3886

AGRICULTURE IN SOUTH AUSTRALIA

The Upper South-East

DEPARTMENT OF AGRICULTURE, SOUTH AUSTRALIA

LEAFLET No. 3788

AGRICULTURE IN SOUTH AUSTRALIA

The Upper South-East — Counties Cardwell and Buckingham

By **P. L. Marrett,** District Agricultural Adviser, Keith.

Clearing and rolling scrub in the Keith area.

Reprint from the Journal of Agriculture, S.A.
(July 1965) **68**: 394-406.

SINCE World War II, following the discovery of copper and zinc deficiency in the Upper South-East, agriculture in the district increased in leaps and bounds.

Early development was limited to comparatively small areas near Keith and Bordertown. These areas produced good cereal crops; in fact, wheat crops from the famous Tatiara district near Bordertown have won State Championships. Limited animal production was undertaken as well.

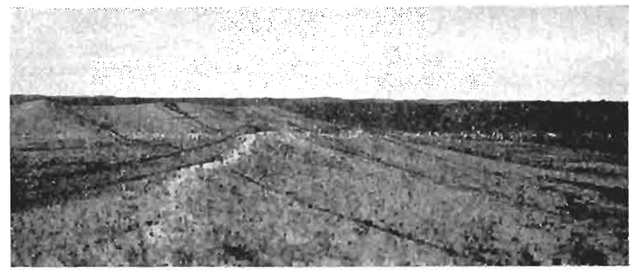
Natural vegetation of this country included associations of pink gum-yacca, mallee-heath and mallee broombush.

Old records indicate that the carrying capacity was in the order of one wether to 30 acres. Burning the natural vegetation was found to temporarily increase stock carrying capacity.

Now, with the aid of copper and zinc, together with better clearing machinery and more suitable pasture species, well-managed properties can carry three sheep an acre. The change is indeed even more remarkable when the heartbreaking efforts of the early pioneers are recalled.

DUNE FORMATIONS AND DRAINAGE

Dunes and ridges are a feature of the deficient land, and there are two distinct systems. In County Cardwell, ridges, or consolidated dunes, generally lie in a N.N.W.-S.S.E. direction. The Stirling range is the most easterly of these and is considered to be the oldest seashore-line of earlier times. East of the railway line and the Stirling Ranges, deep sand dunes form a complicated pattern.



Sand dunes near Tintinara in County Cardwell.

Excellent subterranean clover pastures have been developed in this district following the discovery that the trace elements, copper and zinc, were required. This has led to big increases in wool production.

Lucerne is the most important pasture on many of the lighter soils in the Upper South-East. Here, the lucerne has been oversown with oats.

The Upper South-East has no natural drainage of great importance. In County Buckingham, some of the surplus surface water is channelled underground by means of naturally occurring sink-holes. In other parts, land-holders make use of drainage bores. Properly managed, these effectively remove the water.

The southern part of County Cardwell lacks good drainage, and surplus water accumulates on low-lying areas. Much of this is removed by evaporation, tending to make some of the country quite saline. Nearer the coast, a small amount of water finds its way to the Coorong—a long, narrow lake stretching many miles along the coastline.

WATER QUALITY

Good quality underground water is at a premium in the western division of the Upper South-East. Generally, better water is east of the Stirling range, but on the western side, the water is poorer.

ANIMAL PRODUCTION

When large areas are developed and sown to pastures, animal numbers inevitably increase; and in this regard, the Upper South-East has been no exception —both sheep and cattle numbers have risen rapidly.

With cattle, the increase has been mainly in beef breeds. All the breeds common to South Australia are grown in the district—Herefords, Shorthorns, Aberdeen Angus.

The most popular breed of sheep here is the Merino, and the three lines commonly grown in this district are those from South Australia, New South Wales and Tasmania. A tribute can be paid either to the Merino or the district or both, in that all strains of the breed do very well.

Wool cuts are good, usually more than 10 lb. a head. Lambing percentages are also very good. The average exceeds 80 per cent; this is well above the State average.

PASTURE SEEDS

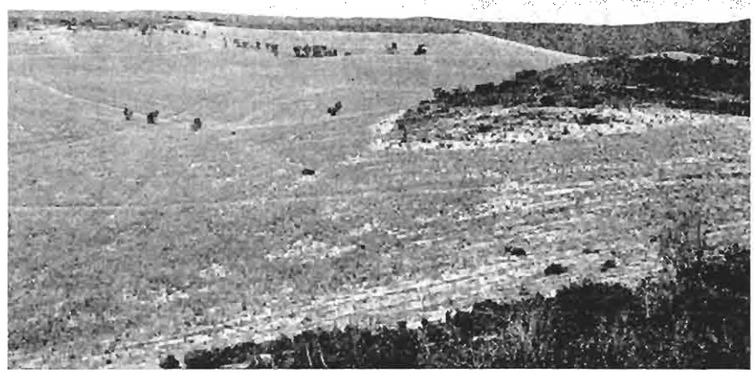
A thriving pasture seed industry is developing in the district. Where water supplies are good, irrigation is being used to produce good yields of various pasture seed crops including lucerne, annual medics, phalaris and Currie cocksfoot.

In favourable years, large areas of lucerne and subterranean clover are harvested under dry-land conditions, and returns can be particularly lucrative.

PROBLEMS OF THE AREA

The district has three main problems, the most important of which is "water-repellant" sand. A soil fungus prevents quite large portions of the upper part of these sandy soils from becoming wet. Usually, they do become wet by the end of the winter, but it is too late then for growth of the annual species. Thus production from the area can be limited.

Cultivation relieves the problem temporarily, but this is only a partial answer and further research is needed.



Typical country in County Cardwell in which production can be affected by "water-repellent" sand.

The second problem is that of soil salinity. Large tracts of flat land between the ridges in County Cardwell are highly saline, and unwise attempts at development have resulted in failure.

The third problem is that of weeds. Being a comparatively new area, the district as a whole is reasonably free of weeds. However there are signs that they are increasing.

Skeleton weed is prevalent throughout, and although it has not yet reached the "plague" levels of other parts of Australia, constant vigilance is necessary to prevent widespread infestations here.

Salvation Jane is spreading too. The disturbing feature of this weed is that it is beinning to menace lucerne paddocks, and control is difficult in these pastures.

Yellow burr-weed is also becoming a problem, and although an annual, it is difficult to control and could become a threat to cereal crops.

A large area of country is yet to be developed, and the best means of weed prevention for this land is to sow certified pasture seed.

Skeleton weed is prevalent but has not yet reached "plague" levels. Constant vigilance is necessary to prevent new outbreaks and extensions of existing infestations.

NUMBER OF HOLDINGS AND SIZE OF PROPERTIES, 1952-63

County Buckingham

The number of holdings has increased by 183. This has been influenced mainly by large scale development carried out by the A.M.P. Society.* The average size of holdings has decreased from 2,300 acres to 1,600 acres. Holdings in the wheat growing districts are about 600 acres, but properties in the deep sand country vary from 4,000 acres to 50,000 acres.

*A commercial organization.

County Cardwell.

The number of holdings has increased by 56, due mainly to development by individuals. Average size has decreased from 7,000 acres to 5,000 acres. Holdings average 1,600 acres in the Culburra-Tintinara section, but range up to 20,000 acres west of Tintinara.

CROP PRODUCTION AND AVERAGE YIELDS

Wheat

The area sown to wheat increased substantially during the period 1953-1962. Average yields improved slightly in County Cardwell, while there has been a slight drop in County Buckingham. The extra wheat sown has been on "new" country and has influenced the drop in average yields.

The famous Tatiara area is in County Buckingham. Several State Wheat Crop Championships have been won by growers in this area.

A champion wheat crop grown in the Tatiara area by Messrs. A. Obst and R. W. Hunt, Bordertown.

Barley

The total area sown to barley has increased in both Counties. Although there is little difference in the area sown to barley in each County, the proportional differences between cereals are large.

In County Cardwell, barley comprises more than 60 per cent of the area sown to cereals. In County Buckingham, less than 20 per cent is sown to barley. Average yields are variable, and both Counties experience frosts, which on occasions, severely damage barley crops.

Oats

Sowings have increased in both Counties, particularly Buckingham. Introduction of the high yielding variety Avon has had a bearing on the increase, and establishment of an oat-growers' pool has also helped.

High-yielding oat crops are characteristic of the district but waterlogging can occur on the heavier poorly-drained soils.

Limestone soil in County Buckingham.

Yields of oats in County Buckingham are particularly good, usually twice those of County Cardwell.

Oats have increased in popularity as a sheep feed supplement, consequently more oats are stored each year. In addition, oats reserved for autumn feed as standing crops are increasing in popularity.

Field Peas

Peas are of no great importance in the district and only small areas are grown each year in County Buckingham.

In County Cardwell, pea crops have usually failed and are now rarely sown.

Pasture Seed Crops

These crops are of great importance. In the past, lucerne has been of great value to the district and the State, and recently, there has been a trend towards use of irrigation. This has had a marked effect on increasing the average yields of lucerne seed.

Subterranean clover seed, is also harvested, and yields are largely influenced by the spring rains, unless irrigation is used.

Medics and grasses are grown for seed under irrigation, and are very lucrative. As yet, no detailed production figures are available.

ANIMAL PRODUCTION

Beef Cattle

Both Counties have seen increases in beef cattle numbers. In County Buckingham, the increase has been from 2,000 to 18,000, and in County Cardwell, from 600 to 11,000. This can be partly attributed to the tendency to stock "new" pastures with cattle, because they are considered to damage them less than sheep.

Dairy Cattle

Dairy types have increased slightly, but this does not match the increase in beef cattle.

However, the opening of the cheese factory at Bordertown has stimulated interest in dairying in County Buckingham. Cheese production for the first 12 months of operation was more than 900,000 lb. This compares favourably with other South-Eastern factories.

Pigs

Towards the end of the period under review, there was a rapid increase in pig numbers, County Buckingham has consistently carried 3 times the pig numbers of County Cardwell.

Interest in pig production has no doubt been stimulated by the new dairy factory at Bordertown.

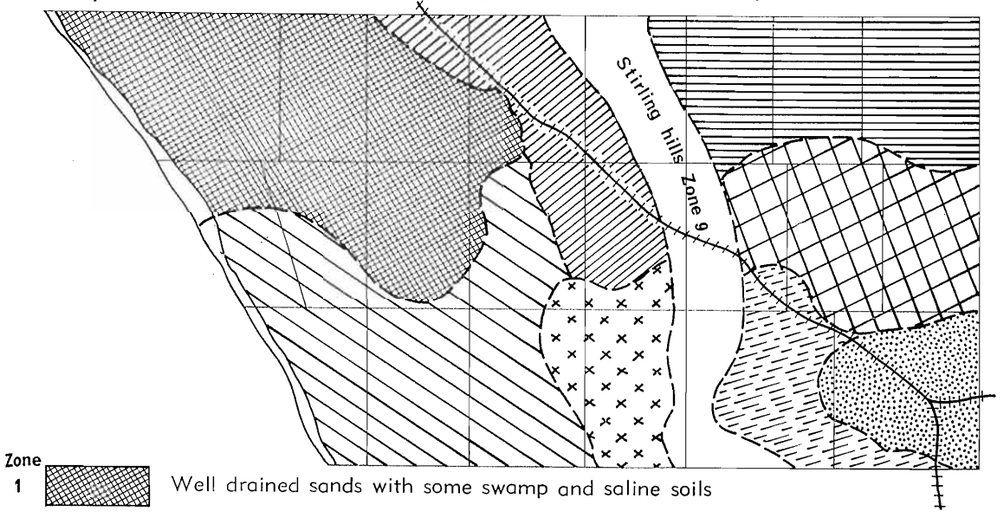
Sheep and Wool

Sheep numbers have increased rapidly during the review period. In 1961-62, the number shorn passed the million mark for the first time in the history of the district.

The rate of increase has been slightly higher in County Cardwell than in County Buckingham.

Wool production has kept pace with sheep numbers. Wool is the most valuable product from the two Counties, and in 1961-62 was worth £2.4 million. The average cut is higher than 10 lb. a head in most years.

Map 1 Land Use— UPPER SOUTH EAST



Zone
1 Well drained sands with some swamp and saline soils
2 Ridge and plain system (watercourse country)
3 Well drained sand and limestone soils
4 Poorly drained clay flats
5 Sand dunes and plains
6 Poorly drained clay and "crab-hole" soils with sand rises and better drained associated sands
7 Heavy soils with limestone occasionally prominent
8 Heavy clay soils

Map 2 Rainfall Distribution— Counties Cardwell & Buckingham

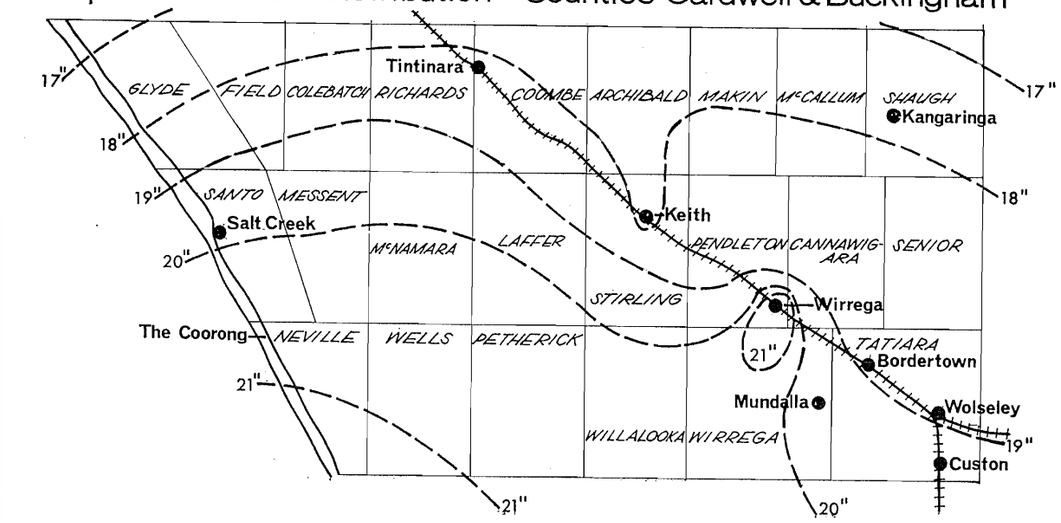


Table 1—HOLDINGS

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham—										
Acres	978,855	1,065,055	1,102,015	1,037,146	1,036,833	1,068,126	980,301	1,050,838	1,036,432	1,045,791
Number	437	453	484	492	494	571	599	602	608	620
Cardwell—										
Acres	989,566	1,044,722	858,131	797,391	734,163	869,413	863,719	825,436	839,292	878,849
Number	141	153	159	147	139	147	163	165	198	197

Table 1a—GENERAL

Zone	Rainfall	Soils	Water Supplies	Size of Farms (acres)	Value of Farms
1	17in. to 18in.	Well drained sandy soils. Small areas of red soil over limestone in the dune ranges. Some swamps and saline areas	Quantity and quality poor. Up to 1,200 g.p.g.*	5,000 to 20,000	£4-£25
2	18in. to 22in.	Sand dunes and sand plains. Red soils over limestone, grey and black rendzina and saline soils. Occasional peats associated with old water courses. Some swamps	Variable. Good water obtained near dunes at shallow depth. Water on flats is saline	2,000 to 40,000	£4-£25
3	18in. to 19in.	Well drained sandy and limestone soils. Occasional dunes. Some saline flats	Variable. Usually good water east of highway. Unreliable western side	600 to 4,000	£19-£40
4	18in. to 20in.	Poorly drained clay flats. Occasional sandy rises. Granite outcrops	Usually fair to good water	800 to 3,000	£32-£40
5	17in to 18in. (Data unreliable)	Sand dunes dominant. Sand plains and poorly drained flats	Excellent quality and quantity at depth	5,000 to 50,000	£20-£28
6	18in.	Poorly drained flats. Some "crab-hole" soils. Sand dunes associated with better drained soils	Very good	1,000 to 5,000	£28-£38
7	18in. to 19in.	Heavy soils surrounding crab-hole clay soils. Limestone prominent in western portion	Usually good supplies quality 50-200 g.p.g.	400 to 2,000	£50-£75
8	18in. to 19in.	Heavy clay crab-hole soils	Good	400 to 1,000	£50-£65
Stirling Hills	Higher than surrounding plains	Limestone range with associated sandy soils and red soils over limestone	Variable. Usually of poor quality		£10-£40. Depending on state of improvement.

* g.p.g. = grains per gallon

Table 1b—TYPE OF PRODUCTION

Zone	Crops	Livestock	Pastures	Fertilizers	Special Crops
1		Beef cattle and sheep	Lucerne, phalaris, sub-clover, perennial veldt, Currie Cocksfoot, Wimmera Rye grass. Inoculation of legumes (lucerne especially) essential on all soils in Upper South-East	Superphosphate: first year —1 to 2 bags per acre. After 10 cwt. applied: maintenance dressing ½ cwt. Trace elements—copper, zinc	
2		Beef cattle, sheep, limited dairying	As for above, plus strawberry clover, melilotus, shaftal, perennial Rye grass	As for above. Lime necessary for sowing new pastures on deep sands inland	Some strawberry clover harvested.

Table 1b—TYPE OF PRODUCTION—*continued*

Zone	Crops	Livestock	Pastures	Fertilizers	Special Crops
3	Barley, wheat, oats	Beef cattle, sheep, dairy cattle	Lucerne, phalaris, sub-clover, perennial veldt, Wimmera rye, barrel medic, Currie Cocksfoot	As for above. Lime necessary for new pastures on deep sands	Lucerne seed, sub-clover seed, annual medic seed
4	Barley, wheat, oats on suitable soils	Beef cattle, sheep, dairy cattle	Phalaris, sub-clover, Wimmera rye, strawberry clover. Lucerne on sand rises	As for above	Phalaris seed
5	Oats	Beef cattle, sheep	Lucerne, phalaris, sub-clover, perennial Veldt, Wimmera rye	As for above	Lucerne seed
6	Wheat, oats, barley, peas	Beef cattle, sheep, dairy cattle, pigs	Sub-clover, barrel medic, phalaris, Wimmera rye. Lucerne on sand rises	As for above	Lucerne seed
7	Wheat, oats, barley, peas	Beef cattle, sheep, dairy cattle, pigs	Lucerne, sub-clover, barrel medic, phalaris, Wimmera rye. Strawberry clover under irrigation	As for above	Pasture seeds of all types
8	Wheat, oats, barley	Beef cattle, sheep, dairy cattle	Sub-clover, annual medics, Wimmera rye	1-1½ cwt. of superphosphate with crop or pasture. Zinc of special importance to crops and pastures	Clover seed occasionally harvested.
Stirling Hills	Wheat, oats	Beef and dairy cattle, sheep	Lucerne, phalaris, sub-clover	As for Zone 1. Lime necessary on deep sands for new pastures	

Table 1c—PROBLEMS

Zone	Weeds	Insect Pests	Seed Crops	Deficiencies	Special Problems
1	(1) Horehound (2) Salvation Jane (3) Wild turnip (4) Dock (5) Thistles (6) Onion weed (7) Skeleton weed (8) False caper	Red-legged earth mite (common to all soils) lucerne flea, cockchafer, pink cutworm, barley grub		Cobalt, molybdenum, potash, sulphur are possible deficiencies	Water repellent sands
2	(1) (2) (3) (4) (5) (6) (8)	As above	Coleophora in strawberry clover	As above	Salinity
3	(1) (2) (3) (4) (5) (6) (7) (9) Yellow burr weed (10) Cape tulip (11) Tomato weed (12) Saffron thistle (13) Soldier thistle	As above	Heliothis and Etiella in lucerne seed crops		As for Zone 1
4	(1) (2) (3) (4) (5) (6) (7)	As above	As above	As above	As for Zone 2
5	(2) (7)	Red-legged earth mite	As above	As above	As for Zone 1
6	(1) (2) (3) (4) (5) (6) (7) (9)	As for Zone 1	As above	As above	—
7	(1) (2) (3) (4) (5) (6) (7) (9) (12) (13)	As for Zone 1	As above	—	—
8	(1) (2) (3) (4) (5) (6) (7) (9) (12) (13)	Red-legged earth mite, lucerne flea, barley grub	As above	—	—
Stirling Hills	(1) (2) (3) (4) (5) (6) (7) (9) (12) (13)	As for Zone 1	As above	As for Zone 1	—

Table 1d—POTENTIAL FOR INCREASED PRODUCTION

Zone	Increased Production	Alternate Land Use
1	Perennial pastures are the key to improved production. Lucerne, phalaris, perennial veldt grass and Currie cocksfoot are the ideal species. Plus autumn pest control measures. Production will go ahead in this area if and when water is reticulated.	There are no alternatives to animal production.

Table 1d—POTENTIAL FOR INCREASED PRODUCTION—*continued*

Zone	Increased Production	Alternate Land Use
2	Similar to above except that strawberry clover, melilotus and the rye grasses are of distinct importance for the saline areas Drainage of importance in some areas.	There are no alternatives to animal production.
3	Greater use of lucerne based pastures and sub-division would enable stock numbers to rise. The use of annual medics where applicable and better management of sub-clover pastures would assist in improving crop yields.	Dairying will increase as city populations rise. Pig production will also rise.
4	Improved pastures, higher annual fertilizer applications and attention to potash deficiency will lift production.	There appears to be no alternative production.
5	Sub-division and lucerne based pastures are the keys.	Irrigated seed production for specialized crops in limited areas. Reserving areas for lucerne seed production. Some limited potential for cropping mainly with oats.
6	Better pastures, heavier fertilizer applications and potash where necessary. Heavier sowings of sub-clover and annual medics in cropping sites will improve both crop and animal production.	Limited areas suitable for irrigation of pasture and seed production.
7	Better legume pastures, heavier fertilizer applications, the use of gypsum on the "sticky" soils would help the cropping areas. Silage making would improve pastures.	Pasture seeds production. Dairying can be expected to increase.
8	The use of annual medics in this soil type would increase the wheat yields.	There appears to be no alternative nor any need for alternatives.
Stirling Hills	Sowing of lucerne based pastures. Some limited cropping.	Very few alternatives.

N.B.—All Zones would benefit by better autumn management of pastures.

Table 2—WHEAT

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham—										
Acres	17,797	20,112	19,761	16,308	17,325	11,307	15,324	21,188	25,993	37,763
Yield, Bushels	470,185	501,634	473,388	392,628	256,171	231,481	490,926	343,914	688,101	810,018
Yield, Bushels/Acre	26·42	24·94	23·96	24·08	18·66	20·47	32·04	16·23	26·47	21·45
Cardwell—										
Acres	3,095	3,354	3,667	2,263	1,199	1,165	984	900	1,346	3,330
Yield, Bushels	32,488	27,803	47,390	28,899	9,516	15,414	10,734	4,794	19,122	48,327
Yield, Bushels/Acre	10·50	11·27	12·92	12·77	7·94	13·23	10·91	5·33	14·21	14·51
Total—										
Acres	20,892	23,466	23,428	18,571	14,924	12,472	16,308	22,088	27,339	41,093
Yield, Bushels	502,673	539,437	23,428	18,571	14,924	12,472	16,308	22,088	707,223	858,345
Yield, Bushels/Acre	24·1	23·0	22·2	22·7	17·8	19·8	30·8	15·8	25·9	20·9

Table 3—BARLEY

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham—										
Acres	7,796	13,046	7,250	9,975	10,399	8,503	11,327	15,105	21,974	14,050
Yield, Bushels	210,067	218,292	153,526	250,803	206,055	218,699	335,241	231,464	400,047	252,462
Yield, Bushels/Acre	26·9	24·4	21·2	25·1	19·8	25·7	29·6	15·3	18·2	18·0
Cardwell—										
Acres	8,191	11,125	10,669	9,228	8,407	9,283	11,724	13,946	17,701	13,620
Yield, Bushels	140,068	235,782	174,533	196,146	160,498	212,781	294,638	148,007	258,637	235,049
Yield, Bushels/Acse	17·1	21·2	16·4	20·2	19·1	22·9	25·1	10·6	14·6	17·3
Totals—										
Acres	15,987	24,171	17,919	19,203	18,806	17,786	23,051	29,051	39,675	27,670
Yield, Bushels	350,135	554,074	328,059	436,949	366,553	431,480	629,879	279,471	658,684	487,511
Yield, Bushels/Acre	21·9	22·9	18·3	22·8	19·5	24·3	27·3	13·1	16·6	17·6

Table 4—OATS

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham—										
Acres	20,459	14,802	19,281	20,494	17,280	18,431	25,526	21,243	27,237	25,723
Yield, Bushels	583,455	251,107	464,857	500,061	293,269	430,108	876,094	319,036	689,190	632,716
Yield, Bushels/Acre	28·5	17·0	24·1	24·4	17·0	23·3	34·3	15·0	25·3	24·6
Cardwell—										
Acres	1,985	2,165	2,359	2,220	1,870	2,247	2,742	3,326	3,141	2,496
Yield, Bushels	26,361	25,305	28,134	37,170	15,733	29,958	77,522	21,430	56,171	37,141
Yield, Bushels/Acre	13·3	11·7	11·9	16·7	8·4	13·3	28·3	6·4	17·9	14·9
Totals—										
Acres	22,444	16,967	21,640	22,714	19,150	20,678	28,268	24,569	30,378	28,219
Yield, Bushels	609,816	276,412	492,991	537,231	309,002	460,066	953,616	340,466	745,361	669,857
Yield, Bushels/Acre	27·2	16·3	22·8	23·7	16·1	22·2	33·7	13·9	24·5	23·7

Table 5—SHEEP AND WOOL

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham—										
Sheep, Number	297,150	330,048	378,320	418,308	507,507	563,462	649.345	552,789	637,279	700,856
Sheep Shorn	336,458	360,209	410,926	456,733	539.012	657,863	675,290	709,814	684,037	815,067
Wool (lb.)	3,852,347	3,734,464	4,214,452	5,062,706	6,160,455	6,558,111	6,896,893	7,111,638	7,017,111	8,446,936
Wool/Head (lb.)	11·45	10·37	10·26	11·08	11·43	9·97	10·21	10·02	10·26	10·36
Cardwell—										
Sheep, Number	73,759	123,148	149,121	150,880	190,622	229,119	242,009	223,614	241,719	289,116
Sheep Shorn	71,862	111,434	153,753	159,156	191,116	252,996	249,360	268,281	256,652	294,981
Wool (lb.)	847,171	1,207,067	1,621,821	1,732,459	2,122,261	2,511,539	2,584,500	2,692,662	2,633,930	3,116,931
Wool/Head (lb.)	11·79	10·83	10·55	10·89	11·10	9·93	10·36	10·04	10·26	10·57
Totals—										
Sheep, Number	370,909	453,196	527,441	569,188	698,129	792,581	891,354	776,403	878,998	989,972
Sheep Shorn	408,320	471,643	564,679	615,889	730,128	910,859	924,650	978,095	940,689	1,110,048
Wool (lb.)	4,699,518	4,941,531	5,836,273	6,795,165	8,282,716	9,069,650	9,481,393	9,804,300	9,651,041	11,563,867
Wool/Head (lb.)	11·51	10·48	10·34	11·00	11·34	9·96	10·25	10·02	10·26	10·41

Table 6—CATTLE

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham—										
Total	5,425	7,313	8,442	10,149	15,121	11,709	12,596	10,121	15,842	23,535
Beef	1,992	3,707	4,280	6,190	11,061	7,768	8,846	6,107	11,398	17,952
Dairy	3,433	3,606	4,162	3,959	4,054	3,941	3,750	4,014	4,444	5,583
Cardwell—										
Total	1,195	1,866	2,492	2,697	4,504	4,190	4,063	3,717	6,809	12,160
Beef	600	1,179	1,495	1,861	3,594	3,262	3,215	2,974	5,763	10,836
Dairy	595	687	997	836	910	928	848	743	1,046	1,324
Totals—										
Total	6,620	9,179	10,934	12,846	19,625	15,899	16,659	13,838	22,651	35,695
Beef	2,592	4,886	5,775	8,051	14,661	11,030	12,061	9,081	17,161	28,788
Dairy	4,028	4,293	5,159	4,795	4,964	4,869	4,598	4,757	5,490	6,907

Table 7—PIGS

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham	400	559	766	529	632	720	704	723	1,912	2,633
Cardwell	120	130	131	84	187	232	196	259	625	860
Total	520	689	897	613	819	952	900	982	2,537	3,493

Table 8—RAINFALL (inches)

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Buckingham—										
April-November	17·97	19·15	12·65	19·33	21·05	11·57	18·71	7·87	19·41	14·32
Year	22·78	22·49	14·94	23·02	24·03	13·73	19·66	11·69	24·34	17·99
Cardwell—										
April-November	16·59	18·38	13·45	21·53	22·08	12·42	18·56	6·66	18·48	13·65
Year	21·03	21·93	16·15	25·39	24·54	14·16	20·01	10·50	23·05	16·12

Table 9—TOPDRESSED PASTURES

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Cardwell—										
Acres	49,510	97,594	100,680	122,950	150,656	154,948	156,954	142,544	145,406	169,406
Lb./Acre	136	133	146	145	146	160	144	142	151	128
Buckingham—										
Acres	183,760	243,033	241,184	349,648	328,764	389,205	368,276	353,443	323,107	370,387
Lb./Acre	112	131	115	154	140	134	136	133	125	113

Table 10—OTHER CROPS

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
LUCERNE SEED										
Buckingham, Cardwell										
Acres	—	—	—	—	6,121	4,631	6,189	4,754	4,931	2,184
State Average Yield (cwt.)	—	—	—	—	0·63	0·69	0·82	0·87	0·90	1·02
SUBTERRANEAN CLOVER SEED										
Buckingham, Cardwell										
Acres	—	—	—	—	1,508	917	714	—	649	267
State Average Yield (cwt.)	—	—	—	—	1·91	1·83	2·37	—	1·70	1·49
FIELD PEAS										
Buckingham—										
Acres	71	276	492	73	177	263	384	236	229	133
Yield, Bushels	1,372	3,406	2,394	1,780	3,488	1,967	8,448	2,406	2,367	2,775
Average Yield, Bushels	19·3	12·3	4·9	24·4	19·7	7·5	22·0	10·2	10·3	20·9
Cardwell	Negligible									

W. L HAWES, GOVERNMENT PRINTER, ADELAIDE