Agronomist



AGRONOMY ADVISORY SECTION

1. SECTION ACTIVITIES:

During the 1974-75 season, the Agronomy Branch Extension Section has continued to provide an extensive technical advisory and education service to primary producers in South Australia through 14 regional districts. The demand for these services continues at a high level as do technical services to agricultural industries and other Government departments.

A number of changes in district staff have been brought about by secondments, promotions and transfers. This has resulted in some districts being without a resident district agronomist for varying periods. Every effort has been made to maintain services in these districts on a part-time or full-time basis.

It has been necessary to appoint two acting district agronomists to man the districts left vacant by the secondment of two district agronomists to Libya on a special service project.

However, a very high level of primary producer contact has been maintained at field level through all available media channels, as indicated in the table below showing a summary of the main activities of district officers for the year.

	1974-75
<u>Farmer Contacts:</u>	(Approximate)
On-farm visits	2,800
Rural group meetings	350
Office visits	3,150
Telephone enquiries	10,800
<u>Mass Media:</u>	
News items & articles (State and country papers)	185
Radio broadcasts	80
TV appearances	-
Reports on agricultural conditions and special reports	150

2. OTHER ACTIVITIES:

2.1 District Reports

Monthly reports were prepared by each district agronomist throughout the year. The distribution of these reports include the media, commerce and industry.

A new system of reporting estimates of the area sown and production of all agronomic crops was introduced last year, and has been continued this year. This system involves the preparation of estimates on a monthly basis throughout the year rather than the issue of one official estimate early in October, as was done in the past.

The Departmental crop estimates are requested on a regular basis by a large number of organisations associated with agricultural production, including fuel distributors, stock and station agents, grain marketing organisations, food processors, stock feed manufacturers, banking, lending and insurance houses, and the Bureau of Statistics and Economics.

Special reports were prepared on problems associated with fodder reserves, new crops and the stem rust epidemic.

## 2.2 Registered Cereal Seed Production

Officers of the Section continued to service the registered seed wheat and barley schemes in South Australia. This consisted of inspections associated with 16 growers (850 hectares) of seed wheat; 10 growers (330 hectares) of seed barley.

This scheme now in its fourteenth year of operation, has continued to provide a nucleus of good cereal seed to growers throughout the State.

## 2.3 Demonstrations

Demonstration trials were carried out by district officers in various parts of the State. These demonstrations included work with cereals, minor crops and pasture cultivars. Techniques in establishment, weed control, pest control and general management of both crops and pastures were also demonstrated.

## 2.4 Liaison

Liaison by members of the extension staff was carried out with Departmental and other research workers and with industry and commercial representatives in order to provide the most effective and up to date information to the farming community and other people connected with agriculture.

## 2.5 Education Tours & Training Programmes

Education tours were conducted for farmer groups, agricultural students, interstate visitors and a large number of overseas visitors. Overseas visitors included individuals or parties from Libya, Algeria, Iran, Yugoslavia, South Africa, Canada and the U.S.A. These visitors were mainly interested in the "ley farming" system used by farmers in South Australia. Extensive visits were made to the regions where this system of farming is practised.

A four months training programme was arranged for two students from Algeria. Because countries bordering the Mediterranean have a similar climate and soils to South Australia, the successful ley farming system carried out in this State is of particular interest to these

countries. The programme arranged for these students was based on gaining information and experience, particularly in all phases of the ley farming system.

## 2.6 Service To & From Commerce & Industry

Enquiries to and from commerce and industry on a large variety of agricultural matters have continued to expand. The good understanding and co-operation we have with these bodies is of considerable benefit in making our extension programmes more effective.

## 2.7 Judging of Competitions

Extension officers have continued to assist with judging Agricultural Bureau and Rural Youth competitions and have acted as judges and stewards at the Royal Show and country shows.

## 2.8 Special Duties

These duties have included reports on Ministerial enquiries, technical matters to other departments, attending to applications under the Rural Advances Guarantee Act, 1963, assisting the South East Drainage Board, co-ordinating assessments of resubdivisions on behalf of the State Planning Office, being represented on the Primary Producers Emergency Assistance Advisory Committee, the Consultative Committee on Drought, the Bushfire Research Committee, the Wheat Delivery Quota Advisory Committee and the Departmental Working Party on Regionalisation.

## 3. EXTENSION PROGRAMMES:

District extension programmes are continuing to be directed at a wide range of crop and pasture production activities, improving extension efficiency and investigational work on district problems.

Some important continuing programmes are concerned with cereal varieties, grain insect pest control, pasture improvement and off-target damage. Some of the more important programmes include:-

### 3.1 Improved Pastures for the Murray Mallee Region

This is a regional programme to promote the use of better pastures in the Murray Mallee. There are about 1.6M. hectares used for grazing in the region. The quality and production of pastures can be improved by introducing better pasture species and better pasture management.

Pasture development will be concentrated on improving annual medics and the rehabilitation of skeleton weed areas which have been successfully controlled following recent introduction of skeleton weed rust. A special bulletin has been prepared to assist with this programme.

### 3.2 Lupins & Oil Seed Crops

A considerable expansion has taken place in the areas sown to lupins as a grain legume crop and sunflowers as an oil seed crop during the last three seasons. Trials, observations and surveys will be made on these crops and relevant information will be extended to growers.

Smaller areas of linseed, oilseed rape and safflower are also being grown.

Advice and publications are available to assist growers with the sowing and management of all these crops.

### 3.3 Wheat Varieties for Rust Prone Areas

Due to the severe stem rust effects on wheat crops in many areas in the past two seasons, investigations to assess suitable rust resistant varieties for rust prone areas will be carried out.

### 3.4 Group Action Programmes

Group problem solving programmes are being further developed with farmer groups in several districts. This type of activity is seen as giving the opportunity for a greater degree of farmer involvement in programmes, e.g. Mt. McIntyre, Eight Mile Creek.

### 3.5 Cereal Grain Quality Improvement

District officers are involved in a programme of improving the quality of cereal grain delivered to silos. Farm hygiene in relation to the control of grain insect pests and the contamination of other cereal grains, weed seeds, etc., are the main areas being investigated to improve grain quality.

### 3.6 Improvement of Murray Swamp Pastures

A general decline in the productivity of Murray Swamp pastures has been reported by dairy farmers. Fertiliser trials, paspalum control and the use of Tamar ryegrass and Maral shaftal clover as a cleaning crop are being used to gather information on the most suitable methods to adopt to improve pastures in this area.

### 3.7 Testing Low Oestrogen Sub. Clover Cultivars as a Replacement for Yarloop

For many years Yarloop has been the most productive subterranean clover cultivar for waterlogged soils. The high oestrogen content of Yarloop has dramatically reduced the breeding capacity of ewes, resulting in considerable economic losses.

New low oestrogen cultivars are now available. This programme is designed to test the suitability of the new cultivars in comparison with Yarloop in several of the higher rainfall areas of the State.

## 4. STAFF:

### 4.1 Appointments & Transfers

Messrs. K.G. Bicknell and T.J. Dillon were seconded for overseas duties at the demonstration farm at El Marj, Libya in December, 1974.

Mr. N.M. Brooks was appointed Acting District Agronomist, Murray Bridge in place of Mr. Bicknell.

Mr. B.C. Bull was appointed Acting District Agronomist, Loxton vice Mr. Dillon.

Mr. J.R. Cawthorne was appointed as District Agronomist, and is on study leave until December, 1975.

Mr. T. Prance was appointed District Agronomist for the Upper South East district.

Mr. J.N. Hannay was appointed District Agronomist for the Southern Mallee district.

#### 4.2 Training

Additional training, both at post-graduate and in-service levels, continued to be an important objective of the Branch.

- \* Mr. K.J. Holden is undertaking the graduate diploma course in Rural Extension in N.S.W. during 1975
- \* Mr. J.R. Cawthorne is on study leave until December, 1975 for the R.D.A.T. course at Roseworthy College
- \* Messrs. Marrett and Mowatt made an interstate study on sun-flower production to Victoria and New South Wales
- \* Three officers, Messrs. Webber, Williams and Mowatt, attended management courses conducted by the Department of Further Education
- \* Three officers, Messrs. Hannay, Bull and Brooks, attended the in-service Communications II course.

#### 5. PUBLICATIONS

##### 5.1 S.A. Journal of Agriculture

"Comparing the Profitability of Alternative Crops" - W.A. Michelmore, K.J. Holden, P.J. Mowatt, P.L. Marrett.

##### 5.2 Bulletins

Dube, A.J., Matz, N.R. & Krause, M.R. - "Cereal Smuts".

Fairbrother, P.D., Marrett, P.L. & Coleman, W.O. - "Oilseed and Grain Legume Crops for the South East".

Bicknell, K.G., Dillon, T.J., Crawford, D.M. & McCord, A.K. - "Improved Pastures for the Murray Region".

Marrett, P.L. - "Agriculture in South Australia - The Lower South East".

Schwerdt, M.A. - "Chemical Ploughing & Sod Seeding" - Revised.

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BUSHFIRE PROTECTION SECTION

SECTION LEADER:

Mr. B.J.T. Graham, R.D.A.

EXTENSION OFFICERS:

Mr. B.J. Francis

Mr. R.H.T. Freak

Mr. B.A. Green

FIELD ASSISTANT:

Mr. L.B. Hoff

SECRETARY, BUSHFIRE RESEARCH COMMITTEE:

Mr. J.M. Priest

OFFICE ASSISTANT:

Miss E. Zevedeou

BUSHFIRE PROTECTION SECTION

1. INTRODUCTION:

The past year continued the recent trend of reduced demand for farm advisory services. Despite abnormally heavy winter rains and the prospect of a severe fire season, farmer interest in fire protection as expressed in requests for advisory services was slight.

However, there was a strong demand from urban dwellers for information about fire ban restrictions.

Research continued on a wide range of fire protection problems.

Mr. Graham is Chairman of a committee set up by the Standards Association of Australia to establish a standard for garden incinerators. Specifications developed as a result of research into fire safety requirement for incinerators are the basis for the new standard.

A new publicity campaign based on the theme "SOS - Save Our State From Bushfires" was launched to create public awareness of the potentially dangerous bushfire situation.

2. APPLIED RESEARCH PROJECTS:

2.1 Minimum Fire Safety Requirements for Domestic Incinerators - B.J.T. Graham

An Australian Standard, based on the research findings of this project has been agreed upon by the Technical Committee on Incinerators, set up by the Standards Association of Australia. This standard is now ready for postal ballot prior to final acceptance.

2.2 Spark Arrester Design - B.J.T. Graham

The Mechanical Engineering Department has completed testing the spark retention abilities of two recently developed spark arresters. Preliminary results indicate that both the imported Japanese 40-50 HP model and the Yuba 200 HP model will meet the standards laid down in S.A.A. 1019.

2.3 Grass Fuel Studies - B.J. Francis & B.A. Green

The research aspects of these studies have now been completed and the results are proving valuable to the Bureau of Meteorology for the imposition of fire bans in the 15 new fire ban districts in the State.

2.4 Herbicidal Control of Unwanted Vegetation - B.A. Green & L.B. Hoff

This project is now confined to trials being conducted on phalaris covered roadsides at Glenroy. The effectiveness of a new herbicide "Roundup" is being assessed. Due to high costs, its use is likely to be restricted to handle small scale, awkward areas.



2.5 Fire Suppression Using Air -  
B.J.T. Graham & L.B. Hoff

The machine developed to produce large volumes of high velocity air was tested on a stubble fire at Virginia on 28/2/75.

Results of the tests indicated that even though the air stream was capable of suppressing the flames, re-ignition occurred soon after the passage of the machine.

It would appear that the physical properties of the air stream were more effective than the air as a coolant.

2.6 Bushfire Economics

Approval has been obtained to the granting of a scholarship for a post-graduate study into the cost of bushfires to South Australia.

The scholarship, tenable over two years, would be supervised by Professor F. Jarrett, Economics Department, University of Adelaide.

No candidates were available in 1975 and it is proposed to offer the scholarship in 1976.

3. EXTENSION ACTIVITIES & PUBLICITY PROGRAMMES:

3.1 Extension Activities

3.1.1 Individual contacts

Property visits	81
Field days & displays	12
Group meetings	25
Conferences	24
Office visits	320
Telephone enquiries	1,640
District councils	142

3.1.2 Mass media

TV programmes	5
Radio broadcasts	18
Press releases	25

3.2 Publicity Programmes

3.2.1 Rural Youth Community Aid project

The 1974 project drew entries from 24 Clubs with first prize being won by the Paskeville Rural Youth Club.

Zone prizes were awarded to nine Clubs. It is planned to repeat the project in 1975.

### 3.2.2 Bushfire television films

Two new 30 second television films were produced and with two used the previous year, made up the programme for the summer fire season.

To prepare for the start of colour television on 1st March, 1975, the new films were made in colour. They were both based on the "SOS" theme with one featuring "Smokey" and the other, wildlife of South Australia.

### 3.2.3 Fire Prevention Week

Fire Prevention Week was held from 19th-26th October, 1974.

The programme is co-ordinated by the Committee with representatives from the Emergency Fire Services, South Australian Fire Brigade, Australian Fire Protection Association and the Bushfire Research Committee.

Mr. Graham represents the Bushfire Research Committee and Mr. Priest is Secretary of the Committee. The aim of the programme is to inform all sections of the community about fire prevention measures.

The programme aims for maximum mass media coverage and this year activities included a parade of fire units through the city, a poster competition, evacuations of buildings, and demonstration by the fire boat "Karlooloo" on the Port River.

The week was officially opened by His Excellency, the Governor of South Australia, Sir Mark Oliphant, at the old Marble Hill Vice-Regal residence.

### 3.2.4 Bushfire prevention sign programme

Fifteen new signs with the "SOS" theme and using the "Smokey" symbol were produced by the Highways Department. Together with 87 existing signs they were erected in 42 district council areas. Twenty signs were erected in the northern areas of the State to warn of fires in pastoral districts.

### 3.2.5 Radio spots

Three new 30 second spots based on the "SOS" theme were produced and broadcast as a community service by commercial and ABC radio stations.

### 3.2.6 "SOS" campaign

The publicity campaign for the 1974-75 summer was based on the theme "SOS - Save Our State From Bushfires". The Minister of Agriculture, Hon. T.M. Casey, officially launched the campaign at a ceremony at Ayers House on Monday, 4th November, 1974.

In addition to radio and television spots and roadside signs, 6,000 posters and 66,000 car stickers were produced for the campaign. Wide coverage of the launching was given by the media.

### 3.2.7 Fire Alert Day

On Friday, 7th February, after the imposition of the first State-wide fire ban for the season, a special Fire Alert Day was proclaimed by the Deputy Premier, Mr. Corcoran.

The event received publicity in all media.

### 3.2.8 Smokey's party

The annual Smokey birthday party was held on 27th January, 1975 at the Adelaide Zoo.

The party was one of the most successful ever held in terms of attendance, support from the media and smooth flowing programme. Widespread media coverage was given to the party and the subsequent prize winners' trip to Kangaroo Island.

## 4. SPECIAL PROJECTS:

### 4.1 District Council Requests

#### 4.1.1 Fire access tracks

Four district councils requested the construction of fire access tracks. Two tracks costing a total of \$2,200 have been constructed in Pt. Elliot and Goolwa and Tatiara District Councils. The request from Beachport Council was not recommended, whilst the request from the District Council of Elliston is awaiting developments by the Engineering & Water Supply Department.

#### 4.1.2 District fuel breaks

The request from the District Council of Beachport for advice regarding the development of the Robe/Penola road as a major fuel break is now in the hands of a local committee. Mr. B.A. Green has been invited to join this committee.

The District Council of Kingscote has requested a plot study to be undertaken into a comprehensive roadside vegetation management scheme. Approval is being sought for this study, which envisages the management of roadside vegetation to achieve the needs of district fire protection, road safety, tourist development and the requirements of essential services departments.

#### 4.1.3 Monarto bushfire control plan

At the request of the Monarto Development Commission a comprehensive bushfire control plan has been prepared for the 15,200 ha of land at Monarto. The work is being carried out on a contractual basis with the costs being reimbursed by the Commission.

Mr. B.J. Francis has carried out the necessary field work and the compilation of the 31 page report.

The project also requires an annual re-appraisal for the plan, together with specific recommendations for special areas which become apparent as development proceeds.

#### 4.2 Fire Prevention Exhibits

Adelaide Royal Show - New fire ban districts display  
State Administration Centre - "SOS" display  
Tea Tree Plaza - "SOS" display  
Department of Agriculture - "SOS" display

#### 4.3 Bushfire Investigations

##### 4.3.1 Todd bushfire, 1/1/75

Mr. R.H.T. Freak investigated and reported on a serious outbreak which caused nearly \$200,000 damage to 18 properties north of Pt. Lincoln. Mr. Freak was appointed to the Relief Committee and subsequently was called to appear at the Coroner's inquiry.

##### 4.3.2 Northern bushfire, January & February, 1975

Mr. B.J. Francis investigated and reported on fires which occurred at Truro, Whyte Yarcowie, Terowie and in the Peterborough-Orroroo areas. The Truro fire was the most damaging of these though the series of lightning fires in pastoral country between Peterborough and Orroroo were also costly in terms of area burnt and suppression activities required.

##### 4.3.3 Pinnaroo bushfire

Mr. B.A. Green investigated a report that three men in a car trapped by a bushfire would have died had they stayed in the car. The investigation revealed that the report was incorrect and that the men actually saved their lives by staying in the car during the height of the fire.

##### 4.3.4 Stokes Bay-Parndana bushfire, 6/2/75

Mr. B.J.T. Graham investigated the major bushfire which devastated 40 farms in the Stokes Bay-Parndana area on Kangaroo Island. Subsequent meetings with the District Council of Kingscote, the Fire Fighting Association and Agricultural Bureau groups have resulted in requests for more advice on district and farm fire protection planning.

#### 4.4 Locust Control Campaign

During the spring and early summer, Messrs. Freak and Hoff were seconded to the Departmental task force set up to carry out the locust control campaign.

### 5. SPECIAL REPORTS:

#### 5.1 Ministerial Reports

The establishment of Provincial City Fire Ban Districts.

## 5.2 Legislative matters

Section 66 - Burning scrub on days of serious fire risk  
Section 81a - Power of councils to order firebreaks.

## 6. STAFF:

### 6.1 Office Accommodation

The Section was relocated in September and now occupies part of the first floor of the Queensland Insurance Building, 32-38 Pirie Street, Adelaide.

### 6.2 Changes

There were no staff changes during the year with the exception of the retirement of Mr. L.T. Jacobs, Bushfire Officer. His work programme has been completed and it is not planned to replace him at this stage.

### 6.3 Training

Messrs. Graham, Francis, Freak and Green attended an in-service training school on Communications II. Mr. Graham attended a Department of Further Education Management Course.

Mr. J.M. Priest is studying part-time at the Murray Park College of Advanced Education to gain the Diploma of Arts (Journalism).

Mr. Francis is studying to complete his matriculation.

Mr. Hoff attended an in-service training school.

### 6.4 Conferences

Members of the staff attended the following conferences:- E.F.S. Regional Officers, E.F.S. Communications, Eyre Peninsula Fire Fighting Association, Eyre Peninsula Local Government Association, Highways Department Engineers & Foremans, Kangaroo Island Agricultural Bureau Conference.

### 6.5 Interstate Visits

In April and June, Mr. Graham visited Sydney to be Chairman at meetings of the Standards Association of Australia's Technical Committee on Domestic Incinerators.. He also held discussions and carried out inspections with officers from the N.S.W. Bushfire Council and the N.S.W. Forestry Commission.

### 6.6 Committees

Members of the staff have attended and played an active part in meetings of the following committees:-

Bushfire Research Committee	7 meetings
Publicity Sub-committee	10 "
Fire Prevention Week Committee	4 "
Roadside Vegetation Committee	5 "
National Trust Marble Hill Committee	4 "
Meteorological/Fire Ban Districts Committee	1 "
Agronomy Branch - Senior Officers	9 "
Standards Association of Australia - Fire Safe Incinerators	2 "

7. PUBLICATIONS:

7.1 Extension Article

Francis, B.J. - "This Year a High Fire Risk in the Pastoral Areas".  
S.A. Journal of Agriculture, November, 1974.

7.2 Maps

Council Fire Banks 5,000 copies

7.3 Brochures

Save Our State From Bushfires 10,000 copies

7.4 Posters

Two "SOS" posters 6,000 copies

7.5 Stickers

"SOS" car stickers 66,000 copies

CROP AGRONOMY SECTION

SECTION LEADER:

Mr. T.G. Heard, B.Ag.Sc.

RESEARCH OFFICERS:

Mr. B.J. Marshall, B.Ag.Sc.

Mr. T. Potter, B.Ag.Sc.

ASSISTANTS:

Mr. G. Bourke (commenced May, 1975)

Mr. N.M. Brooks (temporarily transferred to  
advisory services, February,  
1975)

Mr. S.G. Cornish (Pt. Lincoln)

Mr. O. Jenkins (resigned January, 1975)

Mr. I.W. Magarey, R.D.A.

Mr. R.J. Puckridge, R.D.A.

Mr. N. Steinborner (commenced September, 1974)

CROP AGRONOMY SECTION

1. INTRODUCTION:

Crop research in Agronomy Branch is largely concerned with the continuing evaluation of current and new cultivars and selected crossbreds for yield and quality characteristics. Emphasis is also placed on research aimed at improving the cultural practices associated with field crops grown in South Australia.

It is becoming increasingly obvious that further extension of activities into this latter area of crop research will necessitate a considerable reduction in the cultivar evaluation programme.

Regionalisation of the Section was initiated in April, 1974 with the transfer of an experienced and competent field assistant to Pt. Lincoln. This officer, with the assistance of seasonally employed labour and other officers stationed on Eyre Peninsula is responsible for the day to day activities of the Section's programme in the area. This transfer has already received very favourable comment from the local farming community.

The cone seeders, built by officers of the Section, were used much more widely in 1974. All wheat and barley trials, except those on Eyre Peninsula, were sown with these machines. Initial experience gained in the previous season proved of great benefit and enabled great speeding up of the "in field" operation.

The primary trial series, initiated in 1973 and enabling the early evaluation of a wide range of material, was continued in 1974. While there are currently a large number of wheat crossbreds available for inclusion in these trials, the lack of new material from barley and more particularly oat breeding programmes, is causing some concern. With the ending of the oat breeding programme at Roseworthy College there may be a need to further consider the position of oats in South Australia.

Stem rust again had a major effect on yields obtained in a number of the wheat trials with approximately  $\frac{1}{3}$  of the sites being affected by this disease. Of the established cultivars, only Condor, Oxley, Kite and Madden yielded as well as Halberd in situations where rust was not the limiting factor. These were also the best cultivars in areas where rust was a problem. The soft wheat cultivar Egret, proved outstanding in a series of trials designed to find replacements for the currently recommended biscuit wheats, Pinnacle and Summit.

A number of crossbreds returned excellent yields. Of these RAC 177 and M\*M 25/4 from local breeding programmes will be considered for registration in the coming year.

The barley cultivar, Weeah, was recommended in 1975 for feed grain production in "those areas where Clipper is not performing well". These areas have deep sandy soils, generally of low fertility.



Ten new crossbreds, seven from the Waite Agricultural Research Institute and three from the Western Australian Department of Agriculture, were included in the 1974 primary barley trials. The Waite Institute lines included some with good malting quality which, in 1974, out-yielded Clipper.

Most of the feed grain crossbreds at present being tested have blue aleurone. This might cause segregation and marketing difficulties if one of these crossbreds were released.

W.I. 2231 was again the highest yielding crossbred in the secondary barley cultivar trials. Lack of grain identifying features prevents its release at present, but a small amount of seed is being built up.

Of the oat cultivars and crossbreds tested, the recently released cultivar, West, proved outstanding. This may be due in part to its rust resistance and further testing is necessary.

In the alternative crop trials oil seed rape and linseed were the only crops providing comparable returns to those from barley. Disease and weed problems again accentuated the need to be mindful of these in any alternate crop programme.

A research programme on sunflowers was initiated in the south east of the State in 1974. Initial results indicate the great potential of this crop in the area and this work will be expanded in the coming season with the appointment of a crop agronomist and field assistant.

## 2. RESEARCH PROGRAMMES:

The following research projects were current during 1974:-

- Project 1 - Wheat cultivar evaluation in primary trials
- 2 - Wheat cultivar evaluation in secondary trials
- 3 - Interstate wheat cultivar evaluation trials
- 4 - Barley cultivar evaluation in primary trials
- 5 - Barley cultivar evaluation in secondary trials
- 6 - Response of barley cultivars to nitrogen fertiliser
- 7 - Evaluation of barley crossbreds for forage production
- 8 - Barley time of seeding trials
- 9 - Pre-sowing drought hardening of barley
- 10 - Oat cultivar evaluation
- 11 - Assessment of the economic potential of several alternative crops
- 12 - Cultivar evaluation in sunflowers
- 13 - Effect of time of seeding on sunflower cultivars
- 14 - Preliminary evaluation of triticales.

Within Project 2 there are separate trials containing cultivars suitable for bread and biscuit production. This contrasts with trials of Project 5 each of which contains malting and feed type material.

Project 8 was initiated at Turretfield and Minnipa Research Centres in 1973. While there was some variation in response to time of seeding from the two cultivars, Clipper and Ketch, a somewhat similar picture emerged. At Minnipa delaying seeding after the end of May led to a progressive reduction in grain yield, while at Turretfield the critical point was not reached until late June.

Projects 12, 13 and 14 were also initiated in 1974 and will be expanded during 1975.

### 3. EXTENSION ACTIVITIES:

During the year members of the Section addressed three Agricultural Bureau field days, one Bureau Conference and two Bureau meetings. Mr. Marshall addressed barley seminars on Eyre Peninsula and the Australian Barley Board agents' school, as well as the spring meeting of the Barley Improvement Technical Committee. Current programmes were discussed at all district agronomists' regional meetings.

### 4. STAFF:

Monthly meetings of all officers of the Crop Agronomy Section have strengthened the group by providing for internal training, forward planning and increased discussion. In recent months the Section has made visits to outside organisations associated with agricultural research.

#### 4.1 Staff Changes

Mr. S.G. Cornish was transferred to Pt. Lincoln in May, 1975.

Mr. N. Steinborner commenced duties as a field assistant during September, 1974.

Mr. O. Jenkins resigned from the Department during January, 1975. The appointment of a replacement field assistant is anticipated during August. This officer will be stationed at the South East Regional Headquarters, Struan.

Mr. T. Potter was appointed as a Research Officer during January, 1975. He has been largely engaged in the alternative crops programme.

From 1st October, 1975, Mr. Potter will be stationed at South East Regional Headquarters and will be in charge of the sunflower programme.

Mr. N.M. Brooks was transferred to Murray Bridge during February, 1975 as acting District Agronomist. His place in the Section was filled during May by Mr. G. Bourke, a field assistant.

#### 4.2 Conferences & Courses

Mr. Heard attended a Wheat Identification Workshop in Sydney during June, 1975. During May he attended a meeting of the Organising Committee for the proposed Australian Wheat Industry Review Conference, also in Sydney.

Mr. Marshall received top credit in the most recent Weed Control Certificate Course.

#### 4.3 Interstate Visits

During March, 1975, Messrs. Potter and Heard, together with two district agronomists, visited centres in N.S.W. and Victoria to discuss sunflower research and growing.

#### 5. PUBLICATIONS:

Krause, M.R., Heard, T.G., Marshall, B.J., Dube, A.J. & Mayfield, A.H. - "Cereal Variety Recommendations for 1975". Department of Agriculture S.A., Special Bulletin 7/74.

Heard, T.G. - "Field Crop Evaluation and Seed Production". Agronomy Branch Report No. 60.

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ENTOMOLOGY SECTION

SECTION LEADER:

Mr. P.R. Birks, M.Ag.Sc.

RESEARCH OFFICERS:

Mr. P.G. Allen, B.Ag.Sc.

Mr. D.C. Hopkins, B.Ag.Sc.

Mrs. J. Moulden, B.Ag.Sc. (resigned)

Mr. D.E. Swincer, B.Ag.Sc.(Hons.)

ASSISTANTS:

Mr. G.S. Dearman

Mr. K.R. Henry

Mr. R.B. Jenkins

Mr. C. Phillips, R.D.A.

ENTOMOLOGY SECTION

1. INTRODUCTION:

Following widespread invasion of plague locusts in the autumn of 1974, a major locust plague was anticipated. All members of the Section were thereafter involved in the planning and execution of the control campaign. With the exception of the Sitona weevil research programme, all other programmes were largely curtailed.

Despite supply difficulties, adequate quantities of insecticide were obtained and strategically distributed to combat the plague. Thereafter record wet conditions produced heavy mortality among the hatching locusts and this resulted in progressive scaling down of plans. Ultimately minimal use of the insecticide achieved effective "mopping up" and no significant crop damage occurred.

During the year development towards more sophisticated control of agronomic insect pests became apparent. In the past it has been largely subjective evaluations which have determined whether a crop or pasture is sprayed with insecticide. Damage assessment and population measurement studies on pasture cockchafer are introducing a new era of objectivity.

Sitona weevil studies are maintaining this objectivity of measurement of population density. This will provide a basis for evaluating parasites and hopefully resistant varieties which are to be introduced into the sitona weevil control programme. It will also be necessary to ensure that such parasites are not adversely affected by sprays applied, for example, for red legged earth mite control. A system of pest management, more complex than we have required previously, will be needed.

Not only with parasites, but so too with insect pathogens. Advances with insect pathology to the stage where there is a beginning to the appreciation of the significance of naturally occurring pathogens, together with the availability of commercial preparations, and a new appraisal of their potential, further influence the future of crop and pasture pest control.

Problems of resistance to pesticides, residues of pesticides in produce and increasing economic pressures on agricultural production, increase the desirability and the need for developing and adopting these more sophisticated methods of pest management. The development of these systems is very much more expensive in time, labour and equipment than the conducting of insecticide trials. Systems must be developed for local conditions, they are far less adapted to extrapolation than are the results of insecticide trials, so that the rate of adoption of such systems will depend largely on the scale of local input.

2. RESEARCH PROGRAMMES:

2.1 Damage Assessment of Pasture Cockchafer (*Aphodius tasmaniae*) in Pasture - P.G. Allen & K.R. Henry

Field trials were not conducted on this programme during 1974 because staff were directed towards locust control work during the winter and spring of 1974.

In the autumn of 1975 a field trial was initiated near Mt. Gambier in annual pasture to evaluate the effects of a range of mean larval densities on available pasture and livestock body weights when the pasture was grazed by two different stocking rates of weaners. Five mean densities of larvae (including an area sprayed with lindane), ranging from 0 to 400 larvae/m<sup>2</sup> are being used for each stocking rate. The initial stocking rates are 16 and 32 sheep/ha; the lower stocking rate is the "average" rate for the area. Either stocking rate can be adjusted during the trial period, depending on the availability of feed and weaner liveweights, provided the adjustment is the same for each plot having that particular stocking rate.

Results from this trial will be included in data to estimate a reasonable economic injury level for pasture cockchafer in pasture. This will further the development of a sequential plan designed to assist management in deciding when and where to apply insecticide on an objective basis.

## 2.2 Release of Introduced Dung Beetles in South Australia - P.G. Allen & K.R. Henry

There have been no reports of establishment of African species of dung beetles released prior to the spring of 1973 in southern temperate Australia. From 1974, a different species, Euoniticellus intermedius, has been released in South Australia. This species survives in a wider range of climatic conditions than those species released earlier; it is cold hardy and can survive in relatively dry conditions. In 1974-75, 6,5000 of these beetles were released at twelve different sites in South Australia.

## 2.3 Insect Pests of Germinating Cereals - P.G. Allen & K.R. Henry

In 1974 a demonstration trial was conducted to test the efficacy of chlorpyrifos seed dressings against wireworms damaging wheat. The trial was based on data gained from work with cereal curculio, another pest of germinating cereals, and was carried out because there was a shortage of lindane, the only insecticide registered for the control of wireworms in South Australia.

Wheat was sown with two rates of application of chlorpyrifos 40% WP dressing and the higher rate, 40 g a.i. chlorpyrifos per 100 kg seed, gave satisfactory protection against wireworms. A temporary registration for the use of chlorpyrifos as a cereal seed dressing was granted for the 1975 season, and on the condition that a survey of the performance of chlorpyrifos was carried out at the end of the season.

## 2.4 Sitona Weevil Investigations - J. Moulden, D.C. Hopkings, P.R. Birsk & G.S. Dearman

A recent accidental introduction into Australia, sitona weevil causes serious defoliation to lucerne and annual clovers. Most importantly, its larvae (in numbers up to 200 per sq. ft.) feed on the nitrogen fixing nodules of annual medics thereby threatening the basis of the medic-cereal agricultural system.

This project aims at determining the biology of sitona weevil in Australia to assist in the selection of candidate parasites for introduction into Australia. It aims to establish guidelines for the evaluation of sitona damage and the evaluation of parasites and resistant varieties.

Large populations of sitona occurred on Eyre Peninsula, Yorke Peninsula and the northern agricultural areas of South Australia during 1974. Severe damage to pastures and contamination of grain being delivered to terminals occurred.

#### 2.4.1 Maturation of adults

In South Australia, ovary development usually begins in mid-March, but may vary from mid-January in a wet summer, to mid-May in a dry summer/autumn.

Specimens were sought from Tasmania and New South Wales to check for summer egg laying. Ovary development had begun by mid-January and mid-February, but more consistent sampling was needed.

The first mature eggs usually occur in South Australia in mid-April, but may be delayed by a dry autumn until mid-June. In 1974 the first mature eggs appeared in samples from Tasmania on 25th March in mid- to late April in South Australia.

#### 2.4.2 Storage of eggs

To extend the period when sitona larvae can be reared, and the period when egg parasites could be handled, cold storage of eggs was investigated. A pilot trial in 1973 indicated storage for 63 days at 1-2°C without loss of viability. A more detailed experiment has shown 80% survival after 16 weeks storage to 20% survival after 30 weeks storage at 1-2°C.

#### 2.4.3 Sampling of eggs

A technique has been developed for estimating numbers of eggs in the field involving 200 soil cores selected by stratified random sampling, washing and the eggs collected by selective floatation. An 88% recovery has been effected, but one paddock estimate requires 16 man days.

A field population<sub>2</sub> of 5,570 eggs/m<sup>2</sup> resulted in a peak larval population of 933 larvae/m<sup>2</sup> indicating a high mortality stage.

#### 2.4.4 Sampling for larvae

Larval and pupal populations were measured at Brentwood, South Australia on five occasions during 1974. A peak of 933 larvae/m<sup>2</sup> occurred in August. Peak pupal numbers of 393/m<sup>2</sup> occurred in early September. High mortality occurred during pupation or during the pupal stage.

Field populations in 1974 were about 6 times denser than in 1973.



#### 2.4.5 Sampling for adults

Winter populations of adults were sampled by vacuuming 200 stratified random samples from the soil surface. The most efficient sample unit was a quadrat of 2500 cm<sup>2</sup> in the area.

A migration of adults from summer refuges occurred during April when annual medic had begun to germinate (density 81 adults/m<sup>2</sup>).

Numbers declined steadily during the winter and finally disappeared by 2nd October, 1974.

The measurement of spring populations of adults was made from emergence traps and indicated 414 adults/m<sup>2</sup>, a five-fold increase from the autumn population. High mobility and rapid fluctuations precluded measuring spring adults by stratified random sampling.

#### 2.4.6 Parasites

An attempt was made to introduce the egg parasite, *Patasson lameerii*, in April, 1975, but they failed to survive the journey to Australia. Plans are in hand for further shipments in October-November, 1975. C.S.I.R.O. Division of Entomology will undertake quarantine aspects of the introductions.

### 2.5 Pesticide Residue Investigations - D.E. Swincer, P.R. Birks & R.B. Jenkins

The phasing out of DDT is still the prime aim of the project, but because of the threat of a major locust plague in South Australia, achievement in this direction was limited. Because of shortages of the traditional insecticides used for locust control, relatively unproven sprays which could be used without residue problems had to be tested and their use supervised.

#### 2.5.1 Barley grub control

A major outbreak of barley grubs occurred in South Australia during November-December, 1974. Some crops were sprayed with DDT contrary to recommendations. Samples were taken for residue analysis to assist the South Australian Barley Board in deciding what action to take.

Supplies of the recommended chemical, trichlorphon, were inadequate to cope with the outbreak and endosulfan was recommended for use on barley. Samples were taken at regular intervals to determine residues which would result from this use. Residues of 0.2 to 0.6 ppm were found on barley harvested four days after spraying. These declined to 0.1 ppm after 21 days. This information will be used in seeking a clearance for the use of endosulfan on barley. Treatment of rank crops more than 21 days prior to harvest resulted in inadequate insect control in commercial crops.

### 2.5.2 Alternative sprays for Heliothis control

A technique for rearing large numbers of Heliothis for insecticide screenings has been successfully developed. This includes the use of an artificial food which reduces the labour required and the dangers of disease outbreak in insect cultures. The following base line data for susceptibility of Heliothis punctigera has been determined.

<u>Insecticide</u>	<u>ug/gm Body Weight</u>
DDT	1.7
methomyl	4.0
endosulfan	5.7
chlorpyrifos	5.2
diazinon	8.8
leptophos	62.0

South Australian Heliothis punctigera were found to be more than 10 times as susceptible as DDT as New South Wales tests indicate for the same species.

### 2.5.3 Light trapping

Regular maintenance and collecting and sorting of Turretfield light trap was carried out throughout the year to provide information for forecasting outbreaks of cutworm pests against which DDT is largely used.

There was a marked decrease in numbers of moths of the three major pest species, namely Heliothis, barley grub and pink cutworm. However, a large outbreak of barley grub occurred and this is the first major outbreak not forecast in fourteen years. Inclement weather resulted in small numbers of moths in flight but did not inhibit egg-laying or grub activity.

## 3. SURVEYS & EXTENSION PROGRAMMES:

### 3.1 Locust Survey & Control - P.R. Birks, P.G. Allen, D.E. Swincer, C. Phillips, R.B. Jenkins & K.R. Henry

During March and April, 1974 there was a major invasion of locusts in the agricultural areas of Eyre Peninsula and Gawler Ranges pastoral areas. Fledgling locusts were also numerous in marginal, agricultural-pastoral areas from Hawker to Burra in the Hallett, Eudunda, Robertstown, Truro, Sedan and Marne District Councils. Heavy egg-laying also occurred in the Kongerong and Pt. MacDonnell areas. Preparations were made for a major locust outbreak.

A Locust Committee, comprising Messrs. Birks, McAuliffe, Allen, Phillips and Michelmores organised field surveys to define and evaluate the infested areas and developed and implemented the control strategy. The strategy adopted was to spray all locusts in the hopper stages wherever they occurred in dense bands. Aerial support was to be limited to very large dense areas and difficult terrain. Some mopping up of locusts surviving to the flying stage was envisaged. Landowners were to carry out spraying and insecticide was to be provided free of charge for locust control. The State was divided into regional and area control districts and 30 Departmental staff were detailed to implement operations.

The selection, purchase and strategic distribution of insecticides and spray equipment were undertaken. Plans for hiring and operating aerial spray planes were prepared. Advisory leaflets and publicity, especially to councils, landowners and beekeepers was organised and negotiations with the Joint Services Local Planning Committee were undertaken to obtain assistance of the Army with manpower, vehicles, communications and helicopter support, especially in the pastoral areas.

Weather conditions in the Gawler Ranges pastoral area were exceptionally wet during the summer of 1973-74 and autumn and winter of 1974. The growth of herbage was prolific and the area faced its greatest fire risk on record. Hatching of locusts began in warm, more exposed areas at Kimba on 16th August, but general hatching did not begin until the end of the first week in September. Large areas of dense hatching occurred throughout a 120 km<sup>2</sup> plain between Cariewerloo and Low Hill and in areas of 1 to 10 km<sup>2</sup> on adjacent properties. Heavy rain (25 mm or more) occurred over most of the area on the 19th and 20th September and by 26th September it was apparent that much of the early hatchings had died.

Further hatching continued and again heavy rains of 25 mm or more fell through most of the locust country on the 30th September-1st October and the 3rd-4th October and again on 16th October, causing further locust mortality. By 19th October it was decided to abandon plans to spray locusts in the pastoral areas, but to treat what locusts survived when and where they invaded agricultural areas. ULV misters and insecticide that was to have been used in the pastoral areas was moved into adjacent agricultural areas considered to be at risk. Meanwhile landowners, especially in the agricultural areas of Eyre Peninsula, treated surviving bands of locust hoppers in what was an effective "mopping up" operation. The total area sprayed throughout the State was approximately 10,000 ha. Most spraying was in the Penong-Ceduna to Wudinna area. No significant crop damage occurred.

Fledging of locusts began at the end of October and a number of relatively small swarms developed in the pastoral areas, but in spite of the difficulty in traversing the wet terrain, it gradually became apparent that there were no very large undetected locust populations in the pastoral areas. On the night of 19th November there was a major locust displacement. Winds at the time indicated displacement to the south-west, but there were no reports of invasion of agricultural areas, so it was concluded that most were displaced in excess of 100 miles and were lost at sea.

Throughout the hatching and development period there was a similar pattern of locust mortality in the northern agricultural areas, while in the South East no locust hatchings were reported from the known dense egg beds.

The record wet conditions resulted in such extremely high locust mortality that the need for spraying was reduced to a minimum. During this period constant surveying often under difficult conditions, and continuing re-appraisal was necessary. Landowners and councils were kept well informed of the changing circumstances and their control actions were at all times appropriate to the changing circumstances.

### 3.2 Other Extension Activities

During the year members of the Section addressed eith Agricultural Bureau meetings, four Bureau District Conferences, gave three other technical addresses and took part in nine field days and eight radio and television interviews. Some 83 specimen identifications, 52 technical enquiries and 860 telephone enquiries were handled. Some 145 insecticide registrations and 40 TCAC clearances were considered, 15 Ministerial reports on locusts, millepedes, crickets, grain weevils and pea weevil were prepared and six Parliamentary questions were answered.

#### 4. STAFF:

Mrs. J. Moulden resigned on 17th January, 1975 to take up maternal duties. Mr. D.C. Hopkins commenced duties on the sitona weevil project (vice Moulden) on 12th May, 1975.

Mr. P.R. Birks attended the Stored Products and Locust Subcommittee meetings of Entomology Committee in October, 1974 and June, 1975, and the SCA-Entomology Committee meeting in Hobart in September, 1974. He took part in a khapra beetle identification workshop in Canberra in June, 1975 and attended and chaired one section of the Second Applied Entomology Research Conference at Mildura in April, 1975. During April and May he attended the Insect Pathology Course conducted by the Waite Institute.

Mr. P.G. Allen attended the Australian Conference on the Ecology of Grassland Invertebrates at Armidale in August, 1974 and contributed a paper on sequential sampling. He was a member of the South Australian Advisory Committee on Australian Arbo-encephalitis and the Torrens Island Mosquito Control Committee.

Mr. D.E. Swincer attended the 2nd Applied Entomology Research Conference in Mildura in April, and during April and May he attended the Insect Pathology Course conducted by the Waite Institute.

Mr. R.B. Jenkins attended the Communications I In-service Training School at Roseworthy in February and completed the Science Technician Certificate Course with distinction in 1974 and enrolled in the Advance Certificate Course in 1975.

Mr. K.R. Henry attended the Communication I In-service Training School at Roseworthy in February and began the Science Technician Certificate Course in 1975.

Mr. G.S. Dearman began the Science Technician Certificate Course in 1975.

#### 5. PUBLICATIONS:

"Summary of Crop and Pasture Pest Recommendations 1975". South Australian Department of Agriculture Bulletin No. 3.75.

Allen, P.G. (1975) - "Sequential sampling for the pasture cockchafer, Aphodius tasmaniae Hope. (Coleoptera:Scarabaeidae) in pastures in South Australia". Thesis presented for the Degree of M.Ag.Sc., University of Adelaide.

Birks, P.R. - "Some insect pests to watch". Jnl. Agric. Sth. Aust.,  
78: 65-67.

Birks, P.R. & Phillips, C. - "Locust Control with ULV Spraying".  
Special leaflet 1974.

Moulden, J. - "Sampling methods and life table data for Sitona humeralis. Stephens (Coleoptera:Curculionidae)". Agronomy Branch Report No. 62, 1975.

#### 6. VISITORS:

In addition to a number of industry representatives from Australia and overseas, special visitors were:-

Dr. R. Peter Pottinger, Ruakura Soil and Field Research Station,  
Ministry of Agriculture & Fisheries, Hamilton, New Zealand -  
on pests of broad-acre crops and pastures.

Professor Ray F. Smith, Chairman, Department of Entomology and  
Parasitology, University of California, California - on pest  
management.

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