



DEPARTMENT OF AGRICULTURE, SOUTH AUSTRALIA

Agronomy Branch Report

HERBAGE SEED PRODUCTION

1973 - 74 SEASON

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Herbage Seed Production

1973-74 Season

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1. Total Production - Certified Seeds

Early in the season it was forecast that production of Certified seeds could be an all time record high, with an expected 2,500 tonnes of seed, because over 10,000 hectares of crops were accepted and seasonal growing conditions were favourable. Unfortunately spring and summer weather adversely affected growth, pollination and harvesting and total production only just exceeded 1,500 tonnes. This was however a fifty per cent increase over the previous year.

Almost all perennial grasses, annual medics and subterranean clovers showed large increases in production, while lucernes, Currie cocksfoot, Palestine Strawberry clover and Medea perennial ryegrass production decreased. Full details of all crops are given in Table 1.

2. Total Production - Uncertified Seeds

The total quantity of non-certified seeds cleaned during the 1973-74 season is larger than the previous season's production with most categories showing substantial increases. Some lucernes, Shaftal and O'Connors Strawberry clovers however show decreases. Details are given in Table 1.

3. Weather

An excellent winter growing season encouraged estimates of record production. Late winter and early spring flooding destroyed a number of very promising Kale seedcrops. Good spring rain caused over-lush growth of some annual crops to develop severe Spring Blackstem disease, (*Aschochyta* sp.) and collapse. Dry weather in early summer in the South East and consistent strong winds interfered with crop maturity and pollination, and caused severe seed loss from shattering and made harvest tedious. The following abnormally cool wet summer, weather seriously affected lucerne pollination and harvest of all crops of the later species.

4. Yields

Despite good growing conditions, yields were disappointingly variable primarily due to unfavourable harvesting weather.

In northern unirrigated crops over 500 kg/ha of Jemalong Barrel medic and Clare Subterranean clover was averaged from the best fields.

5. New Plantings of Perennial Crops

There has been a decrease in the total area of new plantings with only 1,357 hectares planted under supervision, compared to 2,113 hectares the previous season.

Despite this, there were increased plantings for some crops, namely Currie cocksfoot, Demeter fescue, Seedmaster phalaris, Deborah Brome grass, O'Connors Strawberry clover and Paravivo lucerne. Paragosa Gama medic is about the same while Palestine Strawberry clover, Kales, Hunter River lucerne, Rapes, Ryegrass and Sirocco phalaris have decreased.

6. Registration of Perennial Crops

The total area of unharvested perennial crops registered to maintain eligibility for future certification dropped compared to previous years. All species showing a decrease.

7. Unwanted Seeds:

7.1 Dock (Rumex sp.)

During the 1973-74 season, more seed, containing a trace of Dock seed as an impurity, was produced within the Certification Scheme than in any previous year.

For instance, 36.5% of the weight of Demeter Fescue seed, 34% of Seedmaster phalaris, 31.5% of Currie Cocksfoot, 46% of Palestine Strawberry clover and 53% of O'Connors Strawberry clover contained traces of Dock seed.

The unusually wet summer tended to promote growth of odd small Dock plants which were often hidden beneath bulky mature crops, despite the fact that crop weed control is generally better than previously. Seed shortages and efforts to keep cleaning charges down caused much seed to be pushed over cleaning machines faster than normal, resulting in poorer separation of Dock seed from crop seed.

Growers need to pay closer attention to Dock control. We have approached all growers who had Dock seed occur in seed this season urging close attention and outlining control recommendations.

7.2 Burr medic (Medicago polymorpha)

This volunteer continues, especially in favourable seasons, to remain a problem, causing impurity of northern Certified annual medic seedcrops.

This season approximately 11% of the total Certified annual medic seed, (or 30 tonnes) was rejected from Certification because the burr medic seed impurity exceeded the allowable 2% by weight. This factor alone makes it important that a more satisfactory method of harvesting is developed commercially which will separate burr medic pods from crop pods before seed enters the thresher because once thrashed it is often not feasible to separate the seed.

8. Carbon Banding

It will be recalled, last season seven growers planted a total of 103 hectares of Demeter fescue using the carbon banding technique. Weed control was impressive and crops grew magnificently, having the appearance of crops several years old. Yield estimates varied from 300 kg/ha for the less spectacular crops to 1,000 kg/ha for the best. Harvested yields did not meet these expectations however. High winds accounted for some, but not all the yield reduction. The best crop yielded 862 kg/ha and the average was around 350 kg/ha - good yields from crops sown only five or six months previously, but not as good as appearances suggested.

This year no further Demeter was sown using carbon banding, but several fields of Currie cocksfoot, Seedmaster phalaris and Deborah Brome grass were planted. Establishment of some Currie cocksfoot and phalaris paddocks is poor due to diuron damage. This is thought to be due to, too lower rate of carbon and perhaps low-grade carbon. Almost certainly experience suggests that the rates used may have given acceptable results with Demeter fescue, which is less sensitive to diuron

9. Shaftal clover

Despite an increase in the number of hectares sown, Giant Shaftal clover seed production was less than a fifth of that of either of the previous two years.

This was due primarily to crop damage by rust. However, sudden hot weather, in December, caused some crops to collapse and reduced seed yields. High winds in January also caused seed losses by blowing away windrowed crops awaiting harvest.

It is now clear that rust damage to shaftal clover can be more adequately controlled by grazing than by cutting.

10. Perennial Ryegrass Seed Production

The experimental crops of European ryegrasses planted last season failed to produce worthwhile yields of seed. The fields established well in the autumn, and grew vigorously in our mild winter. All varieties however proved to be very late in flowering - six to eight weeks later than local varieties. Due to dry - hot weather, which is usual at this time, crops suffered drastically at and following flowering.

There remains some doubt if the winter-cold requirement of all the late maturing European ryegrass varieties can be met by our normal winters to enable full production of seed.

It is intended to let all trial areas go for seed again this year to observe results.

It looks as if we cannot reliably grow the European varieties currently under test without the use of irrigation. If current high prices continue, it could be possible to economically use irrigation. However, at present, domestic varieties of seeds will return more money and are more attractive to growers. This may not continue and it is our opinion that alternative seed crops should be fully investigated.

11. "Truth in Labelling"

As from now labelling with analytical details is being offered to all seedcleaners for Certified Seeds as an alternative to marking the analytical number on tags. Participation is voluntary. Cleaners may, if they so wish, obtain pressure sensitive adhesive labels from us, for each line of seed. These have printed on them the Analytical number and details of analyses. They must be stuck on the back of the label instead of stamping on the analytical number. Sack endorsement, which has been previously allowed when requested, (for seed of lower physical purity or germination than the Seeds Act standard) will no longer be allowed. Instead, for this seed, full analytical details by means of stickers on the back of Certified labels will be made available upon request.

12.1 Table One

Hectares accepted for Certified Seed Production.
 Kilograms of Certified seed released and rejected.
 Kilograms of Uncertified seed cleaned.

Crop Variety	Hectares Accepted	Amount produced in kgs		Kgs. of uncertified seed cleaned
		Released	Rejected	
<u>Barrel medic</u>				
Cyprus	-	-	-	450
Hannaford	-	-	-	93,050
Jemalong	1,484	265,867	60,761	48,092
Hannaford/Jemalong	-	-	-	15,120
<u>Brome grass</u>				
Deborah	2	1,580	-	-
<u>Canary grass</u>	-	-	-	11,940
<u>Cluster clover</u>	-	-	-	400
<u>Cocksfoot</u>				
Currie	336	76,188	10,159	7,546
<u>Disc medic</u>				
Tornafield	80	18,111	750	3,639
<u>Evening primrose</u>	-	-	-	975
<u>Gama medic</u>				
Paragosa	98	25,179	4,350	36,937
<u>Kale</u>				
Chou moellier	-	-	-	830
Marrow stem midas	4	468	-	-
Marrow stem green ring	12	-	-	-
Marrow stem green angeliter	14	1,536	-	-
Marrow stem	34	1,399	-	552
<u>Lucerne</u>				
African	9	125	-	70
Cancreep	64	2,840	-	193
Du Puits	46	5,010	-	-
Hunter River	3,262	223,948	11,998	728,721
Paravivo	16	717	-	-
C.S.I.R.O.	2	129	-	-
Siro Peruvian	115	2,933	-	-
<u>Melilotus</u>	-	-	-	264
<u>Onions</u>				
Early lockyer	.2	160	-	-
<u>Peas</u>				
All round	6	4,000	-	-

Crop Variety	Hectares Accepted	Amount produced in kgs		Kgs. of uncertified seed cleaned
		Released	Rejected	
<u>Phalaris</u>				
Australian	138	4,346	3,478	57,776
Seedmaster	231	72,088	2,085	7,271
Sirocco	78	4,446	40	572
Sirosa	5	262	-	-
Tunisian	2	-	-	-
<u>Rape</u>				
Giant emerald	56	13,047	105	-
<u>Red clover</u>				
Aberystwyth	-	6	-	-
<u>Rose clover</u>				
Kondinin	25	1,527	-	-
<u>Ryegrass</u>				
Annual Wimmera	-	-	-	173,436
Grassland Tama	5	-	-	622
Hora perennial	10	-	-	-
Medea	4	1,423	-	-
Merriden	-	-	-	5,883
Mt. Alma	-	-	-	4,618
Terhoy	10	-	-	-
Other perennial	-	-	-	80,547
<u>Shaftal clover</u>				
	-	-	-	10,271
<u>Snail medic</u>				
	-	-	-	21,434
<u>Strand medic</u>				
Harbinger	1,014	77,132	10,928	53,685
<u>Strawberry clover</u>				
O'Connors	74	4,177	-	2,278
Palestine	194	8,947	967	27,340
<u>Subterranean clover</u>				
Bacchus Marsh	64	7,375	-	3,580
Clare	919	173,306	24,962	26,977
Daliak	3	-	-	13,400
Howard	48	19,664	10,700	10,000
Mt. Barker	1,211	200,808	33,402	135,575
Tallarook	10	5,500	-	-
Woogenellup	180	46,145	1,350	15,231
Yarloop	131	27,908	-	101,136
Yarloop/Clare	-	-	-	9,694
Yarloop/Mt. Barker	-	-	-	300
Yarloop/Woogenellup	-	-	-	2,100
<u>Sunflower</u>				
	-	-	-	8,066
<u>Tall Fescue</u>				
Demeter	420	202,369	20,227	48,289
<u>Veldt grass</u>				
Unarlee	-	-	-	2,850

Crop Variety	Hectares Accepted	Amount produced in kgs		Kgs. of uncertified seed cleaned
		Released	Rejected	
<u>Vetch</u> Namoi Woolly pod	8	-	-	388
<u>White clover</u> Tamar	6	-	-	-
	10,430	1,500,666	196,262	1,772,098

Crop registered for 1973-74* 12.2

Crop	1972-73		1973-74	
	Hectares Applied for	Hectares Accepted	Hectares Applied for	Hectares Accepted
<u>Cocksfoot</u> Currie	240	228	123	123
<u>Fescue</u> Demeter	564	552	504	474
<u>Lucerne</u> African	64	64	11	11
Cancreep	48	48	19	19
Du Puits	95	95	73	73
Hunter River	15,526	15,190	13,917	13,595
Paravivo	-	-	1	1
Siro Peruvian	639	631	551	551
<u>Phalaris</u> Australian	2,234	2,024	1,784	1,784
Seedmaster	101	101	23	23
Sirocco	39	39	26	26
<u>Strawberry clover</u> O'Connors	68	68	64	64
Palestine	930	825	554	538
<u>Veldt grass</u> Mission	10	10	-	-
<u>White clover</u> Milka	4	4	4	4
TOTAL	20,562	19,879	17,654	17,286

* Registration inspections are made on perennial crops in non-harvest years to maintain certification eligibility.

12.3 Crops sown under Supervision

Crop variety	1972/73		1973/74	
	No. of fields	Hectares sown	No. of fields	Hectares sown
<u>Brome grass</u>				
Deborah	1	2	2	18
<u>Cocksfoot</u>				
Currie	2	14	4	32
<u>Gama medic</u>				
Paragosa	6	67	6	68
<u>Kale</u>				
Green Marrow Stem	4	66	2	33
Stabil	1	15	-	-
Green Angeliter	2	23	-	-
Midas	1	15	1	16
Green Ring	1	8	-	-
Debonair	1	2	-	-
<u>Love grass</u>				
Renner	1	2	1	4
<u>Lucerne</u>				
Cancreep No. 2	-	-	1	0.5
C.S.I.R.O. Combined	1	2	-	-
C.S.I.R.O. No. 2	-	-	1	0.5
C.S.I.R.O. No. 3	-	-	1	0.5
Du Puits	1	12	-	-
Hunter River	61	1,249	37	594
Luna	-	-	1	0.1
Paravivo	2	8	10	69
Siro Peruvian	3	89	-	-
<u>Lupins</u>				
Uniharvest	3	13	-	-
<u>Onions</u>				
Early Lockyer	-	-	2	0.2
<u>Peas</u>				
Allround	-	-	3	8
Blue Boiler	-	-	1	3
<u>Phalaris</u>				
Seedmaster	6	58	14	101
Sirocco	2	5	-	-
Sirosa	1	4	-	-
Tunisian	1	2	-	-
<u>Rape</u>				
Giant Emerald	6	66	-	-
<u>Ryegrass</u>				
Hora	2	10	1	4
Medea	-	-	1	6

12.3 Crops sown under Supervision

Crop variety	1972/73		1973/74	
	No. of fields	Hectares sown	No. of fields	Hectares sown
<u>Ryegrass (cont.)</u>				
Perma	1	7	-	-
Splendor	1	5	-	-
Tama	1	5	1	3
Terhoy	1	10	-	-
Terpas	1	9	-	-
<u>Shaftal clover</u>				
Maral	5	50	-	-
<u>Strawberry clover</u>				
O'Connors	5	17.4	3	36
Palestine	5	104	6	88
<u>Tall fescue</u>				
Demeter	17	188	24	268
<u>White clover</u>				
Aberystwyth S184	1	0.4	-	-
Milka	-	-	1	4
Tamar	1	7	-	-
TOTAL	144	2,113	124	1,357

13. Activities of Seed Production Section

13.1 Introduction

Three aspects of the section's work have developed during the year. Firstly, the full-scale plot testing program has been resumed with the appointment of Mr. C.A. Schubert, and secondly, formal program planning has been phased in for all major extension activities.

Thirdly, the section is now responsible for maintenance of breeder seed of the Currie Cultivar of Cocksfoot and has taken over the parent plants from the Waite Agricultural Research Institute who were previously responsible for the cultivar.

Other work of the Section continues in much the same way as previously.

13.2 Experimental projects

13.2 (1) Measure the affect of nitrogen fertilizer on seed yield of Demeter fescue, sown by charcoal banding technique in year of establishment.

13.2 (2) Evaluate the affectiveness of Kerb and Kerb and Balan mixed with Tribunil (R); 2,4-DB, Bromoxynil, Prometryne, and MCPB to control weeds in annual medic seed crops. Applied post emergent in Autumn 1974.

13.2 (3) Evaluate a range of post emergent herbicides for control of King island melilotus and Wild Mustard in medic and subterranean clover seed crops. Interim results indicate that 0.7 litre per ha. of Amine 2,4-D may give best results.

13.2 (4) Determine the ability of both diruon and paraquat to control annual grasses and subterranean clover in Strawberry clover and Tama white clover.

13.2 (5) Determine the effect of I.P.C., Diuron and Atrazine on seedlings and crop plants of Perma perennial ryegrass. Interim results indicate that 0.5 - 1.0 kg/ha of Atrazine gives best results. Rate depends on size of seedlings.

13.2 (6) Control of Capeweed by:- 1) Strategic grazing,
2) Chemical spraying.

Results indicate that grazing has beneficial effects but is difficult to manage. Chemcial control is affective and easier to manage.

13.2 (7) Affect of moisture content at harvest on machine damage and germination of commerical lots of phalaris tuberosa seed.

In conjunction with the seed testing laboratory, hand harvested and commercially harvested samples have been collected from all commercial fields and are being analysed for moisture content and germination.

13.2 (8) Developemnt of an automatic seed sampler for use in Seed Certification Schemes.

13.2 (9) Control of broad leaved weeds in Hora perennial ryegrass seedcrop.

Amine 2,4-D plus Banex, Diquat, Bucril MA were compared for Sorrel, Dock and Wireweed control. 1½ litres amine 2,4-D plus ½ litre Banex gave best results.

13.2 (10) Assistance has been provided to the Plant Introduction section with regional testing of Paravivo lucerne and to the Seed Physiology Section with the testing of foreign cultivars for Seed Production in the South East.

13.2 (11) Plot testing program: Tests were completed for 92 lots of annual legume seed as part of the routine check on the effectiveness of Certification procedures. All lines were within the 5% tolerance. 62 lines were tested for varietal authentication before they were released for sale. These consisted of a large proportion of Mt. Barker subterranean clover from fields entered late in the season.

13.3 Extension Programs

13.3 (1) Stock seed for Certified Crop Establishment

Designed to create a greater awareness of the need to plant true to type seeds of annual legumes intended for seed production.

13.3 (2) Lucerne Seedcrop Pests

To educate more seedgrowers to:-

- 1) Recognise lucerne pest damage
- 2) Identify pests
- 3) Adopt effective control measures.

13.3 (3) Weed Control in Annual legumes

To obtain more effective weed control in annual legume seedcrops through:-

- 1) Publicise existing recommendations
- 2) By planning and conducting trials to obtain information

Control of weeds currently hard to control with current recommendations.

13.3 (4) Bulk handling of Certified Seed

The majority of South Eastern Seed is bulk handled from harvests to seed cleaners. This program is designed, through education, to prevent the possibility of loss of identity or contamination of seed during bulk handling.

13.3 (5) Overseas Seed Multiplications

The objective is to publicise the extent of the potential overseas market for seeds and potential for South Australia to contract-produce new seeds.

13.3 (6) Costs of Seed Production

To establish a basic, detailed schedule of costs of seed production to assist in farmer decision making, regarding multiplication of both domestic and foreign cultivars.

13.4 Staff

13.4 (1) Changes

Mr. M.C. Jongebloed resigned in December 1973 and was replaced by Mr. T. Prance.

Mrs. D. Rattray resigned in March 1974 and was replaced by Miss C. Dodson.

Mr. C.A. Schubert joined the section in May 1974 to fill the vacancy caused by Mr. T. Usher's resignation in August 1972.

13.5 Publications

Coleman, W.O. and Mulligan, D.:- Costs of Seed Production,
Journal of Agriculture. (In print)

Coleman, W.O., with Fairbrother and Marret:-

Oil and Legume Seed Crop of South East - special bulletin.

Dodson, C.M.:- Monthly Statistical Summary of Seed Production, March
1974 - June 1974

Jongebloed, M.C.:- A Guide to Herbicides for Weed Control in Pasture
Seed Crops.

Special Bulletin No. 1:74

Ragless, D.C.:- Growing Prospects for Seed Export, R.M.O. Nov. 1973

Seed Production; The Key to Profitable Medic Pastures,
Journal of Agriculture, Nov. 1973

Herbage Seed Production Seasonal Report, 1972-73
Agronomy Branch Report, No. 48

The Future of Seed Markets
Farming Forum (in print)

Production of Certified Seeds, 1960 - 1972
Agronomy Branch Report, No. 53

Marketing of Seed of New Pasture Varieties
Australian Seed Review (in print)

Medic Seed Production as an adjunct to Mixed Farming
Proceedings Branch Conference, September 1973

Rattray, D.E.:- Monthly Production Reports, July 1973 until March 1974

Annual Seed Production Statistical Report, 1972 - 1973,
September 1973

Seed Production Individual Growers Performance Report, October
1973

13.6 Visitors

During the year the Section had eighteen overseas visitors and fourteen interstate visitors. The length of stay varied from six week training period for Mr. P.J. Muiyi of Uganda and Mr. P. Somkid of Thailand to short visits of half a day.

13.7 Regulatory and Diagnostic Services

Activity	Total Number of visits
Certification Inspections, farm and warehouse	1125
Inspections on behalf of Seed Testing Laboratory	93
Sampling seed on behalf of Victorian Dept. of Agriculture	12
Quarantine Inspections	3
Weed Plant identifications	68
Insect pest identifications	43
Disease identifications	27
Seed identifications	59