"SEEDS IN THE 1990'S":

A Strategic Plan for the Development of the South Australian Seed Industry

MISSION STATEMENT:

To Optimise the Long Term Development and Profitability of the South Australian Seed Industry.

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1. INTRODUCTION

The Seed Industry in South Australia is an important agricultural industry as it directly serves over 90% of the State's farmers. Some 5-7% of the State's farmers are directly involved in seed production.

The majority of production leaves the State with about half being exported overseas.

The industry supplies to farmers almost all of the range of sowing seed required for agricultural production hence the performance of the seed industry in supplying a quality product can significantly influence general agricultural output.

The seed industry in South Australia is the most highly structured in Australia and has a well deserved reputation for high productivity, excellence in quality control and a professional outlook.

This Strategic Plan was developed in close consultation with representatives of all industry groups comprising the Herbage and Field Crop Seed Consultative Committees, two industry - Department of Agriculture liaison groups.

A significant event in this consultative process was a meeting held in March, 1991 where the strategic plan document was extensively reviewed. A brief resume of the meeting is given in Annex 1.

The Strategic Planning Group comprised: Geoff Auricht, Kevin Boyce, Geoff Cooper, Stuart Martyn, Geoff McLean, and Ivern Simons.

2. INDUSTRY STATEMENT

2.1 Seed Industry characteristics

Seed crops in terms of Commodity Program Planning are defined as crops produced specifically to supply seed for sowing in agriculture and horticulture. Thus seed production of commodities such as the field crops where the end use of seed is not for sowing purposes is excluded from this review.

The production of seed in Australia concerns a wide range of plant species, the main groupings being field crops (cereals, grain legumes and oilseeds), pasture and forage species and horticultural species (vegetables and flowers). These species may be either perennial or annual and seed may be produced under non irrigated or irrigated conditions.

Generally seed crops of forage and horticultural species in South Australia are produced as specialist crops however, they may occur as a byproduct of another agricultural enterprise. Such seed production occurs for forage species originally sown as pastures and is generally so for field crops sown for grain production. This type of production occurs generally throughout Australia for forage and field crop species.

The management strategy for seed production of most forage species is also complicated by the integration of animal grazing enterprises and the need of bees for pollination.

Generally seed production of temperate forage species is subject to varietal certification procedures and increasingly the majority of forage seed marketed is certified, however, for subtropical forage species almost all seed for sale is uncertified.

The total quantity of seed of forage species produced in Australia is difficult to assess as statistics of uncertified production are unavailable.

Certified seed production from 1980/81 to 1989/90 for temperate forage species is shown in Table 2.1.

Production has almost doubled during this period mainly due to three factors; increased use of irrigation, increased sales, both national and export, and the general recognition by the industry and farmers of the value of certified seed.

Total seed production varies considerably from year to year depending mainly on the extent of favourable climatic conditions on ad hoc uncertified production, particularly of annual medics, sub clovers and lucerne.

It is unlikely that total forage seed production of temperate species in Australia exceeds 20,000 tonnes per annum.

Table 2.1 Certified forage seed production in Australia (tonnes)

Species	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Sub clover	4479	3561	2768	5390	5594	4256	5010	5053	6880	6384
Rose clover	8	24	16	112	92	52	-	-	13	19
White clover	46	84	159	139	144	415	933	899	563	465
Red clover	1	5	23	100	100	81	118	48	15	24
Strawberry clover	82	107	77	76	90	90	105	77	58	52
Balansa clover	-	-	-	-	18	43	427	130	192	444
Lucerne	1639	1417	690	1192	2195	2503	2117	3317	3495	4082
Annual medics										
Barrel	318	270	125	1126	1218	1201	1273	718	848	1970
Strand	119	134	49	250	232	175	118	14	3	57
Gama	85	193	71	596	117	80	40	1	21	64
Disc	-	-	1	22	-	9	-	1	-	-
Snail	-	12	36	342	129	136	218	231	144	136
Burr	-	-	6	82	457	442	583	270	555	216
Murex	-	-	-	-	-	-	-	-	-	26
Woolly-pod vetch	-	-	6	1	5	-	-	-	-	-
Purple vetch	41	5	27	43	44	3	5	11	1	16
Yellow serradella	-	-	-	-	-	-	3	9	35	45
Ryegrass										
perennial	1909	2624	243	2998	2677	1864	1650	2669	2022	1702
hybrid	-	-	-	4	5	5	-	211	8	-
Italian	-	-	-	2	3	-	-	-	5	15
Westerwold's	45	96	35	330	40	29	19	52	17	24
Phalaris	348	499	253	524	311	320	402	313	519	525
Cocksfoot	360	529	90	824	571	543	368	199	368	370
Tall fescue	344	627	47	571	720	569	536	483	669	523
Tall wheatgrass	4	6	3	28	28	82	66	50	73	70
Kikuyu	22	2	-	30	85	19	12	-	3	70
Total	9850	10195	4725	14782	14875	12917	14003	14756	16517	17299

2.2 Regional location features

The production of certified seed in South Australia as shown in Tables 2.2 and 2.3 has doubled since 1980 (Table 2.2) with the area of production increasing by 40%.

Field crop seed is produced by most grain farmers and by a few specialist seed producers in the cropping areas of the State.

Horticultural seeds, particularly vegetables are produced in the lower south-east region under non-irrigated conditions and to a limited extent in the Virginia area north of Adelaide under irrigation.

Irrigated lucerne seed production is centred around the upper south-east (Keith-Tintinara-Bordertown) and non-irrigated production in valleys through the mid-North from Marrabel to Melrose.

In the lower and mid-North agricultural areas including Yorke Peninsula, medic seed production is generally confined to non-irrigated areas on the alkaline soils, while subterranean clover is produced on acidic or neutral soils. The main production area for subterranean clover is in the south-east under irrigation concentrated around Naracoorte and Bordertown. Other forage species including the perennial Trifolium species, perennial grasses and exotic fodder species such as the fodder Brassica species are produced under irrigation in rotation with subterranean clover.

The regional distribution of certified seed production is shown in Table 2.4 where 75% occurs in the south-east region south of Coonalpyn.

The particular feature of seed production in South Australia is the high use of irrigation in the production technology.

Annual medics are mainly produced under non-irrigated conditions compared to subclover, lucerne and phalaris (Table 2.5). Over the decade of the 1980's the development of irrigation, primarily in the south-east of the State has facilitated the development of seed production of these three main forage crops.

2.3 Market outlets

Farm-saved field crop seed of South Australian origin is generally not traded formally. Some seed, however, changes hands between farmers by barter within close regional boundaries.

It is estimated that only about 10% of field crop seed sown (58,000 tonnes per annum) is marketed: the remainder is farmer-saved for their own use.

Field crop seed produced as a specialist crop is generally marketed on a regional basis but are often marketed State-wide (new cultivars). Rarely does any field crop seed cross State borders except for new cultivars which may be sold in quantity into the western Victorian and Western Australian cereal belt. Most of these organised sales are undertaken by

regionally based merchants who are often farmers.

S.A. produced field crop seed, as sowing seed is generally not exported from Australia.

Almost all horticultural seed is exported from the State. Until about 5 years ago horticultural seed was produced under contract for specialist horticultural seed firms in Victoria and New South Wales. Increasingly, however, horticultural seed is being produced by agricultural seed firms in South Australia and much of this produce is exported directly overseas.

While varying somewhat between species, the majority of forage seed, (over 80%), is exported from South Australia, with the primary Australian market being New South Wales. Over half (50%-60%) of the seed exported from South Australia is destined for overseas markets. These export markets are world-wide in cool temperate to sub-tropical climates although are mainly concentrated in southern Europe, North and South Africa, USA and southern South America.

Table 2.6 shows the quantity and value of seed exports from Australia and South Australia from 1980/81.

In general, South Australia has supplied around 40% of all Australian exports in quantity and about 30% in value.

Most marketing of forage seed is undertaken by specialised seed firms with only small amounts of seed marketed by seed producers.

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Table 2.2 Certified seed production in South Australia (tonnes)

Species	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90*
Persian	-	-	-	-	-	-	-	-	-	72
Sub clover	1423	1263	770	2395	2185	1547	1623	1462	2171	2668
Rose clover	-	7	5	80	77	7	-	-	13	19
White clover	1	11	53	98	192	192	560	529	357	284
Red clover	-	-	-	-	34	27	26	14	12	8
Strawberry clover	28	69	8	55	61	73	80	49	46	31
Balansa clover	-	-	-	-	18	41	277	73	116	253
Lucerne	1433	1217	561	1102	2053	2136	2062	3043	3279	3364
Annual medics										
Barrel	220	158	95	901	1033	781	981	471	411	983
Strand	117	128	49	250	232	144	118	14	3	57
Gama	15	124	67	342	83	58	13	-	9	52
Disc	-	-	1	21	-	9	-	1	10	1
Snail	-	12	33	308	113	97	174	87	107	158
Burr	-	-	-	-	56	38	45	16	13	11
Murex	-	-	-	-	-	-	-	-	-	-
Woolly-pod vetch	-	10	1	-	-	-	-	-	-	-
Yellow serradella	-	-	-	-	-	-	1	-	-	-
Phalaris	118	223	234	246	209	200	260	256	411	405
Cocksfoot	46	78	46	52	44	22	17	15	14	26
Tall fescue	25	52	23	20	5	5	23	9	100	18
Tall wheatgrass	-	-	-	2	-	2	26	17	32	33
Barley	646	1042	392	3143	321	229	261	223	393	398
Chickpea	-	-	-	-	-	-	-	62	54	-
Faba bean	57	197	50	45	22	43	83	39	46	-
Lentil	-	-	-	-	-	-	-	-	1	-
Lupin	251	227	110	109	97	-	96	214	403	151
Oats	85	72	325	404	919	284	237	482	717	254
Oilseed rape	19	16	8	5	10	17	-	-	-	-
Peas	27	103	25	21	23	117	1066	179	57	8
Triticale	984	5	5	10	10	25	-	-	3	55
Wheat	351	559	275	276	827	574	1428	344	436	882
Onion	5	1	1	1	2	1	1	2	2	2
OECD contracts	-	-	-	-	-	115	105	116	44	99
Forage Species	3426	3352	1946	5872	6395	5494	6391	6171	7148	8443
Field Crop Species	2425	2222	1190	4013	2231	1290	3172	1545	2102	1849
Total	5851	5574	3136	9885	8626	6784	9563	7716	9250	10292

* Seed released to 30/6/90

Table 2.3 Certified seed production area in South Australia (ha)

Species	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Persian clover	-	-	-	-	-	-	-	-	-	211
Sub clover	4733	4188	2918	4631	3907	3674	2991	2793	4116	4843
Rose clover	112	78	69	367	467	153	-	-	64	88
White clover	7	64	278	425	789	1172	1690	1725	1306	1275
Red clover	-	-	-	10	255	77	90	56	24	18
Strawberry clover	236	387	328	328	507	343	288	330	279	305
Balansa clover	-	-	-	-	48	180	769	326	454	689
Lucerne	5621	5969	3900	7089	7323	7873	8394	8815	7943	9876
Annual medic	2424	2592	1829	5159	5470	3657	4690	1986	2548	4133
Woollypod vetch	64	72	3	-	-	-	-	-	-	-
Yellow serradella	-	-	-	-	-	-	1	18	14	-
Phalaris	535	720	913	836	985	703	824	954	1202	1344
Cocksfoot	211	223	157	180	211	119	79	78	98	99
Tall fescue	152	129	106	88	45	39	16	46	183	144
Tall wheatgrass	-	6	-	40	-	16	68	77	91	44
Barley	460	886	636	1368	831	330	318	228	274	493
Chickpea	-	-	-	-	-	-	-	48	106	30
Faba bean	154	287	326	96	20	43	69	47	46	-
Lentil	-	-	-	-	-	-	-	-	21	-
Lupin	468	396	277	296	233	26	80	233	260	178
Oats	203	282	402	576	883	243	233	414	757	426
Oilseed rape	43	29	18	24	16	28	-	8	-	-
Peas	50	163	63	81	56	112	633	319	115	26
Triticale	1781	61	129	31	23	-	5	14	3	38
Wheat	670	851	550	304	858	483	1284	593	399	743
Onion	2	3	2	2	3	1	2	4	3	3
OECD contracts	18	71	-	-	-	343	427	384	256	351
Forage species	14106	14571	10595	19275	19964	18351	20329	17591	18583	23069
Field Crop species	3785	2818	2141	2752	2920	1265	2623	1905	1982	1916
Total	17891	17389	12736	22027	22884	19616	22952	19496	20565	24985

Table 2.4 Regional distribution of certified seed production in South Australia, 1988/89 and 1989/90 seasons (percentage of the total certified production)

Species	South-East		North/Y.P.		K.I.		Eyre Peninsula	
Sub clover	98	99	-	-	2	1	-	-
Rose clover	15	-	85	100	-	-	-	-
White clover	100	100	-	-	-	-	-	-
Red clover	100	100	-	-	-	-	-	-
Strawberry clover	100	100	-	-	-	-	-	-
Balansa clover	99	100	-	-	1	-	-	-
Lucerne	92	88	8	12	-	-	-	-
Annual medic	10	11	89	88	-	-	1	1
Phalaris	100	100	-	-	-	-	-	-
Cocksfoot	100	100	-	-	-	-	-	-
Tall fescue	100	100	-	-	-	-	-	-
Tall wheat grass	100	100	-	-	-	-	-	-
All forage species	89	83	10	16	1	1	-	-
Barley	37	22	62	60	-	8	1	10
Chickpea	-	-	89	-	-	-	11	-
Faba bean	-	-	83	-	-	-	17	-
Lentil	-	-	100	-	-	-	-	-
Lupin	78	60	6	35	-	-	16	5
Oats	15	34	61	10	15	40	9	16
Peas	-	-	82	100	-	-	18	-
Wheat	9	10	78	51	-	-	13	39
All field crops	29	20	56	47	5	8	10	25
All species	75	73	21	21	2	2	2	4

Table 2.5 Proportion of total certified seed production area and of sub clover, annual medic, lucerne and phalaris under irrigation in South Australia (%)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Sub clover	29.6	44.1	67.8	38.0	56.1	53.8	60.8	75.9	67.7	72.2
Annual medic	0.01	3.7	23.6	12.8	13.4	7.3	7.8	2.3	3.1	3.6
Lucerne	77.3	76.4	87.8	81.0	89.4	84.1	85.1	81.5	78.2	77.2
Phalaris	79.1	91.5	95.0	98.9	99.0	93.5	89.1	93.0	91.4	96.2
All forage species										
Total area (ha)	14106	14571	10595	19275	19964	18351	20329	17591	18583	23419
Dryland area (ha)	7660	7135	3637	9335	8327	7019	7665	5013	5893	8832
Irrigated area (ha)	6445	7436	6958	9940	11637	11332	12664	12578	12690	14587
% irrigated	45.7	51.0	65.7	51.7	58.3	61.7	62.3	89.7	68.3	62.3

2.4 Industry Regulation

2.4.1 Government

The primary purpose of Government regulation is to provide a quality assurance for seed for sale. Seed quality, both in genetic and physical terms is difficult to assess by seed buyers hence the need for quality assurance.

South Australian legislation:

i) Seeds Act, 1979-1982
- truthful labelling of seed for sale
- freedom from noxious weed seeds, insects and diseases
- provides for seed testing service.

ii) Animal & Plant Control Act, 1986
- regulates movement of noxious weed seeds.

iii) Fruit and Plant Protection Act, 1968-1976
- regulates movement of seed borne diseases.

iv) Packaging Act, 1967-1972 -regulates seed package size and labelling.

Commonwealth legislation:

i) Quarantine Act, 1908 - regulates seed imports

ii) Plant Variety Rights Act, 1987
- regulates ownership of seed of plant species.

iii) Export Control Act, 1982 -controls the export of all agricultural products.

Non-statutory regulation of genetic purity of seeds of plant cultivars is provided through a seed certification service administered by the Department of Agriculture on a fee-for-service basis.

State seed certification services are coordinated throughout Australia by Australian Seeds Committee, a sub-committee of Plant Production Committee.

Australia, through the Commonwealth Department of Primary Industries and Energy (DPIE), is a member of the seed certification schemes for international trade in seed administered by the OECD (Organisation for Economic Cooperation and Development).

State Government seed certification schemes are authorised by DPIE to carry out OECD certification, all with procedures for genetic quality control used by Australian domestic seed certification schemes conforming to OECD rules.

State Government seed certification schemes are authorised by DPIE to carry out OECD certification, all with procedures for genetic quality control used by Australian domestic seed certification schemes conforming to OECD rules.

Table 2.6 Seed Exports from Australia and South Australia 1980/81 - 1988/89

Quantity (tonnes) and Value (million $A)

		1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Quantity (tonnes)	Australia	7483.9	5665.9	5935.5	14520.7	6615.6	14074.6	14546.8	9735.5	8187.4	9986.0
	S.A.	3789.2	2006.7	2890.1	1729.3	2487.1	6162.6	6155.8	2832.9	3016.0	4694.6
Value (Mill $A)	Australia	15.55	10.96	12.08	11.40	13.96	24.64	24.99	23.75	24.66	31.94
	S.A.	6.78	4.27	4.37	2.75	3.79	6.97	6.97	5.54	7.26	10.95

Source Australian Bureau of Statistics

2.4.2 Industry

The Australian seed industry as a formal entity is primarily composed of two industry groups; seed producers and seed merchants. The seed processors who service both groups tend to align politically with the merchant group.

The two major groups are represented nationally by the Grains Council of Australia, Seed Section (GCA) and the Seed Industry Association of Australia (SIAA), respectively. Their South Australian counterparts are United Farmers and Stockowners, Seed Section and Seed Industry Association of Australia (Southern Region).

There is considerable common membership by individuals of the two groups. It is currently not uncommon for some of these individuals to be both producer, cleaner and merchant, not an uncommon occurrence although in the past there was considerably more separation.

Production and marketing of seed is dominated by two producer cooperatives, South Australian Seedgrowers Cooperative Ltd, (Seedco) and the Upper South-East Small Seeds Cooperative. The latter is a relatively small group centred at Keith, marketing only lucerne seed, whereas Seedco has over 450 members (over half of the specialist seed producers in SA), markets all seed commodities and is the dominant seed exporter in Australia.

2.4.3 Government/Industry liaison

At the national level GCA and SIAA are represented at an industry forum held during annual meetings of Australian Seed Committee (ASC). Prior to 1988 this liaison was formalised in the Australian Seed Industry Advisory Committee (ASIAC), a sub committee of ASC but was disbanded by SCA in its restructuring of the SCA committee system in that year.

In South Australia, State affiliate organisations of GCA and SIAA are represented on five formal Department of Agriculture liaison committees.

i) Herbage Seed Consultative Committee - seed matters related to herbage seed

ii) Field Crop Seed Consultative Committee - seed matters related to field crop seed

iii) Herbage Plant Liaison Committee - for registration and commercial release of new herbage plant cultivars

iv) Seed Laboratory Board of Management - financial management of seed laboratory services

v) Field Crop Seed Technical Committee - for liaison with field crop breeders and commercial release of field crop cultivars.

2.5 Processing

Seed for sowing is a commodity which requires processing before marketing due to the presence of inert material and unwanted weed and crop seeds in the harvested product and the requirement for quality assurance testing and labelling for legal sale. The majority of farm-saved field crop seed is processed in bulk by mobile seed cleaning units which are transported from farm to farm during the summer period.

All horticultural seeds and most field crop seed and forage seed produced by specialist seed growers is processed through fixed seed cleaning plants. These generally modern plants which are operated by professional seed processors have a wide range of drying, cleaning, chemical treating and packaging capabilities giving South Australian seed a world-wide reputation for excellence in physical quality and market presentation.

3. INDUSTRY POTENTIAL

3.1 Sustainable Production Potential

There is a potential to significantly expand the S.A. seed industry with products for the domestic and export markets. The seed industry in this State has a base of 700-800 farmers who have acquired specialist skills in the production of sowing seed. Over a quarter of these have the expertise, flexible farm infrastructure and the personal drive to undertake the challenge of producing new products as market opportunities arise.

The remainder of the industry is well structured to take initiatives, particularly through the two cooperatives, the network of professional seed processors and an efficient and effective industry-oriented Government service sector.

Production is reasonably well buffered against drought by the availability of irrigation in the south-east with the possibility that this could be further exploited.

This cohesion of seed industry infrastructure gives South Australia an edge in Australia when market possibilities occur.

3.2 Market opportunities

The seed industry in South Australia has for many years clearly seen its market focus as global rather than domestic with the viability of the industry shown to be dependent on the export sales. Export markets are constantly being sought, particularly by Seedco and there appears to be no shortage of future possibilities.

The prognosis for increase in growth of the various sectors of the industry appear to be:

3.2.1 Field Crops

It is unlikely that the area of the major field crops will increase significantly: only the mix of crops may change marginally from year to year depending particularly on relative commodity prices.

Farmers will continue to save seed for sowing and will only purchase small quantities of new seed when new cultivars come on the market.

The development of highly specific disease resistant cultivars requiring better genetic quality assurance may cause an increased demand for certified seed from specialist seed producers. This trend will be marginal, however, with the proportion of certified seed increasing from its present 1% (approx) to several percent over the next decade.

Unless technological breakthroughs such as hybrid cereal production can be achieved it is difficult to envisage the field crop seed sector of the industry making significant growth in the near future.

3.2.2 Forage species

Market opportunities for forage species of Australian origin could be considerable, depending on the species.

The domestic lucerne seed market in Australia is currently saturated at about 1200 tonnes per annum with production in 1990/91 estimated at 4000 tonnes. The excess production is exported and is very price sensitive. Opportunities do exist for Australian-bred cultivars overseas and the potential for the development of new cultivars to fit overseas and domestic market niches from germplasm of the national lucerne programme is high.

Export marketing of medic cultivars has been a valuable income source for the medic seed industry in the past. However, the greatest market potential for medics exist in countries with colder climates than South Australia, and the development of cold tolerant medics and their production for specific overseas markets is warranted.

The use of medics in pastures in Australia has been neglected by farmers over the last decade as the push to greater cropping frequency has intensified. Seed production of medics could increase significantly if the domestic market was encouraged.

A similar situation exists for subterranean clovers. Export markets exist particularly in Europe, the USA and South America but appear to be cultivar specific and price sensitive. Should these markets be further penetrated and domestic demand increased, seed production could be quickly expanded to meet demand, particularly under the irrigated production conditions in the south-east.

Production of perennial grasses, except for phalaris, is likely to fall as demand falls in eastern states markets.

A similar situation exists for perennial legumes such as red and strawberry clover. Limited export opportunities exist for these species and the grasses and production is not expected to rise significantly. For white clover the domestic market has not generally been satisfied. It is likely that export markets will be found in the near future and production will rise.

Demand for the annual persian and balansa clovers is likely to continue to rise for some time particularly as the export market potential is realised in the near future.

3.2.3 Contract multiplication

The greatest potential for expansion of the SA seed industry is in the use of its specialist skills in contract multiplication. For many years seed producers in this State have carried out multiplication contracts for seed firms from interstate and overseas. Results of these activities had mixed success in the 1970's but with increasing professionalism in the industry there has been greater confidence by seed firms to place valuable plant

material with SA growers for multiplication.

The potential range of plant material from overseas which could be multiplied ranges from field crops and forages to spices, condiment species and horticultural seeds and is generally only limited by the ability to bring seed through quarantine in large enough quantities to make the operation economic.

Many of these opportunities exist in EEC countries where economic and physical isolation conditions are pressuring the domestic seed industry. Risk management by seed companies in relation to supply is becoming a significant factor in their marketing strategies.

Market opportunities also exist from countries in south-east asia where pressure on land resources and/or economic prosperity favour our production facilities.

3.2.4 Proprietary marketing

The increasing use of proprietary marketing of plant cultivars following the introduction of plant variety rights in Australia has resulted in greater demand for reliable seed production. Marketing of seed of proprietary material, in particular is becoming more finely tuned to demand. The South Australian seed industry is ideally placed to professionally handle the production of a broad range of plant cultivars and owners of proprietary material are increasingly seeking the services of the industry in this State. It is likely that given appropriate support from Government, the SA seed industry will be able to meet this significant market opportunity.

3.3 Market Returns

The gross value for seed production in Australia in 1989/90 was between $65 and $70 million. South Australia's contribution to this figure was $30-35 million or about 50% of the value of Australian production.

The estimated gross value of seed production for South Australia by 1993-94 is expected to be over $40 million. The indication from those estimates is that the gross value of South Australia's seed industry will exhibit a growth over and above the increase due to inflation which is estimated at 25 to 30 percent for the next five years.

4. BARRIERS TO ACHIEVING INDUSTRY POTENTIAL

4.1 Australian perspective

On October 14-15, 1990 a Seed Industry Workshop was conducted in Canberra by the Grains Council of Australia (GCA) and the Rural Industries Research and Development Corporation (RIRDC). The objectives of the workshop were to clarify industry goals, identify problems and opportunities and determine research and development needs, strategies and priorities for the next 3-5 years.

The workshop focussed on the herbage and amenity seeds industry in Australia.

In brief, industry barriers were seen as:

4.1.1 Breeding/Evaluation/Selection

* Too many cultivars available in some species to develop efficiencies of scale.
* Lack of a national coordinated plant evaluation programme in some species hinders industry development.
* Mismatching of cultivar release and seed availability causing marketing credibility problems.
* Breeding programmes often competing rather than cooperating.

4.1.2 Production

* Need for cleaner, environmentally acceptable production systems - more efficient chemical use.
* Better strategies for weed control - integrated management approach.
* More attention to plant health, pollination, nodulation and integration of seed production into general farming practice.
* Production and demand often cyclical and out of phase.

4.1.3 Harvesting and Processing

* Greater efficiency required to maintain profitability.
* More concern for soil conservation in harvesting of ground based annual legumes.
* Cleaning technology requires increases in efficiency to maintain and improve product cleanliness and maintain profitability particularly for tropical seeds.

4.1.4 Regulation and Standards

* Need for a national approach in many areas of legislation and standards.
* Concern at increasing costs for quarantine and export certification services.

4.1.5 Marketing

* Need for national approach in standards for packaging and labelling.
* Excessive numbers of cultivars for some species confuses the marketing.
* Sales of low quality seed direct from farmer to farmer damages the market.
* Frequent lack of balance between supply and demand and ineffective market intelligence system.
* Consumer education on the value of high seed quality needs to be established.
* Opportunities for import replacement and contract production from overseas.

4.1.6 Users/Producers

* Consumer needs relatively neglected: industry tends to be producer driven. More feedback needed.
* Consumer education on acceptance of merit in cultivar selection needs to be reinforced.
* Industry needs to address specific consumer needs.

4.1.7 General

* A national approach to industry issues is required.
* Industry needs to be underpinned by effective research and development and extension services.
* No national data base on various sectors of industry and on total industry performance.

4.2 South Australian perspective

The South Australian seed industry is the dominant sector of the Australian industry, particularly in relation to production of some major commodities and in export marketing.

For this reason, barriers to the achievement of growth and development of the South Australian industry will have a major impact on the viability of the total Australian industry and hence must be of considerable concern.

The major barriers to achieving the industry potential identified for South Australia are:

4.2.1 Production

* Agronomic performance rather than adequate seed production potential seen by breeders as most important.
* Lack of adequate production information for some species.
* Need for more critical evaluation of overseas bred cultivars in Australia prior to production.
* Lack of suitable machinery to sow small seeds and cultivars

susceptible to mechanical damage.

* Financially expensive and inefficient harvesting methods for sub clovers and annual medics: also need to be more ecologically friendly re soil conservation.
* Ineffective Rhizobia for nodulation on newer legume species and cultivars.
* Differences in technical expertise and management skills between producers result in wide variation in seed yields even when technology is well known and available.
* Technical difficulties in changing cultivars of a species.
* Restrictions on use of water for irrigation in certain areas of South-East is restricting seed production initiatives.
* Critical unavailability of pollination agents for insect-mediated pollination in perennial legume seedcrops.
* Potentially productive seed growing areas not utilised due to lack of farmer knowledge.
* High interest rates and general Government economic policy have major influence on level of production.

4.2.2 Processing

* Inability to sustain cleaning schedules for 12 months - considerable plant downtime.
* Need for more technical sophistication in some processing plants to overcome new seed cleaning problems particularly for new weed seed infestations.
* Non-uniformity of packaging between and within States affects marketing.
* Bag size (50kg) increasingly inappropriate for current health and safety standards and for farmer needs.

4.2.3 Regulation and Standards

* Recent rises in quarantine and export inspection fees have caused considerable financial strain on seed industry profitability.
* Promulgation of PVR legislation has raised issues of ownership.
* Requirements of Seeds Acts in S.A. and other States non-uniform.
* Seed physical standards vary between States.
* Lack of understanding and general support of SADA regional staff in seed quality control influences use of certified seed.
* Import restrictions in overseas countries greatly influence market penetration.
* Cost of certification is causing financial strain.

4.2.4 Marketing

* Breeders lack perspective in application of breeding for overseas markets: breeding for Australia not the world.
* Producers often do not match production to market demand.
* Market intelligence to both producers and marketers often lacking or poorly developed.

* Affordable finance for carry-over stocks from year-to-year difficult to obtain resulting in 'fire-sale' marketing at low prices.
* Lack of cooperative marketing by Australian firms on export markets resulting in intense price competition, general market volatility and overall poor financial returns.
* No organised market structure for many minor crops.
* Seed is often traded in Australia rather than marketed.
* Cultivars often not well targeted by resellers resulting in poor plant performance and client dissatisfaction.
* Inconsistent after-sales service, particularly overseas resulting in client dissatisfaction and discontinued sales.
* Transport costs are high both within Australia and to foreign markets: many commodities financially non-viable on export markets.
* Reluctance of industry to use modern packaging materials to facilitate marketing.

4.2.5 Plant Protection

* Many crops have unique plant protection needs often only satisfied by off-label chemicals.
* Excessive chemical use has led to resistance in plants.
* High chemical use has led to environmental concerns: pressure by anti-chemical lobby has caused some effective chemicals to be withdrawn and replaced by less effective, often more expensive substitutes.
* Cost of agricultural chemicals generally high for seed crops due to small market size.

4.2.6 Extension and Training

* Few industry personnel adequately trained in fundamentals of seed science.
* Advisory services by SADA on production technology declining due to resource constraint: industry not yet adequately equipped to take this role.
* Lack of understanding of clients in need for quality control (certification and seed testing).
* Failure of farmers to utilise new and improved cultivars.

5. OBJECTIVES AND OUTCOMES OF THE STRATEGIC PLAN

As the South Australian Seed Industry is a major contributor to the activity in the seed industry of Australia it is appropriate to review the objectives and outcomes of an industry strategic plan for this State in the context of the total Australian position.

Industry goals and strategies to achieve those goals formulated at the national seed industry workshop in Canberra in October, 1990 are presented in Section 5.1 followed by analysis of specific goals and strategies for South Australia in Section 5.2.

5.1 The Australian Seed Industry

5.1.1 Goals and Strategies

The Australian Seed Industry seeks to be efficient and profitable, internationally competitive and to operate in a stable and sustainable framework/environment.

This will be pursued by the industry in the following areas:

(i) Production

Goal: Become an efficient, specialist producer of high quality seeds suitable for domestic and export markets.

Strategies:

a) Develop an information base on all facets of the industry.
b) Educate industry participants to be responsible and accountable.

(ii) Regulation

Goal: Develop and adopt a national approach to regulation, packaging and labelling, release of cultivars and to planning and management of the industry.

Strategies:

a) Develop a national industry body, initially on an informal basis.
b) Examine the possibility of the development and adoption of uniform standards for the industry.
c) Review the role of Herbage Plant Liaison Committees.
d) Progress uniform packaging and labelling standards in Australia.
e) Develop and implement a standard approach to evaluation and release of varieties in Australia.

(iii) Marketing

Goal: Improve market penetration in the domestic and export areas and identifying and pursuing niche opportunities for Australian seed.

Strategies:

a) Develop effective market intelligence arrangements for the Australian seed industry.
b) Undertake appropriate education of retailers, resellers and agribusinesses involved in the seed industry.
c) Ensure increased and improved interaction with consumers.

(iv) Extension

Goal: Ensure effective education/extension services for industry and the availability of technical knowledge, market intelligence and appropriate information systems.

Strategies:

a) Develop an information base on current technical, economic and industry knowledge and facilitate its dissemination nationally.
b) Ensure effective educational and extension resources for the industry.

(v) Environmental concerns

Goal: Develop and use environmentally acceptable disease and pest control and production and harvesting technologies.

Strategies:

a) Minimise chemical usage in the industry.
b) Develop and implement effective educational and awareness activities within the community in relation to industry practices and technologies.

(vi) Research and Development

Goals: Ensure adequate funding of research and development and of key services to the industry.

Strategies:

a) Encourage levy arrangements for all seed production in Australia.
b) Ensure effective industry consultation and input into the development of research and development priorities.

c) Plan and coordinate a national research programme for the seed industry and ensure minimal duplication of effort.

The Workshop concluded their deliberations by formulating a listing of priorities for research and development to be funded from seed production levies administered by RIRDC (see Annexes 1 and 2).

5.2 The South Australian Seed Industry

5.2.1 Department of Agriculture programs

5.2.1.1 Seed Quality Control

(i) Seed Certification Service

On a fee-for-service basis the Department provides a seed certification service to the industry to agreed standards. This genetic quality service has no legislative backing but is a set of rules and procedures agreed from time to time with the industry.

In general, standards used are uniform with other States and procedures compatible.

All registered species of plants may be certified in this programme.

The service is also responsible for varietal certification of seed in South Australia under the OECD Seed Schemes for which the Commonwealth Department of Primary Industries and Energy is the National Designated Authority.

Both the domestic and OECD certification programmes are officially recognised by certification authorities in countries where S.A. produced seed is exported. Of particular importance is the equivalence recognition by the EEC.

Certification by a Government agency is often mandatory or at least desirable for seed marketing in many countries. As the S.A. seed industry is strongly export oriented, maintenance of an official certification agency is crucial for maintenance of the size and structure of the industry.

(ii) Seed Testing Service

The Official Seed Testing Station (OSTS) which has been in operation for 78 years conducts quality control test, principally for physical purity, germination and seed identification, for a range of clients including the seed industry, on a fee-for-service basis.

Its operation is authorised by the Seeds Act 1979-82 with procedures prescribed under the Regulations.

The OSTS is an accredited member laboratory of the International Seed Testing Association (ISTA) an association of official laboratories authorised by Government in most countries of the world.

ISTA prescribes rules and procedures for seed testing and administers uniformity control programmes to ensure testing is uniform on a world-wide basis.

Most international trade in seed is underpinned by quality control certificates issued by authorised ISTA member laboratories of which OSTS Adelaide is one.

Maintenance of the OSTS is therefore necessary if international seed trade from South Australia is to be maintained.

The rules and procedures used by the OSTS are further recognised by Governments in the other States of Australia facilitating the interstate seed trade.

In addition to servicing the seed industry the OSTS has an important role in compliance of seed to import quarantine standards, export regulations and labelling of seed for sale in South Australia.

5.2.1.2 Plant Variety Commercialization

The Department of Agriculture and the University of Adelaide conduct plant breeding programmes in South Australia.

Commercialization of new cultivars from these programmes is undertaken through the Foundation Seed Programme administered by the Department.

Currently, all herbage and some field crop species are commercialised through exclusive marketing licences with seed firms.

For the main field crop species, wheat and barley, new cultivars are released into commerce as certified seed through production by a specialist growers group of United Farmers and Stockowners (UFS). Decisions on this programme are made by a group comprising the breeders (University of Adelaide), Department of Agriculture and UFS.

5.2.1.3 Extension/Training/Advisory

Technical information on plant cultivars and information on seed production agronomy is primarily supplied by the Department.
Promotion of the use of improved cultivars and quality controlled seed to farmers has been undertaken in recent years by a seed industry group comprising representatives of the Department, UFS and the Seed Industry Association. Promotional exercises have been undertaken particularly at regional field days in South Australia and to a lesser extent in Victoria and New South Wales.

Training of industry personnel, particularly seed cleaners, by the Department has been regularly undertaken.

Advice on seed production agronomy, market intelligence, quality control, and regulatory matters is given to all sectors of the seed industry by Departmental personnel.

5.2.1.4 Regulatory

The Department has responsibility for the Seeds Act 1979-1982. The primary purpose of the Act is to regulate the sale of seed for sowing in South Australia by requiring prescribed information to be provided on a label attached to the seed container prior to offering for sale.

5.2.1.5 Seed Health

The Department offers a number of standard seed pathology services for determining the health status of seed of a number of species.

A charge is made for this service.

In addition, pathology identification services are also available to the seed industry within the general framework of the free pathology service undertaken through regional staff.

5.2.1.6 Research and Development

From time to time the Department undertakes a range of seed related research and development projects.

These programmes, funded both by the State and by Rural Industry Research Funds, range from specific seed science topics to more peripheral matters in plant breeding and cultivar development.

5.2.2 Other programs

Seed industry related activities particularly training are undertaken by the University of Adelaide.

Roseworthy Agriculture College and Waite Agricultural Research Institute, two campuses of the University provide undergraduate and graduate training in aspects of seed science.

In addition, academic staff are involved in seed related research principally in the areas of seed ecology and seed production agronomy.

While not in South Australia, the Queensland Agricultural College at Gatton offers a comprehensive seed science course programme designed for all levels of activity in the seed industry and is primarily sponsored by the Seed Industry Association of Australia.

A number of seed industry personnel from S.A. have attended programmes at QAC in recent years.

5.2.3 Goals and Strategies

The South Australian Seed Industry seeks to be efficient and profitable, to expand in volume and commodity, to remain internationally and nationally competitive and to operate in a stable and sustainable framework/environment.

Goals and strategies to achieve this aim in South Australia should be focused in the following areas in consultation with industry.

(i) Production

Goal: Expand production of current species and cultivars and introduce new products in appropriate rotations in an environmentally acceptable manner while maintaining efficiency and profitability.

Strategies:

a) Encourage producers to move toward minimum chemical use and environmentally acceptable production techniques.
b) Facilitate the development of commercial monitoring services.
c) Develop leaf cutter bee pollination services.
d) Facilitate the testing of overseas cultivars for potential contract multiplication.
e) Continue development of appropriate commercialization strategies for cultivar release from public plant breeding programmes.
f) Produce to meet the market demand.

(ii) Regulation

Goal: Develop an effective legislative and administrative framework for regulation of packaging, labelling and quality control in cooperation with other States.

Strategies:

a) Update seeds legislation in cooperation with other States.
b) Maintain viable quality control programmes (certification and seed testing) to ensure equivalence with OECD, ISTA and EEC.
c) Develop and adopt the Approved Quality Assurance arrangements for seed proposed by AQIS.
d) Cooperate in a national approach toward uniform packaging and labelling.
e) Implement cost efficient systems of quality control with emphasis on industry self regulation.

(iii) Marketing

Goal: Improve market penetration in the domestic and export areas and identifying and pursuing niche opportunities for S.A. produced seed.

Strategies:

a) Promote the use of high quality seed at field days and similar agricultural meetings both in S.A. and interstate.
b) Encourage orderly marketing of seeds through marketing groups rather than by individuals and encourage coalescence of marketing groups.
c) Encourage the use of better packaging.
d) Continue the investigation of overseas niche markets for both Australian bred cultivars and for contract multiplication.
e) Maintain a marketing intelligence programme particularly on regulation in export markets.

(iv) Extension/Training

Goal: Maintain effective technical extension and advisory services and promote training of personnel in the industry.

Strategies:

a) Maintain a comprehensive technical advisory service and data bank of information.
b) Promote the use of quality controlled seed to agricultural industries.
c) Encourage and facilitate training of personnel in all sectors of the industry.

(v) Research and Development

Goals: Ensure adequate research and development is being undertaken to allow industry targets to be achieved.

Strategies:

a) Promote and facilitate the collection of levies on production for research funding.
b) Ensure effective industry consultation and input into the development of research and development priorities.
c) Carry out research in areas of critical deficiency in industry development.
d) Seek research funds where appropriate to promote the activities of the industry.

6. IMPLEMENTATION OF THE STRATEGIC PLAN

Representatives of Industry and the Department agreed at the consultative meeting of 8 March, 1991 that implementation of the goals and strategies set out in Section 5.2.3 would be best achieved by a continuing consultative process.

It is proposed that the Herbage and Field Crop Seed Consultative Committees be amalgamated into a single body comprising representatives of the organisations currently represented on those committees.

The composition of the body to be called the "Seed Industry Consultative Committee" would comprise:

Department of Agriculture:	Chair, executive secretary and Seed Services representative
United Farmers and Stockowners:	2 representatives
Seed Industry Association (Southern Region):	2 representatives
SA Seedgrowers Cooperative:	1 representative
Upper SE Small Seeds Cooperative:	1 representative
Advisory Board of Agriculture:	2 representatives

The principal aim of the Committee is envisaged as developing and implementing strategies to optimise the viability of the seed industry of South Australia on a continuing basis.

It is proposed that the committee be formed as soon as possible to initiate the implementation process.

7. POTENTIAL RESOURCES REQUIRED

It is not possible to detail the extent of changes to resources from the Department of Agriculture for seed industry development until the strategic plan is implemented through the new consultative committee.

In general, the industry has indicated a willingness to accept self-regulation in principle but the extent to which this is possible has yet to be researched in detail.

Regulatory Services of certification and seed testing currently provided by the Department are charged to industry on a full-cost recovery basis.

Policy on charging for research and extension services have yet to be finalised.

In the immediate future it is likely that resource allocation from Government sources will remain static.

8. REVIEW AND EVALUATION OF THE PLAN

The review and evaluation of the strategic plan will be conducted as necessary by the proposed Seed Industry Consultative Committee, probably on an annual basis in parallel to the annual review of the strategic business plan of Seed Services Section of the Department of Agriculture.

ANNEX 1

Brief minutes of the meeting to review the Strategic Plan for the SA Seed Industry

8 March, 1991. Northfield Laboratories

Present:

Chairman: Dr. K.G. Boyce, Department of Agriculture
Executive Officer: Mr. G.C. Auricht, Department of Agriculture
Industry representatives:

S.A. Seedgrowers Cooperative	Mr. M. Jongebloed
Upper SE Small Seeds Cooperative	Mr. G. Fletcher
	Mr. S. Martens
	Mr. R. Paterson
United Farmers & Stockowners, Seed Section,	
	Mr. M. I'Anson
Seed Industry Association,	Mr. B. Blackwood
	Mr. B. Eime
Advisory Board of Agriculture	Mr. J. Arney
Commodity plan members - Department of Agriculture,	
	Mr. G. Cooper
	Mr. I. Simons
	Mr. S. Martyn
	Mr. G. McLean

Agenda

1. Review content of draft strategic plan
   - i) Mission statement
   - ii) Industry statement
   - iii) Industry potential
   - iv) Barriers
   - v) Objectives and outcomes

2. Formulate action plan to implement the strategic plan

3. Proposal for continuing review and plan evaluation

ANNEX 2

SEED INDUSTRY RESEARCH WORKSHOP
CANBERRA, OCTOBER 1990

PRIORITIES FOR RESEARCH AND DEVELOPMENT

RANK ALLOCATED	AREA	($)
Temperate Legumes		
1.	Consumer/producer education	23
2.	Market research	20.5
3.	Technology transfer	17
4.	Pest and disease control	12.5
5.	Chemical resistance	8.5
6.	Seed production efficiency	10
7.	Coordinated national evaluation systems	5
8.	Processing technology	2
9.	Community education	1.5
Temperate Grasses		
1.	Weed control	37
2.	Production technology, farming practices etc.	30.5
3.	Plant health	10
4.	Coordinated national evaluation systems	8.5
5.	Extension/technology transfer	8
6.	Breeding technology	6
	Identified but unranked	
	Consumer/producer education	0
	Seed certification	0
	Native grasses	0
	Seed yield	0
Tropical Species		
1.	Crop hygiene	25
2.	Harvesting technology	20
3.	Seed treatments	15
4.	Management of new species	15
5.	Crop physiology	10
6.	Establishment	10
7.	Packaging and storage	5

ANNEX 3

RURAL INDUSTRIES RESEARCH AND DEVELOPMENT CORPORATION

RESEARCH PRIORITIES FOR

LUCERNE, CLOVER AND MEDIC SEED RESEARCH

1. CONSUMER/PRODUCER EDUCATION

Awareness development and education of users* on the value of high quality seed and the benefits of use of productive varieties (*livestock producers, retailers and resellers of seed etc.).

2. MARKET RESEARCH

Opportunities for domestic and export market development. Key factors in seed consumption etc. Market intelligence.

3. TECHNOLOGY TRANSFER

Collation of important known technology, data base development, effective dissemination of technical, economic and marketing information.

4. PEST AND DISEASE CONTROL

Control of major pests and diseases, particularly development of low chemical, integrated systems.

5. CHEMICAL RESISTANCE

Identification of resistance, alternative methods of weed control.

6. SEED PRODUCTION EFFICIENCY

Seed yield, harvesting efficiency, agronomic practice etc.

7. CO-ORDINATED NATIONAL EVALUATION SYSTEMS

Cultivar assessment, standardised efficient methodologies of evaluation. New approaches to evaluation.

8. PROCESSING TECHNOLOGY

Seed processing and cleaning, packaging technology (efficiency of operations).

9. COMMUNITY EDUCATION

Effective awareness activities regarding industry practices and technologies (directed towards community concerns).