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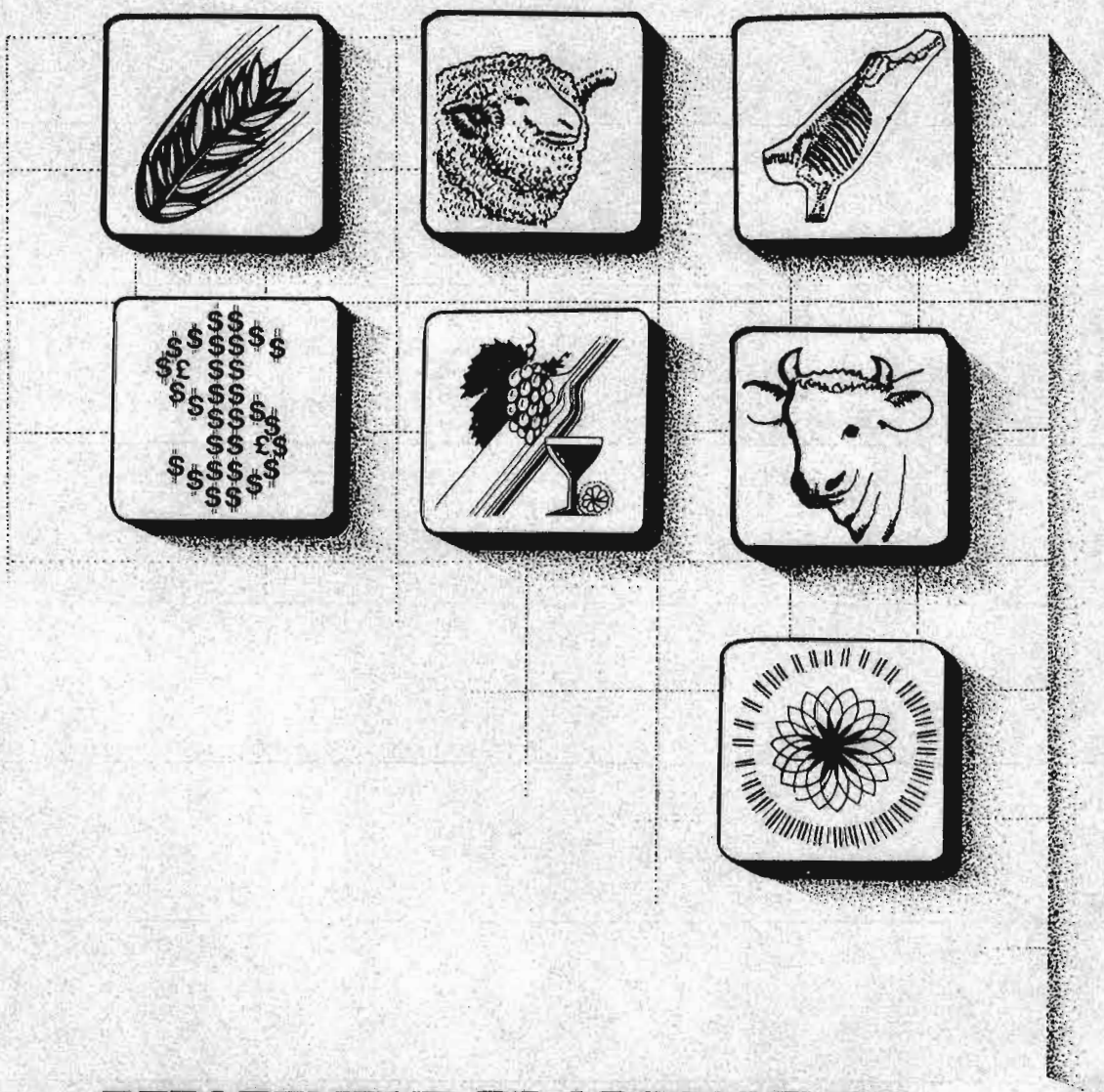
AGRICULTURE IN THE SOUTH AUSTRALIAN ECONOMY

BY THE ECONOMICS DIVISION



DEPARTMENT OF AGRICULTURE SOUTH AUSTRALIA
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By the Economics Division

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Foreword

This bulletin represents the combined efforts of all officers in the Economics Division of the South Australian Department of Agriculture who perceived a real need to document, analyse and evaluate those factors and issues likely to impinge on the development of agriculture and the rural community in South Australia during the 1980's.

"Agriculture in the South Australian Economy" is not only descriptive of what is taking place at the moment but also attempts to address the "what if" issues.

The Technical Report provides a very rich primary data base which can be utilized by everyone (particularly policy makers, academics and students) to make their own assessments of likely developments in South Australian agriculture during tht 80's.

I wish to record my appreciation to all officers of the Economics Division, particularly those who contributed individual chapters. Deane Crabb and Gary Oborne read and edited the final revision. To both officers I give special thanks.

George J. Ryland.

Adelaide
May, 1983

(George J. Ryland)
CHIEF, ECONOMICS DIVISION

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Chapter 1

SOUTH AUSTRALIAN AGRICULTURE - AN OVERVIEW

The South Australian (S.A.) agricultural production and marketing system involves a complex number of inter-related activities. It begins, of course, with the farmer who is involved primarily with the production of food and fibre. However, beyond the farm gate it involves many activities including input supplies, farm services, distribution, processing and selling. The integration of these non-farm activities with the production aspects of farming is a feature of the specialized nature of modern agriculture.

Basically, there are three inter-related sectors comprising the S.A. agricultural system. Firstly, the input supply sector which is involved with supplying factor inputs into agriculture. These factors include fertilizer, seed, herbicides, machinery and equipment. Secondly, the farm sector which combines these inputs as well as labour, capital and technology to produce a vast mix of commodities. Thirdly, there is the product sector which involves transporting, processing and selling to final consumers. In this framework farmers are both consumers and producers of agricultural products.

The S.A. agricultural system is a complex inter-related network which makes a significant contribution to satisfying the wants and needs of all South Australians.

1.1 Agriculture and the S.A. Economy

The contribution of agriculture to the total value of production may be identified by comparing first the percentage contribution made to the Gross Domestic Product (GDP) by industry groups. In Table 1.1 the percentage contribution of agriculture to GDP for Australia as a whole is compared for two time periods. In 1954-55, agriculture contributed 16.4 per cent of Australia's (GDP) and ranked second to manufacturing. The contribution of agriculture in 1980-81 was just 5.8 per cent and was ranked only ninth.

In terms of gross value of production in S.A. of mining, manufacturing and agricultural industries, the importance of Agriculture in S.A. has declined relative to mining and manufacturing industry (Table 1.2). Agriculture however, remains the predominant primary industry.

The contribution of agriculture to the economy of S.A. is unevenly distributed. This can best be illustrated by comparing the contribution of agricultural production to gross value added among a number of geographical regions of South Australia. For this purpose five regions have been used which encompass different levels of economic complexity and these are shown in Fig. 1.1.

The contribution of agriculture in terms of regional value added in 1976-77 is given in Table 1.3. The shares accounted for by agriculture vary from 0.8 per cent in the Adelaide metropolitan area to a high of 40.7 per cent in the outer provincial Central Region.

In addition, the degree of specialization of each type of primary economic activity among regions differs significantly (Table 1.3). Within each of these industry groupings there are regional commodity specializations as indicated in Table 1.4. The contribution to the value added of animal industries in S.A. varies from 3.7 per cent in Adelaide to 36.1 per cent in the Eastern Region while other agriculture (cropping and plant industries) varies from a low of 2.4 per cent in the South East to 38.1 per cent in the Eastern Region. Relative to

TABLE 1.1

Contribution to GDP by Industry in Australia 1954-55, 1980-81

Industry	1954-55 $ million value	1954-55 %	1954-55 Rank	1980/81 $ million value	1980/81 %	1980/81 Rank
Agriculture, Forestry, Fishing, and Hunting	1 433	16.4	2	7 586	5.8	9
Mining	194	2.2	11	7 890	6.0	8
Manufacturing	2 450	28.0	1	25 587	19.5	1
Construction	665	7.6	6	8 597	6.6	7
Transport, Storage and Communication	680	7.8	5	9 059	6.9	6
Public Utilities	203	2.3	10	3 742	2.9	11
Trade	1 387	15.9	3	17 971	13.7	2
Finance	213	2.4	9	13 547	10.3	4
Public Administration and Defence	354	4.0	8	5 090	3.9	10
Community Services	480	5.5	7	13 248	10.1	5
Entertainment				5 062	3.9)	
Other	682	7.8	4	13 676	10.4)	3
Total	7 451	100.0		131 055	100.0	

Sources: Australian Bureau of Statistics, "Australian National Accounts: National Income and Expenditure" 1954-55.

Australian Bureau of Statistics, "Australian National Accounts: Gross Product by Industry" 1980-81.

TABLE 1.2

Gross Value of Production[a] : South Australia

Selected Industries

	1954-55		1980-81	
	Value ($m)	%	Value ($m)	%
Forestry	9.2	1.1	23.8	0.3
Fishing	2.4	0.3	35.2	0.5
Hunting	1.0	0.1	1.6	-
Agriculture	193.8	23.9	1341.6	18.4
Mining	18.4	2.3	224.0	3.1
Manufacturing[b]	586.2	72.3	5659.4	77.7
TOTAL	811.0	100.0	7285.6	100.0

(a) These figures show gross value of output at current prices. It makes no allowance for cost of purchased inputs (raw materials etc). 1979-80 was the latest year for which statistics were available for all of the above industries.

(b) The gross value of manufacturing production was approximated by the sum of sales turnover and the increase in stocks over the period.

Sources: Australian Bureau of Statistics "Value of Agricultural Commodities Produced, Australia" 1954-55, 1980-81, "Statistical Register of South Australia" 1954-55, "Manufacturing Establishments; Details of Operations, South Australia", 1980-81, "Mineral Production Australia", 1980-81.

Fig 1.1

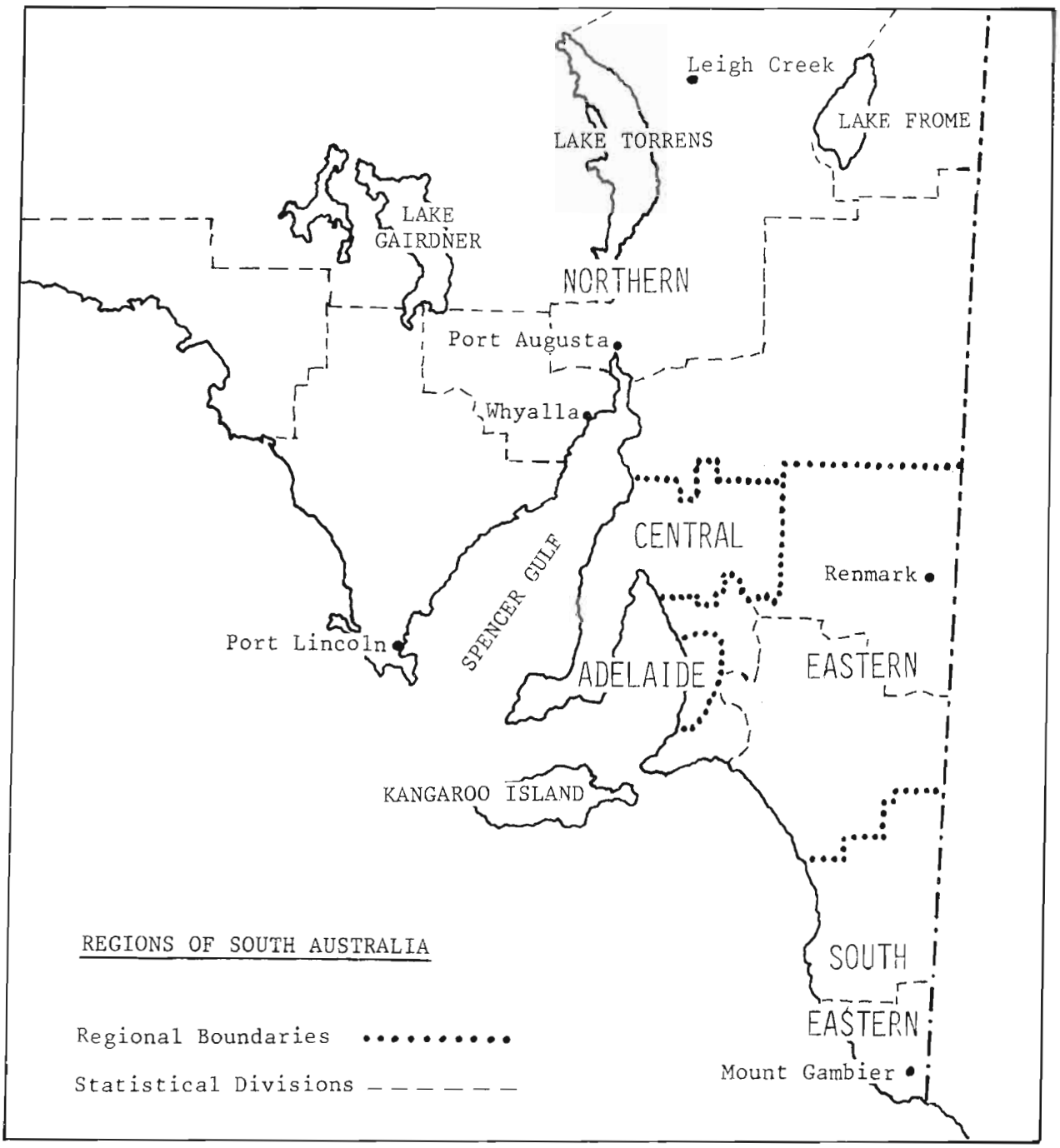
Leigh Creek
LAKE FROME
LAKE TORRENS
LAKE GAIRDNER
NORTHERN
Port Augusta
Whyalla
CENTRAL
SPENCER GULF
Renmark
Port Lincoln
ADELAIDE
EASTERN
KANGAROO ISLAND
SOUTH EASTERN
Mount Gambier
REGIONS OF SOUTH AUSTRALIA
Regional Boundaries
Statistical Divisions

TABLE 1.3

Per Cent Contribution to Value Added of Major Industries by Region in SA

Industry	South Eastern	Eastern	Adelaide	Central	Northern
Animal Industries	9.7	8.7	0.1	11.8	4.6
Other Agriculture	2.4	18.7	0.7	28.9	11.3
Forestry/Fishing	4.5	0.5	0.1	0.4	0.6
Coal/Oil Mining	-	0.3	0.1	-	1.5
Other Mining	0.8	1.7	0.7	3.2	5.2
Food Manufacturing	3.4	13.3	3.6	3.3	0.8
Wood/Paper Manufacturing	23.6	1.1	3.3	0.5	2.0
Other Manufacturing	1.8	6.0	18.1	4.1	18.1
Utilities	2.2	2.0	2.9	1.2	4.7
Building/Construction	3.3	3.6	4.3	2.6	2.1
Trade	19.5	13.8	19.3	10.5	14.5
Transport/Communication	5.6	6.8	7.5	8.8	12.0
Finance	10.9	10.3	16.7	13.2	9.8
Public Administration	1.7	2.8	5.6	1.4	3.1
Community Services	7.4	7.3	11.3	7.6	7.2
Entertainment	3.5	3.0	3.9	1.8	2.5
TOTAL	100.0	100.0	100.0	100.0	100.0

Source: Australian Bureau of Statistics.

TABLE 1.4

Percentage Distribution of Value Added of Primary Industry by Region in SA

(1976-77)

Region	Animal Industry	Other Agriculture	Forestry/ Fishing	Coal/ Oil Mining	Other Mining	Utilities
South East	20.0	2.4	57.1	-	2.6	3.5
Eastern	36.1	38.1	12.6	15.2	11.2	6.4
Adelaide	3.7	11.4	8.6	9.4	35.5	69.7
Central	16.8	20.2	3.8	-	7.5	2.2
Northern	23.4	27.9	17.9	75.4	43.2	18.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Source: Australian Bureau of Statistics

the rest of the state, the Eastern Region makes the greatest contribution to agriculture. In a similar manner, the South Eastern Region specializes in forestry/fishing and the Northern Region in mining. The bulk of the State's public utilities are produced in the Adelaide metropolitan region.

Within agriculture itself there are significant differences in the value share contribution of each type of agricultural commodity. Broadly, plant and cropping activities contribute more to value added than those of animal origin (Table 1.3). The share of gross agricultural returns for each major commodity is given for several years in Table 1.5. A regional breakdown for 1977-78 for the same set of commodities is detailed in Table 1.6 and illustrates the extent of commodity specialization among each region. Some regions have a highly diversified commodity base while, on the other hand, the Eastern Provincial Region is specialized towards horticultural cropping.

Over time there are significant trends emerging in the broad agricultural industries. Cropping tends to be increasing at a faster rate than the animal industries. This is supported by the growth pattern in agricultural land use which clearly indicates an increase in cropping land relative to pasture (Table 1.7). The substitution of crops for pastures reflects the more favourable returns per hectare from cropping activities relative to animal products.

The farm sector is very much mutually dependent upon the non-farm sector both in terms of output demands (intermediate, export and final consumption) and input supply services. These linkages can best be summarized in the form of an input/output framework.

1.2 Input/Output Analysis and S.A. Agriculture

The linkages between agriculture and the rest of the economy can be more easily understood using a snapshot picture of the transactions flow among sectors. In Table 1.8 a modified eleven sector input/output table of the S.A. economy is presented for illustrative purposes. The table conveniently summarizes all the transactions of goods and services among each sector in S.A. for 1976-77. The rows of the input/output table represent outputs or sales to other sectors. For example, the animal industries in that year sold $99 891 000 to exports (including live animal sales to other states and for exports) while $118 588 000 was sold for food processing (sector 4). Together these sales represent 99.94 per cent of total value of output of the animal industries in S.A. for 1976-77.

The columns of the input/output table (Table 1.8) depict purchases of inputs from supplying sectors. Thus the manufacturing industry sector supplies agricultural cropping industries with most of its purchased inputs. In 1976-77 this accounted for 5.55 per cent of total output or $21 028 000 dollars.

Using the input/output table it is possible to trace out the effect of an increase in the final demand for cropping of say 1 million dollars in S.A. The direct impact of an increase in value of cropping is to stimulate additional demand for inputs. This induces, as a direct effect, an additional demand for output of the manufacturing sector of $550 000. In turn $550 000 of manufacturing induces an additional demand for Trade (for example) of $2 100. When all sectors are combined and the effects are traced through we obtain the direct and indirect impact of each sector stimulated by an increase in the final demand for cropping. We have summarised these effects in Table 1.9. From this Table we see that the initial increase of one million dollars has increased total value of output by $2 570 000. This means that the initial one million dollar

TABLE 1.5

Gross Value of Agricultural Production by Commodity - S.A.

Commodities	1970-71 Gross Value ($'000)	%	1975-76 Gross Value ($'000)	%	1977-78 Gross Value ($'000)	%	1978-79 Gross Value ($'000)	%	1979-80 Gross Value ($'000)	%	1980-81 Gross Value ($'000)	%
Cattle and Calves - Slaughterings	34 709	10.3	63 539	9.4	98 197	14.1	142 852	13.2	107 295	8.0	125 836	9.5
Wool	65 525	19.4	131 865	19.5	145 277	20.8	161 985	14.9	215 423	16.1	245 826	18.6
Sheep and Lambs - Slaughterings	28 082	8.3	25 822	3.8	64 261	9.2	56 365	5.2	98 827	7.4	103 014	7.8
Dairy Products	26 318	7.8	30 170	4.5	34 293	4.9	37 407	3.5	42 341	3.2	48 953	3.7
Pigs - Slaughterings	13 142	3.9	21 562	3.2	23 459	3.4	29 543	2.7	37 005	2.8	42 548	3.2
Poultry - Slaughterings	5 488	1.6	15 158	2.2	22 673	3.3	24 617	2.3	30 312	2.3	35 497	2.7
Other Animal Products Eggs, Honey and Beeswax	8 879	2.6	15 685	2.3	20 649	3.0	21 759	2.0	24 516	1.7	26 274	2.1
Total Livestock Products and Slaughterings	182 143	53.9	303 801	44.9	408 809	58.7	474 528	43.8	555 720	41.5	627 948	47.6
Wheat	40 562	12.0	118 063	17.4	50 349	7.2	265 159	24.5	357 733	26.7	254 918	19.3
Barley	34 902	10.3	105 865	15.6	50 553	7.2	118 303	10.9	192 758	14.4	165 418	12.5
Other Cereal Grains	5 426	1.6	6 800	1.0	4 727	0.7	11 212	1.0	16 013	1.2	20 376	1.5
Grapes	16 060	4.7	38 200	5.6	43 953	6.3	46 947	4.3	55 815	4.2	57 049	4.3
Potatoes	6 059	1.8	9 966	1.5	10 443	1.5	14 684	1.4	15 321	1.1	22 373	1.7
Oilseeds	46	-	1 576	0.2	4 449	0.6	5 449	0.5	5 442	0.4	4 479	0.3
Other Crops	53 325	15.7	93 528	13.8	125 294	17.8	147 859	13.6	142 765	10.5	168 979	12.8
Total Crops	156 380	46.1	373 998	55.1	289 768	41.3	609 613	56.2	785 847	58.5	693 592	52.4
TOTAL	338 523	100.0	677 799	100.0	698 577	100.0	1 084 141	100.0	1 341 567	100.0	1 321 540	100.0

Source: Australian Bureau of Statistics, "Value of Agricultural Commodities Produced, Australia", various issues, 1970-71 to 1980-81.

TABLE 1.6

Gross Value of Agricultural Production for Selected Commodities by Region in South Australia 1980-81

$'000

	Wool	Wheat	Barley	Oats	Grapes
Adelaide	922	474	946	85	3 740
Outer Adelaide	26 623	9 402	10 802	2 561	9 703
York and Lower North	34 601	61 526	70 237	2 817	3 700
Murray Lands	31 130	40 057	27 356	1 498	36 742
South-East	61 348	12 393	5 705	3 110	4 085
Eyre	30 889	93 198	36 468	3 056	-
Northern	44 343	36 549	13 906	912	-
Total	229 856	253 599	165 420	14 039	57 970

Note: Figures derived by multiplying quantity produced in each region by the average unit gross value of each commodity.

Sources: Australian Bureau of Statistics (S.A.) "Divisional Statistics South Australia 1982" and "Value of Agricultural Commodities Produced South Australia 1980-81".

TABLE 1.7

Application of Superphosphate to Crop and Pasture: South Australia

Year Ended March	Wheat			Barley, Oats and Rye			Pasture			
	Area Fertilized (ha)	Superphosphate Amount (t)	Rate (kg/ha)	Area Fertilized (ha)	Superphosphate Amount (t)	Rate (kg/ha)	Area Fertilized (ha)	Superphosphate Amount (t)	Rate (kg/ha)	Superphosphate Amount (t)
1971	770 271	96 937	125.8	986 561	119 846	121.4	1 937 515	267 243	137.9	509 773
1972	1 038 867	122 271	117.7	1 020 207	121 690	119.3	1 821 875	246 506	135.3	505 902
1973	932 006	114 428	122.8	882 918	105 931	120.0	2 033 150	287 921	141.6	523 184
1974	1 295 083	160 029	123.6	803 644	104 838	131.7	2 424 998	369 101	152.2	651 504
1975	1 120 334	144 627	129.1	815 737	108 592	133.1	2 137 503	314 257	147.0	584 257
1976	863 522	110 444	127.9	751 925	95 895	127.5	1 133 436	141 669	125.0	383 392
1977	780 301	97 393	124.8	790 898	98 990	125.2	1 407 543	168 514	119.7	440 430
1978	1 022 496	117.00	114.4	1 214 014	142 190	117.1	1 607 486	196 288	122.1	474 021
1979	1 223 037	136 468	110.7	1 257 311	149 180	118.6	1 613 841	198 640	123.1	506 290
1980	1 324 810	157 379	118.8	n.a.	n.a.	n.a.	1 811 127	230 113	127.1	533 975
1981	1 378 361	167 095	121.2	n.a.	n.a.	n.a.	1 893 852	234 019	123.6	556 162

Source: Australian Bureau of Statistics, "Agricultural Land Use, Improvements and Labour Australia", 1971-72 to 1980-81.

TABLE 1.8

Eleven-Sector Transactions Table: South Australia, 1976-77 ('000)

SECTOR	1	2	3	4	5	6	7	8	9	10	11	House-holds	Fund Demands	EXPORTS	TOTAL
1. Agriculture -Animal Industry	130	0	0	118 580	0	0	0	0	0	0	0	0	0	99 891	218 601
2. Agriculture -Cropping	18 632	20 026	451	83 724	114	0	0	1 447	27	2	806	35 707	3	217 670	378 609
3. Mining	3	39	22 659	35 877	790	3 852	349	367	42	12	318	0	0	89 008	153 315
4. Manufacturing	15 960	21 028	13 065	1 218 045	9 346	149 060	175 772	99 269	7 201	24 759	62 925	536 532	207 052	1 178 122	3 718 136
5. Public Utilities	5 142	5 436	2 393	44 666	4 128	1 508	10 619	3 680	16 599	1 667	39 402	51 933	18 003	0	205 168
6. Building and Construction	1 106	1 158	633	8 600	3 562	0	6 923	13 116	8 296	5 320	7 064	50 256	347 343	1 789	455 086
7. Trade	7 685	7 920	1 798	38 058	1 085	7 656	77 519	23 958	27 739	765	15 323	208 686	846 589	461 148	1 725 929
8. Transport and Communication	4 217	7 380	4 664	142 658	3 755	13 973	53 720	22 323	17 337	4 548	9 100	64 281	445 847	5 860	799 663
9. Finance	102	175	2 384	40 505	286	2 950	205 647	5 491	94 286	11 119	17 428	474 758	2	204 572	1 059 704
10. Public Administration and Defence	0	0	4	786	0	0	0	0	132	0	0	34 073	302 133	0	337 128
11. Community Services and Entertainment	1 804	301	446	1 208	191	41	3 893	806	16 883	109	8 509	350 323	601 509	29 441	1 015 463
Households	115 483	241 838	41 668	999 183	79 583	149 095	465 214	370 326	406 260	246 727	581 003	0	0	0	3 696 380
Other Value Added	6 945	30 551	44 234	313 917	78 928	60 284	508 126	154 819	394 366	11 324	163 051	0	0	0	1 760 745
Imports	41 392	42 757	18 916	672 329	23 409	66 667	218 147	104 863	70 536	30 776	110 534	585 608	0	0	1 985 934
TOTAL	218 601	378 609	153 315	3 718 136	205 168	455 086	1 725 929	799 663	1 059 704	337 128	1 015 463	2 392 157	2 768 481	2 287 421	0

Source: West, Wilkinson and Jensen (1979).

TABLE 1.9

Direct and Indirect Effects of a one per cent increase in Agricultural Cropping in S.A.

Sector	Direct	Indirect	Total
Agriculture - Animal Industry	.0000	0.0188	0.0188
Agriculture - Cropping	0.0529	1.0384	1.0913
Mining	0.0001	0.0075	0.0076
Manufacturing	0.0555	0.5334	0.5889
Public Utilities	0.0144	0.0505	0.0649
Building and Construction	0.0031	0.0349	0.0378
Trade	0.0209	0.1374	0.1583
Transport and Communication	0.0195	0.0747	0.0942
Finance	0.0005	0.3005	0.3010
Public Administration and Defence	0.0000	0.0176	0.0176
Community Services and Entertainment	0.0008	0.1870	0.1878
Households	0.6388	0.5881	1.2269
TOTAL	0.8065	1.7617	2.5682

Source: West, Wilkinson and Jensen (1979).

increase in final demand for cropping has resulted in an increase in total economic activity of approximately 2-3 times this amount.

We have calculated similar multipliers for each region of S.A. stimulated from an increase in final demands of each sector and these are given in Table 1.10. The difference in the multipliers for agriculture as a whole among each region reflects the importance of the agricultural sector in each region and the extent to which the farm sector relies on local suppliers.

The importance of the food processing sector and agriculture sector compared with other sectors may be gauged by comparing the relative magnitude of the output multiplier effects of each sector in each region. We have given these multiplier effects in Table 1.10. Apart from the South East Region where the woodchip/fishing (manufacturing) industry dominates the value added of production, the food processing and agricultural sector in each region have the highest multiplier effects on regional economic activity. Consequently, any change in the economic health of the S.A. agricultural economy will be felt throughout S.A.

The agricultural sector itself is of course a major supplier of raw material to food manufacturers. Thus the agricultural sector is particularly sensitive to changes in the value of output of the food processing sector. In Table 1.11 we present the impact on agricultural output of a one per cent increase in the food processing sector in each region. Thus Table 1.11 demonstrates that although the sensitivity of agriculture varies among each region the overall impact on agriculture of food processing facilities is particularly significant.

The impact multipliers given in Table 1.10 conveniently summarise the relative importance of the food economy in each region of S.A. For example, Table 1.10 shows that a $1 increase in the value of animal production in the South-East will result in a total increase in aggregate income in the South-East of $1.61. Sector multipliers, when combined with the commodity shares of value of production in each region, enable us to project the relative effects of changes in commodity composition. For example, 30 per cent of the gross value of aggregate production in the South-East is derived from beef production; therefore, the aggregate income of the South-East will be increased by approximately 0.48 per cent[1] for each one per cent change in the value of production.

1.3 Workforce Composition

The workforce within agriculture has also declined over time relative to the share of agriculture in Gross Domestic Production. As at 30 June, 1954, 45 500 people or 14.1 per cent of the South Australian workforce were engaged in agriculture (operator/owners and hired labour) which declined to 34 000 or 6.9 per cent of the work force in June 1979 (Table 1.13). Similarly, among the regions of S.A. the workforce in agriculture has changed over recent times but the sectoral composition has remained fairly stable (Table 1.14).

Labour multipliers for each sector in each region are presented in Table 1.15. Again we note the importance of the agricultural sector and food economy of S.A. in generating employment resulting from a change in employment in these sectors. Of all sectors, mining has smaller employment and output multipliers relative to agriculture.

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[1] $0.48 = 0.30 \times 1.61$.

TABLE 1.10

Regional Output Multipliers by Sector and Region

		Region					
		South East	Central	Eastern	Northern	Adelaide	SA
1.	Agriculture - Animal Industry	1.61	1.58	1.83	1.57	2.10	2.57
2.	Agriculture - Cropping	1.42	1.44	1.90	1.52	2.26	2.57
3.	Mining	1.56	1.44	1.45	1.31	2.33	2.24
4.	Manufacturing	1.84	1.56	1.89	1.74	2.15	2.70
5.	Public Utilities	1.30	1.24	1.42	1.38	1.75	1.97
6.	Building and Construction	1.47	1.35	1.63	1.54	2.26	2.62
7.	Trade	1.35	1.27	1.45	1.33	1.97	2.21
8.	Transport and Communication	1.41	1.34	1.34	1.50	2.03	2.38
9.	Finance	1.36	1.28	1.44	1.36	1.86	2.08
10.	Public Administration and Defence	1.51	1.39	1.66	1.52	2.27	2.69
11.	Community Services, Entertainment and Recreation	1.46	1.36	1.58	1.48	2.07	2.41

Source: West, Wilkinson and Jensen (1979).

TABLE 1.11

Increase in Agricultural Output from one percent increase in output of Food Processing Industry, by Region

	South East	Eastern	Central	Adelaide	Northern	SA
Agriculture (Animal Industries)	0.28	0.17	0.11	0.03	0.20	0.44
Agriculture (Cropping)	0.16	0.17	0.19	0.08	0.07	0.33
Fishing	0.01	0.01	-	-	0.01	0.10

Source: West, Wilkinson and Jensen (1979)

TABLE 1.12

Percentage Increase in Agricultural Output Resulting from a one per cent Increase in the Demand for Food Processing by Region

	South-East	Eastern	Central	Adelaide	Northern	S.A.
Agriculture						
Animal Ind.	0.28	0.17	0.11	0.03	0.20	0.44
Cropping	0.16	0.17	0.19	0.08	0.07	0.33
Fishing	0.01	0.01	-	-	0.01	0.10

Source: West, Wilkinson and Jensen (1979)

TABLE 1.13

Distribution of Civilian Employees by Industry June 1954 and June 1979

Industry	June 1954[a]						June 1979[b]					
	Aust.			S.A.			Aust.			S.A.		
	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank
Agriculture	467 823	12.6	3	45 499	14.1	3	314 300	5.9	7	34 000	6.9	5
Fishing, Forestry and Hunting	25 475	0.7	12	2 036	0.6	12	15 500	0.3	12	1 100	0.2	12
Mining	61 371	1.7	11	2 587	0.8	11	76 700	1.4	11	3 200	0.6	11
Manufacturing	1 027 331	27.8	1	90 704	28.2	1	1 164 500	22.0	1	106 400	21.5	1
Construction	325 622	8.8	5	29 005	9.0	5	346 100	6.5	6	32 400	6.5	7
Transport, Storage and Communication	335 835	9.1	4	30 464	9.5	4	399 600	7.5	5	32 900	6.6	6
Public Utilities	73 650	2.0	10	5 520	1.7	10	107 600	2.0	10	8 900	1.8	10
Finance	98 644	2.7	8	8 019	2.5	9	424 200	8.0	4	34 700	7.0	4
Public Administration and Defence	97 638	2.6	9	8 751	2.7	8	255 300	4.8	9	17 800	3.6	9
Community Services	318 622	8.6	6	23 547	7.3	6	897 000	16.9	3	101 100	20.4	2
Entertainment	224 489	6.1	7	18 122	5.6	7	296 800	5.6	8	28 900	5.8	8
Retail/Wholesale trade	577 381	15.6	2	52 887	16.4	2	998 600	18.8	2	93 500	18.9	3
Other	68 141	1.7	-	4 608	1.6	-	100	-	-	-	-	-
TOTAL	3 702 022	100.0		321 749	100.0		5 295 300	100.0		494 900	100.0	

NOTE: The industry classification used in the 1954 Population and Housing Census differs from that used in "Civilian Employees Australia", and as such figures are not strictly comparable. Percentage columns may not sum to 100 to rounding errors. 1979 is the most recent year for which all of the above statistics are available.

Sources: (a) Commonwealth Bureau of Census and Statistics, "Census of the Commonwealth of Australia, 30 June, 1954".

(b) Australian Bureau of Statistics, "Civilian Employees Australia", June 1979, and "Agricultural Land Use, Improvements and Labour Australia" 1979-80.

TABLE 1.14

Distribution of Workforce by Regions (S.A.) and Industry[a]

Industry	South-East		Eastern		Adelaide		Central		Northern		Eyre	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Agriculture	6 611	25.3	17 702	33.3	4 458	1.1	7 198	41.2	4 094	10.1	5 428	35.7
Fishing, Forestry and Hunting	836	3.3	239	.4	229	.1	166	.9	94	.3	391	2.5
Mining	88	.3	276	.5	1 501	.4	194	1.1	1 329	3.3	73	.5
Manufacturing	4 572	17.5	6 497	12.2	91 033	23.1	920	5.3	9 688	24.0	870	5.7
Construction	1 470	5.6	3 590	6.8	34 056	8.6	962	5.5	2 982	7.4	1 079	7.1
Transport, Storage and Communication	1 238	4.7	2 884	5.4	24 533	6.3	1 079	6.2	3 659	9.1	1 070	7.1
Public Utilities	352	1.3	710	1.3	7 074	1.8	206	1.2	1 446	3.6	264	1.7
Trade	4 422	16.9	7 757	14.6	78 771	20.0	2 516	14.4	4 780	11.8	2 465	16.2
Finance	866	3.3	1 377	2.6	28 872	7.3	428	2.4	1 268	3.1	388	2.5
Public Administration and Defence	386	1.5	1 447	2.7	18 950	4.8	249	1.4	1 321	3.3	231	1.5
Community Services	2 729	10.4	5 335	10.0	66 827	16.9	1 878	10.9	5 371	13.3	1 453	9.5
Entertainment	1 109	4.3	2 327	4.4	19 420	4.9	597	3.4	1 739	4.3	591	3.9
Other	1 408	5.4	3 043	5.7	18 502	4.7	1 068	6.1	2 586	6.4	921	6.0
TOTAL	26089	100.0	53 185	100.0	394 226	100.0	17 460	100.0	40 357	100.0	15 225	100.0

Source: Australian Bureau of Statistics (1976) "Characteristics of the Population and Dwellings in Local Government Areas", 1976.

(a) Only 50% of Census schedules from private dwellings was processed. Due to this sampling, the summation of the number of persons employed in each industry may not correspond with the total shown.

TABLE 1.15

Regional Labour Multipliers in S.A. by Sector

Sector	Region					
	South-East	Eastern	Adelaide	Central	Northern	SA
Agriculture - Animal Industry	0.20	0.21	0.21	0.18	0.18	0.25
Agriculture - Cropping	0.11	0.18	0.22	0.09	0.11	0.20
Mining	0.07	0.06	0.15	0.06	0.05	0.11
Manufacturing	0.09	0.10	0.11	0.08	0.08	0.15
Public Utilities	0.09	0.11	0.12	0.09	0.09	0.13
Building and Construction	0.10	0.15	0.18	0.14	0.19	0.21
Trade	0.09	0.10	0.13	0.11	0.08	0.15
Transport and Communication	0.10	0.11	0.13	0.09	0.10	0.15
Finance	0.07	0.07	0.11	0.06	0.07	0.12
Public Administration and Defence	0.16	0.16	0.20	0.14	0.15	0.23
Community Services, Entertainment and Recreation	0.16	0.18	0.20	0.17	0.17	0.22

Source: West, Wilkinson and Jensen (1979)

1.4 Closing Comments

The competitive situation of agriculture on S.A. results mainly from changes in external conditions since most of S.A.'s agriculture is sold on export markets. In addition there are other factors which have a major indirect effect on the competitive position of agriculture. These factors include

- production in the non-farm sector
- inflation effects
- changes in exchange rates.

It is within this environment that goals of agriculture must be clearly specified. Broad agricultural goals in S.A. include a mix of consumer/producer goals as well as public oriented goals.

The consumer oriented goals in S.A. include

- reasonable stable food prices
- adequate and dependable food supply
- high quality nutritious food.

Producer oriented goals include

- fair level of returns to producers
- stable incomes to producers
- reduced economic disparities in Agriculture.

Public oriented goals include

- improved quality of rural life
- balanced rural/urban population
- conservation of the resource base
- fulfilment of national and international responsibilities in food and agriculture.

Goals are objectives or decided ends. Policies are decisions made in relation to these goals which are developed by

- establishing policy preferences
- recognizing constraints of policy
- evaluating consequences of policy decisions
- specifying a time frame for adoption.

Many of these broadly based goals of food and agriculture are pursued by formulating a number of specific goals. For example, the pursuit of a producer goal for stable incomes to producers may be achieved by a number of specific goals such as improved productivity and efficiency in marketing and resource allocation in agriculture, market development, security of food supply, and rural community development. To help achieve these specific goals, the Government has a number of specific courses of action or programmes such as trade and tariff measures, price support programmes, farm financing assistance, special tax concessions to rural producers, research programmes, and information services.

It is within this framework that Government decides priorities for various programmes with the appropriate degree of responsibility between the public and

the private sectors in moving towards a comprehensive S.A. agriculture and food policy.

References

West, G.R., Wilkinson, J.T. and Jensen, R.C., "Generation of Regional Input-Output Tables for the State and Regions of South Australia", Report to the South Australian Departments of Treasury, Urban and Regional Affairs, and Trade and Industry, 1979.

Chapter 2

THE FARM SECTOR

South Australian agriculture is notable for its achievements in adapting agricultural technologies to suit the inherently infertile and harsh environment in which it operates. The South Australian climate is almost identical with that in countries around the Mediterranean Sea, in parts of south western Asia, in western United States, parts of Chile and Argentina, and in southern South Africa. In each case, winters are mild and wet, while summers are hot and dry.

South Australia has developed an integrated and productive system of agriculture, with the integration of cereal and livestock production being a major feature.

South Australian agriculture may be conveniently divided into three main production zones based on the principal forms of agricultural activity carried on in them.

The zones are:

Pastoral Zone:	Predominantly low rainfall based entirely on low intensity livestock production.
Cereal Zone:	Based on livestock and grain produced on a rotational basis.
High Rainfall Zone:	Based on higher intensity beef lamb wool and dairy in combination with a wide variety of cropping and other livestock enterprises.

The three zones are shown in Fig. 1.

The Cereal Zone accounts for approximately two-thirds of the annual gross value of agricultural production in SA. Consequently the economic performance of SA agriculture is closely linked to the prospects for this zone.

2.1 Agricultural Production

The cereal and livestock industries account for the majority of agricultural production; wheat, wool and barley being the top three respectively in terms of gross value of production in 1980-81.

Table 2.1 shows the gross value of production of major commodities from 1970-71 to 1980-81. The rate of increase in the gross value of production has averaged 20 percent in this period while the average inflation rate has been closer to half that, indicating a real growth rate of around 10 percent per annum.

Analysis of the last ten years shows several periods of drought (for example 1976-77 and 1977-78 when wheat yields in particular were low). Table 2.1 also shows the increased production of oilseeds and grain legumes, particularly rapeseed and field peas.

In 1980-81, wheat accounted for 19.2 percent of gross farm receipts, wool 18.6 percent and barley 12.5 percent. The gross value of total cereal production in 1980-81 was about 69 percent of that for total livestock production. The gross value of livestock production has exceeded that for cereals in all but two of the last ten years by a substantial margin but has only exceeded that for total crops in 5 of the last 10 years.

Fig 1.

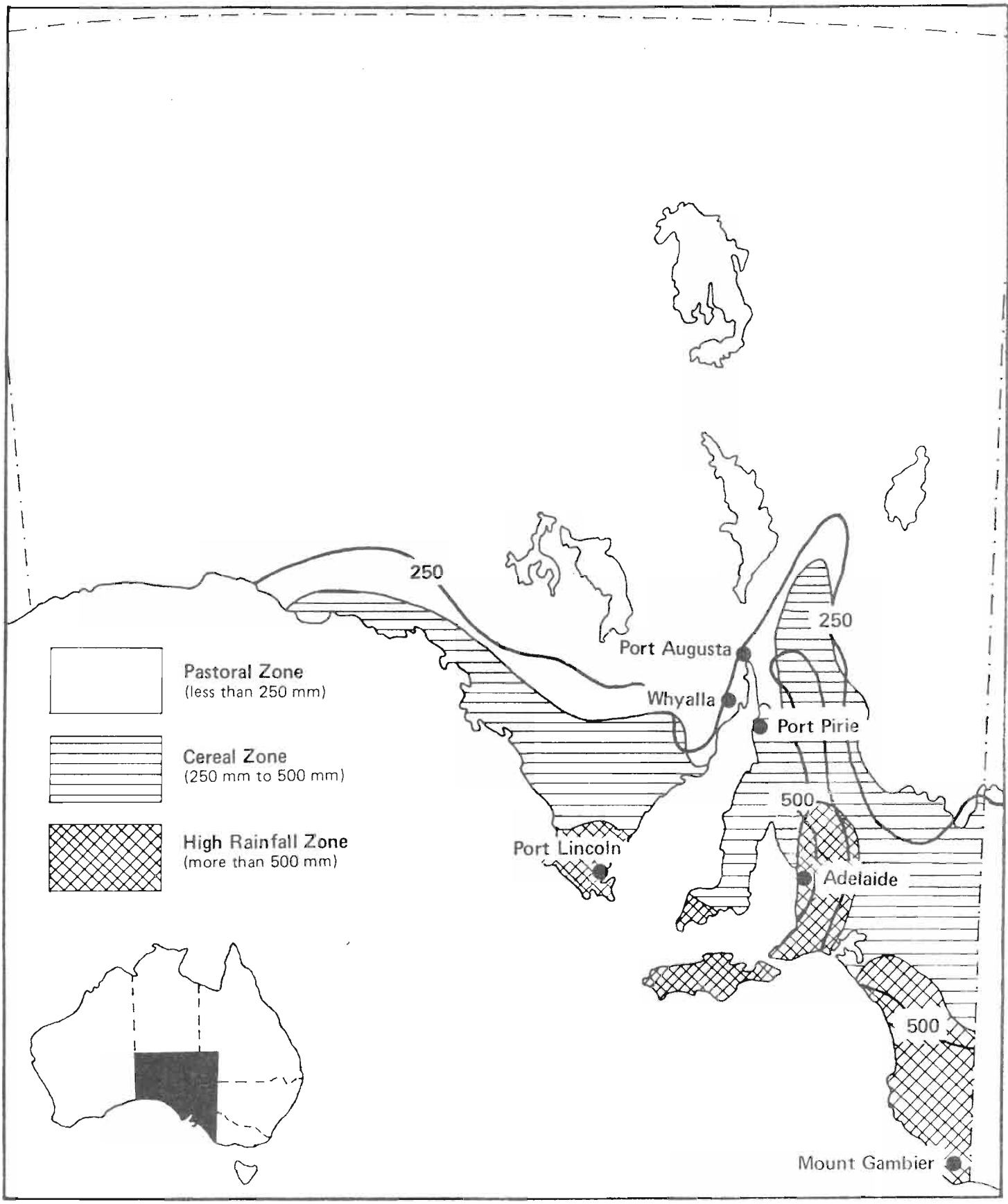
250
250
500
500
Port Augusta
Whyalla
Port Pirie
Port Lincoln
Adelaide
Mount Gambier
Pastoral Zone
(less than 250 mm)
Cereal Zone
(250 mm to 500 mm)
High Rainfall Zone
(more than 500 mm)

TABLE 2.1
Gross Value of Agricultural Production in South Australia[1]
($ mill)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Cereals for grain: Wheat	40.6	76.4	44.6	196.4	163.9	118.1	73.7	50.3	265.2	357.1	253.6
Barley	34.9	40.3	27.5	68.3	119.3	105.9	93.8	50.6	118.3	192.8	165.4
Oats	5.1	5.5	4.0	8.2	7.8	6.5	5.7	4.1	10.0	11.5	14.0
Other	0.3	0.3	0.2	0.2	0.2	0.2	0.6	0.6	1.2	0.6	1.3
TOTAL CEREALS	80.9	122.5	76.3	273.1	291.2	230.7	173.8	105.6	394.7	562.0	434.3
Legumes mainly for grain	0.8[a]	1.2[a]	0.7	1.7	2.3	2.9	2.4	1.7	5.6	7.5	10.5
Crops for hay	4.6	4.7	6.7	9.3	5.9	5.1	6.0	6.7	7.0	4.5	6.4
Oilseeds	0.0	0.0	0.3	0.5	1.6	1.6	2.8	4.4	5.4	5.4	4.5
Fruit: Citrus	12.6	12.9	13.0	12.4	14.9	16.8	20.5	26.7	30.5	31.9	33.7
Apples and Pears	6.2	5.8	7.2	6.1	10.6	10.0	11.2	10.1	12.2	10.6	15.4
Stonefruit	4.0	3.4	11.2	10.1	12.6	12.0	14.2	14.5	13.3	16.9	16.8
Grapes: Wine	14.1	16.0	18.2	19.1	33.8	36.0	37.6	36.7	40.9	48.9	50.2
Dried and Table	1.6	5.0	2.9	2.4	3.7	2.2	3.7	7.2	6.0	6.9	5.8
Other fruit	7.1	6.7	1.9	2.2	2.1	0.4	3.1	4.5	7.6	5.0	6.5
TOTAL FRUIT	45.6	49.8	54.4	52.3	77.7	77.4	90.3	99.7	110.5	120.2	128.4
Vegetables: Potatoes	6.1	4.4	5.8	11.2	9.3	10.0	11.0	10.4	14.7	15.3	22.4
Tomatoes	5.7	5.9	7.1	7.2	7.9	10.5	8.5	9.8	10.0	8.3	10.6
Other	10.8	12.7	12.4	17.1	18.0	19.6	20.7	24.9	28.5	25.1	31.9
TOTAL VEGETABLES	22.6	23.0	25.3	35.5	35.2	40.1	40.2	45.1	53.2	48.7	64.9
Pasture and grasses: Hay	4.1	5.9	7.1	11.2	9.0	6.6	6.7	12.7	12.6	14.7	21.4
Seed	2.1	2.2	3.0	4.4	5.1	4.1	3.3	3.7	5.5	8.4	9.2
Other crops	4.2	3.9	4.0	4.7		5.5	4.9	8.3	12.8	14.4	14.0
TOTAL CROPS	164.9	213.2	177.8	392.7	433.4	374.0	330.4	287.9	607.3	785.8	693.6
Livestock slaughterings:											
Beef, veal	34.7	43.7	63.3	82.2	43.4	63.5	99.4	98.2	142.9	107.3	125.8
Mutton, lamb	28.1	28.2	41.0	44.4	22.2	25.8	39.5	64.3	56.4	98.8	103.0
Pigmeat	13.1	14.1	14.7	26.1	23.4	21.6	21.9	23.5	29.5	37.0	42.3
Poultry	5.5	7.1	7.6	12.3	13.7	15.2	18.1	22.7	24.6	30.3	35.5
Livestock products:											
Wool	67.0	70.1	164.6	173.2	122.2	131.9	153.6	145.3	162.0	215.4	245.8
Dairy produce	26.3	28.6	26.0	27.5	31.5	30.2	30.4	34.3	37.4	42.3	49.0
Eggs	8.1	8.7	6.7	11.4	14.0	13.6	14.7	17.4	17.8	20.6	23.1
Honey and bees wax	0.8	1.4	1.7	2.6	2.2	2.1	1.7	3.3	2.3	4.0	3.2
TOTAL LIVESTOCK	182.1	217.5	325.5	380.0	272.2	303.8	379.2	408.8	472.9	555.7	627.9
TOTAL AGRICULTURE	347.0	430.7	503.3	772.5	706.1	677.8	709.6	696.7	1 080.2	1 341.6	1 321.5
FORESTRY	11.0	11.9	10.7	13.7	16.3	18.2	20.6	23.5	19.5	23.8	n.p.
FISHING	9.2	12.4	15.8	17.4	14.1	22.5	27.2	23.6	30.5	35.2	n.p.
HUNTING	0.8	0.6	0.6	0.6	0.9	0.7	0.7	0.7	1.0	1.6	n.p.
TOTAL PRIMARY PRODUCTION	368.1	455.6	530.3	804.2	737.3	719.2	758.2	744.5	1 131.2	1 402.2	n.p.

[1] Source: Australian Bureau of Statistics, "Value of Agricultural Commodities Produced Australia" 1970-71 to 1980-81.

[a] Field peas only.

n.p. = These statistics are no longer produced by the A.B.S.

2.2 Prices Received by Farmers

Table 2.2 shows the trend in prices received since 1970-71.

Farmers in the pastoral industries, particularly sheep producers, and in the citrus industry have benefited from rapid increase in prices received over the last 20 years. Grape growers have also experienced improved prices, however over-production for the wine industry has not spread the intended security offered by government fixed minimum prices across the industry.

South Australian farmers have experienced a decline in their terms of trade over the last ten years as shown by the ratio of prices received to prices paid.

2.3 Farm Inputs

The relative change in prices for major farm inputs is presented in Table 2.3 for the ten years to 1979-80. The areas which have risen most rapidly are fuel and the service areas of interest rates, rates and taxes, and insurance.

The general increase in the price of farm inputs has exceeded the increase in the Consumer Price Index.

Of farm machinery used, land preparation and irrigation equipment have been the items to increase in price most rapidly in the last 10 years (Table 2.4). The rate of price increase for replacement parts is shown in Table 2.5. Here too, the most rapid price increase has occurred with irrigation equipment and land preparation machinery parts.

2.4 Farm Structure

The majority of agricultural enterprises (i.e. farms) in South Australia are in the sheep and cereal grains industries.

The value of operations for approximately half the enterprises is less than $40 000, which is comparable with the result for Australia as a whole.

Table 2.6 provides information on the value of agricultural enterprises, by industry, for 1980-81. A comparison is also made with Australia on the basis of enterprise value of operations for the same period which shows that South Australia conforms very closely to the Australian trend.

2.5 Farm Financial Structure

The Bureau of Agricultural Economics' Australian Agricultural Industries Survey (1980) provides an analysis of the capital structure of farms in 1979-80 (Table 2.7). This table shows that most on-farm capital investment is in land and improvements (75.9 percent).

TABLE 2.2

Index of Prices Received by Farmers: South Australia

Base = average of 3 years ended June 1963 = 100

Item	ANNUAL AVERAGES S.A. 1970-71	S.A. 1971-72	S.A. 1972-73	S.A. 1973-74	S.A. 1974-75	S.A. 1975-76	S.A. 1976-77	S.A. 1977-78	S.A. 1978-79	S.A. 1979-80	S.A. 1980-81	Aust. 1980-81
Wheat	96	99	102	150	196	196	177	169	210	262	287	287
Other grains	110	115	135	164	231	247	243	255	195	248	312	311
OTAL GRAINS	101	104	113	155	207	212	198	197	206	257	295	292
HAY	95	98	176	199	209	220	360	370	204	171	439	536
Potatoes	106	80	95	240	186	216	168	125	222	170	266	329
Other vegetables	138	135	151	201	214	251	272	324	300	295	420	340
TOTAL VEGETABLES	126	114	130	215	204	238	233	250	271	248	363	336
Dried vine fruit	123	128	150	228	261	232	291	340	351	424	470	478
Other vine fruit	136	141	158	186	264	284	311	327	330	328	343	331
Total vine fruit	132	136	155	200	263	267	304	332	337	366	385	427
Citrus fruits	88	95	90	131	161	172	196	217	236	231	248	247
Other fruit	128	137	147	146	202	198	234	234	274	317	367	323
TOTAL FRUIT	121	128	139	165	219	221	255	271	292	316	350	335
TOTAL ALL CROPS	108	111	120	163	209	217	215	219	231	268	314	309
All crops excluding wheat	118	121	136	174	221	234	247	261	248	274	337	325
WOOL	64	87	189	186	128	143	183	190	205	240	262	251
Cattle	140	139	155	189	86	82	109	124	265	350	328	344
Sheep	82	78	194	282	102	82	181	262	372	406	396	392
Lambs	98	84	143	217	141	128	177	211	285	329	319	332
Total livestock	115	110	161	218	105	95	144	179	295	357	341	348
TOTAL PASTORAL	78	93	181	196	121	129	172	187	232	273	284	289
Milk for consumption	99	110	116	120	141	162	171	194	211	229	266	283
Milk for processing	121	133	139	139	134	146	138	162	173	197	237	231
Cream for processing	78	85	76	72	68	72	80	91	94	96	231	212
TOTAL DAIRY PRODUCE	104	114	118	119	128	143	146	167	180	198	295	298
PIGS	112	117	101	164	193	199	198	209	251	266	261	224
POULTRY PRODUCTS	97	96	99	127	148	160	189	201	208	235		
HONEY	123	151	230	281	301	294	377	489	494	501	501	411
TOTAL DAIRY, PIGS, POULTRY, HONEY	104	111	113	131	146	158	167	186	203	222	252	226
TOTAL ALL PRODUCTS	95	103	145	173	164	172	191	201	228	264	294	284
All products excl. crops	84	98	166	180	127	136	171	197	223	261	277	270
All products excl. wool	106	111	126	171	179	185	194	206	237	272	308	297
Terms of Trade (Ratio prices received to prices paid)	75	77	102	105	73	65	65	62	64	67	65	67

Source: Bureau of Agricultural Economics, "Indexes of Prices Received and Paid by Farmers", various issues.

TABLE 2.3

Prices Paid by Farmers: South Australia

Base = average of 3 years ended June 1963 = 100

Item	S.A. 1970-71	S.A. 1971-72	S.A. 1972-73	S.A. 1973-74	S.A. 1974-75	S.A. 1975-76	S.A. 1976-77	S.A. 1977-78	S.A. 1978-79	S.A. 1979-80	S.A. 1980-81	Aust. 1980-81
	ANNUAL AVERAGES											
Seed	104	105	122	164	194	208	240	254	259	277	326	311
Fodder	96	100	118	146	158	186	227	242	245	277	368	309
SEED AND FODDER	98	101	119	150	165	190	230	245	248	277	359	310
Fertiliser	70	71	71	75	215	258	238	243	260	305	389	365
Chemicals	97	101	106	114	135	143	159	172	178	198	230	230
Fuel	115	118	118	125	155	190	211	247	316	445	559	572
Electricity	101	106	106	118	134	148	166	185	206	228	268	269
Containers	102	115	116	118	141	161	177	195	220	249	n.a.	n.a.
Replacement parts	139	153	164	176	213	256	288	320	355	399	n.a.	n.a.
Other supplies	142	154	161	183	238	280	314	332	367	419	n.a.	n.a.
Machinery	131	139	150	165	207	250	285	321	342	373	n.a.	n.a.
Motor vehicles	117	123	129	141	166	203	237	269	285	310	n.a.	n.a.
Fencing materials	128	137	146	161	195	240	278	302	322	370	432	415
Building materials	127	137	147	164	202	240	276	305	330	378	432	415
EQUIPMENT AND SUPPLIES	114	121	128	141	186	222	246	270	295	343	408	394
Equipment and supplies excl. seed and fodder	116	123	130	140	189	226	248	274	302	352	414	411
WAGES	134	141	151	175	261	311	354	390	414	446	486	458
Freight inwards	124	131	134	173	214	238	256	274	302	327	n.a.	n.a.
Insurance	160	171	204	314	524	619	695	748	806	796	836	615
Rent	193	196	200	205	217	235	237	244	295	315	n.a.	n.a.
Rates and Taxes	204	213	228	259	310	340	413	438	501	572	667	545
Interest	156	165	176	247	406	487	542	598	623	687	838	816
Contracts	105	95	118	139	143	172	217	265	328	309	372	261
Other services	131	145	149	158	191	235	282	311	338	348	367	381
SERVICES AND OVERHEADS	155	161	175	217	293	341	394	432	478	508	582	493
Freight outwards	125	131	134	173	216	241	258	275	303	325	363	339
Selling expenses	120	131	155	187	222	249	281	306	329	365	408	407
MARKETING EXPENSES	123	131	142	178	218	244	267	287	313	340	381	367
TOTAL	126	133	142	164	223	263	295	324	353	392	452	423
Total excl. seed and fodder	127	135	143	165	227	268	300	329	360	401	458	434
Consumer Price Index	126	133	141	161	190	213	246	270	290	319	349	351

Source: Bureau of Agricultural Economics, "Indexes of Prices Received and Paid by Farmers", various issues.

TABLE 2.4

Farm Machinery: Index of Prices of Farm Machinery, and Heavy Equipment: Australia

Base July 1970 = 100

Item	ANNUAL AVERAGES 1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
1. Tractors	110	118	125	155	191	218	244	264	290	335
2. Land preparation and crop growing	111	124	144	190	227	258	290	312	332	379
3. Harvesting crops and haymaking	109	116	129	162	201	231	260	274	298	338
4. Livestock machinery	107	113	120	140	161	178	192	206	235	251
5. Irrigation, water supply, stationary engines and electric motors	114	124	145	182	205	231	261	280	315	349
6. Miscellaneous	107	114	121	140	161	185	206	212	228	236
7. Total	110	118	130	163	197	225	253	270	294	333

Source: Bureau of Agricultural Economics, "Indexes of Prices Received and Paid by Famers", various issues.

TABLE 2.5

Replacement Parts: Index of Prices of Replacement Parts, Australia

Base July 1970 = 100

Item	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Tractors	110	121	125	141	170	196	234	263	305	345
Land preparation and crop growing machinery	109	122	132	166	203	232	248	280	310	367
Harvesting crops and haymaking machinery	114	125	130	152	192	218	229	243	274	334
Livestock machinery	108	111	117	134	157	168	189	218	240	259
Irrigation, water supply, stationary engines and electric motors and miscellaneous	120	125	140	188	206	230	268	301	348	395
Total	112	121	130	158	190	216	240	266	302	353

Source: Bureau of Agricultural Economics, "Indexes of Prices Received and Paid by Farmers", various issues.

TABLE 2.6

Agricultural Enterprises, Industry and Estimated Value of Operations

South Australia, 1980-81

Industry of enterprise	Estimated value of operations ($'000)												
Description	2-9	10-19	20-29	30-39	40-49	50-59	60-74	75-99	100-149	150-199	200 and more	Total enterprises	%
Poultry	17	18	14	10	13	9	13	15	13	10	30	162	0.9
Grapes	518	442	337	161	91	42	21	21	7	3	2	1 645	8.6
Orchard and other fruit	330	227	209	167	134	105	99	112	137	57	63	1 640	8.6
Vegetables	173	243	197	136	69	53	59	55	53	34	62	953	5.0
Cereal grains (incl. oilseeds)	249	192	206	228	226	246	347	461	575	220	204	3 154	16.5
Sheep - cereal grains	143	313	436	556	597	511	601	719	570	169	92	4 707	24.6
Meat cattle - cereal grains	20	26	24	11	15	11	15	18	9	11	4	164	0.9
Sheep - meat cattle	140	122	133	106	111	69	76	96	86	36	43	1 018	5.3
Sheep	447	349	272	260	208	166	149	162	131	48	41	2 233	11.7
Meat cattle	503	146	53	35	22	8	30	24	14	8	36	879	4.6
Milk cattle	148	271	337	234	131	88	81	41	17	5	4	1 357	7.1
Pigs	77	56	37	35	21	25	18	19	18	6	9	321	1.7
Nurseries	2	14	5	4	1	24	14	11	19	7	12	113	0.6
Other Agriculture	291	119	65	37	10	16	12	15	14	4	3	586	3.1
Total South Australia	3 058	2 538	2 325	1 980	1 649	1 373	1 535	1 769	1 663	618	605	19 113	100.0
%	16.0	13.3	12.2	10.4	8.6	7.2	8.0	9.3	8.7	3.2	3.2	100.0	-
Australia	27 680	23 892	20 713	17 620	13 836	11 233	12 729	14 093	13 971	5 979	7 412	169 158	-
%	16.4	14.1	12.2	10.4	8.2	6.6	7.5	8.3	8.3	3.5	4.4	100.0	-

Source: Australian Bureau of Statistics, "Agricultural Industries Structure of Operating Units Australia", 1980-81.

TABLE 2.7

Average Capital Structure of South Australian Farms: 1979-80

Farm Assets	Value	Percentage of Total Capital
Motor Vehicles, Tractors and Aircraft	13 110	4.1
Farming, Livestock and General Equipment	19 758	6.2
Irrigation and Water Supply Plant	1 970	0.6
Total Plant, Machinery and Equipment	34 838	10.9
Land and Fixed Improvements	241 601	75.9
Total Land, Improvements, Plant and Equipment	276 439	86.8
Livestock:		
Sheep	25 844	8.1
Beef Cattle	14 781	4.6
Dairy Cattle	638	0.2
Pigs	674	0.2
Horses	189	0.1
Total Livestock	42 126	13.2
Total Capital	318 565	100.0

Source: Bureau of Agricultural Economics, "Australian Agricultural Industries Survey" 1980. Results of the 1981 survey were not available at the time of publication.

Table 2.8 presents information for various agricultural industries on the levels of equity farmers have in their properties. Equity ratios in the various industries vary between 0.79 and 0.94. It can be seen that although horticultural properties are much smaller and have lower capital requirements than broadacre properties, they nevertheless tend to have significantly lower equity ratios (i.e., higher debt ratios). This may reflect the severe difficulties and low farm incomes experienced by horticulturalists in the Riverland in recent years.

Equity ratios in agriculture, even in the horticultural sector, are high compared to the average for manufacturing industry of around 40 percent.

2.6 Source of Finance

The major sources of finance for primary producers are listed in Table 2.9 with the interest rates and terms applicable to each. There are many credit institutions and different types of loans available to primary producers.

In South Australia farmers borrow most heavily from the commercial trading banks, pastoral houses, etc and the State bank followed by Government financial intermediaries such as rural assistance and specific Agricultural loans through Primary Industry Bank of Australia (PIBA) (Tables 2.10A and B). The main type of loan is a bank term loan normally of a ten year term.

2.7 Farm Ownership

Most farms in South Australia are held in family partnerships, as shown in Table 2.11. The family partnership is usually between husband and wife. South Australian farmers tend to move into partnerships more than other farmers in Australia in preference to remaining single owners. This is likely to be a reflection of taxation considerations, particularly of lower death duties on farms passed from husband to wife. In South Australia these duties were not abolished until 1980.

2.8 Age of Farmers

The most recent census for which statistics are available, 1976, revealed that the age group 45-54 has the highest proportion of farmers and farm managers (23%) (Table 2.12).

There does not appear to be any significant difference between the age structure of farmers and that of the population as a whole.

2.9 Financial Performance of Enterprises

Financial and other data relating to three alternative enterprises in S.A. are presented in Table 2.13A, B and C for the years 1978-79 - 1980-81. These data illustrate the trend in farm costs and returns for the average producer. For comparison we have included the financial data for the average Australian producer. Invariably the S.A. producer tends to operate at the lower end of the production spectrum relative to the Australian average. In 1980-81 for example, the average wheat farm area in S.A. is 1490 ha, much less than the Australian average of 1875 ha. In dairying, S.A. farmers have significantly smaller herd sizes and tend to rely relatively more on livestock cash sales than do their interstate counterparts. In the case of winegrapes, S.A. growers tend to have smaller plantings of both red and white grapes and the total orchard and vineyard area per property is slightly smaller in the Riverland than in other grape-growing regions.

TABLE 2.8

Farm Business Financial Structure: South Australia: As of 30 June 1980

Industry	Farm Business Equity (Average per farm) $	Farm Business Debt (Average per farm) $	Total Farm Business Capital (Average per farm) $	Farm Business Equity Ratio[1] (Average per farm) %
Wheat	337 455	33 594	371 049	0.91
Sheep	238 655	36 608	275 263	0.87
Beef	520 663	32 455	553 118	0.94
Total Agriculture	334 911	34 284	369 195	0.91
Canning Fruit (Riverland)	76 962	9 820	86 782	0.89
Citrus (Riverland)	129 713	18 357	148 070	0.88
Winegrapes (Riverland)	68 918	17 575	86 493	0.80
Multi-purpose grapes (Riverland)	73 031	18 920	91 950	0.79
Total Horticulture (Riverland)	78 802	15 715	94 517	0.83

[1] The farm business equity ratio is the ratio of farm business equity to total farm business capital.

Sources: Bureau of Agricultural Economics "Australian Agricultural Industries Survey 1980" and "Australian Horticultural Industries Survey 1980".

TABLE 2.9

Sources of Rural Credit

Source	Type of loan or purpose	Interest rate	Term	How to apply
Trading banks	Overdraft - less than $100,000	13.5	Should be cleared annually	Direct to local bank manager
	Term loan - less than $100,000	14	3 to 10 years	Direct to local bank manager
	Farm development loan	14	8 to 12 years	Direct to local bank manager
	Bridging Finance - less than $100,000	17.25		
	- more than $100,000	18.5		
	Personal loans - unsecured	9.25 (flat)		Direct to local bank manager
		16.1 to 16.6 (simple)	1 to 4 years	Direct to local bank manager
	secured	9.25 (flat)		
		16.1 to 16.6 (simple)	1 to 4 years	Direct to local bank manager
	Bankcard	18		Direct to local bank manager
Commonwealth Development Bank (CDB)	Farm purchase less than $100,000	13.5	up to 20 years	Through Trading Bank, State Bank or direct to CDB Adelaide
	Farm purchase more then $100,000	16.5		
	Farm development			
	Debt re-finance			
	Farm build-up	13	up to 20 years	Through Trading Bank, State Bank direct to CDB Adelaide
	Farm equipment - new	18.5	4 years	Through Trading Bank, State Bank or direct to CDB, Adelaide
	- second hand	21		
Primary Industry of Australia (PIBA) (minimum loan $10,000 maximum loan $250,000)	Farm build up to $100,000	14	8 to 30 years	Apply to own bank, stock firm or insurance company
	Farm purchase			
	Farm development over $100,000	16.75		
	Debt refinancing			
	Farm buildup			
	Farm improvement			Rural Assistance Branch
Rural Assistance Branch (Rural Adjustment Scheme)	Debt reconstruction	7 to 9	5 to 30 years	S.A. Department of Agriculture
	Household support			
	Rehabilitation loans			

TABLE 2.9 (Contd)

Primary Producers Emergency Assistance Act	Carry-on Finance (emergency assistance for natural calamities, i.e. fires, flood, drought, frost, animal or plant disease, insect pest, tornadoes, etc)	4	7 years	Rural Assistance Branch S.A. Department of Agriculture
Stock firms	Carry-on finance, merchandise	14.75	Seasonal; should be cleared annually	Direct to local branch
State Bank	Term loans and loans under various Acts (R.A.G. Act, loan to Producers Act etc)		15 to 40 years	Direct to local State Bank Manager
	- less than $100,000	14		
	- more than $100,000	16.5		
Finance companies	Consumer mortgage - new	23 to 25	1 to 5 years	Finance Company, Machinery dealer or bank
	(Hire purchase) - used	27 to 30		
	Leasing	18.5 to 24	2 to 5 years	

Interest Rates are as at end of January 1982

Source: Farm Costs and Returns, South Australian Department of Agriculture, 1982.

TABLE 2.10A

Farm Business Debt by type of Lending Institution

as at June 30, 1980

Average per surveyed property.

Lending Institution	S.A. $	Aust. $
Commonwealth Development Bank	2 377.28	2 542.48
Trading Bank	14 501.65	14 742.56
State Bank	2 957.87	1 817.27
Savings Bank	1 215.60	288.44
Government Agency	2 616.98	2 962.87
Pastoral House, Stock & Station Agent) Merchant, Co-operative, Packer, etc.)	3 243.23	2 892.42
Finance Company	1 122.14	1 939.18
Insurance Company, Pension fund, etc	473.61	1 091.62
Relative	1 572.35	2 335.91
Other Private Source	2 579.00	1 722.84
Other source	1 624.61	393.02
Total Farm Business Debt	$34 284.33	$32 728.63

Source: Bureau of Agricultural Economics, Australian Agricultural and Grazing Industries Survey 1980. Results of the 1981 survey were not available at the time of publication.

TABLE 2.10B

Farm Business Debt by type of Loan

as at June 30, 1980

Average per surveyed property.

Type of Loan	S.A. $	Aust. $
Bank overdraft	5 191.44	5 445.33
Term loan-bank	14 699.95	12 924.36
Term loan-other	7 037.33	6 291.41
Hire purchase loan	1 134.84	2 132.27
Personal loan	22,51	209.75
Bill of sale of stock lien	140.32	119.37
Business overdraft	3 840.94	2 908.20
Rural Adjustment loan	1 081.52	1 646.16
Other loan	1 135.49	1 051.79
Total farm business debt	$34 284.33	$32 728.63

Source: Bureau of Agricultural Economics, Australian Agricultural and Grazing Industries Survey, 1980.

TABLE 2.11

Primary Production Enterprises: Legal Status, 1980-81

	South Australia	%	Australia	%
Sole Operator	3 843	20.1	49 779	29.4
Family Partnership	13 717	71.8	102 275	60.5
Other Partnership	296	1.5	5 684	3.4
Private incorporated company	1 090	5.7	7 872	4.7
Public incorporated company	5	0.0	168	0.1
Other-including co-operatives, trusts and estates	162	0.8	3 380	2.0
Total	19 113	100.0	169 158	100.0

Source: Australian Bureau of Statistics, "Agricultural Industries Structure of Operating Units Australia", 1980-81.

TABLE 2.12

Farmers and Farm Managers: Age Distribution

	Males	Females	Total
15 - 24	2 355	475	2 830
25 - 34	4 971	2 611	7 582
35 - 44	4 526	2 727	7 253
45 - 54	4 933	3 066	7 999
55 - 64	3 859	1 982	5 841
65 plus	1 943	669	2 612
	22 586	11 531	34 117

Source: Australian Bureau of Statistics, Population Census 1976. Results of the 1981 Census are not yet available.

TABLE 2.13A

Summary of Key Variables of Selected Enterprises in S.A. - Wheat farms

Item	Unit	S.A.			Aust.		
	ha	1978-79	1979-80	1980-81	1978-79	1979-80	1980-81
		Average per farm					
Crop area harvested - wheat	ha	207	230	281	267	290	273
- other grains	ha	169	143	132	93	83	85
Fallow	ha	14	-	-	24	-	
Total area planted	ha	394	405	-	409	432	
Total farm area - decreasing in S.A.	ha	1 717	1 634	1 490	1 519	1 508	1 875
Average number of cattle	no.	16	26	19	101	88	72
Average number of sheep	no.	1 171	1 170	1 288	1 464	1 538	1 540
Financial data:							
Cash receipts							
Sales - sheep	$	4 650	6 185	6 694	8 451	11 240	12 420
- cattle	$	1 074	1 235	2 233	9 857	11 336	8 836
- wool	$	8 234	9 387	12 903	12 993	14 811	14 919
- wheat	$	25 552	28 616	46 250	41 924	46 955	46 650
- other grains	$	13 653	17 454	16 843	10 667	12 784	11 934
Other income	$	4 399	4 504	8 567	6 366	6 566	8 078
Total cash receipts	$	57 562	67 381	87 490	90 258	103 692	102 834
Cash costs							
Purchases - sheep	$	1 896	2 502	2 167	2 128	2 809	4 248
- cattle	$	153	203	483	1 089	1 437	1 182
Hired labour	$	1 971	2 089	2 228	2 126	2 253	3 329
Shearing and crutching	$	1 216	1 362	1 285	1 900	2 128	2 059
Materials	$	13 719	14 954	20 872	18 788	20 478	26 304
Services	$	5 853	6 555	10 980	8 929	10 000	14 683
Seed and fodder	$	2 257	2 551	5 172	1 245	1 407	7 173

TABLE 2.13A (Contd)

Other costs	$	1 110	1 248	-	2 044	2 483	-
Interest paid	$	2 539	2 767	-	3 516	3 833	-
Total cash costs	$	30 714	34 231	43 187	41 765	46 828	58 978
Net cash income	$	26 848	33 150	44 362	48 493	56 864	43 856
Business debt	$	24 177	31 266	-	33 494	na	
				Distribution of cash income			
Net cash income							
Under $0	%	9.2	9.2		6.8	5.8	
$0 and under $10 000	%	13.3	12.1		5.9	5.9	
$10 000 and under $20 000	%	27.6	15.2		13.8	10.7	
$20 000 and under $30 000	%	11.9	16.6		15.4	12.3	
$30 000 and under $40 000	%	12.1	17.0		8.7	13.4	
$40 000 and under $50 000	%	12.6	8.6		11.3	7.1	
$50 000 and over	%	13.3	21.3		38.1	44.7	

Source: Bureau of Agricultural Economics, "Australian Agricultural and Grazing Industries Survey", 1979, 1980, and "Sheep, Beef and Wheat Industries: Preliminary Survey Results for 1980-81 and Projections for 1981-82", Quarterly Review of the Rural Economy, February 1982.

TABLE 2.13B

Summary of Key Variables of Selected Enterprises in S.A. - Dairy farms

Item	Unit	South Australia		Australia	
		1979-80	1980-81	1979-80	1980-81
Farm population	no.	1 479	1 180	20 520	19 998
Physical data					
Farm characteristics					
Total farm area	ha	193	211	151	154
Area sown to crops	ha	36	36	28	26
Dairy herd at 30 June	no.	117	122	147	155
Beef herd at 30 June	no.	30	41	25	24
Dairy cows in herd at 30 June	no.	77	75	96	99
Milk production					
Market milk a	L	73 792	84 023	76 296	84 978
Manufacturing milk and cream	kg bf	6 747	6 687	9 032	8 578
Total milk production	L	227 132	243 298	280 651	282 933
Milk production per cow	L	2 950	3 239	2 923	2 856
	herd size for surveyed farm				
24-percentile	no.	70	68	102	101
50-percentile (median)	no.	103	102	133	138
75-percentile	no.	154	152	180	181
Interquartile range	no.	84	84	78	80
Financial variables					
Cash receipts					
Market milk	$	13 855	17 778	15 080	19 469
Manufacturing milk and cream	$	16 092	21 722	20 063	24 733
Total dairy product sales	$	29 948	39 500	35 143	44 202
Livestock sales	$	13 436	13 626	10 515	10 075
Other livestock product sales	$	4 397	5 442	475	514
Crop receipts	$	2 172	2 511	2 140	1 653

TABLE 2.13B (Contd)

Other cash receipts	$	968	1 092	656	823
Total cash receipts	$	50 921	62 171	48 929	57 268
Cash costs					
Livestock purchases	$	5 891	4 455	3 506	2 707
Hired labour b	$	2 889	3 839	1 680	1 814
Materials	$	12 331	16 362	13 861	17 099
Services	$	6 897	7 873	8 206	8 624
Interest paid	$	2 645	3 594	2 423	3 138
Other cash crops	$	1 521	1 955	2 020	2 534
Total cash costs	$	32 174	38 077	31 696	35 916
Farm cash operating surplus	$	18 747	24 094	17 233	21 351
25-percentile	$	9 212	7 650	8 462	8 836
50-percentile (median)	$	15 962	23 919	16 105	20 752
75-percentile	$	24 672	34 412	25 161	30 704
Interquartile range	$	15 460	26 762	16 699	21 868
Dairy produce sales	$		45 424		50 800
Total cash receipts	$		68 219		63 791
Total cash costs	$		42 173		39 819
Farm cash operating surplus	$		26 046		23 972

Source: Bureau of Agricultural Economics, "Dairy Industry: Survey Results for 1979-80 and Estimates for 1980-81 and 1981-82", Quarterly Review of the Rural Economy, February 1982.

TABLE 2.13C

Summary of Key Variables of Selected Enterprises in S.A. - Wine Grapes

Item	Unit	Riverland		All regions		
		South Australia				
		1979-80	1980-81	1979-80	1980-81	1981-82
Areas harvested						
- red wine grapes	ha	2.3	2.1	2.9 (9)	2.9 (10)	ne[1]
- white wine grapes	ha	2.7	2.6	3.2 (12)	3.4 (12)	ne
Total orchard and vineyard area	ha	14.5	19.0	15.6 (14)	19.6 (14)	ne
Yield per harvested hectare						
- red wine grapes		16.2	15.5	16.7 (5)	17.3 (5)	ne
- white wine grapes		25.7	23.9	23.7 (9)	23.0 (8)	ne
Cash receipts for wine grapes	$	14 799	14 290	17 381 (16)	19 044 (14)	19 594
Total cash receipts	$	61 857	56 596	67 408 (21)	63 621 (16)	70 357
Total cash costs (excluding family labour)	$	38 981	44 068	41 198 (25)	46 251 (26)	52 254
Farm cash operating surplus	$	22 875	12 528	26 210 (15)	17 370 (20)	18 103
Return to capital and management adjusted to full equity	$	3 264	ne	6 354 (34)	ne	ne
Rate of return to capital and management, adjusted to full equity						
- excluding capital gains	%	2.5	ne	3.8 (25)	ne	ne
- including capital gains	%	11.3	ne	16.4 (10)	ne	ne
25-percentile	$	8 406	5 933	10 598	6 042	ne
50-percentile (median)	$	13 106	12 001	19 130	14 689	ne
75-percentile	$	24 047	17 814	32 084	29 139	ne
interquartile range	$	15 641	11 881	21 486	23 097	ne

[1] ne = not estimated.

Source: Bureau of Agricultural Economics, "Horticultural Industries: Survey Results for 1979-80 and Estimates of 1080-81 and 1981-82", Quarterly Review of the Rural Economy, February 1982.

Chapter 3

MARKETING AGRICULTURAL PRODUCTS

This chapter is divided into two sections. First, a brief overview of some of the aspects of marketing which have implications for the way that farm resources are managed.

Second, the food processing sector of the South Australian economy is analysed.

3.1 Some Aspects of Agricultural Marketing

Typically farmers have abdicated the responsibility of marketing farm products. Rather, they have left to others the many intermediary processes in the marketing chain such as transport, storage, processing, and distribution, wholesaling and retailing before consumer demand is satisfied. Hence a distinction exists between agricultural production and agricultural marketing. A division of function occurs by which on-farm production is the responsibility of the farmer, while off-farm marketing is typically the responsibility of many specialized processers or distributors.

Two main consequences follow from this separation of functions. First, it sometimes produces a very deep-rooted and often outspoken distrust of middlemen engaged in the marketing process, by farmers and farmer organisations. This distrust often reflects a lack of knowledge by farmers of the indispendable role of middlemen in advanced economies. Secondly, as distributors rightly expect rewards for their marketing services, we find that at each point in the marketing chain a margin is added to the farm-gate price of the commodity, so that the final retail price may bear no close relationship to the farm gate price.

Two points however, need to be borne in mind. First the marketing margin represents the price for processing, packing, grading, storing and transporting the products. The performance of these functions not only incurs a cost but also adds value to the product. Second, even if it were practicable in agriculture to eliminate the middleman, the marketing functions would remain, for they are indispensable to bridge the gap, in time and space, between production and consumption. The elimination of the middle trader would probably imply that primary producers would have to undertake the marketing function with possible deterioration in their skill as farmers, as they would then have to divide their time between production and distribution.

The second consequence of the separation of functions between the primary producer and distributors is that the involvement in marketing of the producer typically ends at the farm gate. The farmer's major goal is to market the product at the farm gate at a price which is regarded as reasonable - that is, one which covers the normal production costs including an adequate return.

However, developments in the market place, and in the marketing process, are of relevance to primary producer; they provide price signals to which they need to respond if they are to achieve an efficient allocation of resources among the various enterprises on their properties. Market changes disturb the balance between the factors of production, (land, labour and capital), they induce changes in the scale of farming, in the location of production and in the choice and combination of farm enterprises and inputs; they influence management practices, particularly in relation to quality standards.

3.2 Changes in Food Retailing

The retail market is the final link in the marketing chain. Although it is frequently overlooked by farmers, it is of considerable interest to primary producers for several reasons. First, the retailing margin is for almost all foods the main component of the overall marketing margin. In developed countries the ratio typically ranges from around 20 percent on bread and bulky starchy foods, through about 25 percent on dairy products and 45 percent on produce to nearer 60 percent on meat. Second, retailing is of strategic importance as the final link between producers and consumers. It is retail markets which provide the purchasing alternatives. Finally, the agricultural and retailing sectors tend to be more dispersed, and consist of much smaller units relative to the food processing sector. In the case of agriculture, units are scattered because suitable land is scattered; in food retailing, units are dispersed because the population is scattered and unwilling to travel very far to obtain routine purchases. The dispersion, and the associated need for managerial adaptation to local conditions limits the centralisation and management supervision that is possible. In turn, then, relatively small businesses can survive and prosper in both industries. As in most industries, however, technological change tends to increase the advantages of scale and many small firms survive but do not prosper in both industries.

However, between food retailing and farming there is one noteworthy difference in kind. Pressures of both supply and demand are forcing farmers to become more specialised by commodity, but conversely are inducing retailers to diversify and widen their product line - the most obvious development being the increased importance of the supermarket.

3.3 The Growth of Vertical Integration and Contract Buying

These developments that have occurred, and are continuing, at the retail level of the food distribution chain present primary producers with a challenge. The large retail chain currently requires produce of suitable quality, with consistent and uniform supplies, and at relatively stable prices. If this requirement is not met by primary producers it is often necessary for retailing organisations to obtain more control over farm production than is yielded by the normal price mechanism. Such control is exercised through the integration of the processing or retailing firm with the primary producer. Vertical integration implies that producers supply processing or retail firms on a contractual basis. Control of the primary producer, through vertical integration, may be either partial or complete depending on the extent to which the grower is permitted to engage in decision-making in respect of the production of the product. In some contracts all the decisions affecting the management of the activity - time of sowing, variety of product, type and quantity of fertiliser, time of harvesting - are determined by the integrating firm, which also supplies the capital and other physical requirements of production. In these instances, the farmer-grower merely provides labour, land and possibly (in livestock production) buildings. In other contracts the only obligation carried by the producer is to supply a certain quantity of product, of a certain quality, at a certain time. Here management decisions remain vested in the grower.

The reasons underlying the growth and development of vertical integration are varied. One motive is to reduce uncertainty as to the quality, timing, volume and price of production. Another important, though less general, objective is to secure the more rapid adoption of new technology, for example chicken meat production, or the more rapid expansion of the production of a relatively new commodity.

But whatever benefits might accrue to primary producers through the development of vertical integration and contractual marketing arrangements, their growth has important implications for producers. In particular, four adjustments will be required.

First, the trend towards large scale, more specialised operations will be accelerated. Integrating firms will tend to favour large producers in their selection of new contract partners, and to encourage the expansion of production by existing contractors. Economies of scale in production, and thereby lower contract prices, are thus achieved, while the costs of assembly and transport, and of technical and credit supervision, are reduced.

Second, the rate of adoption of new techniques will be faster, and the pressure on technologically backward producers will be correspondingly increased.

Third, capital intensification is likely to be encouraged by the combined price certainty and access to credit provided by the contractual arrangements.

A fourth, and particularly important adjustment response by growers to the growth of vertical integration in agricultural production relates to the changed role of management. Contracts generally absolve the contracting farmers of the responsibility of deciding when and where to sell and buy, but require them to adjust management techniques, often in a closely regulated way, and to pay more attention to achieving a target level of quality, output and time of harvesting.

However, the question remains - To what degree, and in which industries, will vertical integration increase? There is little information available on both current and likely future trends in marketing. Currently, large retail chains purchase the greater part of their vegetables and poultry on contract, and it is most likely that contractual integration in Australia is virtually complete in meat chickens and processing vegetables. To this list we can also add sugar and the canning fruits industry. It appears that integration is increasing in pig and poultry production, but not, as yet, to any marked degree in beef and sheep meat production.

3.4 Transport

At all levels in the marketing chain, from the producer to the consumer, transport facilities play a vital role in distributing both inputs and outputs. Road and rail transport play an important role in supplying farm inputs to regional farming areas of South Australia. Farm inputs such as fuels, fertilizers and machinery require transportation to farming areas from production and import centres such as Adelaide. Again road and rail are important in moving produce from farms to selling points, processing establishments and storage facilities. Sea and air transport becomes important for those industries such as wheat, barley, sheep and beef which supply overseas markets while air transport may be used for links with interstate and closer export markets.

The quantities of various agricultural related commodities carried and the distances involved for registered vehicles in South Australia are indicated in Table 3.1. For the year ended September 1979 approximately 19.4 million tonnes of agriculture related goods were transported by road. This is about 20 percent of the total for all commodities carried by registered vehicles. Although these figures relate only to road transport they give some indication of the overall transport requirement for agricultural products.

TABLE 3.1

Total Annual Tonnes Carried and Tonnes/Kilometres

by Registered Vehicles in South Australia

Year ended September 1979

Commodity carried	mill tonnes	mill tonnes/ kilometres
Livestock	2.7	234.3
Fresh fruit and vegetables	2.0	289.5
Other agricultural products:		
Wheat	3.2	188.7
Other grains	2.3	196.2
Other products	2.6	292.6
Processed food (incl. beverages)	4.7	340.8
Fertilizers	1.9	146.9
Total All Commodities in S.A.	86.5	6 253.2

Source: Australian Bureau of Statistics

The processed food commodity group involved the highest tonnage of 4.7 million and the greatest distance per tonne carried of 340 million tonne-kilometres.

In terms of total industry costs, based on 1976-77 data, transport costs varied between about one and 25 percent. A breakdown of transport costs to various agricultural and food processing sectors is shown in Table 3.2. In the beverages and tobacco classification, transport costs represented 24.6 percent of total industry costs, while in the animal industry classification transport costs represented only around 2 percent of total industry costs.

The above figures provide only a small insight into the involvement of the transport industry in agriculture. It is difficult to indicate the importance of the various modes of transport used in South Australia because of a lack of suitable data.

3.5 Structure and Performance of South Australia's Food Processing Sector

Generally processing is viewed as the chemical or physical transformation of materials or components into products. The majority of food products which enter the retail markets have been processed at some time after leaving the farm. This processing of the raw materials adds value to the product, by using resources such as labour, equipment and packaging materials in the process.

The three major input cost categories in South Australia's food processing sector are intermediate inputs, wages and salaries and other value added. Intermediate inputs can be further disaggregated into primary, non-primary, marketing services and imported inputs. Other value added represents profits, depreciation, rent, interest and taxes accruing to the various industry groups. For example, in Table 3.3 the meat and milk group in South Australia accrues costs in the following way: 42 percent in primary inputs, 16.2 percent in non-primary inputs, 7.9 percent in marketing services, 7.8 percent in imports, 21.3 percent in wages and 4.8 percent in other value added.

In 1980-81 the food processing sector involved 372 establishments which employed 16 394 workers. Table 3.4 gives a breakdown of number of establishments. Employment levels within the sector are shown in Table 3.5. The meat products industry was the largest employer with 4 603 persons. Between 1972-73 and 1980-81 there was a decline in the number of establishments and the number of employees in each industry in the food processing sector. In S.A. this sector as a whole in 1980-81 contributed 17.5 percent and 16.0 percent of the numbers of manufacturing establishment and employment respectively.

Value added can be considered as the basic value of the contribution made by a company to total industry production. Value added by industry group is shown in Table 3.6.

3.6 Retailing

The retailing function involves the final assembling and transfer of goods to the consumer.

Numbers of retail establishments according to various functions are shown in Table 3.7. The value of food and beverage retail sales in South Australia over the last five years is shown in Table 3.8. The importance of the Food and Beverages classification is seen in that nearly 50 percent of total retail sales are attributed to this group.

TABLE 3.2

Transport[(a)] Costs in Agriculture and Food Processing

for South Australia

	Input Cost $'000	Percentage of Total Industry Costs
Animal Industry	4 217	1.9
Other Agriculture	6 884	2.0
Food Processing:		
Meat and Milk Products	16 183	6.3
Fruit & Vegetable, Oils, and Fats	4 256	6.8
Flour, Cereal, Bread	3 218	2.9
Confectionary and Other Food n.e.c.	2 399	3.7
Beverages and Tobacco	9 344	24.6

Source: West, Wilkinson and Jensen (1979).

(a) Transport modes include: Road
Rail
Air
Water

TABLE 3.3

Cost Structure of S.A. Food Processing Industries

	INTERMEDIATE INPUTS					
	PRIMARY[a] INDUSTRY	NON PRIMARY	MARKETING SERVICES	IMPORTS	WAGES	OTHER VALUE
	%	%	%	%	%	%
Meat Products Milk Products	42.0	16.2	7.9	7.8	21.3	4.8
Fruit & Vegetable Products Margarine, Fats & Oils	19.0	28.03	8.97	19.8	16.4	7.8
Flour Mill & Cereal Foods Bread, Cakes & Biscuits	7.7	27.6	5.5	15.3	32.9	11.0
Sugar Other Food Products	26.4	18.6	5.1	21.6	14.5	13.8
Beverages & Malt Wine & Brandy Tobacco Products	16.7	27.0	6.5	17.1	16.7	16.0

Source: West, Wilkinson and Jensen (1979)

TABLE 3.4

Manufacturing establishments operating at 30 June 1981 : Number of establishments by employment size and industry group, South Australia

Industry Group Description	Number of Establishments Employing					Total Establishments Operating at 30 June
	Less than 10 Persons (a)	10 to 19 Persons	20 to 49 Persons	50 to 90 Persons	100 Persons and Over	
FOOD, BEVERAGES AND TOBACCO						
Meat products	18	12	17	7	13	67
Milk products	3	5	10	3	2	23
Fruit and vegetable products	3	4	5	2	4	18
Margarine and oils and fats	-	-	2	1	-	3
Flour mill and cereal food products	4	3	4	2	-	13
Bread, cakes and biscuits	50	21	19	5	8	103
Other food products	20	11	15	7	4	57
Beverages and malt	33	14	19	12	10	88
Tobaco products	-	-	-	-	-	-
TOTAL FOOD, BEVERAGES AND TOBACCO	131	70	91	39	41	372
TOTAL MANUFACTURING	907	451	402	170	201	2 131

Source: Australian Bureau of Statistics (S.A.), "Manufacturing Establishments: Selected Items of Data Classified by Industry and Employment Size - South Australia 1980-81."

TABLE 3.5

Manufacturing establishments operating at 30 June 1981 : Employment at end of June 1980 by employment size and industry group, South Australia

Industry Group Description	Employment in Establishments with Less than 10 Persons (a)	10 to 19 Persons	20 to 49 Persons	50 to 99 Persons	100 Persons and Over	Total Employment at 30 June
	Number					
FOOD, BEVERAGES AND TOBACCO						
Meat products	95	178	478	499	3 353	4 603
Milk products	n.p.	71	323	n.p.	n.p.	1 036
Fruit and vegetable products	n.p.	49	109	n.p.	n.p.	947
Margarine and oils and fats n.e.c.	-	-	n.p.	n.p.	-	126
Flour mill and cereal food products	30	49	n.p.	n.p.	-	338
Bread, caskes and biscuits	291	280	521	347	2 034	3 473
Other food products	114	140	399	502	637	1 792
Beverages and malt	186	167	547	866	2 313	4 079
Tobaco products	-	-	-	-	-	-
TOTAL FOOD, BEVERAGES AND TOBACCO	752	934	2 590	2 718	9 400	16 394
TOTAL MANUFACTURING	5 393	6 283	12 565	11 904	66 794	102 939

Source: Australian Bureau of Statistics (S.A.), "Manufacturing Establishments: Selected Items of Data Classified by Industry and Employment Size - South Australia 1980-81."

Table 3.6 shows the value added by food processing establishments in S.A. This table shows that value added within this sector represented 17.7 percent of value added by all manufacturing establishments in S.A. in 1980-81.

TABLE 3.6

Manufacturing establishments operating at 30 June 1981 : Value added, 1980-81 by employment size and industry group, South Australia

Industry Group Description	Value Added for Establishments Employing					Total Value Added
	Less than 10 Persons (a)	10 to 19 Persons	20 to 49 Persons	50 to 99 Persons	100 Persons and Over	
	$'000					
FOOD, BEVERAGES AND TOBACCO						
Meat products	1 404	2 457	10 423	9 210	65 903	89 396
Milk products	n.p.	3 357	10 434	n.p.	n.p.	36 860
Fruit and vegetable products	n.p.	2 981	2 798	n.p.	n.p.	26 474
Margarine and oils and fats	-	-	n.p.	n.p.	-	5 013
Flour mill and cereal food products	641	1 105	n.p.	n.p.	-	9 477
Bread, cakes and biscuits	3 714	3 664	8 119	5 401	33 677	54 574
Other food products	3 122	4 272	11 693	9 455	13 561	42 102
Beverages and malt	3 189	8 669	18 229	33 645	94 331	158 062
Tobacco products	-	-	-	-	-	-
TOTAL FOOD, BEVERAGES AND TOBACCO	13 006	26 504	69 272	71 240	241 938	421 959
TOTAL MANUFACTURING	94 263	118 556	263 767	277 574	1 629 277	2 283 437

Source: Australian Bureau of Statistics (S.A.), "Manufacturing Establishments:

TABLE 3.7

Retail Establishments

Food Stores	Number of Establishments 1979-80
Grocers, confectionary and tobacconists	2 204
Butchers	865
Fruit and Vegetable Stores	394
Liquor Stores	80
Fish, Chip, Hamburger Shops) Milk bars and soft drink stores)	1 090
Bread and Cake Shops	253
Total	4 886

N.B. Does not include supermarkets

Source: Personal communication with A.B.S. on Census of Retail Establishments

TABLE 3.8

Retail Sales

Year	Foodstuffs $m	Percentage of Total Retail Sales	Beer wine Spirits $m	Percentage of Total Retail Sales
1975-76	576.9	32.4	198.0	11.1
1976-77	680.3	33.6	214.7	10.6
1977-78	763.8	35.5	228.9	10.6
1978-79	840.0	35.8	254.2	10.8
1979-80	921.0	36.4	286.0	11.3
1980-81	1 046.0	36.7	312.1	10.9

Source: Australian Bureau of Statistics (S.A.), "Monthly Summary of Statistics", various issues, June 1976 - June 1981.

References

West, G.R., Wilkinson, J.T. and Jensen, R.C. "Generation of Regional Input-Output Tables for the State and Regions of South Australia", Report to the South Australian Departments of Treasury, Urban and Regional Affairs, and Trade and Industry, 1979.

Chapter 4

EXPORT MARKETS FOR SOUTH AUSTRALIAN RURAL PRODUCTS

4.1 Introduction

The gross value of all agricultural commodities (excluding forestry, fishing and hunting) produced in S.A. during 1980-81 was $1.825 billion. Of this total 52 percent was accounted for by agricultural crops, 24 percent by livestock slaughterings and other disposals, and the remaining 24 percent by livestock products.

The gross value of all crops produced in S.A. in 1980-81 was $691 million. The major crops were wheat $244 million (35 percent), barley $166 million (24 percent), vegetables $66 million (10 percent) and grapevines $57 million (8 percent).

Cattle and calves accounted for 40 percent of the total value of livestock, sheep and lambs 36 percent, pigs 13 percent, and poultry 11 percent.

The gross value of livestock products in 1980-81 was $315 million. Wool was the most important livestock product, accounting for 77 percent of the total value of livestock products. Dairy products contributed 16 percent and eggs 7 percent.

The total value of exports from South Australia during 1980-81 was $1.4 billion. Agricultural exports (excluding forestry, fishing and hunting) totalled $936 000 million, or about 67 percent of the total.

In terms of individual commodity groups, cereals and cereal preparations were easily the most important accounting for 34 percent of total exports. Textile fibres were the second most important group accounting for 16 percent followed by non-ferrous metals (10 percent) and meat and meat preparations (8 percent)[1].

Details of the volume and value of the principal agricultural commodities exported from South Australia and their major destinations are contained in Tables 4.1 and 4.2. Table 4.1 shows that wheat is S.A.'s most important agricultural export, followed by wool and then barley. Table 4.2 shows that the U.S.S.R. is the dominant buyer of S.A.'s major agricultural wheat, wool and sheep meat - and a significant purchaser of barley.

4.2 The changing pattern of trade

Over time there have been changes in both the relative importance of various agricultural exports and the relative importance of S.A.'s trading partners.

Table 4.3 shows the relative contributions of the six major agricultural commodities to the total gross value of S.A.'s exports. In 1980-81, these six commodities alone accounted for over 58 percent of the gross value of S.A.'s exports. Agricultural produce remains the major source of export income in South Australia.

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1 A comparison of the proportion of exports to gross values is not applicable as gross value is based on a particular season whilst exports are based on a financial year.

TABLE 4.1

Exports: Principal Agricultural Commodities: South Australia 1980-81

Commodity	Amount	$'000
Wheat	1 773 029 (t)	303 919
Barley	982 069 (t)	156 812
Wool	81 793 (t)	225 004
Beef and Veal	25 012 (t)	52 362
Livesheep & Lambs	2 021 523 (No)	56 269

Source: Australian Bureau of Statistics (S.A.) "Overseas Trade" 1980-81.

TABLE 4.2

Principal Agricultural Commodities: Exports to Principal Countries: South Australia, 1980-81

$'000

Country	Wheat	Barley	Wool	Beef & Veal	Lamb & Mutton	Live Sheep & Wool
U.S.S.R.	121 703	18 025	85 235	-	21 607	-
China (excluding Taiwan Province)	47 174	6 420	2 814	-	-	-
Japan	-	43 451	29 052	4 708	4 519	-
Yemen	34 218	-	-	-	-	276
Kuwait	31 255	1 818	-	1 950	2 299	16 557
Egypt	26 454	-	1 458	-	2 380	-
Saudi Arabia	9 440	42 639	-	998	687	12 323
Korean Republic	-	-	8 414	1 420	252	-
Singapore	-	14 598	-	473	763	-
Taiwan	-	11 147	6 605	447	632	-
Italy	-	-	16 213	-	-	-
U.S.A.	-	-	3 269	35 981	888	-
Iran	-	-	-	-	8 745	13 094

Source: Australian Bureau of Statistics, microfische files.

TABLE 4.3

Percentage Contribution of Selected Agricultural Commodities to the Total Value of S.A. Exports

Commodity	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Wheat	26.06	12.50	20.18	14.45	9.87	7.31	10.86	23.49	21.44
Barley	3.41	6.81	6.01	13.18	11.15	5.97	7.75	11.99	10.80
Wool	14.94	51.03	14.68	16.87	21.84	17.30	15.93	11.49	15.85
Beef and Veal	-	-	1.60	1.74	2.19	4.18	6.88	3.73	3.69
Lamb and Mutton	0.14	0.52	2.72	1.54	2.14	1.33	2.36	2.44	3.38
Live Sheep and Lambs	-	-	0.61	0.57	1.54	5.95	2.75	3.09	3.19
Total	44.55	70.86	45.80	48.35	48.73	42.04	46.53	56.23	58.35

Source: Various issues of the following publications:
Australian Bureau of Statistics (S.A.) "Statistical Register of South Australia"., "Exports - South Australia", "Overseas Trade", and "Value of Agricultural Commodities Produced, South Australia".

Wheat and wool have traditionally been S.A.'s major agricultural exports, followed by barley. The relative importance of meat exports has grown over time, with exports of beef, veal, lamb and mutton together accounting for around 7 percent of total exports in 1980-81. A feature of the 1970s was the growth in the live sheep trade, with the result that the value of live sheep exports is now greater than the value of sheepmeat (carcass) exports.

There have also been major changes in the relative importance of S.A.'s trading partners. In broad terms, there has been a movement away from Western Europe towards Eastern Europe, Japan, other Asian countries and Persian Gulf countries. In 1930-31, S.A.'s major export outlet was the United Kingdom, which accounted for over 54 percent of S.A.'s total exports, followed by Belgium (9 percent), China (8 percent), Germany (6 percent) and India (5 percent). By 1970-71, however, Japan had replaced the United Kingdom as S.A.'s principal export market. In that year, Japan accounted for 18 percent of S.A.'s exports, followed by the United Kingdom (14 percent), the USA (6 percent) and New Zealand (6 percent). The 1970s saw a broadening of S.A.'s trading links and a rapid rise in the level of trade with the U.S.S.R., China and the Persian Gulf countries. This resulted in the U.S.S.R. replacing Japan as S.A.'s principal export market. In 1980-81, the U.S.S.R. accounted for over 17 percent of S.A.'s total exports, followed by Japan (12 percent), New Zealand (5 percent), China (5 percent), the USA (5 percent), Saudia Arabia (5 percent) and Kuwait (5 percent). The United Kingdom had by this time declined to virtual insignificance as an export outlet, accounting for around 2 percent of S.A.'s exports in 1980-81.

Changes in the level of exports and in the pattern of these exports between countries will now be considered individually for each of the major agricultural export commodities.

4.3 Wheat

Wheat is a crop of major importance to the South Australian economy. It is South Australia's most important crop, in terms of both value of production and value of exports. In 1980-81, the gross value of S.A. wheat production was $244 million, while the value of S.A. wheat exports was $304 million. Wheat therefore accounted for approximately 18.4 percent of the gross value of S.A. rural production and 21.4 percent of the gross value of S.A.'s total exports, making it S.A.'s most important agricultural export.

Export markets are very important to the S.A. wheat industry, since a large proportion of the S.A. wheat crop is exported. (In fact, in the past two years, the value of S.A. wheat exports has exceeded the value of S.A. wheat production due to the running down of stocks). On average, since 1975-76 approximately 90 percent of S.A.'s wheat crop has been exported. However, the level of wheat exports fluctuates considerably from year to year, depending on seasonal conditions.

South Australia has a significant share of the Australian wheat industry. In 1980-81, approximately 14.3 percent of the Australian wheat crop (in value terms) was produced in S.A., while S.A. wheat exports accounted for 17.6 percent of total Australian wheat exports.

The S.A. wheat industry has grown from a production level of 951 000 tonnes in 1930-31, to 1 650 000 tonne in 1980-81. The average level of S.A. wheat production since 1975-76 has been 1 428 000 tonnes. Exports have also grown from 501 000 tonnes in 1930-31, to 1 773 000 tonnes in 1980-81, with the average level of exports since 1975-76 being 1 165 000 tonnes.

In the 3 years to 1979-80, rising world commodity prices and favourable seasons increased markedly the quantity and value of wheat (and other cereal grains). S.A. wheat production reached a peak of 2 349 000 tonnes in 1979-80, while S.A. wheat exports rose from 470 000 tonnes in 1977-78 to 2 471 000 tonnes in 1979-80. During the same period, the value of wheat exports rose by 380 percent to $376 million. However, after excellent crops in 1979-80, both the volume and value of cereal production and exports fell in 1980-81. S.A. wheat production fell to 1 650 000 tonnes ($244 million), while wheat exports fell to 1 773 000 tonnes ($304 million).

The relative importance of the countries of consignment of wheat exports fluctuates considerably from year to year, as Table 4.4 indicates.

In addition to fluctuations from year to year, there has also been a long-term change in the pattern of S.A. wheat exports between countries of consignment. For example, in 1930-31 the major buyers of S.A. wheat were the United Kingdom (44 percent) and China (29 percent). In 1950-51 the major buyers were the United Kingdom (19 percent), India (19 percent) and New Zealand (12 percent). By 1970-71 the United Kingdom had ceased to buy S.A. wheat, and the main buyers were Iraq (20 percent), China (18 percent) and the United Arab Republic (15 percent). Since that time export shares have continued to fluctuate considerably. In the last two years, the U.S.S.R. and China have emerged as the largest buyers of S.A. wheat; however, the increase in purchases by the U.S.S.R. were due largely to the failure of that country's grain crops and is unlikely to represent a permanent change. The 1970s has also seen the emergence of Middle East countries as significant buyers of S.A. wheat. In 1980-81 the major buyers were the U.S.S.R. (40 percent), China (15 percent), the Arab Republic of Yemen (11 percent) and Kuwait (10 percent).

4.4 Barley

Barley is second only to wheat as the most important S.A. crop. South Australia produced 1 158 077 tonnes of barley in 1980-81 with a gross value of $166 million, of which approximately 95 percent ($157 million) was exported.

South Australia is the major barley-growing state in Australia - in 1980-81 S.A. produced 43.8 percent (in value terms) of the Australian barley crop (42.8 percent in 1979-80). S.A. barley exports accounted for 64 percent of the Australian total in 1980-81 (54 percent in 1979-80).

A high proportion of the S.A. barley crop is exported. Even in 1930-31 export markets were of great importance, since around 77 percent of the barley crop was exported. In 1980-81 approximately 95 percent of the crop was exported. Since 1975-76, an average of 87 percent of the S.A. barley crop has been exported.

The size of the S.A. barley crop has grown over time from 90 000 tonnes in 1930-31 to 1 158 000 tonnes in 1980-81. The average level of S.A. barley production since 1975-76 has been approximately 1 114 000 tonnes. Exports have also grown from 65 000 tonnes in 1930-31 to 982 000 tonnes in 1980-81. The average level of exports since 1975-76 is around 933 000 tonnes per year.

As in the case of wheat, rising world commodity prices and favourable seasons in the 3 years to 1979-80 increased the volume and value of barley production and exports. S.A. barley production reached a peak of 1 528 000 tonnes in 1979-80, while S.A. barley exports rose from 423 000 tonnes in 1977-78 to a peak of 1 591 000 tonnes in 1979-80 (again due to a running down of

TABLE 4.4

Percentage of the Value of S.A. Wheat Exports to Selected Countries

	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
U.S.S.R.	-	-	-	13.33	5.14	6.85	2.13	24.31	40.04
China	29.40	-	17.69	7.95	4.63	22.49	10.60	18.64	15.52
Yemen	-	-	-	3.14	16.03	6.58	7.66	5.62	11.26
Kuwait	-	-	-	-	-	-	-	-	10.28
Egypt	4.69	8.65	-	16.67	1.91	5.79	4.10	4.72	8.70
New Zealand	-	12.09	2.83	8.19	-	-	3.90	2.18	3.10
Sri Lanka	-	-	-	10.41	14.67	15.54	8.86	2.12	1.75
Iraq	-	-	19.75	14.03	19.23	9.43	33.87	17.01	-
North Korea	-	-	-	2.14	7.94	13.01	13.28	4.20	-
United Arab Republic	-	-	15.47	-	-	-	-	-	-
India	1.84	18.63	1.66	-	-	-	-	-	-
United Kingdom	43.96	18.95	-	-	-	-	-	-	-

Source: Australian Bureau of Statistics, "Statistical Register of South Australia", various issues, and microfische files.

TABLE 4.5

Percentage of the Gross Value of S.A. Barley Exports to Selected Countries

	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Japan	4.36	35.01	24.63	31.85	36.89	65.37	30.44	13.57	28.38
Saudi Arabia	-	-	-	-	-	3.01	5.77	14.65	27.85
U.S.S.R.	-	-	-	24.11	4.77	-	-	34.28	11.77
Singapore	-	-	1.07	-	-	-	-	7.77	9.53
Taiwan	-	-	24.80	10.94	12.54	22.95	20.62	9.35	7.28
Belgium-Luxemburg	61.02	2.30	-	18.63	16.23	-	-	0.75	-
Germany, Federal Republic	1.73	-	16.82	-	11.04	5.67	11.84	-	-
United Kingdom	22.70	30.56	12.58	7.82	10.29	-	2.71	-	-
Netherlands	-	23.51	-	-	-	-	-	-	-

Source: Australian Bureau of Statistics, "Statistical Register of South Australia", various issues, and microfische files.

stocks). During this period, the value of S.A. barley exports rose by 385 percent to $192 million. However, both the volume and value of barley production and exports fell during 1980-81. Production dropped to 1 158 000 tonnes ($166 million), while exports declined to 982 000 tonnes ($157 million).

Table 4.5 indicates the changing pattern of S.A. barley exports between selected countries. In 1930-31 the major buyers of S.A. barley exports were Belgium-Luxemburg (61 percent) and the United Kingdom (23 percent). By 1970-71 Japan and Taiwan had become the principal importers of S.A. barley. Japan became the dominant buyer of S.A. wheat throughout the 1970s, although its relative share of S.A. barley exports has declined since 1977-78. In the last few years, Saudi Arabia, Taiwan and the U.S.S.R. have emerged as significant buyers of S.A. barley. However, future barley sales to the U.S.S.R. will ultimately depend on the size and variability of that country's grain crops and trends in livestock numbers. In 1980-81, the major buyers of S.A. barley were Japan (28 percent), Saudi Arabia (28 percent) and the U.S.S.R. (12 percent).

4.5 Wool

Until 1979-80, wool was S.A.'s most important agricultural export (in value terms). Since then wool has ranked second to wheat in terms of both value of production and export earnings.

Wool is easily S.A.'s most important livestock product. In 1980-81, it accounted for 77 percent of the gross value of S.A.'s production of livestock products, and 18 percent of the gross value of this State's agricultural production. The combined sheep and wool industry is the most important agricultural industry in S.A. - in 1980-81, the combined value of wool and sheep slaughterings accounted for approximately 27 percent of the gross value of agricultural production in S.A.

In 1980-81, the gross value of the S.A. wool clip was $241 million, while the value of wool exports was $225 million. This represented nearly 16 percent of the gross value of all S.A. exports. The wool industry has always been export oriented. Traditionally, approximately 95 percent of the S.A. wool clip has been exported. In 1980-81, 93 percent was exported.

S.A. produced over 14 percent of total Australian wool production in 1980-81, and accounted for over 12 percent of total Australian wool exports.

The S.A. wool industry has expanded from producing 24 000 tonnes of wool in 1930-31, to 99 915 tonnes in 1980-81. The wool clip since 1975-76 has averaged 95 029 tonnes. Exports have also grown from 23 000 tonnes in 1930-31, to 116 340 000 tonnes in 1980-81, with the average level of exports since 1975-76 being 80 357 000 tonnes.

Table 4.6 shows the distribution of S.A. wool exports between selected countries for particular years. In 1930-31, the United Kingdom was the dominant buyer of S.A. wool, taking 54 percent of the S.A. wool clip, followed by France (19 percent). During the early 1950s the U.S.A. temporarily became a large buyer of S.A. wool as a result of the Korean War. Even then, however, the United Kingdom remained the largest single buyer (39 percent) of S.A. wool. Since then, there has been a movement away from the traditional wool markets towards countries such as the U.S.S.R. and Japan. By the early 1960s, Japan had replaced the United Kingdom as the principle market for S.A. wool exports, and it continued to be the major purchaser of S.A. wool until the mid-1970s. Since 1976-77 the U.S.S.R. has been the major buyer of S.A. wool.

TABLE 4.6

Percentage of the Gross Value of S.A. Wool Exports to Selected Countries

	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
U.S.S.R.	-	-	14.41	18.63	27.55	38.32	28.66	35.32	37.92
Japan	1.23	6.80	34.54	26.51	17.65	13.44	18.37	14.83	12.92
Italy	4.47	4.29	4.66	7.67	5.36	2.32	6.18	6.84	7.21
Germany, Federal Republic	6.08	-	6.67	6.48	8.07	6.27	5.81	5.09	4.00
France	18.69	12.81	8.31	6.26	5.10	3.77	3.67	2.95	2.74
United Kingdom	53.96	39.03	6.51	3.59	6.10	1.84	3.38	3.65	1.98
U.S.A.	-	21.58	1.17	-	-	-	1.28	1.44	1.45

Source: Australian Bureau of Statistics, "Statistical Register of South Australia", various issues, and microfische files.

In 1980-81, the principal export markets for S.A. wool were the U.S.S.R. (38 percent) and Japan (13 percent). These two countries have been the major purchasers of S.A. wool throughout the last decade. The early dominance of the United Kingdom as a wool buyer has declined to such an extent that the United Kingdom purchased less than 2 percent of S.A.'s wool exports in 1980-81.

4.6 Beef and Veal

In 1980-81 539 200 cattle and calves were slaughtered in S.A., producing 93 785 tonnes of beef and veal with a gross value of $126 million. Approximately 25 012 tonnes of beef and veal was exported, yielding $52 million.

Production and export levels of S.A. beef and veal have grown rapidly, especially since 1970 due to the development of export markets and the stimulating effect which this had on the production of beef and veal. In 1930-31, only 89 585 cattle and calves were slaughtered in S.A. and there were no export sales. By 1950-51, the number of cattle slaughtered had risen to 215 665, of which only 76 were slaughtered for export. By 1980-81, 539 200 cattle and calves were slaughtered and over 41 percent of S.A. beef and veal produced (in value terms) was exported.

The S.A. cattle industry is small in relation to the Australian cattle industry. In 1980-81, S.A. accounted for only 6 percent of the gross value of cattle and calf slaughterings in Australia and less than 5 percent of the value of Australian beef and veal exports.

Table 4.7 shows the destination of S.A. beef and veal exports for selected countries. Export markets began to expand in the early 1970s. In 1970-71, the value of S.A. beef and veal exports was only about $6.3 million. By 1978-79, the value had reached $63.5 million. Throughout the 1970s, the U.S.A. was the dominant buyer of S.A. beef and veal, accounting for 69 percent of our exports in 1980-81. Japan has become a more significant buyer of beef and veal in the last 3 years, taking 9 percent of S.A. exports in 1980-81. Other countries which have at times purchased large quantities of S.A. beef and veal include the U.S.S.R. and the Republic of Korea.

Exports of beef and veal have been hampered to some extent by restrictions imposed by importing countries. For example in 1974 the European Economic Community imposed measures to limit meat imports from Australia. Similarly our beef exports have been restricted by Japanese tenders on beef imports. However recent Japanese tenders have enabled Australia to compete for a greater proportion of Japanese beef imports and have improved the beef industry's sales prospects in Japan.

4.7 Lamb and Mutton

In 1980-81 1 863 800 sheep and 1 685 200 lambs were slaughtered in S.A. to produce 39 338 tonnes of mutton and 28 569 tonnes of lamb, with a total value of $114 million. Approximately 40 067 tonnes of lamb and mutton were exported, yielding returns of $47 million.

The domestic market absorbs a high proportion of the S.A. lamb production, although export markets have recently been developed in the Middle East, with countries such as Iran and Kuwait purchasing sizable quantities of lamb in recent years. In 1980-81 5 139 tonnes or 18 percent of total S.A. lamb production was exported.

TABLE 4.7

Percentage of the Gross Value of S.A. Beef and Veal Exports to Selected Countries

	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
U.S.A.	-	-	80.88	69.42	35.57	38.49	55.31	63.98	68.70
Japan	-	-	0.92	2.16	1.74	1.53	3.52	7.85	8.99
Korea, Republic of	-	-	-	-	-	5.06	17.96	2.87	2.71
United Kingdom	-	27.52	12.0	-	0.16	1.51	1.01	0.72	0.60
Trinidad & Tobago	-	68.80	-	-	-	0.11	0.04	0.37	0.52
Egypt	-	-	-	-	-	11.50	3.68	3.67	-
U.S.S.R.	-	-	4.33	7.88	21.16	7.69	2.29	3.14	-
Iran	-	3.68	-	-	15.16	0.02	0.36	-	-
Poland	-	-	-	-	10.33	-	-	-	-

Source: Australian Bureau of Statistics, "Statistical Register of South Australia", various issues, and microfische files.

In contrast a high proportion of S.A. mutton is exported. Indeed Australia is the world's largest exporter of mutton. In 1980-81 34 928 tonnes, or 89 percent of S.A.'s mutton production was exported.

Production and export levels of S.A. lamb and mutton have increased substantially over time. In 1930-31, 1 308 976 sheep and lambs were slaughtered in S.A., of which 20 789 were exported. By 1950-51 the number of sheep and lambs slaughtered had risen slightly to 1 546 508, while the number slaughtered for export had increased seven-fold. However less than 10 percent of sheep and lamb slaughterings were for export. In 1980-81, 3 549 000 sheep and lambs were slaughtered and nearly 42 percent of S.A. lamb and mutton produced was exported.

In 1980-81 S.A. accounted for over 16 percent of the gross value of sheep and lamb slaughterings in Australia but for less than 5 percent of the value of Australian lamb and mutton exports.

Table 4.8 shows the distribution of S.A. lamb and mutton exports between selected countries for various years. Only a very small quantity of lamb and mutton was exported in 1930-31, all of which went to the United Kingdom. The United Kingdom continued to be the major buyer of S.A. lamb and mutton until it entered the EEC in the early 1970s. Japan then became the major export outlet, with several Middle East countries, such as Iran, Iraq and Kuwait at times being significant purchasers.

In the past two years the U.S.S.R. has become the largest buyer of S.A. lamb and mutton. In 1980-81 the U.S.S.R. purchased over 45 percent of S.A.'s lamb and mutton exports, followed by Iran (18 percent) and Japan (9 percent).

In 1980-81 mutton exports were worth over four times as much as lamb exports. The largest buyer of mutton was the U.S.S.R., which accounted for approximately 57 percent of S.A.'s mutton exports, followed by Iran (21 percent) and Japan (11 percent). The largest buyers of lamb were Kuwait (28 percent), the U.S.A. (9 percent), the United Kingdom (9 percent), the United Arab Emirates (8 percent) and Iran (8 percent).

The market for sheepmeat has been relatively buoyant since 1978 due largely to the increase in export demand. In each of the last four years exports of S.A. lamb and mutton have risen substantially - from 8 823 tonnes in 1977-78 to 41 525 tonnes in 1980-81.

4.8 Live Sheep and Lambs

The rapid growth in exports of live sheep and lambs has been a feature of the 1970s. This growth has been so great that in the past few years exports of live sheep have been more valuable than exports of sheepmeat. For example in 1980-81 the export returns from live sheep and lambs was around $56 million compared with $47 million for lamb and mutton.

South Australia contributes a large proportion of Australia's live sheep exports. In 1980-81, S.A. accounted for around 31 percent of the value of Australia's live sheep exports.

The live sheep trade has expanded from a position of virtual insignificance at the beginning of the 1970s to become a major agricultural export. In the period before 1970 exports of live sheep were very low and were mainly for breeding purposes. Only two sheep were exported from S.A. in 1930-31, while 100 were exported in 1950-51. In 1970-71 the figure was 364 000. By 1975-76 live

TABLE 4.8

Percentage of the Gross Value of S.A. Lamb and Mutton Exports to Selected Countries

	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
U.S.S.R.	-	-	-	-	6.31	-	-	23.72	45.06
Iran	-	-	0.79	14.28	18.34	0.15	1.07	32.55	18.24
Japan	-	-	13.08	50.28	50.01	23.82	29.65	10.14	9.42
Kuwait	-	-	-	5.17	5.65	21.53	12.94	1.33	4.79
U.S.A.	-	3.52	17.44	5.70	1.83	2.25	12.04	3.71	1.85
United Kingdom	100.0	89.07	34.90	5.11	1.93	0.37	16.29	4.71	1.69
Korea, Republic of	-	-	-	-	4.15	4.80	9.37	3.78	0.53
Canada	-	4.91	7.65	7.45	4.27	1.02	8.13	1.85	0.21
Iraq	-	-	-	-	-	17.83	0.13	-	-

Source: Australian Bureau of Statistics, "Statistical Register of South Australia", various issues, and microfische files.

sheep exports had risen to 430 000 worth over $2 million. Since 1975-76 the number of live sheep exported has risen by 370 percent, to 2 021 523 head in 1980-81, with a value of $56 million.

Table 4.9 indicates that virtually all of S.A.'s live sheep exports are destined for the Middle East. In 1980-81, the principal countries of consignment were Kuwait, (37 percent), Iran (29 percent) and Saudi Arabia (27 percent). Kuwait and Iran have been major buyers throughout the 1970s, while Saudi Arabia has been a significant customer since 1976-77.

4.9 Summary

Table 4.10 presents a summary of the quantity and value of exports of principle commodities from S.A. since 1930-31.

TABLE 4.9

Percentage of the Gross Value of S.A. Live Sheep Exports to Selected Countries

	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Kuwait	-	-	64.30	54.04	18.87	19.96	21.78	23.55	36.56
Iran	-	-	14.22	45.96	72.65	62.49	41.90	35.07	28.91
Saudi Arabia	-	-	-	-	7.09	14.27	29.99	15.55	27.21
Bahrain	-	-	6.73	-	0.69	-	1.88	3.29	4.21
Libya	-	-	-	-	-	-	3.11	4.11	1.33
Yemen	-	-	-	-	-	-	-	13.16	0.61
Qatar	-	-	-	-	-	2.60	-	4.07	-
Oman	-	-	14.35	-	-	-	-	-	-
New Zealand	-	91.32	0.22	-	-	-	-	-	-
South Africa	-	8.68	-	-	-	-	-	-	-
India	100.0	-	-	-	-	-	-	-	-

Source: Australian Bureau of Statistics, "Statistical Register of South Australia", various issues, and microfische files.

TABLE 4.10

Exports: Principal Agricultural Commodities, South Australia. Quantities (tonnes/number)

Commodity	1930-31	1950-51	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Wheat (tonne)	542 027	407 073	1 591 044	810 603	636 769	470 148	825 503	2 471 101	1 773 029
Barley (tonne)	65 159	219 909	530 708	922 220	835 401	423 452	846 020	1 590 723	982 069
Wool (tonne)	22 564	44 685	83 567	80 973	90 973	52 234	66 444	72 407	81 793
Beef & Veal (tonne)	-	56 390	16 144 775	14 353	19 321	26 579	44 473	27 725	25 012
Livesheep & Lambs (No)	2	100	364 000	430 000	862 000	1 957 000	1 069 214	1 820 988	2 021 523
Lamb and Mutton (tonne)	670 503	11 666 002	59 250 576	19 909	28 189	8 823	20 801	32 932	40 067

Exports: Principal Agricultural Commodities, South Australia. Values ($'000)

Commodity	$'000 1930-31	$'000 1950-51	$'000 1970-71	$'000 1975-76	$'000 1976-77	$'000 1977-78	$'000 1978-79	$'000 1979-80	$'000 1980-81
Wheat	5 244	26 914	79 445	98 978	77 900	48 361	100 221	375 695	303 919
Barley	685	14 662	23 670	90 290	88 072	39 512	71 470	191 727	156 812
Wool	3 006	709 900	57 782	115 560	172 538	114 517	147 010	183 745	225 004
Beef & Veal	-	6	6 286	11 899	17 326	27 649	63 833	59 667	52 362
Livesheep & Lambs	-	2	2 416	3 873	12 178	39 380	25 398	49 370	56 269
Lamb and Mutton	28	1 128	10 727	10 578	16 921	7 345	21 797	38 966	47 452

Source: Australian Bureau of Statistics, "Statistical Register of South Australia", various issues, and microfische files.

Chapter 5

MARKETING AND STABILIZATION SCHEMES

S.A. agriculture is noted for its variable and unreliable weather which result in major production surpluses or scarcity which, together with fluctuations in prices, result in unstable farm incomes. In addition a high proportion of farm output is sold on overseas markets in which returns tend to be more uncertain than on domestic markets. Overseas markets also present problems of distance, freight rates, different currencies etc. The structure of rural industry generally is atomistic and competitive, and producers are price takers in many export markets. That is, rural industries generally comprise a large number of producers, and producers have no influence over prices prevailing overseas.

S.A. farmers have entered into a variety of orderly marketing arrangements, some administered by statutory boards, others by voluntary boards or co-operatives. Some industries have adopted price stabilisation schemes with the general aim of achieving stabilisation of income for producers. These schemes generally perpetuate an economically ineffecient allocation of resources. In the long-run these industries tend to be higher cost and less efficient than they would have been if exposed to more competition.

5.1 Wheat

Complementary State and Federal legislation requires all wheat produced in Australia (except for small quantities retained on farms) to be marketed through a statutory authority, the Australian Wheat Board (AWB). Growers usually deliver their grain to the bulk handling authorities who act as authorised receivers for the AWB. In South Australia the handling authority is the Co-operative Bulk Handling Ltd. The wheat is weighed and the growers are given receipts for the quantities delivered. The AWB makes an advance payment soon after delivery. Finance is obtained by the Board from the Reserve Bank and commercial sources.

Wheat is sold on the home or export market and the proceeds are pooled. As the Board's borrowings are repaid growers receive additional payments as funds become available from sales. The pools may take several years to finalise but ultimately each grower receives a return (less handling costs) based on the quantity of wheat delivered and the average price realised, subject to premiums or deductions for quality.

Wheat Industry Stabilisation Scheme

The present Wheat Industry Stabilisation plan is the seventh in a series since 1948-49. It commenced with the 1979-80 crop and will end with the marketing of the 1984-85 harvest. In broad terms the objectives of the seventh plan are:

- to maintain orderly marketing by allowing the Australian Wheat Board to market the entire wheat crop.

- to provide a guaranteed price mechanism designed to help overcome any short run downturn in producers returns.

- to enable the Board to borrow from commercial sources.

- to establish a more flexible pricing mechanism for domestic stockfeed which reflects movements in world wheat prices.

- to establish a home consumption price which is adjusted in line with movements in export prices, with a margin above export prices of around 20 percent.

The main features of the seventh Stabilisation Plan are:

(i) Under the previous scheme there existed a stabilized price. The arrangement provided for contributions by growers to a Stabilization Fund from which payments are made when the average export price is less than the Stabilization price for a season. Provision existed for payments from Government revenue (within defined limits) when there was insufficient grower money in the fund.

(ii) In the seventh scheme the Stabilization price is replaced by a guaranteed minimum delivery price (GMDP).

(iii) Payment of the GMDP will be made on all wheat delivered to the AWB and it will be set at 95 percent of the average of the estimated return from pooling domestic and export receipts for that season and the two previous seasons, less handling charges, to arrive at a net figure. The payment will be guaranteed by the Commonwealth.

(iv) Fluctuations in the GMDP are limited to a maximum of 15 percent between successive years.

(v) Any deficiency between the net pool return and the guaranteed minimum delivery price will be met by the Commonwealth.

(vi) A first payment to growers on delivery of wheat will be the GMDP less a Wheat Finance Fund levy, a Wheat Tax and individual growers freight, handling and storage charges.

(vii) The AWB can continue to borrow from the Reserve Bank to pay the GMDP and will also be able to borrow from commercial sources. The Commonwealth will meet any borrowing costs that are additional to those that would have occurred had the borrowing been from the Reserve Bank.

Stabilization Fund

(i) A trust fund of growers money known as the Wheat Finance Fund has been established for the AWB to clear any outstanding debt to the Reserve Bank on a particular seasons pool at the end of a statutory twelve month period.

(ii) The fund has a ceiling of $100 million and is financed by the transfer of $80 million from the previous Wheat Prices Stabilization Fund together with the proceeds of a levy on wheat marketed under the control of the AWB.

(iii) As with the Stabilization Fund the Wheat Finance Fund will be a revolving one, with any excess in the fund being returned to growers on a first in/first out basis.

Domestic Price

(i) The operation of the seventh plan continues the setting of a basic price for all Australian Standard White (ASW) wheat sold for use in milling into flour for human consumption. It separates the use of wheat for stockfeed and for industrial purposes into different distinct components of the domestic market.

(ii) For the twelve months commencing 1 December 1979 the price of wheat for human consumption throughout Australia was fixed at $127.78 per tonne and increased to $153.34 per tonne on 1 December 1980, $187.20 per tonne on 1 December 1981 and $203.46 on 1 December 1982.

(iii) The price is adjusted each year according to a formula which adjusts the price in line with movements in export prices and an index of prices paid by farmers while providing, over time, a margin above export prices. The new formula replaces the existing arrangements which provide for an annual variation in accordance with cash costs of wheat production.

(iv) Year to year movements in the formula price are subject to a limitation of 20 percent.

(v) The AWB is empowered to fix the prices of wheat for stockfeed and industrial uses on the basis of their commercial judgement. Generally, stockfeed prices have moved toward an export price equivalent. Industrial wheat prices operated on a phase in basis until 1 July 1981 at which time the AWB could set the price.

(vi) The cost of shipping wheat from the mainland to Tasmania will continue as a loading on the domestic wheat price but will only apply to wheat for human consumption.

5.2 Barley

The Australian Barley Board (ABB) was established under complementary legislation enacted by Victoria and South Australia, the two States which produced 59 percent of total barley output in 1979-80. The ABB acquires and markets all barley produced in these States, except that retained by growers for their own use. Growers delivered 87 percent of their total production to the ABB for sale in 1980-81.

The area sown to barley in S.A. has expanded from 693 000 hectares in 1970-71 to around 1 million hectares in 1980-81. Expansion of livestock enterprises and periodic world grain failures, particularly in the U.S.S.R., suggests that demand for barley grain will remain buoyant.

In recent years there has been little difficulty in disposing of the crop. In poor seasons the ABB ensures that local requirements are satisfied before exports are permitted.

The absence of an Australian wide marketing board for barley with complementary legislation between the States has led to substantial interstate trade in barley. Section 92 of the Australian constitution stipulates that trade between the States shall be free.

Barley varieties are normally segregated into two classes of malting barley, principally for brewing, and into 3 classes of feed barley.

Traditionally, the prices of malting barley for domestic consumption have been set at the home consumption price for wheat whilst domestic feed barley prices are set monthly and take into account current barley export prices, export wheat prices and the prices of available substitute grain on the Australian feed grain market.

5.3 Oats

The ABB became the oat marketing authority for South Australia in 1977. The sale of oats to end-users such as oat millers or livestock producers is not subject to ABB control.

The area sown to oats in S.A. fell markedly in the early seventies but higher world grain prices in the last two seasons coupled with droughts in the eastern States led to renewed in interest in oats.

Receivals by the ABB in the 1979-80 season totalled 35 800 tonnes which represents only 37 percent of South Australia's production. Growers seem to prefer to sell oats directly to end-users such as livestock producers. Exports from S.A. during 1979-80 totaled 32 676 tonnes, one third of which was to Japan.

Future development of the S.A. oat industry will be limited by the competition for land from more profitable crops. Local demand for oats has increased in recent years in line with increasing horse numbers. The oat pricing policies of the Board are guided by respective local and export prices. Export sales are negotiated in shipload lots.

5.4 Beef & Veal

Figure 5.1 shows various paths along which the beef animal may pass from the producer to the consumer. After being sold cattle are generally slaughtered in a licenced abattoir. The Federal Government plays a role in licencing abattoirs. From the abattoir the meat is available for the various domestic uses shown in figure 1 or for the export market.

Most beef cattle are sold through saleyard auctions which are located in Adelaide and country centres. Some abattoirs are operated by State and local Government's, e.g. South Australian Meat Corporation in Adelaide, while others are run by private firms. Meat for domestic use is largely retailed through butchers' shops. However, supermarkets, restaurants and take away shops have increased sales in recent years.

Generally the bulk of trading in the domestic market is carried out under relatively free market conditions. In the export market however price is often a function of import restrictions imposed by the importing country. The Federal Government, through the Australian Meat and Livestock Corporation, has a number of roles in issuing export licences, involvement in international trade negotiations, meat promotion and in the past, allocation of export quotas.

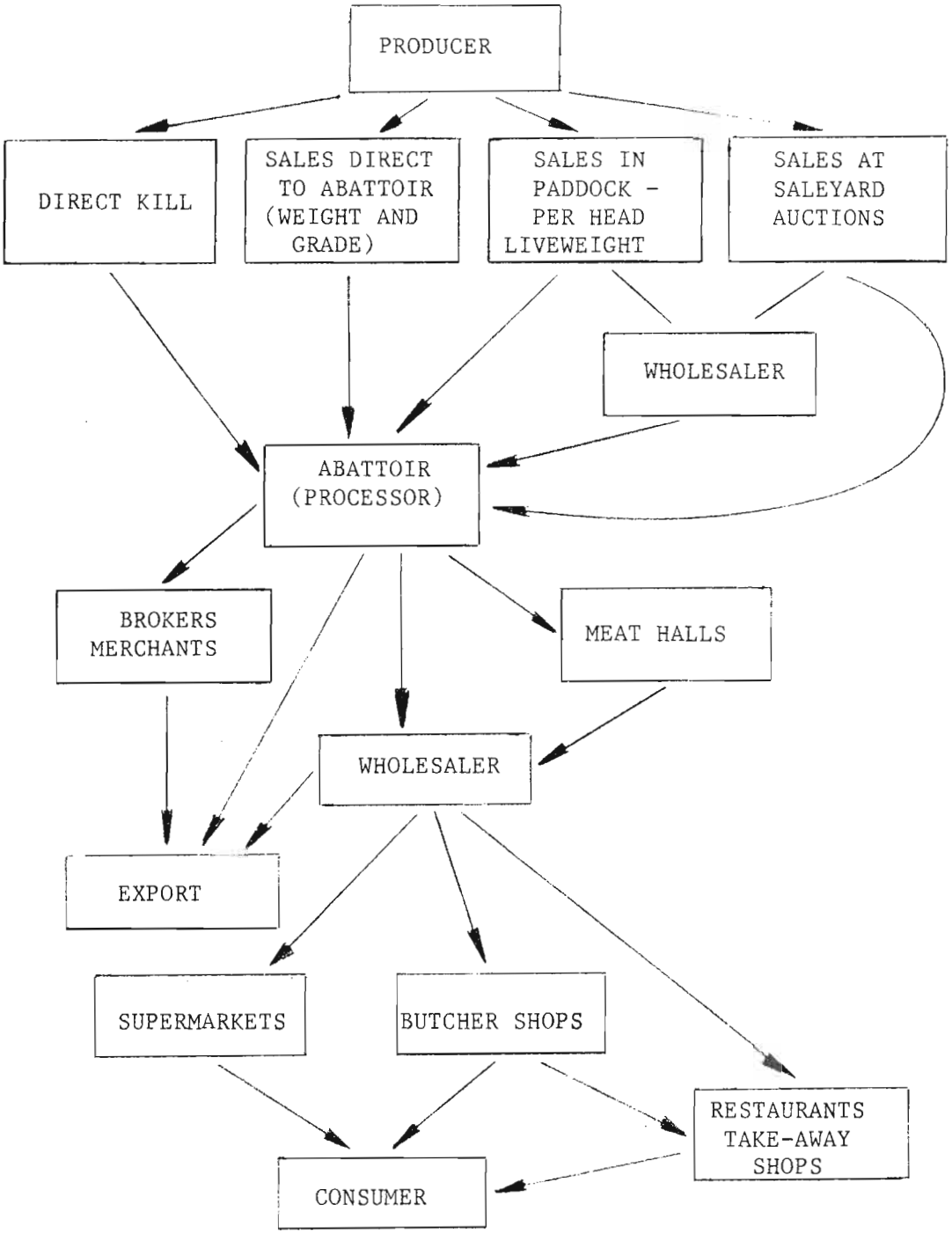

Figure 5.1

Beef Marketing Chain

Source: Prices Justification Tribunal, Beef Marketing and Processing, 1978.

5.5 Wool

Over 80 percent of shorn wool produced in Australia is sold by public auction and the rest mainly by private treaty. Wool auctions are held regularly at 14 selling centres around Australia under rules agreed upon between producers, selling brokers and buyers. Adelaide is the only wool selling centre in South Australia. Most of the wool sold at auction is offered with objective measurement and sale by sample. In 1980-81 approximately 95 percent of the wool clip was sold in this way.

There is no Government control over the marketing of wool but a statutory body, the Australian Wool Corporation, (AWC) performs a number of functions aimed at assisting the orderly and efficient disposal of wool as well as promoting and developing markets for that commodity. The AWC was established on 1 January 1973 through the amalgamation of the former Australian Wool Commission and Australian Wool Board.

Membership of the Corporation consists of a Chairman, four woolgrower representatives, three members with special qualifications (e.g. in marketing, processing, etc.) and a Government representative. All are appointed by the Commonwealth Government.

The chief activity of the Corporation in the field of wool marketing is the operation of a flexible reserve price scheme for wool sold at auction. This scheme was introduced by the former Wool Commission in November 1970 mainly to provide a measure of protection to woolgrowers against unduly low prices resulting from temporary fluctuations of demand at auctions.

Under the scheme the Corporation buys in wool which fails to reach a stipulated reserve price. A grower may still fix his own reserve price; the Corporation's reserve prevails only where it is the higher.

As well as operating at auctions, the scheme also operates at sales by tender where each buyer submits a sealed bid for the lots of wool on offer. The Corporation provides no reserve price protection for wool sold by private treaty.

Working capital required to operate the scheme is provided through commercial and Government loans. Profits made on past operations are also used for this purpose. Administrative costs are met by a levy collected from woolgrowers while the Government underwrites losses.

The AWC provides a wool statistical service and a service for the testing of wool. The latter is operated by a division of the Corporation, the Australian Wool Testing Authority, which has a large degree of autonomy. The Authority carries out tests such as determination of mean fibre diameter, clean yield of greasy wool, vegetable matter base content of wool, etc., and issues certificates in respect of test results. It charges fees for its services.

One of the most important functions of the AWC is the promotion of greater use of wool in Australia and overseas, the latter through membership of the International Wool Secretariat (IWS), a wool promotional organisation with headquarters in London. It was established up in 1937 by the woolgrowing industries of Australia, New Zealand and South Africa, and was joined by Uruguay in 1970.

Wool promotion and wool research programs are financed jointly by producers and the Australian Government. The producers contribution is collected as a levy. The rate of this levy in 1980-81 was 8 percent of the gross value of shorn wool.

5.6 Sheep

The majority of sheep sold in South Australia are sold through the auction system. The alternative selling methods are selling in the paddock and selling "over the hooks" in carcase form. The three markets for sheep are lamb, mutton and live wethers. All wethers for the live sheep trade are exported while most mutton is exported and most lamb is consumed on the domestic market. A large proportion of lamb produced in South Australia is slaughtered in Victoria while many of the live wethers shipped from South Australia come from interstate sources.

5.7 Dairy

1) Liquid milk and cream retail prices are set for the metropolitan area by the Metropolitan Milk Board, which is established under the Metropolitan Milk Supply Act. Prices outside the metropolitan area are controlled by the Prices Commissioner and are generally related to Adelaide prices.

   Retail price control is not applied to other dairy products.

   The marketing of prescribed manufactured products (see below) is controlled by Commonwealth Government Legislation and is administered by the Australian Dairy Corporation (ADC) under the following Legislation:

   - Dairy Industry Stabilisation Act
   - Dairy Produce Act
   - Dairy Industry Stabilisation Levy Act
   - Dairy Industry Assistance Act
   - Dairy Industry Assistance Levy Act

   Commonwealth Government Legislation allows for a levy to be imposed on the production of prescribed cheese (cheddar, gouda, granular), butter, whole milk powder, skim milk powder and casein. The levy is refunded to manufacturers on produce they export and levy funds from produce sold on the domestic market are collected by the Commonwealth. The levy is distributed as a stabilisation payment on all leviable production whether sold on the domestic or export market. The stabilisation payment is distributed directly to dairy farmers.

   The Commonwealth Government has also underwritten the equalised price for the production of manufactured products at a minimum level. In general, returns have exceeded the underwritten level and Government money has not been needed.

   The ADC controls the export of dairy products by establishing 'export permit prices' for specific export markets. The ADC also controls directly the sale of produce to Japan and may act as a buyer. The ADC is involved with international trade pricing negotiations.

The domestic prices for dairy products are not fixed, but are related to the Assessed Export Price and the Levy. Manufacturers are assisted in making early payments to suppliers before production is sold by receiving an advance in the form of a product loan from the ADC in the month following production.

Prices paid to producers of milk are fixed on a regional basis by equalisation schemes operating in the Adelaide Metropolitan Milk Supply Area and in the South East, and by Company/Producer schemes in the Mid North, Port Lincoln and Riverland Regions.

The pricing arrangements vary depending on the localities and the use to which milk is put, but most of them include two components, a basic price based on the returns from manufactured products such as cheese, and a liquid milk bonus based on the returns from the more profitable liquid milk market.

Each month, returns from all markets are used to determine equalised returns to all producers within the Region. Equalised prices, comprising basic prices plus liquid bonuses, are highest in the low production months and in Regions with a greater proportion of liquid milk sales. First payments to producers for each months milk are based on expected final returns from all markets. The necessary retrospective (always upward) adjustments are made later.

Legislation controlling the composition, purity, quality, storage, distribution and labelling of products is contained in the Metropolitan Milk Supply Act and Regulations, the Dairy Industry Act and Regulations, and the Food and Drug Act and Regulations. The regulatory controls are aimed at safeguarding the public from health risks, low quality products, and misrepresentation.

Major promotion of dairy products is carried out by companies, the Metropolitan Milk Board, and the ADC. The Metropolitan Milk Board in conjunction with dairy industry financial support undertakes promotions such as the "Milk It Instead Campaign".

The ADC utilises dairy farmer's funds to undertake national press and television advertising for dairy products e.g. cheese, butter, yoghurt and cream promotions.

5.8 Pig Industry

Most pigs in S.A. are sold through saleyard auctions which are located in Adelaide and country centres.

Sale of pigs by classification was introduced in October 1979. Under this system, producers assess their pigs according to weight and back-fat depth. Buyers bid by progressive auction on the catalogued description without physically inspecting the pigs. Approximately 10 per cent of pigs sold in S.A. are now auctioned under this system.

Pig sale by classification allows for telephone link-up with interstate buyers permitting buyers from Victoria, N.S.W. and other states to buy according to the description of the pig.

The bulk of trading in the domestic market is carried out under relatively free market conditions.

5.9 Chicken Meat

Poultry meat is marketed by individual companies in a competitive market.

Fresh bird sales (chilled) have increased in S.A. in the past few years with an estimated 85 percent being sold in this manner.

Marketing of whole poultry is based on selling a bird of a particular size with a specific code number as a "unit" rather than selling on a price per kilo basis.

5.10 Eggs

Marketing of eggs in South Australia is controlled by the South Australian Egg Board (SAEB). The industry is subject to price equalisation and production control. Only flocks of more than twenty birds which are kept for commercial purposes are subject to this control.

The SAEB sets both the maximum retail price and the wholesale price of eggs.

All eggs produced commercially must be consigned to the Egg Board or to licensed agents. Some producers have special licences to grade eggs on the farm and deliver to retail outlets. Surplus eggs from all states are sold on export markets by the Australian Egg Board. Egg surpluses are seasonal, with the majority occurring in the spring-summer period.

Production is controlled by means of hen quotas which were introduced in 1975. Since that time the hen quota has been reduced in order to reduce the surplus of eggs. Quotas are transferrable within the State, although approval is required, and they are not subject to price control.

5.11 Fruit and Vegetables - General

Approximately 25 per cent of produce grown in S.A. is sold through the East End Market in Adelaide, either through wholesalers and merchants or directly by the grower.

Potatoes are marketed through a statutory marketing authority. This body has the power to fix minimum wholesale prices and to direct the sale of produce through licensed wholesalers as well as having a number of other regulatory powers.

Co-operatives play an important role in marketing fruit from the Adelaide Hills and Riverland areas but are not involved in the marketing of vegetables.

Fruit and vegetables grown for processing do not pass through the central wholesale market in S.A. Vegetable crops are grown under contract agreement with processing factories and prices are usually negotiated before planting.

Fruit crops are either delivered by the grower direct to a cannery or juice factory, or consigned by a co-operative to the factory after the better quality fruit has been graded out for sending to the fresh market.

No figures are available for the interstate movement of fresh fruit and vegetables.

A very small quantity of vegetables is sold overseas from S.A. In 1980-81 2 640 tonnes of onions were exported; this represented 12 percent of total Australian onion exports.

5.12 Canning Fruit

The Australian Canned Fruits Corporation is empowered to acquire and sell the production of canned apricots, peaches and pears and is responsible for determining prices and terms and conditions for sale in both Australian and export markets. The Corporation's administrative and promotional expenses are financed by a statutory levy on canned fruit production.

Canned fruits have been manufactured by one company in South Australia, Riverland Fruit Products, and in 1980-81 some 264 000 cartons of fruit, mainly peaches, were exported principally to the United Kingdom and Japan. South Australia contributed 17 percent of peaches and 12 percent of mixed fruits exported from Australia during 1980-81.

5.13 Dried Vine Fruit

Australia relies to a great degree on export markets to sell its dried vine fruit (d.v.f.). In 1981, some 41 000 tonnes (59 percent) of d.v.f. production was sold on export markets.

The domestic market is closely regulated by an industry association, The Australian Dried Fruits Association (A.D.F.A.) and four State Dried Fruit Boards (N.S.W., Victoria, South Australia and Western Australia). The Boards act in consultation with the A.D.F.A. to fix the quota of fruit that may be sold in each State.

Dried Fruits Export is handled by the Australian Dried Fruits Corporation, an eight member body consisting of four members representing growers, two members with special qualifications (e.g. marketing, promotion, finance, etc.), a member representing the Federal Government and a Chairman. The Corporation replaced the Australian Dried Fruits Control Board in 1979. The corporation as well as taking over the export role of its predecessor, commenced administering the then (1979) new statutory dried fruits equalization scheme. It also had the power to trade and borrow and will be financed by a levy based on exports as is the A.D.F.A.

The Corporation operates under the Dried Fruits Corporation Act, 1978 and the Equalisation Scheme operates under the Dried Vine Fruits Equalization Act, 1978. The Equalization Scheme equalizes the market returns for dried currants, sultanas and raisins sold on the domestic and export markets. Each variety of fruit is handled by separate equalization schemes.

5.14 Citrus Industry

The citrus industry supplies three basic markets, Domestic (fresh), Export and Factory. Of the total citrus production in Australia 80 percent are oranges. South Australia produces about 36 percent of Australia's oranges (155 000 tonnes in 1978-79). The general trend in consumption tends to be away from fresh oranges towards orange juice. There has been significant growth in orange juice consumption in recent years, most of which has been

at the expense of other beverages. In 1980-81, 60 percent (252 000 tonnes) of Australian oranges were converted to juice and 23 500 kilolitres (an equivalent weight of 52 000 tonnes) of orange juice was imported.

There is no national citrus marketing organization in Australia. Citrus marketing is handled either by private companies, co-operatives and/or state marketing organizations, depending on the State and/or form of citrus - fresh or juice. The citrus growers national body is the Australian Citrus Growers Federation (A.C.G.F.), which represents all major citrus producer groups in Australia. Packing of fresh citrus in S.A. is handled by a number of co-operative and private packing sheds. The marketing (including price setting) of fruit for the S.A. market is co-ordinated by the Citrus Organization Committee of South Australia (C.O.C.). This organization also determines the type of pack in which the fruit is sold on the Adelaide market. Riv-Sam (consortium of citrus packers) handles exports of fresh fruit from South Australia. Prime markets for this fruit are New Zealand and South East Asia.

A Citrus Industry Council, comprising members of the A.C.G.F., the Australian Citrus Processors Association and the Australian Fruit Juice Association has been formed to discuss Australian citrus industry problems and to attempt to implement industry objectives.

5.15 Wine/Wine Grapes

S.A. produces around 60 percent of Australia's wine grapes, representing around 284 000 tonnes in S.A. in 1980-81.

Certain varieties of red grapes are being overproduced, however, and this appears likely to continue for some time. White grapes which for most of the 1970s were required in ever increasing numbers to supply a growing white wine market have for the last few years shown a quite dramatic sales decline.

Prices for each wine grape variety in South Australia are set by the State Commissioner for Consumer Affairs. Different prices are set between grape-growing areas irrigated by the Murray and those areas not irrigated by the Murray. For the 1983 vintage, the average price rise was $14 per tonne. The premium white variety Sauvignon Blanc received the largest percentage increase (an average over irrigated and dryland areas of 12.1 percent), followed by other premium white varieties Traminer (11.9 percent), Rhine Riesling (11.1 percent) and Chardonnay (11.1 percent). The white variety Clare Riesling received the smallest increase (1.2 percent). The non-premium red varieties Grenache and Mataro and the white variety Doradillo remained the cheapest varieties available.

Chapter 6

AGRICULTURE IN THE NINETEEN-EIGHTIES

6.1 Introduction

South Australia's agricultural potential in the decade ahead will most likely depend on supply/demand factors largely external to the existing production processes/technologies on many S.A. farms.

According to recent commentators (for example, Penn (1981)) agriculture in major food exporting countries is in a transitional phase with projections of a much tighter balance between food supplies/demands in the eighties compared with chronic excess supplies and depressed farm prices over the period of the seventies. The transition from a "farm problem" to a "food problem" implies that the need to stimulate food production will probably be greater than the need for adjustment and other assistance measures.

However there are other emerging adjustment pressures on the demand for food which will operate to create further imbalances on international markets. These adjustment pressures relate to international trading policies and macro-economic factors such as difference in inflation rates and exchange rate fluctuations among trading nations. Within the mix of food commodities there will be significant changes particularly in the relative changes among world commodity prices. All of these factors are external to the environment of S.A. farming but will certainly exert a major and perhaps overriding influence on the production performance of the traded agricultural goods sector.

In terms of supply factors in farming there is potential capacity to meet the projected growth in demand. However production increases will probably be achieved at substantially higher costs in terms of opportunity costs of increased land costs or rents, more intensive use of fertilizers and herbicides, higher yield variability on marginal lands, higher machinery costs and higher resource costs in terms of environmental pollution. The gains from productivity increases are limited particularly on existing agricultural lands and will probably be offset by higher unit costs in the short term. However, many farmers will benefit from higher prices and incomes over the long term from the projected transition from a buyers' market to a sellers' market in many traded goods.

Modern agriculture is a diverse and complex system of related activities. Over time the size of farming units becomes increasingly critical while the opportunities to increase productivity are extremely limited. Improvements such as reduced tillage methods, fertilizer and higher yielding varieties and livestock strains assist in boosting returns and/or reducing costs. While these technical innovations are available to broad-acre farmers in the wheat/sheep belt of S.A. there are other areas in S.A. in which both returns and costs are likely to exhibit a continuing declining trend in the terms of trade to agriculture. In horticultural production the canning, dried and processed fruit industries are likely to exhibit declining trends. On the other hand small scale vegetable and citrus production will probably increase.

In summary, agriculture in the 1980's in S.A. will be subject to the following factors which will influence the trend in production.

- Unlike the 1970's, the 1980's will probably reveal a much tighter food supply/demand balance on international markets.

- There will be a number of adjustment pressures external to agriculture which will influence the growth of agricultural production in Australia. These include commodity price changes, surplus balance of payments and a gradual lowering in protection across all industries.

- In broad-acre farming the greatest potential increases will come from increasing the land area under cultivation.

- Agriculture will be influenced by the type of policy responses to each of these factors. For example there will probably be a need for policies to actively encourage food production through emphasis on price and income stabilization measures. At the same time surplus balance of payments problems can be met by currency revaluations or alternatively permitting a higher domestic inflation rate and encouraging imports. A gradual lowering in protection across all industries will expose our import competing industries to greater foreign competition. Inevitably there will be a mix of policies designed to achieve alternative policy goals. However the terms of trade in agriculture will continue to move downwards and the rate of growth in agricultural output will decline significantly throughout the 1980's.

6.2 The "Farm" vs. "Food" Problem

Throughout the 1980's many commentators see a tightening of the world food supply/demand situation. The chronic surpluses of the 1970's will probably be replaced by some commodity shortages in the 1980's requiring more emphasis on policies to encourage production. This may be contrasted with the situation during the 1960's and early 1970's which were periods of chronic surpluses and depressed prices with policies framed to provide adjustment assistance to producers and to withdraw surplus resources from agriculture.

However while there is projected to be a strong growth in domestic and foreign demand for food during the 1980's, there is likely to be a slower growth in world food production. This imbalance will also create problems of market instability particularly when producers are expanding production into more marginal areas in which production will fluctuate much more widely. In addition, existing agricultural production facilities including marketing and transportation systems will face capacity problems and will have to handle significantly larger volumes than at any period over recent times.

The impact of this higher world food demand/supply balance on Australian agriculture will be to increase production in response to rising prices for food. Real prices for food will have to increase at an average rate of about two percent annually in order to keep abreast of projected increases in the cost of production particularly with limited opportunities for productivity improvements.

The policy responses to this imbalance will probably be a switch in emphasis from commodity specific programs to programs which embrace the development of the agricultural sector generally. Thus, rather than policies which enhance the returns to producers via price support or subsidies, there will be an increased need to stabilize incomes in agriculture to overcome the fluctuations in production. It will be a sellers market for food on foreign markets. One major issue will be the extent to which our policies on trade liberalization, aid and assistance to food importing countries affect our returns from food exports. In addition the extent to which increased food

prices will influence domestic inflation rates and affect the competitiveness of our import competing and export-oriented industries will become important issues for policy responses.

6.3 Adjustment Pressures on Agriculture

There will be many factors which will contribute to the adjustment pressures facing the agricultural sector throughout the 1980's. However, we can identify three key areas which will produce a number of major adjustment pressures on agriculture, and which will require a range of policy responses. These adjustment pressures relate to (a) chronic balance of payments surpluses from increases in world import prices of energy related and mineral resources relative to other commodities (i.e. a resources boom), (b) increased prices of agricultural commodities on world markets and (c) a reduction in protection through a lowering in tariffs and relaxation of import quotas.

The effects on S.A. agriculture of adjustment pressures such as the resources boom, changes in world commodity prices and reducations in tariff protection have been estimated using the IMPACT model (Vincent and Ryland (1981)). The effects on specific commodities are shown in Table 6.1.

Resources Boom

The effects of the projected growth in export earnings of minerals and energy related resources will result in an unprecedented increase in foreign exchange earnings which will influence exchange rates, domestic inflation and the basic structure of agricultural industries. Primarily the basic mechanism involves a lowering of the domestic price of traded goods (goods which enter international trade) relative to non-traded goods once the effect of the increase in foreign exchange earnings finds its way into the economy by way of revaluation of our currency, or by increased price inflation in Australia relative to other countries. The lowering of the domestic price of Australian exports will result in some contraction of output of export related industries particularly agriculture.

The effect of the resources boom on S.A. agriculture as estimated by Vincent and Ryland (1981), are shown in Table 6.1 (column 1). Generally, outputs of major cereals (wheat and barley), wool, sheep and beef cattle decline by about two percent while rural employment declines by about three percent from what it would otherwise have been in the absence of a resources boom.

World Commodity Prices

There have been a number of projections of annual changes in world relative prices for imported commodities (Leontief (1977) and Freebairn (1978)). Basically the projections of world prices for different groups of commodities are conditional on a number of key assumptions relating to demand factors (population and income changes) and supply factors (productivity, technology changes, and intensity of production). In general terms demand shift factors have been identified as relatively more important than supply shift variables for the bulk of export oriented agricultural commodities.

The world price projections (Table 6.2) indicate that meat products (especially beef) and fish export prices will rise at five percent annually relative to the slowest increasing group (manufactured products and machinery), wool will rise at five percent, wheat around three percent and dairy products four percent.

TABLE 6.1

Impact of various economic changes on rural production and employment in South Australia

	Resources Boom (%)	World Prices (%)	Tariff Reduction (%)	Total Impact (%)
Wool	-1.8	6.6	0.4	5.2
Sheep	-2.1	9.75	0.5	8.1
Wheat	-2.2	-1.3	0.5	-3.0
Barley	-1.9	0.8	0.5	-0.6
Other Cereal Grain	0.8	1.3	0.2	0.6
Meat Cattle	-2.2	10.3	0.5	8.5
Milk Cattle & Pigs	-0.7	3.7	0.2	3.2
Other Farming Expor	-	-	-	-
Other Farming Impor competing	-0.1	1.3	0.15	1.3
Poultry	-0.7	3.3	0.18	2.8
Rural Employment	-2.9	6.0	0.5	3.7

Source: Vincent and Ryland (1981)

TABLE 6.2

Assumptions concerning annual rates of growth in world commodity prices to the mid-1980s

Commodity Description[a,b]	Price Group Number	Projected Additional Inflation in Commodity Price Relative to Slowest Growing Group (Group 9)
		(% per year)
ENERGY AND ENERGY RELATED		
Crude oil		6.8
Coal	1	5.8
Oil and coal products		5.8
Other basic metals		4.8
MAINLY AGRICULTURAL EXPORTS		
Meat products		5.2
Leather products	2	4.9
Fishing; Wool		4.8
MAINLY ADVANCED COUNTRY EXPORTS (OTHER THAN MACHINERY)		
Forestry; Prepared fibres; Man-made fibres and yarn; Wool and worsted yars; Pulp and paper; Fibreboard; Paper products n.e.c.; Newspapers and books; Commercial printing; Chemical fertilisers; Industrial chemicals; Paints and varnishes; Pharmaceuticals; Soap and detergents; Cosmetics and toiletry; Chemical products n.e.c.; Signs and writing equipment	3	4.1
CERTAIN FOODS, DRINKS		
Milk products; Milk cattle and pigs; Fruit and vegetable products; Bread, cakes and biscuits; Margarine, oil and fats; Other farming import competing; Tobacco products	4	3.8
NON-ENERGY MINERALS		
Iron; Non-metallic n.e.c.; Other metallic minerals	5	3.4
MISCELLANEOUS GROUP[c]		
Wheat; Barley; Other cereal grains; Poultry (eggs); Flour and cereal products; Soft drinks and cordials; Beer and malt; Concrete products	6	2.8

TABLE 6.2 (continued)

Commodity Description[a,b]	Price Group Number	Projected Additional Inflation in Commodity Price Relative to Slowest Growing Group (Group 9)
		(% per year)
SUGAR AND RELATED PRODUCTS		
Other farming export; Confectionary; Food products n.e.c.	7	2.7
MAINLY EXPORTS AND PROSPECTIVE EXPORTS OF INDUSTRIALISING ASIA		
Cotton, silk and flax; Textile finishing; Textile floorcovers; Textile products n.e.c.; Knitting mills; Clothing; Footwear; Sawmill products; Plywood and veneers; Joinery and wood products; Furniture and mattresses; Glass; Clay products; Cemet; Non-metallic mineral products; Basic iron and steel; Structural metal; Sheet metal products; Metal products n.e.c.; Rubber products; Plastic products; Other manufacturing	8	2.6
MACHINERY, EQUIPMENT AND APPLIANCES		
Motor vehicles and parts; Ship and boat building; Locomotives; Aircraft building; Scientific equipment; Electronic equipment; Household appliances; Electrical machinery; Agricultural machinery; Construction equipment; Other machinery	9	0.0

[a] The composition of most commodity categories can be inferred from the commodity description. Details are in Australian Bureau of Statistics (ABS) (1978). The commodity categories, Other farming export, and Other farming import competing, are not used in the ABS I-O classification. Other farming export consists mainly of sugar cane. Other commodities included in this category are various fruits and dried vine fruits. Other farming import competing includes tobacco leaf as well as vegetables and flowers.

[b] Commodities which are essentially non-traded do not appear on this list.

[c] The overall world commodity price level is assumed to inflate at the same rate as for this group.

Source: Freebairn (1978).

While world cereal prices in general are projected to rise slower than meat and wool prices the differences among commodities are such as to suggest that commodity outputs will change marginally.

The impact of this world price scenario on S.A. agriculture is given in Table 6.1 (column 2) in which outputs of wool, sheep and beef are expected to increase relative to wheat, barley and cereal grains.

However, the interpretation of these results is important. They do not imply that the growth rate in animal production will exceed the growth rate in cereal production as relative prices change. They do imply that the rate of growth in cereal production will be slower relative to animal products.

Tariff Reduction

Across the board reduction in tariffs will assist the competitive performance of the export oriented agricultural sector. In particular it will benefit most those agricultural industries which utilize a relatively large component of imported inputs and where a high percentage of output is exported. Tariff reductions and reduced assistance measures to industry generally have been advocated as appropriate policy responses to offset the impacts of chronic balance of payments surpluses from the resources boom.

The effects of a 25 percent across-the-board reduction in ad Valarem tariffs are estimated in column 3 of Table 6.1.

6.4 Concluding Remarks

There are two broad policy options which may be used to deal with the projected balance of payments surpluses throughout the 1980's. The first is to increase imports through a gradual lowering in tariff protection and barriers to trade. This will help dissipate the projected increase in foreign exchange earnings and need for currency appreciations.

An analysis reveals that the total impact on South Australian agriculture of 'across the board' tariff reductions, the mining boom and the world price rise scenario is a slight expansion of activity and that this expansion is more likely to come from projected real increases in the world import price of agricultural commodities relative to manufactured goods.

The second option for macro-economic policy makers is to allow continual and gradual adjustment of exchange rates in response to market forces and/or higher domestic rates of inflation. This latter option is probably less preferred than the former but the effect is to reduce the projected increase in the real effective exchange rate. The impact of higher domestic inflation on agriculture is probably less than on any sector, particularly its impact on real net farm income. It does however raise the value of farm assets, encourages the acquisition of land and capital equipment and strengthens the competitive positions of the wealthy.

The appropriate policy response to the projected terms of trade gain for agriculture generally is a blending of the above policy options. Reduced tariff protection together with a gradual appreciation in the real effective exchange rate will probably imply a slower rate of growth in agricultural output during the 1980's.

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