



DEPARTMENT OF AGRICULTURE AND FISHERIES, SOUTH AUSTRALIA

Agronomy Branch Report

SEED SECTION

REPORT FOR 1977-78

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REPORT 111

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SEED SECTION - REPORT FOR 1977-78

1. THE SEASON

1.1 Weather

The worst drought for many years severely curtailed seed production in South Australia, just as it affected most other forms of primary production. Eyre Peninsula was the area hardest hit. Irrigated areas in the South-East were able to maintain reasonable yields of some crops.

1.2 Production of certified seed

Total production to 30th September, 1978 was 1 492 tonnes compared with 2 040 tonnes for 1976-77 season.

Increased production occurred with Hunter River lucerne, Paravivo lucerne and Luna lucerne, Swan oats and Avon oats.

Lower production with most other crops was due to the drought conditions.

Full details are given in Table 9.1

1.3 Yields

As one would expect average yields were well down on all crops except Hunter River and Paravivo lucerne. Although no exceptionally high yields were obtained, they were similar to the previous year. One grower achieved a yield of 1 063 kg/ha of Paravivo lucerne. One other very high yield was 1 439 kg/ha of Bacchus Marsh sub clover.

1.4 Spotted Alfalfa Aphid

Since the discovery of this insect in March 1977, large areas of lucerne have been attacked with the result that seed production has dropped markedly - particularly on dryland areas.

Irrigated areas have however, made up the difference and in fact have increased the total production.

1.5 Sales

Because of the shortfall in production prices for all kinds of seeds have been extremely high. Once again the bulk of the production has been exported with a large quantity of seed being imported from other states.

Approximately 2 980 tonnes were exported. The main crops being:

Lucerne	1 346 tonnes
Sub clover	360 tonnes
Annual medics	388 tonnes
Shaftal clover	128 tonnes
Oats	500 tonnes

Countries to which large tonnages were shipped included Algeria, Holland, Italy, Libya, New Zealand, Portugal, South Africa, Tunisia, Uruguay, U.S.A. and West Germany.

2. SEED CERTIFICATION PROGRAMMES

2.1 Crops sown under supervision

There was an increase of 312 hectares of crops sown under supervision. There were small increases - decreases with individual crops. Full details are given in Table 9.2.

2.2 Registration of perennial crops in non harvest years

There was a decrease of 1 278 hectares in the total area inspected for the season compared with 1976-77. Two crops mainly were involved, Hunter River lucerne and Demeter fescue. Full details are given in Table 9.3.

2.3 Certification of new crops

- 2.3.1 Since the arrival in Australia of the lucerne aphids, there has been considerable interest in the sowing of aphid resistant lucerne varieties from the United States. Because of the strict quarantine restrictions in South Australia, only small quantities of seed have been allowed into the state. It was decided CUF 101 lucerne offered the best resistance and therefore 158 ha was sown during the year with Foundation seed from California.
- 2.3.2 Sirolan phalaris a new low alkaloid phalaris to replace Sirocco phalaris was sown in the South-East to produce Basic seed for use in Australia.
- 2.3.3 Esperance sub clover, a new Kabatiella resistant cultivar from W.A. was sown in the South-East.
- 2.3.4 Namoi Woolly pod vetch. A small quantity of Breeders seed was obtained from CSIRO and sown in the South-East to produce Basic seed to commence a certification scheme for this species.

2.4 Plot testing

All annuals were sown during the year including wheat and barley for the first time.

- 2.4.1 Medic species. 101 certified lines were sown and tested and all met certified standards.
- 2.4.2 Subterranean clover species. 70 certified lines were tested and all met certified standards.
- 2.4.3 Wheat. 67 lines were tested and all were true to type.
- 2.4.4 Barley. 50 lines were tested. One line of "Approved" Ketch was found to be Clipper.
- 2.4.5 Oats. 23 lines of certified oats were sown and found to be satisfactory.

2.4.6 Lupins. 18 lines of lupins were sown and found to be true to type.

2.4.7 Pre-certification testing of Hunter River lucerne

During 1978, 55 lines of Hunter River lucerne were accepted into the certification scheme. Another 48 lines were sown and are under observation.

2.4.8 Currie cocksfoot Breeder seed

20 kg of Breeders seed from the Currie cocksfoot clones maintained by the section was harvested and stored in the refrigerated storage facility at Northfield Research Laboratories.

2.5 "Truth in labelling"

Use of self adhesive labels showing the details of purity and germination on all lines of certified seed is being carried out. This system has gained ready acceptance by all sections of the seed industry.

3. EXTENSION PROGRAMMES

3.1 Annual legume demonstration

This programme was continued into 1978 by Mr. N.M. Brooks. Sites were harvested for seed yield data at maturity and at the "break" of the season. Selected sites were oversown with cereals to obtain comparisons in yield between different cultivars and sowing rates of annual medic.

3.2 Maintaining field resistance to legume aphids of subterranean clovers and medics

Fourteen sites were sown to monitor the effect of aphids (Blue-Green Aphid and Spotted Alfalfa Aphid) on popular current cultivars, older less popular cultivars and newer cultivars.

3.8 Perennial legume pasture demonstration

A site at Murray Bridge (Monteith) was sown with five clovers for a comparison. The different cultivars were included as the white clover component in a perennial grass based mixture of a flood irrigated dairy pasture.

3.4 Tama ryegrass and Maral shaftal clover - sowings and performance "out of season" - N.M. Brooks and C.A. Schubert

Final production figures obtained confirmed that spring sowings are a worthwhile proposition under irrigated conditions of the above pasture mix.

The Seed Industry Newsletter published results progressively.

3.5 Field Days

The Seed Production Section was represented with the Seed Industry Association and the South Australian Seed Producers Association (now the Seed Section of UF&G) at the Agricultural Field Days at Paskeville on 16th, 17th and 18th August, 1977.

3.6 Seed Industry Newsletter

Six Seed Industry Newsletters were published during the year with the co-operation of the Southern Division of the Seed Industry Association and the S.A. Seed Producers Association.

Seventy articles varying in nature from news items through reports, Industry comments, statistics and technical articles were published. Participation came from private growers, Industry representatives, seed companies and officers of the Department.

This venue for information exchange is now widely read both within South Australia and interstate and overseas with over 500 copies now being produced.

Dr. K. Boyce is the senior editor of the panel consisting of representatives of the Department, growers and marketers.

3.7 Seed Industry Working Party

This group comprising of representatives of all sides of the Seed Industry and the Department is the primary body for liaison on Seed Industry matters. The Working Party met six times during the year to formulate Industry policy on such matters as seed production of aphid resistant legumes, promotion of selected pasture cultivars, development and promotion of publications and development of new Seeds Legislation.

3.8 Current Projects

- * Sirosa phalaris promotion
- * Lucerne seed production under irrigation
- * Medic seed production
- * Costs of seed production
- * Seed storage
- * Promotion of certified seed

4. SEED TESTING LABORATORY

The main function of the seed testing laboratory is to test seeds for germination and assess samples for purity of both inert matter, other crop and weed seeds.

The laboratory also carried out other, more specific tests when required, conducted referee testing with the International Seed Testing Association (ISTA) and acted as a resource centre for seed identification.

4.1 Testing programme

The laboratory tested a total of 8 031 seed samples despite the poor season. Quality assessments were made for germination potential, physical purity, weed seed content and seed identification. In addition, tests for moisture content, fluorescence hard seed and tetrazolium testing for the viability of seeds were carried out.

Samples were processed for Seed Certification, the Seed Industry, individual growers, Commonwealth quarantine, the State Seeds Act, Departmental research programmes and seed exporters. Work in co-operation with the ISTA on a referee purity and germination tests was also included.

With the exception of seed export and the Departmental programmes, sample numbers were well down from the previous season. Work for Departmental officers included the usual medics, lupins and cereals with a large increase in the numbers of vegetable and flower seed samples. These latter species also increased significantly in the Industry area.

A total of 1 361 International Seed Lot Certificates were issued, an increase of 1 123 on the previous year. These were required for overseas export of pasture grasses, vegetables, legumes and cereal seed.

Work in connection with the ISTA Bulking and Sampling Committee and the Pelleted Seeds Committee was continued.

To facilitate seed identification reorganisation of the crop and weed seed collection was started along with the addition of many new seed species received from overseas and interstate.

Specimens of both common and noxious weed seeds have been collected for preparation of specimen seed collections, to be presented to all South Australian Seed Cleaners and interested Departmental officers, sometime during the next season.

The Seed Testing staff again co-operated with the Seed Industry Association, the Seed Section of UF&G and the Seed Production Section of the Department by preparing samples and weed seed displays for the annual field days held at Paskeville in August, 1977.

5. VISITORS

Visitors to the Section came from Algeria, Federal Republic of West Germany, Phillipines, Portugal, Sweden, Spain, Sudan, Somlia, Losotho, Turkey, South Yemen, Tanzania and Pakistan.

6. CONFERENCES

Meeting in Melbourne in February, 1978.

- * Australian Seed Industry Advisory Committee
- * Chief Seed Testing and Regulatory Officers
- * Co-ordinating Committee for Seed Certification

Attended by Mr. R.M. Kain and Dr. K.G. Boyce.

Australian Seed Producers Conference, Wagga Wagga, N.S.W. attended by Dr. K.G. Boyce, September, 1977.

Lucerne Field Day, Numurkah, Victoria attended by Mr. G.E. Cooper and Mr. I.H. Simons, 12th April, 1978.

Paskerville Field Days, attended by Mr. C.A. Schubert, 16th, 17th and 18th August, 1977.

7. PUBLICATIONS:

BOYCE, K.G. (1978) - "The significance of abnormal seedlings of lupin in the field". Aust. Seed Science Newsletter 4 (in press).

BROOKS, N.M. (1978) - "Monitoring field resistance to legume aphids of subterranean clover and medics and annual pasture legume cultivar demonstrations". Agronomy Branch Report No. 99.

7. PUBLICATIONS CONT'D

COLEMAN, W.Q. and PATTERSON, A.J. (1978) - "Pasture Seed Production - a comparison of returns: 1978". Agronomy Branch Report No. 97.

COOPER, G.E. (1978) - "Seed Production Report for 1977". Agronomy Branch Report No. 90.

FRASER, D. (1978) - "Germination temperature for sub clovers". Aust. Seed Science Newsletter 4 (in press).

SIMONS, I. (1978) - "Demeter tall fescue - a profitable seed crop". Fact Sheet 49/78.

SMITH, K., SIMONS, I., and KLOOT, P. (1978) - "A guide to herbicides for weed control in lucerne seed crops". Fact Sheet No. 3/78.

SMITH, K., SIMONS, I., and KLOOT, P. (1978) - "A guide to herbicides for weed control in annual medic and subterranean clover seed crops". Fact Sheet No. 4/78.

WILKS, V. (1978) - "Observations on mechanical damaged lupin seed in the laboratory". Aust. Seed Science Newsletter 4 (in press).

WILLIAMS, C.M.J. and BOYCE, K.G. (1978) - "Wool and seed production from demeter tall fescue". Proc. Aust. Soc. Animals Production, 12:217.

8. DEPARTMENTAL RE-ORGANISATION

Following the retirement of Mr. R.M. Kain, as the Senior Seed Analyst after 40 years service in the Department on 31st March 1978, the three seed groups namely Seed Testing, Seed Production and Seed Physiology were amalgamated into one section under the leadership of Dr. K.G. Boyce.

9 STATISTICS

9.1 Certified Seed Production - Hectares Accepted and Rejected

1977 - 1978

Crop Variety	Hectares Inspected		Kilograms of seed produced from areas accepted from 1-10-77 to 30-9-78.	
	Accepted from 1-10-77 to 30-9-78	Rejected from 1-10-77 to 30-9-78	Released	Rejected
<u>Barrel medic:</u>				
Jemalong	881	-	71 964	9 291
<u>Cocksfoot:</u>				
Currie	141	-	30 741	5 045
<u>Disc medic:</u>				
Tornafield	207	-	39 512	-
<u>Fodder radish:</u>				
Siletina	3.5	-	1 000	-
<u>Gama medic:</u>				
Paragosa	43	-	967	2 000
<u>Linseed:</u>				
Glenelg	22	-	1 661	140
<u>Lucerne:</u>				
CUF 101	8	-	375	-
Hunter River	3 295	53.5	639 253	74 954
Luna	65.5	-	9 788	1 420
Paravivo	284	12	47 839	18 068
<u>Lupins:</u>				
Illyarrie	0.25	-	-	-
Marri	12.5	-	4 783	350
Ultra	3	-	1 764	-
Unicrop	155.5	-	28 723	23 647
Uniharvest	75	-	16 030	-
<u>Oats:</u>				
Avon	65	-	42 950	3 490
Cassia	3.25	-	4 422	5 150
Swan	89.5	-	46 835	2 770
West	0.1	-	27	-
<u>Onions:</u>				
Creamgold	1	-	-	446
Early lockyer	0.2	-	68	-
<u>Peas:</u>				
Rovar	3.15	-	70	332
<u>Phalaris:</u>				
Seedmaster	275	9	91 850	5 570
Sirocco	13	-	1 732	-
Sirosa	13	-	3 299	-

Certified Seed Production - Hectares Accepted and Rejected
1977 - 1978 (Continued)

Crop Variety	Hectares Inspected		Kilograms of seed produced from areas accepted from 1-10-77 to 30-9-78	
	Accepted from 1-10-77	Rejected from 1-10-77	Released	Rejected
<u>Rape:</u>				
Giant Emerald	13	-	-	5 363
<u>Rose clover:</u>				
Kondinin	8	-	680	-
<u>Snail medic:</u>				
Robinson	2	-	27	-
<u>Strand medic:</u>				
Harbinger	421.5	-	87 613	9 691
<u>Strawberry clover:</u>				
O'Connors	88	76	8 770	1 600
Palestine	86	38	6 144	283
<u>Subterranean clover:</u>				
Bacchus Marsh	33	-	11 513	-
Clare	377	-	191 119	2 022
Mt. Barker	65	-	12 647	1 272
Trikkaka	176	-	37 189	3 567
Woogenellup	16	-	2 350	-
Yarloop	24	-	4 728	-
<u>Tall fescue:</u>				
Demeter	229	5	43 095	29 164
S 170	4	-	-	938
<u>Tall wheat grass:</u>				
Largo	20	-	977	-
TOTAL	7 221.95	193.5	1 492 435	206 577

9.2 Crops sown under supervision

Crop Variety	1977-78		1976-77	
	No. fields	Hectares sown	No. fields	Hectares sown
<u>Barrel medic:</u>				
Borung	-	-	2	34
Cyprus	6	150	1	28
Sanzar	1	0.4	-	-
<u>Cocksfoot:</u>				
Currie	3	29	1	3
<u>Disc medic:</u>				
Saleg	2	3.6	-	-
<u>Fodder radish:</u>				
Siletina	6	74.5	3	10
<u>Gama medic:</u>				
Paragosa	1	8	4	55
Paraponto	1	1	-	-
Sapo	2	2.5	-	-
<u>Kale:</u>				
Green angeliter	1	2.5	2	2
Maris kestrel	1	2	1	3.5
<u>Linseed:</u>				
Glenelg	1	11	2	22
<u>Lucerne:</u>				
CUF 101	19	158.5	-	-
Hunter River	7	273	34	532
Luna	3	175	6	67
Paravivo	12	247	20	275.5
<u>Lupins:</u>				
Illyarrie	1	1.55	1	0.25
Marri	19	293	3	15
Ultra	3	18	-	-
Unicrop	11	244	17	360.5
Uniharvest	2	48	3	104
<u>Oats:</u>				
Avon	7	63	12	152
Cassia	3	19.5	1	3
Swan	12	223	9	97.5
West	1	1	1	0.1
<u>Onions:</u>				
Creamgold	2	2	1	0.5
Early Lockyer	-	-	1	0.2
<u>Peas:</u>				
Rovar	2	3.15	-	-

9.2 Crops sown under supervision Cont.

	1977-78		1976-77	
	No. fields	Hectares sown	No. fields	Hectares sown
<u>Phalaris:</u>				
Seedmaster	4	65	-	-
Sirolan	1	4	-	-
Sirosa	1	3	2	17.5
<u>Rape:</u>				
Akelar	1	15.5	-	-
Emerald	2	30	-	-
Giant emerald	1	13	-	-
<u>Shaftal clover:</u>				
Lupers	2	8.5	-	-
<u>Snail medic:</u>				
Robinson	2	3.5	1	2
Sair	1	0.8	-	-
Sava	1	0.5	-	-
<u>Strawberry clover:</u>				
O'Connors	4	40	1	13
Palestine	-	-	2	22
<u>Subterranean clover:</u>				
Esperance	1	3	-	-
Trikkala	13	163.5	15	312
<u>Tall fescue:</u>				
Demeter	11	90.5	3	11.5
<u>Tall wheat grass:</u>				
Largo	3	69	-	-
<u>White clover:</u>				
Tamar	2	7.5	-	-
<u>Woolly pod vetch:</u>				
Namoi	1	0.8	-	-
TOTAL	180	2 572.3	149	2 143.05

9.3 Crops registered for 1977-78

Crop Variety	Hectares 1977-78	Accepted 1976-77
<u>Cocksfoot:</u>		
Currie	53	64
<u>Lucerne:</u>		
Cancreep	-	36
Du Puits	4	16
Hunter River	10 165.5	10 894
Paravivo	211.5	266
<u>Phalaris:</u>		
Australian	1 567	1 665.5
Seedmaster	25	56
Sirocco	48	32
Tunisian	1.5	1.5
<u>Strawberry clover:</u>		
O'Connors	36	16
Palestine	378	534
<u>Tall fescue:</u>		
Demeter	94.5	287.5
<u>Tall wheat grass:</u>		
Largo	6	-
TOTAL	12 590	13 868.5