COMMONWEALTH OF AUSTRALIA

The Australian Sheep Industry Survey

1954

Victoria

BUREAU OF AGRICULTURAL ECONOMICS
CANBERRA, A.C.T.
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FOREWORD

In presenting the results of its survey of the sheep and wool industry, the Bureau of Agricultural Economics is issuing a series of State reports and three zone reports covering the pastoral zone, the wheat-sheep zone and the high rainfall zone. Reports on Queensland, Tasmania, South Australia and the pastoral zone have already been published.

This report, the fourth of the State series, deals with the sheep industry in Victoria. The period covered is the financial year 1952-53, *a year in which seasonal conditions were generally good throughout Victoria.*

The Bureau is continuing the economic study of the industry in a series of follow-up surveys. Last year one of the areas covered in the re-survey was the wheat-sheep zone of Victoria and brief details of trends in that area were reported in the "Quarterly Review of Agricultural Economics" of January, 1957. *This year results from the remaining properties in the State are being obtained for the years* 1953-54 *to* 1955-56. *Such follow-up surveys will enable a continuous study of trends within the industry to be made.*

I gratefully acknowledge the assistance so readily given by individual property owners who participated in the survey and are continuing to co-operate, also the industry organizations, all of whom gave wholehearted support. I thank too wool-brokers and accountants, who freely supplied information on the authority of their clients. Without the willing help of all these, the survey could not have been carried out.

T. H. Strong
Director
Bureau of Agricultural Economics

Canberra A.C.T.
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The Australian Sheep Industry: Victoria

Summary

THE BUREAU OF AGRICULTURAL ECONOMICS undertook in 1954 a survey of the sheep and wool industry covering all the major sheep and woolgrowing areas of the Commonwealth. It was the first step in a proposed continuing study of the industry, and was designed primarily to obtain details of the financial results of sheep and wool properties for the year 1952-53. At the same time information was collected on certain physical aspects of the industry to provide a background against which the financial results could be set.

The present report covers properties in Victoria. The sample consisted of 220 properties, 119 in the high rainfall zone and 101 in the wheat-sheep zone. Their approximate location and the zonal boundaries are shown in the map.

Tables Nos. 1 and 2 summarize certain physical aspects of the properties and their financial results by showing the averages for the properties in each zone. A composite average of properties in both zones is also shown as a matter of interest.

In interpreting the results, the following points should be borne in mind:

(i) They refer to the financial year 1952-53, when seasonal conditions over the whole State were good.

(ii) The average price obtained for all greasy wool sold in Australia was 81.8d. per lb. Notwithstanding recent price rises the average price to the end of February in the 1956-57 season is still below the 1952-53 average although, through the marked increase in production, the wool cheque this year will almost certainly be greater than in 1952-53.

(iii) In all measures there was a wide range about the averages shown in the summary tables. Frequency distribution tables showing the ranges are incorporated in the body of the report.

TABLE No. 1

SUMMARY OF PHYSICAL FEATURES : VICTORIA

1952–53

Item	Unit	High Rainfall Zone	Wheat-Sheep Zone	Victoria
Properties	no.	119	101	220
Area	acres	906	1,642	1,244
Crops	acres	17	267	132
Improved pastures	acres	484	187	348
Sheep	no.	1,106	759	947
Cattle	no.	42	9	27
Ewes mated	no.	458	407	435
Lambs marked	no.	348	312	332
Lambs marked as % of ewes mated	no.	75.9	76.7	76.3
Sheep and lambs shorn	no.	1,257	912	1,099
Wool produced	lb.	10,246	7,381	8,931
Cut per head	lb.	8.2	8.1	8.1
Price per lb.	pence	87.4	77.0	82.7

TABLE No. 2

SUMMARY OF FINANCIAL RESULTS : VICTORIA

1952–53

Item	High Rainfall Zone	Wheat-Sheep Zone	Victoria
Properties	119	101	220
Capitalization	£ 33,186	£ 25,763	£ 29,778
Returns			
Sheep enterprise	4,306	3,082	3,744
Cereal cropping	42	2,429	1,138
Beef cattle	337	41	201
Dairying	147	72	113
Other	66	7	39
Total	4,898	5,631	5,235
Costs			
Labour	807	697	756
Materials	966	1,086	1,021
Services	496	678	580
Rent and depreciation	441	541	487
Total	2,710	3,002	2,844
Farm income	2,188	2,629	2,390
Charge against capital (at 5% on total capital)	1,658	1,288	1,488
Labour and management income	530	1,341	902
Farm income	2,188	2,629	2,390
Charge for operator's labour	658	658	658
Return to capital and management	1,530	1,971	1,732
Rate of return on capital	4.6%	7.7%	5.8%

The main conclusions which emerge from the financial analysis may be summarized as follows:

1. The industry as a whole appears to have been financially sound. The level of indebtedness was low and property development was being undertaken.
2. At the same time the general level of farm incomes was not high. While the average was almost £2,500, nearly half the properties in the wheat-sheep zone and more than half in the high rainfall zone were earning less than £1,500.
3. Of the 220 surveyed, 132 properties earned less than 5 per cent. on the market value of the capital investment.
4. Contributing to these low incomes and low rates of return were—
   (a) the small scale of operations of many of the properties,
   (b) the level of costs, which represented more than 53 per cent. of returns in each zone,
   (c) the high market values of properties, particularly in the high rainfall zone.

Part I: Introduction

In 1954 the Bureau of Agricultural Economics undertook a survey of the sheep and wool industry in all the major sheep and woolgrowing areas of the Commonwealth.

Its principal aims were:

1. To establish the relationship between costs and returns, the structure of costs, the returns to capital and management, and the capital structure of the industry in each of Australia's three main sheep zones: pastoral, wheat-sheep and high rainfall,
2. To establish within each zone the inter-state and inter-regional differences in the financial structure of the industry,
3. To examine the effect on the financial structure and performance of sheep properties of the scale of operations and associated pastoral or farming enterprises, e.g. beef cattle or wheatgrowing,
4. To examine the effect on financial performance of various practices in management, e.g. pasture improvement, and in sheep husbandry, e.g. Merino woolgrowing, fat lamb production and crossbred woolgrowing,
5. To discern general trends in the industry, e.g. any widespread and increasing preference for crossbreds or non-Merinos,
6. To examine the industry's capacity for expansion and any circumstances which might restrict it.

To meet all these objectives data for more than one year are required and the Bureau is continuing its economic study of the industry by means of a series of follow-up surveys.

SURVEY METHOD

For the purposes of the survey the sheep areas of Australia have been divided into three zones: pastoral, wheat-sheep and high rainfall. Their boundaries have been determined somewhat arbitrarily by reference to statistics of cropping activity, using the smallest statistical areas available.

All the information collected during the survey and subsequently analysed pertained to the financial year 1952-53. Officers of the B.A.E. visited each of the sample properties, interviewed its owner and obtained from him information about the physical features of his property, its production, capital investment, costs and returns. When necessary the owner gave authority for information on wool production and sales to be collected from his woolbroker, and on financial data from his accountant.

For the purposes of the survey a woolgrowing property was taken to be any which

(i) ran 200 sheep or more during 1952-53,

(ii) provided full-time occupation for one man,

(iii) was not a stud (as the principal enterprise), a multiple holding or a property used principally for dealing.

ANALYSIS PROCEDURES AND DEFINITIONS

The sample properties in Victoria have been classified on the basis of property enterprise under one of the following headings:

Sheep only—where any enterprise other than sheep is an unimportant sideline;

Sheep-cattle—properties which carried at least 40 head of cattle and in addition carried more than three cattle per 100 sheep;

Sheep-cereal—properties which received income from the sale of grain or cereal hay;

Sheep-dairying—properties which received income from the sale of milk, cream or butterfat;

Sheep-other crops—properties which received income from the sale of fruit, vegetables, &c.;

Mixed enterprise—properties which received more than 15 per cent. of total returns from each of two enterprises other than the sheep enterprise.

Where there were more than one associated enterprise, the classification was made in accordance with the one which provided the greatest gross return, except where the criterion for a "mixed enterprise" was satisfied.

The properties were also classified according to the nature of the sheep enterprise. The classes adopted were:

1. Merino woolgrowing—dry sheep,
2. Merino woolgrowing—breeding replacements,
3. Merino woolgrowing—breeding and selling surplus young sheep regularly,
4. Merino woolgrowing—joining non-Merino ram to Merino ewe and selling crossbred lambs as fats or stores,
5. Crossbred woolgrowing—including Corriedales and Polwarths,
6. Crossbred woolgrowing—breeding and selling fat lambs,
7. Fattening,
8. Merino-crossbred—running both dry Merino sheep and a crossbred breeding flock.

The first type, i.e., Merino woolgrowing from dry sheep, usually wethers, is self-explanatory. The second type includes those who aim to breed their own replacements, even though in some bad years they may have to buy sheep. This class normally has sales of cast-for-age but not of young sheep and in this differs from the third type, which breeds a surplus of young sheep for sale as breeders or wool cutters.

Properties of the fourth type, which joins non-Merino rams to Merino ewes, may sell their crossbred lamb drop as either fats or stores, depending on the season and the strength of the market.

The fifth group contains the crossbred woolgrowers, including those running Corriedales and Polwarths; they normally breed their own replacements. Those who sell fat lambs have been included in the sixth category.

Many properties, when there is surplus feed, buy sheep, fatten and re-sell them, but this practice normally constitutes a very minor part of the sheep enterprise. There are a few properties, however, on which fattening sheep is the main objective, and although a continuous turn-over of sheep is involved, the enterprise is not sheep "dealing". Some properties of this kind were included in the survey and have been placed in the seventh category.

It was necessary to provide the eighth category because there was a considerable number of properties in the total Australian sample which combined these two most dissimilar sheep enterprises. Such properties usually had some country suitable only for wether running but also good creek or river flats on which fat lambs could be produced.

The classes of property enterprise and sheep enterprise described are referred to frequently in later parts of this report. The financial analysis includes studies of the capital structure, gross returns and costs and, finally, various measures of income.

Capitalization

A study of capital investment is an essential part of the financial analysis for several reasons:

(i) it indicates the present value of investment per property,

(ii) it gives the sum on which the interest charge is calculated,

(iii) it is a measure against which incomes can be analysed when comparing properties of various sizes and types.

In arriving at a figure for capital investment it is necessary to make certain arbitrary decisions. The method used to value the various components for the purposes of this survey is described below.

Land and improvements were valued at ruling-market values at the time that the survey was conducted, namely the latter part of 1954, due allowance being made for title. To enable a full breakdown of the capital structure to be made, the values of fences, yards, buildings and water points were calculated separately and deducted from the value of land and improvements, leaving a residual value for land.

Plant has been valued at written-down cost, using standard depreciation rates (15 per cent. for vehicles and 10 per cent. for other plant) rather than the special incentive rates allowed for income tax purposes.

Sheep have been valued at the average price of all sheep bought and sold on the survey properties during 1952-53. Separate values were calculated for each State, and the Victorian figure was £3. The sheep to which this value was applied were the number on hand at July 1, 1952.

The values for cattle and horses were arrived at and applied in a similar manner; for Victoria they were £25 and £15 respectively.

The capital value of the property so calculated may be described as its "sold up" value. To this extent it over-states the actual cash investment in the long-established property; on the other hand it gives a fair indication of the capital required for entry into the industry at present.

Returns

Returns have been grouped as follows:

(i) **Sheep enterprise:**

(a) *Wool:* Gross returns from wool sold. Wool selling charges are included among costs.

(b) *Skins:* Value of any sheepskins sold.

(c) *Sheep trading:* The profit or loss from the sheep trading account. The value used for opening stock and natural increase was that used for calculating capital. Closing stock was valued at average cost on this basis, allowing also for purchases.

(ii) **Beef cattle enterprise:**

(a) *Cattle trading:* Profit or loss from the cattle trading account. Opening stock and natural increase were valued as for capitalization, with closing stock valued at average cost.

(b) *Hides:* Value of any hides sold.

(iii) **Cereal cropping:** Total value of wheat or other cereals produced in 1952-53 and also any income from the sale of cereal hay.

(iv) **Dairying:**

(a) *Dairy products:* Returns from the sale of milk, cream or butterfat.

(b) *Cattle trading:* As for the beef cattle enterprise.

(v) **Other returns:** All other returns from the sale of farm produce or resulting from the farm enterprise, e.g. agistment.

No account has been taken of income received from non-farming interests or of farm produce consumed on the farm—other than stock killed for rations, which are accounted for in the stock trading accounts.

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Costs

In determining the cost structure of the industry all cash costs and depreciation have been included with the exception of interest paid on borrowed money. Interest is introduced at a later stage of the analysis, when an allowance for interest on the total capital investment is made. However, interest actually paid is shown at the foot of the cost tables as an indicator of the debt position of the properties.

Some adjustment of wages paid was necessary on those properties employing family labour or where there were two or more working partners. All family labour was costed at the award rates ruling in 1952-53, with allowances for age, if junior, and time spent working on the property. In the case of partnerships one partner was regarded as the owner and the labour of the others costed as for family labour.

Depreciation has been calculated at standard rates rather than at the concessional rates allowed for income tax purposes. It was charged on all items, whether or not the property owner had in fact claimed it. The rates used for the major items were: fences and buildings 3 per cent., dams and wells 2½ per cent., bores 7½ per cent., windmills 5 per cent., vehicles 15 per cent. and other plant 10 per cent.

An item "land improvement costs" is shown at the foot of each cost table, although the separate components of these costs—contracts, fuel, seeds, etc.—are included in the cost structure. These are more truly capital expenditure, involving such projects as land clearing and pasture improvement.

Expenditure on items such as new fences, buildings, and bores has been regarded as capital expenditure and is not included in costs.

Income

Income can be measured at various levels. The first measure used in this analysis is *farm income,* which is the difference between gross returns and costs as defined in the preceding paragraphs.

The deduction from farm income of a charge against capital, in this case 5 per cent. on the total investment, gives a *labour and management income.*

A further measure of income is the *return to capital and management,* i.e. farm income less an allowance for the operator's labour; in this case £658 per annum, the ruling award wage in 1952-53. It should be noted that this amount does not include any allowance for management.

When this return is expressed as a percentage of capital, it gives a *rate* of return on capital which is perhaps the best measure for comparing the financial performance of groups of properties of widely differing sizes and undertaking various enterprises.

The definitions used in the financial analysis may be summarized as follows:

Gross returns = returns from wool, profit or loss from sheep and cattle trading and other returns

Costs = cash costs + depreciation

Farm income = gross returns — costs

Labour and management income = farm income — interest on capital

Return to capital and management = farm income — charge for operator's labour

Rate of return on capital = $\frac{\text{Return to capital and management} \times 100}{\text{capital}}$

Example of Calculation of Income Measures

Capital value of farm = £50,000

	£	£
Gross returns:		
Wool	9,000	
Sheep trading	500	
Cattle trading	250	
Other returns	250	
		10,000
Costs (cash costs and depreciation)		6,000
Farm income		4,000
Less interest on capital at 5 per cent.		2,500
Labour and management income		1,500
Farm income		4,000
Less charge for operator's labour		658
Return to capital and management		3,342

Rate of return on capital = $\frac{3{,}342 \times 100}{50{,}000}$ = 6.68%.

Part II: The High Rainfall Zone

The number of properties included in the sample for the high rainfall zone of Victoria was 119. For the purposes of the survey this zone was defined as the area included in the Central, North Central, Western, North Eastern and Gippsland statistical districts. The location of the sample properties is indicated on the map.

The topography varies from rugged hill or mountain country in the North Eastern and Gippsland areas to the plains of the Western District. Rainfall is reliable, occurring mainly in the winter, and temperatures are not extreme. In this environment improved pastures have been developed to a considerable extent and there has been a steady rise in the numbers of sheep carried. Table No. 3 shows figures of sheep and lambs shorn and of wool produced at five-year intervals since 1931-32, and also for the five latest years.

TABLE No. 3

SHEEP AND LAMBS SHORN AND WOOL PRODUCED: HIGH RAINFALL ZONE: VICTORIA: 1931–32 TO 1955–56

Year	Sheep and lambs shorn	Shorn wool production
	'000	'000 lb.
1931–32	10,583	78,703
1936–37	11,496	74,600
1941–42	14,214	108,815
1946–47	11,683	96,496
1951–52	15,084	122,378
1952–53	15,883	129,010
1953–54	15,448	116,944
1954–55	16,430	134,435
1955–56	16,841	145,452

Source: The Victorian Government Statistician.

LAND USE

Of the 119 properties 97 were freehold. Sixteen were partly freehold and partly under private lease, conditional purchase and forest lease. Five were subject to the conditions of the war service land settlement scheme and one was leased under the terms of the Closer Settlement Act.

The total area of the sample properties was 107,800 acres; half this was under improved pasture and practically all the remainder was natural pasture. Approximately 2 per cent. was cropped and about 4 per cent., consisting of swampy, rocky or heavily timbered areas, was not used for grazing. Table No. 4 sets out the land use on the sample properties.

TABLE No. 4

LAND USE DURING 1952–53: HIGH RAINFALL ZONE

Land use	Area	Percentage of total
	acres	%
Crop	2,020	1.9
Improved pasture	54,470	50.5
Natural pasture	47,039	43.6
Not used	4,271	4.0
Total	107,800	100.0

In the year of the survey approximately 56 per cent. of the area under crop was sown to oats, 24 per cent. to wheat and the remainder was devoted to comparatively small areas of maize, barley, lucerne, potatoes, turnips and rape.

Pasture improvement had been undertaken on 112 properties and Table No. 5 shows the frequency distribution of properties by the percentage of the area under pasture.

TABLE No. 5

FREQUENCY DISTRIBUTION OF PERCENTAGE OF AREA UNDER IMPROVED PASTURE: HIGH RAINFALL ZONE

Percentage of area improved	Properties
Nil	7
Less than 20%	20
20% and less than 40%	16
40% ,, ,, ,, 60%	25
60% ,, ,, ,, 80%	24
80% and more	34

Sixty-one properties had more than half their area sown to pasture and on 27 properties more than 90 per cent. had been improved. During 1952-53,

34 properties sowed new pastures over an area of 2,400 acres and in the following year an additional 2,000 acres were sown.

Topdressing was a regular practice on 105 properties. On these a total of 36,000 acres, or approximately two-thirds of the total area improved, was topdressed with superphosphate. The rate of application was approximately 112 lb. per acre on the majority (64). Six properties used less than 90 lb. to the acre, 13 used about 140 lb., and 22 about 180 lb.

Potential Land Use

The owner of each property gave an estimate of more intensive uses to which his land could be put. The categories used to describe the possibilities were:

Arable: Suitable for cropping as well as for sown pasture,

Suitable for improved pasture: Land which could be used for improved pasture but not suitable for regular cropping,

Suitable for topdressing: Not suitable for sown pastures but could be improved by topdressing,

Suitable for natural pasture: Where only natural pastures can be grown.

Unimprovable: Lacking any apparent economic potential.

Table No. 6 sets out the owners' estimates of the potential of their land.

TABLE No. 6

OWNERS' ESTIMATES OF POTENTIAL LAND USE: HIGH RAINFALL ZONE

Type of land	Area	Percentage of total
	acres	%
Arable	68,700	63.7
Suitable for improved pasture	18,680	17.3
,, ,, topdressing	11,200	10.4
,, ,, natural pasture	8,370	7.8
Unimprovable	850	0.8
Total	107,800	100.0

A comparison of potential with actual land use during 1952-53 shows that, though 91 per cent. of the area was considered to be suited to development by cropping, improved pasture and topdressing, in practice only 52 per cent. was used in these ways. Some development was, however, taking place and new land was being sown to pasture at a rate of approximately 2,000 acres per year or about 2 per cent. of the total area.

FEATURES OF THE SHEEP INDUSTRY

Property Size

The size of the properties covered by the survey ranged from 95 acres to 5,500 acres but two-thirds were less than 1,000 acres. Table No. 7 shows the distribution of the sample properties by area.

TABLE No. 7

FREQUENCY DISTRIBUTION OF PROPERTY SIZE: HIGH RAINFALL ZONE

Area	Properties
acres	no.
Less than 500	41
500 and less than 1,000	44
1,000 ,, ,, ,, 2,000	24
2,000 ,, ,, ,, 5,000	9
5,000 and more	1
Total	119
Average	906 acres

Stocking rates ranged from one sheep to 2½ acres to three sheep to the acre. However 68 properties carried between one and two sheep per acre.

Enterprise Classification.

Table No. 8 shows the sample properties classified as set out on p. 3, according to the type of enterprise in which they were engaged.

TABLE No. 8

ENTERPRISE CLASSIFICATION: HIGH RAINFALL ZONE

Enterprise	Properties	Sheep carried	Average flock size	Average property size
	no.	no.	no.	acres
Sheep only	55	56,770	1,032	845
Sheep-cattle	29	44,230	1,525	1,397
Sheep-cereal	10	14,100	1,410	842
Sheep-dairying	18	9,730	541	443
Sheep-other crops	5	6,140	1,228	768
Mixed enterprise	2	670	335	295
Total	119	131,640	1,106	906

Of the 119 properties, 55 were classified as sheep only. These had an average area of 845 acres and an average flock size of 1,032. The average flock on both the sheep-cereal and sheep-cattle properties was considerably larger.

On the 29 sheep-cattle properties, the numbers of cattle carried ranged from 40 to 420 head, with 18 of the properties having less than 100 head. The ratio of cattle to sheep varied from 3 per cent. to more than 20 per cent. but 21 of the 29 ran less than 10 cattle per 100 sheep.

There were only ten sheep-cereal properties. Six of these were producing cereal hay for sale and four were selling grain; two sold wheat, one sold oats and one sold both wheat and oats. Returns from cereals varied from 1 per cent. to 23 per cent. of total returns.

The area of the sheep-dairying properties ranged from 220 to 720 acres, the average being 443 acres. There were 726 dairy cattle on the 18 properties in this category, but the highest number of cows actually milked was 50 out of a herd of 210 head.

On the five sheep-other crops properties, returns were received from poultry and eggs, wattle bark, rye-grass seed, grass hay and potatoes.

Of the two mixed enterprise properties one was sheep-cereal-dairying and the other sheep-beef-potatoes.

Sheep Enterprises

The sample properties were also classified according to the type of sheep enterprise. Table No. 9 shows the number of properties of each type as well as the average number of sheep carried.

TABLE No. 9

SHEEP ENTERPRISE CLASSIFICATION: HIGH RAINFALL ZONE

Sheep enterprise	Properties	Sheep carried	Average flock size
Merino woolgrowing—			
Dry sheep	1	2,240	2,240
Breeding replacements	34	40,070	1,179
Breeding surplus	1	870	870
Crossbred woolgrowing—			
and breeding	39	50,140	1,286
and fat lambs	42	32,730	779
Fattening	1	250	250
Merino/crossbred	1	5,340	5,340
Total	119	131,640	1,106

Thirty-six properties, accounting for approximately one-third of the total sheep numbers, ran Merino sheep. Of these all but two were classified as breeding replacements; sales were mainly confined to cast-for-age sheep or culls.

Approximately two-thirds of the sample ran crossbred sheep. Thirty-nine properties were producing crossbred wool and breeding their own replacements as the major enterprise, and 42 were producing fat lambs from crossbred ewes. The subsequent analyses by sheep enterprise are confined to comparisons of "Merino" (including all 36 such properties) "crossbred woolgrowing and breeding" and "crossbred wool and fat lambs".

Flock Size

The average number of sheep carried was 1,106, though flocks ranged in size from 200 to 9,500. The flock size distribution of the properties in the survey is shown in Table No. 10.

TABLE No. 10

FREQUENCY DISTRIBUTION OF FLOCK SIZE: HIGH RAINFALL ZONE

Flock size	Properties
200 and less than 500	32
500 ,, ,, ,, 1,000	52
1,000 ,, ,, ,, 2,000	20
2,000 ,, ,, ,, 5,000	11
5,000 ,, ,, ,, 10,000	4
Total	119

This shows that the vast majority of properties ran between 200 and 2,000 sheep with almost 50 per cent. running between 500 and 1,000.

Breeds of Sheep

Table No. 11 shows the properties classified by the main breed of sheep on each; it also shows the number of sheep of each breed.

TABLE No. 11

BREEDS OF SHEEP: HIGH RAINFALL ZONE

Breed	Properties	Sheep
Merino	38	45,930
Corriedale	16	18,250
Polwarth	3	3,180
Other pure breeds	1	900
Crossbred	41	31,010
Comeback	20	32,370
Total	119	131,640

Merinos constituted 35 per cent. of the sheep on the sample properties; crossbreds and comebacks together made up 48 per cent., the balance being Corriedales and Polwarths.

Breeding

Ewes

Of the 119 properties all but five had breeding flocks in 1952-53. The number of breeding ewes expressed as a percentage of total sheep ranged from 14 per cent. to over 90 per cent. Table No. 12 shows the distribution, by sheep enterprises, of the proportion of breeding ewes in the flock.

TABLE No. 12

FREQUENCY DISTRIBUTION OF BREEDING EWES AS A PERCENTAGE OF TOTAL FLOCK: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Proportion of breeding ewes in the flock	Merino	Cross-bred wool-growing and breeding	Cross-bred wool and fat lambs	Total
Nil	2	2	—	5
10% and less than 20%	4	1	—	3
20% " " " 30%	15	11	—	27
30% " " " 40%	10	10	2	22
40% " " " 50%	4	7	5	16
50% " " " 60%	—	5	5	10
60% " " " 70%	1	1	3	5
70% " " " 80%	—	2	7	9
80% " " " 90%	—	—	7	7
90% and more	—	—	13	13
Total	36	39	42	119
Average	28.4%	37.0%	69.7%	41.4%

On the property classified as Merino breeding replacements but which did not join ewes in 1952-53 the woolgrower was changing his line of breeding ewes; he bought ewes which he joined for the following season. It was his usual practice, however, to breed his own replacements.

On all 34 properties classified as Merino breeding replacements, and on 31 of the 39 crossbred woolgrowing properties, the breeding ewes comprised less than half the total flock. This is in strong contrast to those properties producing fat lambs, where breeding ewes constituted the greater part of the flock—80 per cent. or more on 20 of the 42 properties.

Over the whole sample 54,500 ewes were joined for the 1952-53 lambing. Table No. 13 is an analysis of the ewes mated by breeds.

TABLE No. 13

EWES MATED: BY BREEDS: HIGH RAINFALL ZONE

Breed	Total	Percentage of total
	no.	%
Merino	12,800	23.4
Corriedale	7,850	14.4
Polwarth	1,600	2.9
Other pure breeds	650	1.2
Crossbred	19,700	36.2
Comeback	11,900	21.9
Total	54,500	100.0

On crossbred woolgrowing properties more than 43 per cent. of breeding ewes were Corriedales and almost 38 per cent. were Polwarths. Where fat lamb production was the major enterprise five-sixths of the breeding ewes were crossbred.

Seventy-five of the properties joined maiden ewes at one and one-half years and 22 joined at two and one-half years. The remaining 22 did not join maiden ewes; of these, thirteen properties purchased ewes for fat lamb breeding, four purchased them for crossbred woolgrowing and the other five properties did not join ewes in 1952-53. The bulk of those which joined maiden ewes at two and one-half years were Merino properties.

Culling of maiden ewes was a regular practice on only 33 of the properties in the survey. The rate varied but averaged about 15 per cent.; seven properties had a culling rate as high as 25 per cent.

In general ewes were cast for age at five or six years. One owner had a definite policy of retaining them until they died.

Rams

The total number of rams used for the 1952-53 lambing was 1,477, slightly more than two and one-half per cent. of ewes mated. Nine breeds were used on the 114 properties which joined in 1952-53. Twenty-two properties used two breeds, two used three breeds and one property used four breeds. Table No. 14 shows the number and percentage of ewes mated to each breed of ram.

TABLE No. 14
BREEDS OF RAM: HIGH RAINFALL ZONE

Breed of ram	Rams	Ewes	%
	no.	no.	
Merino	541	21,280	39.0
Corriedale	281	9,501	17.4
Border Leicester	155	4,590	8.4
Dorset Horn	161	6,310	11.6
Polwarth	58	2,330	4.3
Romney Marsh	27	1,390	2.6
Southdown	95	3,750	6.9
Ryeland	150	4,840	8.9
Suffolk	9	510	0.9
Total	1,477	54,500	100.0

All ewes on Merino woolgrowing properties were mated to Merino rams, while the rams used on crossbred woolgrowing properties were 46 per cent. Corriedale, 39 per cent. Merino and 11 per cent. Polwarth, with the long-woolled British breeds accounting for the remainder.

On crossbred fat lamb properties 67 per cent. of the rams used were of the Downs type; the only long-woolled ram of any importance was the Border Leicester, which represented 18 per cent of the rams joined.

Lambing

The Victorian high rainfall zone is generally recognized as a winter lambing area. On the sample properties lambing took place between March and September, mainly in May, June and July; on 70 of the 114 properties on which ewes were joined, it occurred during these three months.

The percentage of lambs marked to ewes mated ranged from 32 per cent. to 110 per cent. It was highest on crossbred fat lamb properties; more than 70 per cent. on 37 out of the 42 properties. The distribution of lambing percentages by sheep enterprise is shown in Table No. 15.

TABLE No. 15
FREQUENCY DISTRIBUTION OF LAMBING PERCENTAGE: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Lambing percentage	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Total
30% and less than 40%	1	2	—	3
40% „ „ „ 50%	2	2	1	5
50% „ „ „ 60%	6	2	1	9
60% „ „ „ 70%	5	7	3	15
70% „ „ „ 80%	11	8	10	30
80% „ „ „ 90%	6	7	16	29
90% „ „ „ 100%	3	7	7	17
100% and over	—	2	4	6
Average	68.1%	71.7%	83.9%	75.9%

Lambing as a percentage of the total flock was as follows:

Merino	19.3%
Crossbred woolgrowing and breeding	26.5%
Crossbred wool and fat lambs	58.5%

Purchases and Sales

The numbers of sheep purchased by the three main categories are given in Table No. 16.

TABLE No. 16
PURCHASES OF SHEEP: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Type of sheep	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs
Ewes	1,201	2,714	6,674
Wethers	3,086	1,985	1,144
Rams	32	95	69
Unclassified	1,036	252	—
Total	5,355	5,046	7,887

Ewes constituted 80 per cent. of the purchases by the fat lamb breeding properties. The Merino properties mainly bought wethers and crossbred woolgrowing properties ewes.

The sales of various classes of sheep from the three main groups are shown in Table No. 17.

TABLE No. 17

SALES OF SHEEP: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Type of sheep	Merino	Crossbred wool-growing and breeding	Crossbred wool and fat lambs
Ewes			
Young culls	228	791	535
C.f.a.	2,573	6,529	5,349
Wethers			
Young	804	960	204
Old	1,909	3,884	534
Lambs			
Fats	—	137	17,358
Stores	162	1,085	—
Rams			
Young	20	39	10
Old	—	10	4
Unclassified	—	558	—
Total	5,696	14,093	23,994

This shows that 75 per cent. of the sheep sold on Merino properties and crossbred woolgrowing properties consisted of cast-for-age ewes and wethers; the proportion of cast-for-age ewes to cast-for-age wethers was 3 to 2.

Details were available for 35 of the 42 fat lamb properties. The dominant sales were of fat lambs, making up 72 per cent. of the total. Prices received ranged from £2 9s. 5d. to £4 2s. 6d., the average being £3 6s. 8d. The only other important sales, totalling 22 per cent., were of cast-for-age ewes.

There was little change in total numbers of sheep during the year, although there was some variation among the different enterprises. Table No. 18 shows the changes over the sample properties by sheep enterprises.

The Merino properties built up their flocks, whereas crossbred woolgrowing and breeding properties had smaller numbers at the end of the period under review; the fat lamb properties had almost the same numbers on hand at the end of the year as at the beginning.

TABLE No. 18

CHANGES IN SHEEP NUMBERS: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

	Merino	Crossbred wool-growing and breeding	Crossbred wool and fat lambs	Total
Properties	36	39	42	119
On hand, 1.7.1952	41,093	55,562	32,778	134,874
Purchases	5,565	5,046	7,887	19,952
Natural increase	7,283	12,512	18,345	38,740
Total	53,941	73,120	59,010	193,566
Sales	5,697	13,993	23,994	45,221
Deaths and rations	3,068	9,203	2,424	14,913
On hand, 30.6.1953	45,177	49,924	32,592	133,432

Shearing

Shearing took place between August and January, being concentrated in the months of September, October and November when all but 12 of the properties surveyed shore their sheep.

Only 16 properties engaged contract shearers; the majority of owners carried out the operation themselves with hired labour or family assistance. Most of the sheds were small; 25 properties had one-stand plants and 78 two-stand plants. One property used blades. The remaining 15 had larger sheds with as many as eight stands.

On 27 properties qualified wool-classers were engaged at shearing time while 44 forwarded the wool direct to brokers for bulk-classing. As a result wool from 66 per cent. of sheep and lambs shorn went forward for sale after being prepared by qualified classers. On the remaining 48 properties the wool was classed by owners who had no formal training.

Wool Production

The cut per head of all sheep and lambs shorn on the sample properties ranged from 5.4 to 12.2 lb., and averaged 8.2 lb. The distribution is shown in Table No. 19.

TABLE No. 19

FREQUENCY DISTRIBUTION OF CUT PER HEAD OF SHEEP AND LAMBS SHORN: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Cut per head	Merino	Cross-bred wool-growing and breeding	Cross-bred wool and fat lambs	Total
5 lb. and less than 6 lb.	4	—	4	8
6 ,, ,, ,, ,, 7 ,,	4	9	4	17
7 ,, ,, ,, ,, 8 ,,	10	15	11	36
8 ,, ,, ,, ,, 9 ,,	10	10	12	33
9 ,, ,, ,, ,, 10 ,,	7	2	8	18
10 ,, ,, ,, ,, 11 ,,	—	1	2	3
11 ,, ,, ,, ,, 12 ,,	—	1	1	2
12 ,, ,, ,, ,, 13 ,,	1	1	—	2
Total	36	39	42	119
Average	8.1 lb.	8.2 lb.	8.0 lb.	8.2 lb.

There was virtually no difference between the three groups. In each the majority of properties had cuts between 7 and 9 lb. and there was a wide range between lightest and heaviest. On 93 of the 119 properties lambs as well as grown sheep were shorn and where lambs formed a large proportion of the total shorn the cut per head tended to be low. Grown sheep alone cut more than 7 lb. per head on all except six properties.

Diseases and Pests

While an investigation of the technical problems involved in the incidence of diseases and pests is beyond the scope of an economic survey, some information was obtained from property owners on the prevalence of those of economic significance.

Fly-strike

Largely as a measure of control against fly-strike, 109 of the 119 properties crutched sheep. The majority (82) crutched all sheep and six crutched ewes only, once a year; 29 crutched twice a year and the remaining two properties crutched three and four times a year.

In addition, four properties jetted sheep as a control measure and two properties used the mules operation.

External Parasites

Dipping for external parasites, e.g. lice, ticks and itch mite, was carried out mainly by plunge dip. Spray dips were used on only five properties.

A variety of proprietary dipping compounds was used but the active ingredients were—

Arsenic	93	properties
Arsenic and vegetable derivatives	10	,,
Benzene hexachloride	16	,,

Diseases and Internal Parasites

Sixty-six properties specifically mentioned diseases and internal parasites as being of economic significance. Most common diseases were pulpy kidney and black disease. For these the general control measure was inoculation. Drenching was used against worms and liver fluke. Two properties reported toxaemic jaundice in 1952-53.

Footrot was reported to be active on 44 properties but control measures recommended by the Victorian Department of Agriculture were being adopted.

Rabbits

With the exception of twelve properties where they had never been a problem, all those surveyed reported rabbits. However, myxomatosis was active on 102 widely distributed throughout the zone and it had considerably reduced the degree of infestation. In most instances advantage was being taken of this to maintain control by supplementary measures such as ripping, fumigating, poisoning and trapping.

Other Animal Pests

Foxes were the most commonly reported pest but measures were necessary in some areas against crows, eagles, kangaroos and wombats.

Noxious Weeds

Few properties reported noxious weeds although in certain areas spraying was used to control thistles and gorse.

Sheep Feeding Practices

The high rainfall zone of Victoria is favoured by a long growing season so that there are no regular periods of feed shortage such as are encountered in Tasmania in the depths of winter or in Western Australia during the summer drought. Nevertheless it is a common practice to make additional feed available to sheep and cattle, usually in late autumn and early winter.

To this end fifteen properties grew forage crops—oats, turnips, rape and millet. In addition 88 hand-fed stock; 38 fed sheep, 30 cattle and twenty both sheep and cattle. Of the properties feeding sheep, 35 fed all sheep and the remainder ewes and weaners only. Both grain and hay were fed out; hay was the more common fodder and was usually pasture rather than cereal hay.

Stocks of supplementary fodder were maintained on 91 properties; hay only on 76, both grain and hay on 14 and grain only on one. In general the fodder supply represented about one hundredweight of hay per sheep. Fifteen properties had to purchase additional fodder to meet their supplementary feed requirements in 1952-53 and three others, which carried no stocks, purchased all the fodder used during the year.

FINANCIAL ANALYSIS

Capitalization

A detailed description of the methods used for the assessment of the various items of capital expenditure is set out on p. 4. In Table No. 20 the average capital structure of the 119 sample properties is shown.

An examination of capital structure by enterprise shows that for each group there is little variation from the general pattern. The 55 sheep only properties closely adhered to the average and differed only in having a higher proportion of sheep and a lower proportion of cattle. Similarly the differences from the over-all structure in other groups were simply a reflection of the type of farm enterprise.

The average capital was £33,186 but the range was from less than £6,000 to approximately £250,000. This is illustrated in Table No. 21 which shows the frequency distribution of total capital by enterprises.

TABLE No. 20

CAPITAL STRUCTURE: HIGH RAINFALL ZONE

Item	£	%
Land	21,670	65.3
Water supply	885	2.7
Fencing	2,242	6.8
Buildings	2,370	7.1
Land and improvements	27,167	86.9
Plant	1,892	5.7
Sheep	3,267	9.8
Cattle	816	2.5
Other stock	44	0.1
Total stock	4,127	12.4
Total	33,186	100 0

TABLE No. 21

FREQUENCY DISTRIBUTION OF CAPITAL: BY ENTERPRISES: HIGH RAINFALL ZONE

Capital	Sheep only	Sheep-cattle	Sheep-cereal	Sheep-dairying	Sheep-other crops	Mixed enterprise	Total
£5,000 and under £10,000	4	—	1	2	—	—	7
£10,000 ,, ,, £20,000	17	3	—	9	3	1	33
£20,000 ,, ,, £50,000	29	19	6	7	2	1	64
£50,000 ,, ,, £100,000	4	5	3	—	—	—	12
£100,000 ,, ,, £200,000	1	1	—	—	—	—	2
£200,000 and over	—	1	—	—	—	—	1
Total	55	29	10	18	5	2	119
Average	£26,904	£51,165	£39,690	£19,433	£39,820	£20,200	£33,186

Approximately two-thirds of the properties were capitalized at more than £20,000. This illustrates the high land values in the zone; the average was found to be £23 12s. per acre. Values naturally varied widely according to location, soil type, development, etc.; a range from £7 to £70 per acre was recorded.

On the 55 sheep only properties the average value of land plus improvements was £26 2s. 0d. per acre or £27 7s. 0d. per sheep carried.

Returns

The average gross returns by enterprises are shown in Table No. 22. This also shows how much each source of income contributes to the total.

TABLE No. 22

AVERAGE GROSS RETURNS PER PROPERTY: BY ENTERPRISES: HIGH RAINFALL ZONE

Item	Sheep only	Sheep-cattle	Sheep-cereal	Sheep-dairying	Sheep-other crops	Mixed enterprise	Total
RETURNS							
	£	£	£	£	£	£	£
Wool	3,775	4,785	4,761	1,525	4,168	840	3,731
Skins	4	23	8	4	2	5	9
Sheep trading	460	701	754	516	674	770	566
Sheep enterprise	4,239	5,509	5,523	2,045	4,844	1,615	4,306
Cereals	—	—	418	15	46	160	42
Beef cattle	57	1,147	198	—	128	390	337
Dairying	—	34	40	816	42	490	147
Other returns	9	34	61	41	900	445	66
Total	4,305	6,724	6,240	2,917	5,960	3,100	4,898
STRUCTURE OF RETURNS							
	%	%	%	%	%	%	%
Wool	87.7	71.2	76.3	52.3	70.0	27.1	76.2
Skins	0.1	0.3	0.1	0.1	—	0.2	0.2
Sheep trading	10.7	10.4	12.1	17.7	11.3	24.8	11.5
Sheep enterprise	98.5	81.9	88.5	70.1	81.3	52.1	87.9
Cereals	—	—	6.7	0.5	0.8	5.1	0.9
Beef cattle	1.3	17.1	3.2	—	2.1	12.6	6.9
Dairying	—	0.5	0.6	28.0	0.7	15.8	3.0
Other returns	0.2	0.5	1.0	1.4	15.1	14.4	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In all instances the sheep enterprise was the major source of revenue but returns from other sources varied according to the type of enterprise; e.g. beef cattle returned 17.1 per cent. of the total returns on the sheep-cattle properties and dairying accounted for 28 per cent. of total returns in the sheep-dairying group.

A distribution of gross returns is shown in Table No. 23.

TABLE No. 23

FREQUENCY DISTRIBUTION OF GROSS RETURNS: BY ENTERPRISES: HIGH RAINFALL ZONE

Returns	Sheep only	Sheep-cattle	Sheep-cereal	Sheep-dairying	Sheep-other crops	Mixed enterprise	Total
Less than £1,000	2	—	—	—	—	—	2
£1,000 and less than £2,000	13	2	1	3	1	—	20
£2,000 ,, ,, ,, £5,000	26	16	5	14	2	2	65
£5,000 ,, ,, ,, £10,000	9	7	3	1	1	—	21
£10,000 ,, ,, ,, £20,000	4	3	—	—	1	—	8
£20,000 and over	1	1	1	—	—	—	3
Total	55	29	10	18	5	2	119

The average return was £4,898 but the range was from slightly more than £900 to approximately £45,000.

Returns from Wool

These constituted the largest single source of income. The gross return from wool per sheep shorn depends on the cut and the price received. On the sample properties in 1952-53 the average cut was 8.2 lb. and the average price per lb. 87.4d. The average price of all wool sold at Victorian selling centres in 1952-53 was 79.1d. There is thus a clear indication that wool from the high rainfall zone is of better quality than the average sold in Victoria. The price received ranged from 54d. to 120d. per lb. and the distribution by sheep enterprises is shown in Table No. 24.

The difference between the three groups is striking. Merino properties averaged 103.4d.; two-thirds obtained 100d. and only four less than 90d. Crossbred woolgrowing and breeding properties averaged 84.5d. and only three of them reached 100d. Crossbred wool and fat lambs properties averaged only 64.8d. and only three exceeded 80d.

The distribution of gross returns from wool per sheep shorn classified by sheep enterprises is set out in Table No. 25.

TABLE No. 24

FREQUENCY DISTRIBUTION OF WOOL PRICES: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Price per lb.	Merino	Crossbred wool-growing and breeding	Crossbred wool and fat lambs	Total
50d. and less than 60d.	—	—	7	7
60d. ,, ,, ,, 70d.	—	5	19	24
70d. ,, ,, ,, 80d.	2	8	13	23
80d. ,, ,, ,, 90d.	2	13	3	19
90d. ,, ,, ,, 100d.	8	10	—	18
100d. ,, ,, ,, 110d.	14	3	—	18
110d. ,, ,, ,, 120d.	9	—	—	9
120d. ,, ,, ,, 130d.	1	—	—	1
Total	36	39	42	119
Average	103.4d.	84.5d.	64.8d.	87.4d.

TABLE No. 25

FREQUENCY DISTRIBUTION OF RETURNS FROM WOOL PER SHEEP SHORN: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Returns from wool	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Total
£1 0s. 0d. and less than £1 10s. 0d.	—	—	2	2
£1 10s. 0d. ,, ,, ,, £2 0s. 0d.	2	2	9	13
£2 0s. 0d. ,, ,, ,, £2 10s. 0d.	1	10	18	29
£2 10s. 0d. ,, ,, ,, £3 0s. 0d.	4	16	10	31
£3 0s. 0d. ,, ,, ,, £3 10s. 0d.	13	9	2	24
£3 10s. 0d. ,, ,, ,, £4 0s. 0d.	9	1	1	12
£4 0s. 0d. ,, ,, ,, £4 10s. 0d.	5	—	—	5
£4 10s. 0d. ,, ,, ,, £5 0s. 0d.	2	1	—	3
Total	36	39	42	119
Average	£3 9s. 10d.	£2 17s. 6d.	£2 6s. 10d.	£2 19s. 4d.

On the sample properties this gross return ranged from £1 6s. 0d. to £4 18s. 0d. The properties running Merino sheep averaged £3 9s. 10d. per head, i.e. 10s. 6d. better than the average for the sample as a whole.

Returns from Sheep Trading

Sheep sold totalled 45,221 and realized £112,971; purchases were 19,952 at a cost of £73,690. The cash return from these trading activities was therefore £39,281. After taking into account the inventory change in sheep numbers the total return from sheep trading amounted to £67,390, an average of £556 per property or 10s. 2d. per sheep. The highest individual property result was £3 2s. 6d. and the lowest a loss of £1 1s. 10d.

Returns from the Sheep Enterprise

An analysis of returns from the sheep enterprise, i.e. sales of wool and of skins and returns from stock trading, per head of sheep carried is shown in Table No. 26.

TABLE No. 26

FREQUENCY DISTRIBUTION OF RETURNS PER SHEEP FROM THE SHEEP ENTERPRISE: HIGH RAINFALL ZONE

Returns per sheep carried	Merino	Crossbred wool-growing and breeding	Crossbred wool and fat lambs	Total
£1 and less than £2	1	2	—	4
£2 „ „ „ £3	3	6	4	13
£3 „ „ „ £4	12	18	16	46
£4 „ „ „ £5	15	10	12	38
£5 „ „ „ £6	4	3	7	14
£6 „ „ „ £7	1	—	3	4
Total	36	39	42	119
Average	£4 1s. 0d.	£3 15s. 0d.	£3 17s. 2d.	£3 17s. 10d.

This is not strictly comparable with Table No. 25 because it shows the return per sheep carried rather than per sheep shorn.

The number carried was taken to be the average of those on hand at the beginning and end of the financial year. The figure for sheep shorn was usually greater than the number carried because lambs dropped, shorn and then sold during the year do not appear in the figures of stock on hand at either its beginning or end.

The performance of the various groups of properties is summarized in Table No. 27.

It illustrates very clearly the effect on sheep enterprise returns of different breeding policies. Crossbred wool and fat lamb properties, with 70 per cent. of ewes and a lambing figure of 84 per cent., were almost able to overcome the disadvantage arising from their extremely low wool prices. As a result of higher stock trading profits—mainly from the sale of fat lambs—a deficit of £1 3s. 0d. per head in wool returns vis-a-vis Merino properties was reduced to one of only 4s. per head in total sheep enterprise returns. Crossbred woolgrowing and breeding properties which had figures for both ewes mated and lambs marked intermediate between the other groups also made up some leeway on Merino properties (from 11s. 7d. less on wool returns to 6s. less on total sheep enterprise returns).

The percentage of sheep enterprise returns provided by sheep trading was 34 per cent. on crossbred wool and fat lamb properties against 5 per cent. on Merino properties and 8 per cent. on crossbred woolgrowing properties. Although the difference between the groups is great it may be seen that even on fat lamb properties two-thirds of sheep enterprise returns still came from wool. In addition under the conditions of relative wool and sheep prices ruling in 1952-53 Merino properties had a definite advantage over both crossbred groups in returns per sheep.

Returns from Cereal Cropping

Thirteen of the survey properties received income from cereal cropping. The highest was £1,590, from a property which grew wheat, but the average return from cereals was only £481. Wheat contributed 80 per cent. of this, cereal hay 17 per cent. and oats 3 per cent.

TABLE No. 27

SUMMARY OF RETURNS PER SHEEP: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Item	Unit	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Total
Properties	no.	36	39	42	119
Average sheep carried	no.	1,190	1,290	780	1,106
Average sheep shorn	no.	1,321	1,546	851	1,257
Breeding ewes	no.	341	501	539	478
Ewes to total flock	%	28.0	37.0	69.7	41.4
Lambs marked	no.	232	359	452	363
Lambs marked to ewes mated	%	65.3	71.7	83.9	75.9
Cut per head	lb.	8.1	8.2	8.0	8.2
Price per lb. for wool	d.	103.4	84.5	64.8	87.4
Gross return from wool per sheep shorn	£ s. d.	3 9 10	2 17 5	2 6 10	2 19 4
Sheep enterprise return per sheep carried	£ s. d.	4 1 0	3 15 0	3 17 2	3 17 10

Returns from Beef

Cattle were carried on 106 properties, consisting of those running beef cattle, those with dairy herds and those which maintained a few cows to supply milk for house use. The highest return from beef cattle was nearly £5,600 and nine others received over £1,000 from this source.

Of the 29 properties classified as sheep-cattle, i.e., with a herd of more than 40 head and with a cattle-sheep ratio of 3 per cent. or more, one ran cattle as grass-eaters, neither selling cattle nor breeding calves in 1952-53. Twenty-two properties sold cattle as fats, either breeding their own or fattening purchased stores. The average price was £32. Six other properties bred and sold cattle as stores at an average price of £26.

Returns from beef cattle averaged 17 per cent. of total returns on sheep-cattle properties but comprised over 40 per cent. on three of them.

Returns from Dairying

Dairying was undertaken on a commercial scale on 19 properties—18 sheep-dairying and one mixed enterprise. On these it represented from 10 per cent. to 76 per cent. of total farm returns and two properties received more than £2,000 from it.

Whole milk was sold on four properties and the highest return from it was slightly less than £1,000. Fifteen produced butterfat, the best return being £2,700. Only five properties obtained income from pigs, the greatest slightly more than £300. The remainder of the returns from dairying consisted of the profit or less from dairy cattle trading.

Other Returns

Returns from other sources were of importance on six properties, including one mixed enterprise.

The most notable was a property which received over £2,300, or about 60 per cent. of total returns, from potatoes. Other items from which income was received were pasture hay, grass seed, wattle bark, eggs, poultry, timber, firewood and agistment.

Costs

The costs shown in Table No. 28 include all cash costs, allowances for depreciation and for unpaid family labour. Interest actually paid is shown at the foot of the table, but is not included in the total. Allowances for the operator's labour and for interest on capital are introduced at a later stage of the analysis.

TABLE No. 28

COST STRUCTURE: HIGH RAINFALL ZONE

Item	Cost			
	£	£	%	%
Labour				
Wages	462		17.1	
Contracts	98		3 6	
Shearing and crutching	205		7.6	
Stores and rations	42		1.5	
Total		807		29.8
Materials				
Fuel	174		6.4	
Fertilizer	260		9.6	
Seed	28		1.0	
Fodder	51		1.9	
Packs, bags and twine	50		1.8	
Drenches, dips, &c.	37		1.4	
Shearing supplies	3		0.1	
Vermin destruction	27		1.0	
Maintenance: plant	162		6.0	
improvements	174		6.4	
Total		966		35.6
Services				
Freight and cartage	63		2.3	
Marketing: wool	127		4.7	
stock	73		2.7	
wheat	2		0.1	
Rates and taxes	88		3.2	
Insurance	54		2.0	
Droving and agistment	3		0.1	
Miscellaneous	86		3.2	
Total		496		18.3
Rent		26		1.0
Depreciation		415		15.3
Total costs		2,710		100.0
Interest paid		77		2.8
Land improvement costs		47		1.7

The distribution of costs by enterprises is shown in Table No. 29. Costs ranged from less than £600 to more than £11,000 and the average was £2,710.

TABLE No. 29

FREQUENCY DISTRIBUTION OF COSTS: BY ENTERPRISES: HIGH RAINFALL ZONE

Total costs	Sheep only	Sheep–cattle	Sheep–cereal	Sheep–dairying	Sheep–other crops	Mixed enterprise	Total
£500 and less than £1,000	13	—	1	5	1	—	20
£1,000 „ „ „ £2,000	20	7	2	7	1	1	38
£2,000 „ „ „ £5,000	18	18	6	6	1	1	50
£5,000 „ „ „ £10,000	3	2	1	—	2	—	8
£10,000 „ „ „ £20,000	1	1	—	—	—	—	2
£20,000 and more	—	1	—	—	—	—	1

The cost structure as shown in Table No. 28 indicates that about 30 per cent. of total costs is attributable to labour, 30 per cent. to materials, 18 per cent. to services and about 15 per cent. to depreciation.

Labour

Wages, the main item here, included both payments made to employees and allowances for unpaid family labour. Such allowances represented approximately 50 per cent. of the wages cost and 9 per cent. of the total costs for the sample as a whole; on the 36 properties which used unpaid family labour they accounted for 90 per cent. of the wages cost and 24 per cent. of the total costs.

The average labour force was less than two men, including the operator. Thirty-two properties were run by the owner-operator alone; 36 with family assistance; and 51 with hired employees.

On the sheep only and sheep-cattle properties, an average of about 700 sheep were handled per man. The number varied from approximately 125 to 2,250.

Contracts, mainly for intermittent work such as ploughing, harvesting, fertilizer spreading, dam and drain cleaning were let by 51 properties. A few had repairs to buildings and fences done in this way. Developmental work by contract included land clearing and drainage and was undertaken on twelve properties.

Shearing and crutching represented 7.6 per cent. of total costs and averaged 3s. 2d. per head. This was less than the contract rate since properties on which the owner did a large proportion of the shearing, crutching and preparation of the clip for market were included.

Materials

The largest single item in this category was fertilizer, representing 9.6 per cent. of total costs. On individual properties fertilizer cost represented up to 31 per cent., and exceeded 20 per cent. on twelve.

Other important items were fuel and the maintenance of plant and improvements. These together constituted half the costs of materials and nearly 19 per cent. of total costs.

Services

Marketing expenses and freight and cartage made up half these costs, and further one-sixth was represented by rates and taxes. Miscellaneous expenses included telephone, stationery, accountancy, bank fees, subscriptions to organizations and travelling expenses.

Depreciation

Standard rates have been used to calculate depreciation rather than the concessional ones allowed for income tax purposes. They are set out on p. 5. On this basis depreciation was 15 per cent. of total costs.

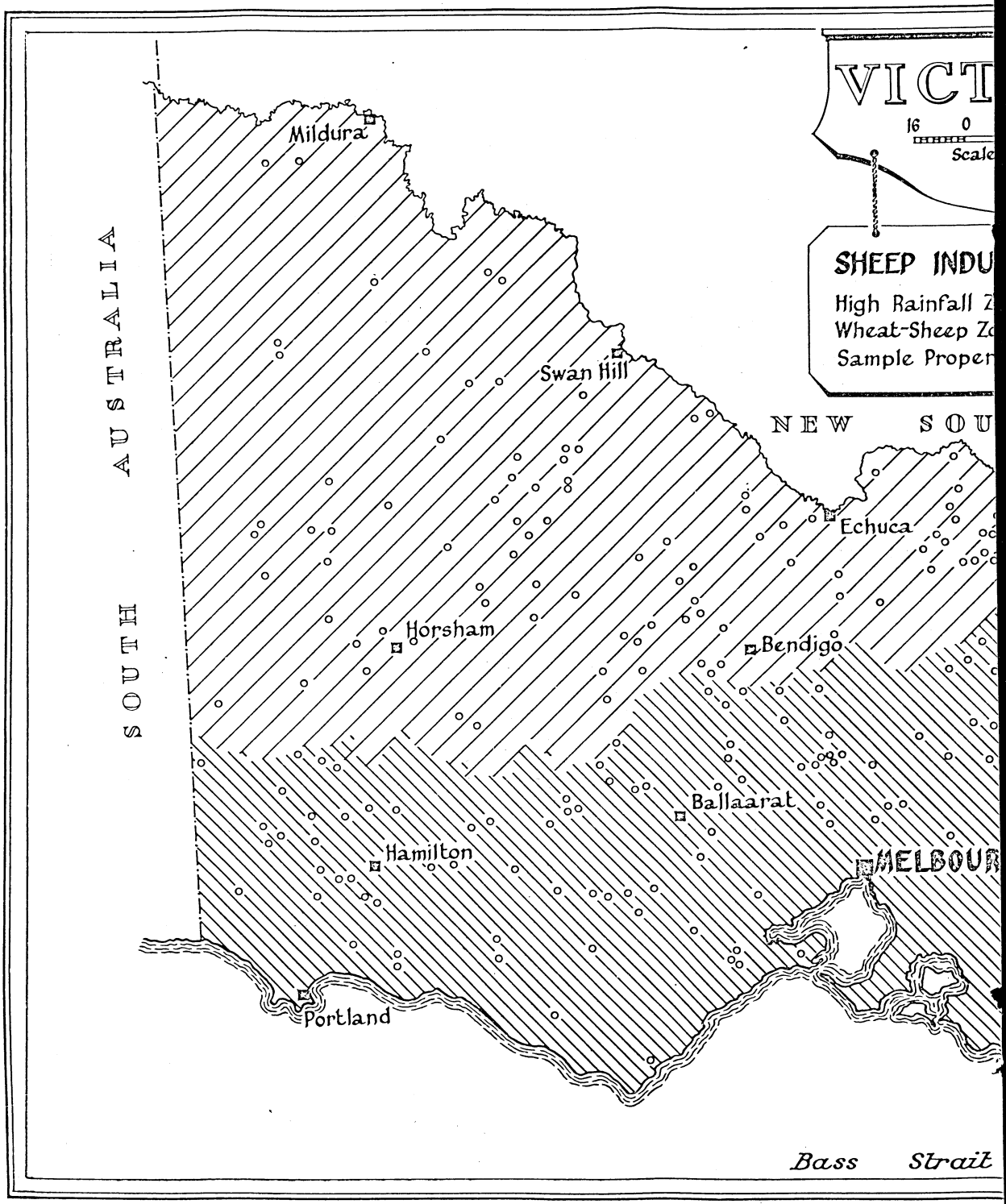
Interest

The average amount of interest actually paid per property is shown at the foot of Table No. 28, but is not included in the total costs.

In general such payments were fairly low. If it is assumed that the bank rate of interest was paid, the average indebtedness was slightly more than £1,500 on an investment with a market value of £33,000.

Costs per Sheep

A discussion of costs per sheep must obviously be confined to sheep only properties. Fifty-five in all, they received 98.5 per cent. of their gross returns from sheep and wool, and therefore all the costs incurred can legitimately be charged to the sheep enterprise. The sheep only properties ran an average of 1,032 sheep at a cost of £2,156, i.e. £2 1s. 9d. per head. The composition of this cost is shown in Table No. 30.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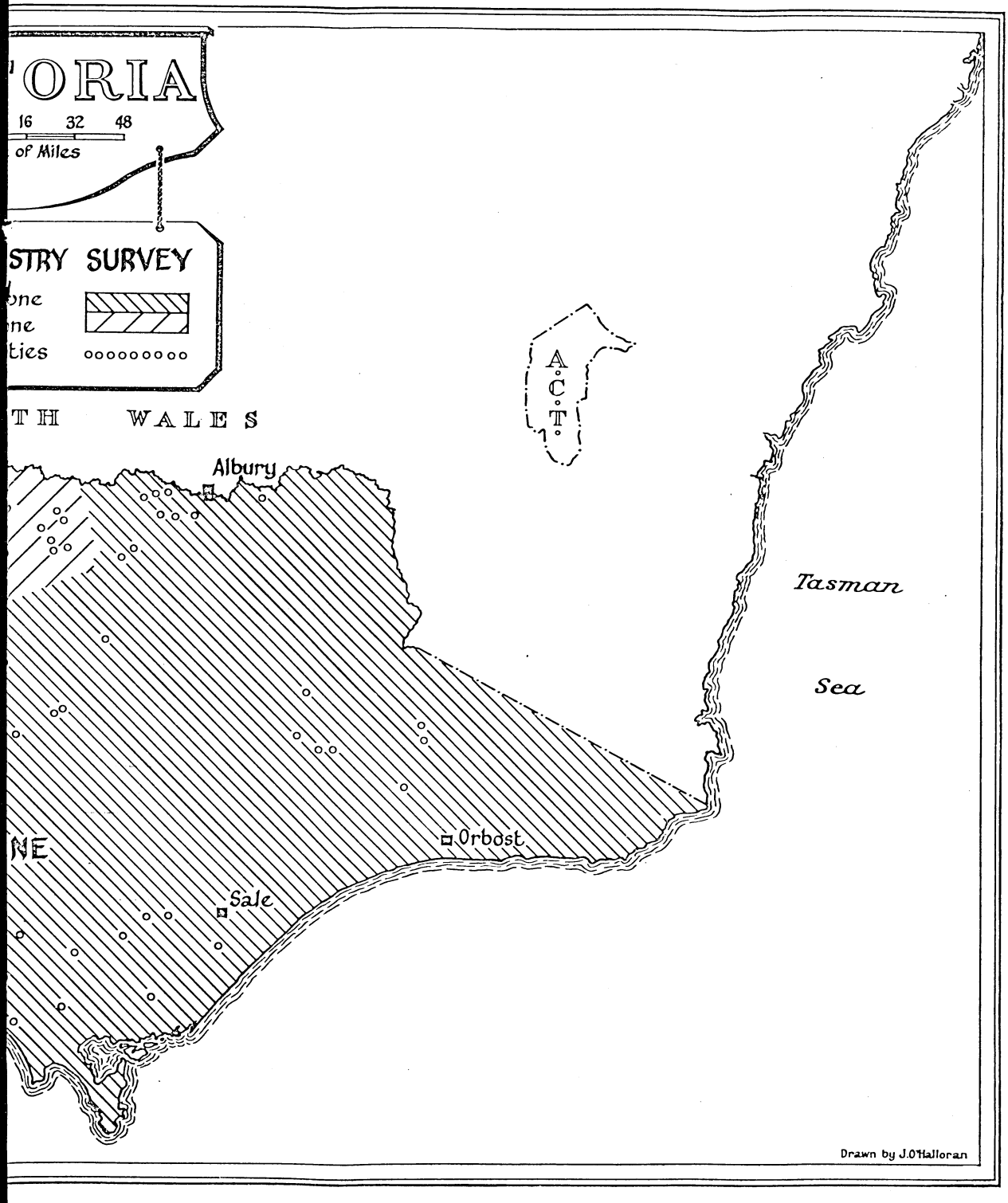
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TABLE No. 30

COSTS PER SHEEP CARRIED: SHEEP ONLY PROPERTIES: HIGH RAINFALL ZONE

Item	Cost	
	£ s. d.	£ s. d.
Labour		
Wages	5 3	
Contracts	1 8	
Shearing and crutching	3 9	
Stores and rations	5	
Total		11 1
Materials		
Fuel	2 8	
Fertilizer	4 9	
Maintenance: plant	2 1	
improvements	3 0	
Other materials	3 3	
Total		15 9
Services		
Marketing: wool and stock	3 3	
Freight and cartage	1 2	
Rates, taxes and insurance	2 2	
Miscellaneous	1 3	
Total		7 10
Rent		4
Depreciation		6 9
Total		2 1 9

The distribution of costs per sheep for the group is shown in Table No. 31. The range was fairly wide, the lowest cost being 19s. and the highest £4 13s. 10d.

TABLE No. 31

FREQUENCY DISTRIBUTION OF COST PER HEAD: SHEEP-ONLY PROPERTIES: HIGH RAINFALL ZONE

Cost per head	Merino	Crossbred wool-growing and breeding	Crossbred wool and fat lambs	Total
Less than £1	—	1	—	1
£1 less than £2	12	9	3	24
£2 ,, ,, £3	8	8	5	21
£3 ,, ,, £4	5	1	2	8
£4 ,, ,, £5	—	—	1	1
Total	25	19	11	55
Average	£2 3s. 0d.	£1 15s. 10d.	£2 14s. 4d.	£2 1s. 9d.

There was a steady gradation in average costs per head for the three groups: crossbred wool-growing and breeding lowest at £1 15s. 10d., then Merino at £2 3s. and crossbred wool and fat lambs highest at £2 14s. 4d.

Income

Three measures of income are used in the analysis: farm income, labour and management income and return to capital and management.

Farm Income

This is the difference between the gross returns as shown in Table No. 22 and the costs in Table No. 28. It is the sum available to meet capital charges, to recompense the operator for his labour and management and to build up reserves. The distribution of farm incomes in the high rainfall zone is shown in Table No. 32. For the 119 properties the average was £2,188.

TABLE No. 32

FREQUENCY DISTRIBUTION OF FARM INCOME: HIGH RAINFALL ZONE

Farm income	Properties
Loss	7
Less than £500	9
£500 and less than £1,000	23
£1,000 ,, ,, ,, £2,000	37
£2,000 ,, ,, ,, £5,000	32
£5,000 ,, ,, ,, £10,000	9
£10,000 ,, ,, ,, £20,000	2
Total	119
Average	£2,188

Seven properties showed losses and 76 had farm incomes of less than £2,000.

Farm Income Per Sheep

On the 55 sheep only properties farm income averaged £2 1s. 8d. per sheep. An analysis by sheep enterprises is shown in Tables Nos. 33 and 34.

Merino and crossbred woolgrowing and breeding properties had much the same average income per head (£2 3s. 0d.). For the former group both returns and costs per head were higher. On fat lamb properties the average income per head was much lower, mainly as a result of higher costs.

TABLE No. 33

FARM INCOME PER SHEEP: SHEEP ONLY PROPERTIES: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Total
Returns per sheep	£4 6s. 0d.	£3 18s. 0d.	£4 3s. 0d.	£4 3s. 5d.
Costs per sheep	£2 3s. 0d.	£1 16s. 0d.	£2 14s. 0d.	£2 7s. 9d.
Farm income per sheep	£2 3s. 0d.	£2 2s. 0d.	£1 9s. 0d.	£2 1s. 8d.

TABLE No. 34

FREQUENCY DISTRIBUTION OF FARM INCOME PER SHEEP: SHEEP ONLY PROPERTIES: HIGH RAINFALL ZONE

Farm income per sheep	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Total
Loss	1	—	2	3
Less than £1	3	3	—	6
£1 and less than £2	6	5	3	14
£2 ,, ,, ,, £3	10	9	6	25
£3 ,, ,, ,, £4	5	2	—	7
Total	25	19	11	55
Average	£2 3s. 0d.	£2 2s. 0d.	£1 9s. 2d.	£2 1s. 8d.

Labour and Management Income

This is obtained by deducting from farm income a standard charge of 5 per cent. on the total capital investment. The average labour and management income for the sample properties, classified by enterprise, is shown in Table No. 35. For the sample as a whole the average was £530; less than the award rate of £658 for station-hands in 1952-53.

The general level of farm income was thus too low to permit a return of 5 per cent. on the value of capital investment and still show an adequate labour and management income. When the properties are classified according to enterprise only two groups, sheep only and sheep-cereal, had a labour and management income sufficient to provide a station-hand's wage for the owner. Table No. 36 shows the frequency distribution of labour and management incomes by enterprises.

TABLE No. 35

AVERAGE LABOUR AND MANAGEMENT INCOME: BY ENTERPRISES: HIGH RAINFALL ZONE

Item	Sheep only	Sheep-cattle	Sheep-cereal	Sheep-dairying	Sheep-other crops	Mixed enterprise	Total
	£	£	£	£	£	£	£
Returns	4,305	6,724	6,240	2,917	5,960	3,100	4,898
Costs	2,156	4,176	2,887	1,811	3,560	1,750	2,710
Farm income	2,149	2,548	3,353	1,106	2,400	1,350	2,188
5% charge on capital	1,345	2,558	1,985	972	1,991	1,025	1,658
Labour and management income	804	−10	1,368	134	409	325	530

TABLE No. 36

FREQUENCY DISTRIBUTION OF LABOUR AND MANAGEMENT INCOME: BY ENTERPRISES: HIGH RAINFALL ZONE

Labour and management income	Sheep only	Sheep-cattle	Sheep-cereal	Sheep-dairying	Sheep-other crops	Mixed enterprise	Total
Loss	14	11	5	8	1	1	40
Less than £500	15	10	2	5	2	—	34
£500 and less than £1,000	5	—	—	4	1	1	11
£1,000 ,, ,, ,, £2,000	12	7	—	1	1	—	21
£2,000 ,, ,, ,, £5,000	8	1	2	—	—	—	11
£5,000 ,, ,, ,, £10,000	1	—	—	—	—	—	1
£10,000 ,, ,, ,, £20,000	—	—	1	—	—	—	1
Total	55	29	10	18	5	2	119

From this it can be seen that the deduction from farm income of 5 per cent. interest on total capital would mean that there was no income for labour and management on 40 properties and one of less than £500 on another 34. In each enterprise group at least half the properties fell into one or other of these two categories. In the sheep-cattle, sheep-cereal and sheep-dairying groups less than one-third made more than £500.

Return to Capital and Management

A third measure of income may be obtained by deducting from farm income an allowance of £658 for the operator's labour, which gives a return to capital and management. This, like farm income, largely reflects the scale of operations. A more satisfactory measure for comparing the financial performance of groups of properties is obtained when the return to capital and management is related to the value of the capital investment, giving the *rate* of return to capital and management. This is shown in Table No. 37.

With a rate of return on the market value of the investment as low as 4.6 per cent., it is clear either that income was unduly depressed in 1952-53 or that the market value of land and improvements—the major element in capitalization—is high in relation to productivity.

From all the information available, 1952-53 was, at the very least, a satisfactory year. Wool production was then a record; lambing percentages were high; the price of wool had been higher only in the boom year of 1950-51 and prices received for fat lambs, cattle and cereals were also good. It therefore seems that the market value for land in the high rainfall zone of Victoria is higher than is warranted by its earning capacity at its current stage of development. Such a conclusion is reinforced by the figures in Table No. 38, which shows the frequency distribution of rates of return on capital. The number of properties making losses or rates of return less than 5 per cent. was 78, spread over the various enterprise groups.

TABLE No. 37

AVERAGE RATE OF RETURN TO CAPITAL AND MANAGEMENT: BY ENTERPRISES: HIGH RAINFALL ZONE

Item	Sheep only	Sheep-cattle	Sheep-cereal	Sheep-dairying	Sheep-other crops	Mixed enter-prise	Total
	£	£	£	£	£	£	£
Returns	4,305	6,724	6,240	2,917	5,960	3,100	4,898
Costs	2,156	4,176	2,887	1,811	3,560	1,750	2,710
Farm income	2,149	2,548	3,353	1,106	2,400	1,350	2,188
Allowance for operator's labour	658	658	658	658	658	658	658
Return to capital and management	1,491	1,890	2,695	448	1,742	692	1,530
	%	%	%	%	%	%	%
Rate of return to capital and management	5.5	3.7	6.8	2.3	4.4	3.4	4.6

TABLE No. 38

FREQUENCY DISTRIBUTION OF RATE OF RETURN TO CAPITAL AND MANAGEMENT: BY ENTERPRISES: HIGH RAINFALL ZONE

Rate of return to capital and management	Sheep only	Sheep-cattle	Sheep-cereal	Sheep-dairying	Sheep-other crops	Mixed enter-prise	Total
Loss	11	3	4	5	1	—	24
Less than 5%	21	18	3	9	2	1	54
5% and less than 10%	17	7	1	4	2	1	32
10% „ „ „ 15%	3	1	1	—	—	—	5
15% „ „ „ 20%	3	—	1	—	—	—	4
Total	55	29	10	18	5	2	119

A comparison of the results of the groups can be misleading. Because of the small number of properties in some of them and the wide range of individual results, differences between group averages must be large before one can be assured that they are not purely fortuitous.

Moreover, an analysis of the results of the whole sample has shown that, in general, larger properties —larger either in area or in capital invested—consistently obtained better returns on capital than smaller ones. Thus, although in the survey the sheep-dairying and mixed enterprise properties were the least profitable (*see* Table No. 37), this is not necessarily true of such properties in general. Not only were holdings in these two groups the smallest both in size and in capitalization, but there were only two mixed enterprise properties in the sample.

TABLE No. 39

AVERAGE RATE OF RETURN TO CAPITAL AND MANAGEMENT: SHEEP ONLY PROPERTIES: BY SHEEP ENTERPRISES: HIGH RAINFALL ZONE

Item	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs
	£	£	£
Returns	5,564	3,832	2,264
Costs	2,756	1,763	1,473
Farm income	2,808	2,069	791
Allowance for operator's labour	658	658	658
Return to capital and management	2,150	1,411	133
Total capitalization	33,620	23,442	17,618
	%	%	%
Rate of return to capital and management	6.4	6.0	0.8

When differences in the scale of operations and in the number of properties in each group are taken into account, the most that can be said is that, under the price conditions ruling in 1952-53, sheep only and sheep-cereal properties (and the latter obtained almost 90 per cent. of their returns from sheep) tended to receive higher rates of return on capital than the other groups.

Table No. 39 shows the rate of return to capital and management of the 55 sheep only properties, classified according to sheep enterprise.

The rate for crossbred wool and fat lamb properties was much less than for the other two groups. To some extent this was due to their smaller size, but even the largest properties of this kind obtained rates of return lower than the average for the other two groups.

Reference to Table No. 33 on p. 23, which sets out returns and costs per head of sheep carried for these three groups of properties, shows that it was in costs that fat lamb properties compared unfavourably with both the other groups. In addition, because of the smaller flocks the allowance for the operator's labour represented a heavier charge per sheep; and finally, capitalization, although lower per property, was much higher per sheep. Figures for the three groups were:

	Per sheep £	s.	d.
Merino	26	4	0
Crossbred woolgrowing and breeding	23	16	0
Crossbred wool and fat lambs	32	10	0

In summary, fat lamb properties in 1952-53 were less profitable than those engaging in other sheep enterprises, not only because they were smaller but also because they were highly capitalized, they used more labour and had greater costs in relation to the number of sheep carried.

Part III: The Wheat-Sheep Zone

The number of properties included in the sample for the wheat-sheep zone of Victoria was 101. For purposes of the survey, this zone consisted of the Wimmera, Mallee and Northern Statistical Divisions. Its boundaries and the approximate location of the properties are shown on the map.

Seasonal conditions in the zone during 1952-53 were good, and rainfall was well above average. Table No. 40 shows sheep and lambs shorn, and wool produced at five-year intervals since 1931-32 as well as for the last five years.

TABLE No. 40

SHEEP AND LAMBS SHORN AND WOOL PRODUCED: WHEAT-SHEEP ZONE: 1931–32 to 1955–56

Year	Sheep and lambs shorn	Shorn wool produced
	'000	'000 lb.
1931–32	6,240	50,437
1936–37	7,520	51,742
1941–42	8,170	62,061
1946–47	6,481	54,311
1951–52	9,675	79,398
1952–53	10,057	85,025
1953–54	9,523	75,240
1954–55	9,739	85,082
1955–56	9,986	93,052

Source: The Victorian Government Statistician.

LAND USE

Seventy-three properties were entirely freehold, twenty were part freehold and part leasehold. The remaining eight properties were held under lease; three under perpetual leases, two under private lease, two under conditional purchase and one under the terms of the Closer Settlement Act.

The total area of the sample properties was 165,860 acres; a summary of its land use is given in Table No. 41.

TABLE No. 41

LAND USE DURING 1952–53: WHEAT-SHEEP ZONE

Land use	Area	Percentage of total
	acres	%
Crop	27,010	16.3
Improved pasture	18,870	11.4
Natural pasture	118,360	71.3
Not used	1,630	1.0
Total	165,870	100.0

Crops covered 16 per cent. of the area, 11 per cent. was under improved pasture, 71 per cent. was natural pasture and a small area amounting to 1 per cent. of the total was used neither for grazing nor for cultivation.

Of the area under crop, 16,500 acres were sown to wheat, 8,000 to oats, 2,000 to barley and the remainder mainly to rye. Millet, lucerne and pumpkins were also grown. Altogether 81 properties had areas under crop.

The acreage under improved pasture is increasing rapidly. At the beginning of the survey period—July 1952—there were almost 19,000 acres of improved pasture. During 1952-53 new pastures covering 4,326 acres were established and in the following year an additional 5,416 acres were sown. Thus in two years the area of improved pasture has increased from 11 per cent. to 17 per cent. of the total area.

Pastures were maintained by topdressing with superphosphate on 49 properties and covering an area of 13,250 acres. Rates of application of fertilizer were as follows:

lb. per acre	Properties
Less than 90	5
90-120	27
120-150	4
150-180	3
More than 180	10

The distribution of improved pasture as a percentage of total area is shown in Table No. 42.

TABLE No. 42

FREQUENCY DISTRIBUTION OF IMPROVED PASTURE AS A PERCENTAGE OF TOTAL AREA: WHEAT-SHEEP ZONE

Area of improved pasture	Properties
Nil	47
Less than 20%	28
20% and less than 40%	12
40% ,, ,, ,, 60%	6
60% ,, ,, ,, 80%	6
80% and more	2
Total	101

TABLE No. 43

OWNERS' ESTIMATES OF POTENTIAL LAND USE: WHEAT-SHEEP ZONE

Type of land	Area	Percentage of total
	acres	%
Arable	147,040	88.6
Suitable for improved pasture	1,470	0.9
,, ,, topdressing	2,340	1.4
,, ,, natural pasture	14,580	8.8
Unimprovable	430	0.3
Total	165,860	100.0

Only 54 properties had improved pastures and on less than half these was the development extended to more than 20 per cent. of their acreage. There is thus room for considerable expansion.

Potential Land Use

Table No. 43 sets out the owners' estimates of the potential of their land.

A comparison of this table with Table No. 41 shows that in 1952-53 27,000 acres were under crop of a potentially arable area of 147,000 acres and suggests that there is great scope for increased cropping. In actual fact all but 15,000 acres (132,000 out of 147,000) of potentially arable land is already cleared for the plough. The difference between the area under crop and the area cleared is largely a measure of the width of the cropping rotation.

The essential point is that of the area cleared but not under crop (some 100,000 acres), less than 19,000 acres was under improved pasture. Notwithstanding the advances which have already been made in the establishment of clover leys in the cropping rotation on some properties, there is still tremendous scope for further development along these lines.

It is through the establishment of clover leys—and leys based perhaps on hardier legumes such as barrel medic, in the drier parts of the zone—that the potential for increased production from both cropping and livestock can be realized.

FEATURES OF THE SHEEP INDUSTRY

Property Size

The area of the properties ranged from 320 to 14,500 acres, the average being 1,642 acres. Table No. 44 shows the distribution of the sample properties by area.

TABLE No. 44

FREQUENCY DISTRIBUTION OF PROPERTY SIZE: WHEAT-SHEEP ZONE

Area	Properties
acres	
Less than 500	6
500 and less than 1,000	39
1,000 ,, ,, ,, 2,000	35
2,000 ,, ,, ,, 5,000	17
5,000 ,, ,, ,, 10,000	2
10,000 and more	2
Total	101

The range in property size is to some extent a reflection of the variation of soils and rainfall in the zone. In areas of lighter soil and lower rainfall properties tended to be larger than where soils were heavier or rainfall higher and more reliable. Allied to these differences in soil and climate was the range in stocking rates. This was from about one and a half sheep to the acre to less than one sheep to nine acres. The average was one sheep to 2.2 acres. The distribution of rates of stocking was as shown in Table No. 45.

TABLE No. 45

FREQUENCY DISTRIBUTION OF STOCKING RATES: WHEAT-SHEEP ZONE

Stocking rate	Properties
acres per sheep	
Less than 1	10
1 and less than 2	47
2 ,, ,, ,, 3	22
3 ,, ,, ,, 4	7
4 ,, ,, ,, 5	10
5 ,, ,, ,, 6	2
6 and more	3
Total	101

Enterprise Classification

Table No. 46 shows the number of properties in each category according to enterprise and also indicates the total and average number of sheep carried.

TABLE No. 46

ENTERPRISE CLASSIFICATION: WHEAT-SHEEP ZONE

Enterprise	Properties	Sheep carried	Average flock size	Average area
	no.	no.	no.	acres
Sheep only	27	20,325	753	1,191
Sheep-cattle	1	460	469	520
Sheep-cereal	68	51,690	760	1,893
Sheep-dairying	4	3,855	964	1,010
Sheep-other crops	1	300	300	450
Total	101	76,630	759	1,642

The sheep only and sheep-cereal categories were the most important and included all but six properties. On the 68 sheep-cereal properties wheat and oats were the principal crops grown. Some barley and rye were also harvested.

The number of sheep only properties is an indication of the reduction in cropping in recent years. Most of this group were regularly engaged in cropping until the last few years.

Sheep Enterprises

The properties were also classified according to the type of sheep enterprise, as shown in Table No. 47.

TABLE No. 47

SHEEP ENTERPRISE CLASSIFICATION: WHEAT-SHEEP ZONE

Sheep enterprise	Properties	Sheep carried
Merino woolgrowing—		
dry sheep	2	4,330
breeding replacements	24	22,590
with crossbred lamb production	3	1,750
Crossbred woolgrowing—		
and breeding	12	8,740
with fat lamb production	58	37,080
Fattening	1	620
Merino/crossbred	1	1,520
Total	101	76,630

Fat lamb production from crossbred ewes was the most common sheep enterprise, the only other two of importance being Merino woolgrowing breeding replacements and crossbred woolgrowing and breeding. To simplify the analysis, some of the sheep enterprise groups have been combined.

Merino dry sheep and Merino breeding replacements—all the properties with entirely Merino flocks—are treated as one group and referred to as " Merino ".

Merino woolgrowing with crossbred lamb production, Merino/crossbred and fattening—properties running both Merino and crossbred sheep—are referred to as " others ".

Subsequent analyses by sheep enterprise are thus confined to these two groups and the two crossbred groups.

Flock Size

The distribution of the survey properties by flock size is shown in Table No. 48.

TABLE No. 48

FREQUENCY DISTRIBUTION OF FLOCK SIZE: WHEAT-SHEEP ZONE

Flock size	Properties
200 and less than 500	41
500 " " " 1,000	43
1,000 " " " 2,000	12
2,000 " " " 5,000	5
Total	101

The average number of sheep carried was 759. Flocks varied from 230 to 3,910 sheep, but 84 of the 101 were less than 1,000.

Breeds of Sheep

Table No. 49 shows the properties classified according to the predominant breed of sheep which they carried; it also shows the total number of each breed.

TABLE No. 49

BREEDS OF SHEEP: WHEAT-SHEEP ZONE

Breed	Properties	Sheep carried	
	no.	no.	%
Merino	30	30,190	39.4
Corriedale	12	6,810	8.9
Polwarth	1	740	1.0
Crossbred	45	27,280	35.6
Comeback	13	11,610	15.1
Total	101	76,630	100.0

Merino sheep accounted for less than 40 per cent. of the total.

Breeding

Ewes

All but four properties had breeding flocks in 1952-53. Table No. 50 shows the distribution of sample properties, classified by sheep enterprise according to the proportion of breeding ewes in the flock.

as many lambs as possible, non-breeding sheep are kept to a minimum.

A total of 41,100 ewes were joined in 1952-53 and Table No. 51 shows their breeds.

Nearly half the ewes joined were crossbred, since this is the type of ewe preferred for fat lamb production.

TABLE No. 50

FREQUENCY DISTRIBUTION OF BREEDING EWES AS A PERCENTAGE OF TOTAL FLOCK: WHEAT-SHEEP ZONE

Proportion of breeding ewes in the flock	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Others	Total
Nil	1	2	—	1	4
10% and less than 20%	3	—	—	1	4
20% ,, ,, ,, 30%	7	2	—	—	9
30% ,, ,, ,, 40%	9	1	2	—	12
40% ,, ,, ,, 50%	4	3	2	—	9
50% ,, ,, ,, 60%	—	1	7	—	8
60% ,, ,, ,, 70%	1	2	7	2	12
70% ,, ,, ,, 80%	—	—	12	1	13
80% ,, ,, ,, 90%	1	—	13	—	14
90% and more	—	1	15	—	16
Total	26	12	58	5	101
Average	31.1%	42.2%	74.2%	39.5%	53.6%

Excluding the four non-breeding properties, the range was from 16 per cent. of ewes to flocks containing breeding ewes and rams only. The differences between the groups is quite distinct. Merino properties aiming at breeding their replacements and at the same time running wethers as wool cutters averaged slightly more than 30 per cent. breeders. Crossbred woolgrowing and breeding properties had a higher average (42 per cent.) because wethers are not normally kept as long and are frequently turned off for hogget mutton. On fat lamb properties, where the usual aim is to produce

In 1952-53 maiden ewes were joined on 76 properties—at 1½ years on 60 and at 2½ on the other 16. Culling, particularly of maiden ewes, was routine practice on only 15 properties; the rate varied from approximatly 3 per cent. to 30 per cent. of maiden ewes. The usual age for casting ewes was five or six years depending to some extent on the season.

Rams

A total of 896 rams, or slightly more than 2 per cent. of the ewes joined, was used on the sample properties. Table No. 52 shows the breeds used and the number and percentage of ewes joined to each breed.

TABLE No. 51

EWES MATED: BY BREEDS: WHEAT-SHEEP ZONE

Breed	Ewes mated	
	no.	%
Merino	10,210	24.9
Corriedale	3,100	7.5
Polwarth	410	1.0
Crossbred	20,100	48.9
Comeback	7,280	17.7
Total	41,100	100.0

TABLE No. 52

BREEDS OF RAM: WHEAT-SHEEP ZONE

Breed	Ewes mated	
	no.	%
Merino	9,450	23.0
Corriedale	4,700	11.4
Border Leicester	11,870	28.9
Dorset Horn	10,770	26.2
Polwarth	530	1.3
Romney Marsh	840	2.0
Southdown	2,050	5.0
Ryeland	890	2.2
Total	41,100	100.0

On Merino properties, all ewes were, naturally, mated to Merino rams. On crossbred woolgrowing properties 36 per cent. of ewes were mated to Merino rams, 41 per cent. to Corriedales and Polwarths, 15 per cent. to Ryelands and 8 per cent. to Romney Marsh; i.e. more than three-quarters to wool-type rams. On fat lamb properties the matings were: 41 per cent. to Border Leicesters, 38 per cent. to Dorset Horns, 12 per cent. to Corriedales and Polwarths and 9 per cent. to Ryelands; i.e. 47 per cent. to "Downs" rams, 41 per cent. to British breed long-wools and 12 per cent. to wool-type rams.

Lambing

Autumn lambing is the rule in the wheat-sheep zone of Victoria. The aim of fat lamb producers is to get lambs off before they are affected by grass-seeds, and if possible to market them before peak supplies depress the market. The distribution of lambing by months was:

March	2	properties
April	20	"
May	38	"
June	22	"
July	8	"
August	3	"
Total	93	properties

In addition there were four properties in which the time of lambing was not controlled, rams running with ewes throughout the year.

Lambing percentages ranged from 7 per cent. on a property near Ararat, where in 1952-53 almost all lambs were lost due to wet cold weather during lambing, to more than 100 per cent. The distribution for properties with breeding flocks is shown in Table No. 53.

The highest figures were obtained on crossbred fat lamb properties, where the average was 80 per cent.

Purchases and Sales

The numbers and types of sheep purchased by the three major groups are shown in Table No. 54.

TABLE No. 54

PURCHASES OF SHEEP: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

Type of sheep	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs
Ewes	1,025	586	11,779
Wethers	1,434	455	1,238
Rams	43	8	85
Total	2,502	1,049	13,102

By far the bulk of the purchases were ewes bought by fat lamb properties as replacements in the breeding flock. Both young and aged ewes were included and the average price was £3 10s. 0d. Both Merino and crossbred woolgrowing properties purchased a few sheep—ewes and wethers—chiefly to build up numbers in cases when lambings had been low. There was a marked difference in the average price paid for rams by Merino and crossbred fat lamb properties. Merino rams purchased by the former group averaged £9 against more than £18 for the rams of various British breeds bought by fat lamb producers.

In some instances it was not possible to determine from property records the exact numbers of the different types of sheep sold. Table No. 55 analyses those sales which could be identified.

TABLE No. 53

FREQUENCY DISTRIBUTION OF LAMBING PERCENTAGE: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

Lambing percentage	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Other	Total
Less than 10%	1	—	—	—	1
30% and less than 40%	1	—	—	—	1
40% " " " 50%	—	2	2	—	4
50% " " " 60%	3	1	7	1	12
60% " " " 70%	3	1	6	—	10
70% " " " 80%	8	2	11	2	23
80% " " " 90%	8	3	14	2	27
90% " " " 100%	—	1	12	—	13
100% and more	—	—	6	—	6
Total	24	10	58	5	97
Average	70.7%	65.9%	80.1%	76.1%	76.7%

TABLE No. 55

SALES OF SHEEP: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

Type of sheep	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs
Ewes			
Young	1,001	50	2,675
C.f.a.	1,727	1,119	9,596
Wethers			
Young	1,362	578	1,667
C.f.a.	1,149	905	—
Lambs			
Fat	—	—	18,884
Store	649	276	1,819

From the data on purchases and sales and the previous information on breeding the movement in sheep numbers for each sheep enterprise can be followed.

During the year Merino woolgrowing properties built up their flocks by nearly 4 per cent. There was a slight increase on crossbred woolgrowing properties and a decline of nearly 10 per cent. on the crossbred fat lamb properties.

Shearing

The earliest shearing was in July and the latest in December with a concentration in August, September—when more than half the properties shore—and October. Shearing was carried out by the owner with hired labour in the great majority of cases; contractors were engaged on only ten properties.

TABLE No. 56

CHANGES IN SHEEP NUMBERS: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Other	Total
Properties	26	12	58	5	101
On hand, 1.7.1952	26,410	8,722	38,274	3,354	76,760
Purchases	2,502	1,049	13,102	3,493	20,146
Natural increase	5,797	2,848	22,291	969	31,095
Total	34,709	12,619	73,667	7,816	128,811
Sales	5,947	2,937	36,790	3,798	49,472
Deaths and rations	1,311	900	2,305	697	5,213
On hand, 30.6.1953	27,451	8,782	34,572	3,321	74,126

Sales from each group of properties were consistent with the sheep enterprise in question: principally aged ewes and wethers with some young cull ewes and some young wethers from both Merino and crossbred woolgrowing properties; predominantly fat lambs and to a lesser extent aged ewes from the fat lamb properties. In the latter group the sale of both young ewes and wethers represents the carry-over of unsold lambs into the following season.

The average price received for fat lambs was £3 6s. 0d. per head. Aged ewes sold by fat lamb properties averaged £1 15s. 0d., the same as for aged Merino ewes and wethers from Merino properties. Cast-for-age ewes from the crossbred woolgrowing properties were generally slightly younger and made about £1 more. Young wethers, both Merino and crossbred, realized almost £4 10s. 0d. per head.

More than half the properties forwarded their wool to brokers for bulk-classing. In 15 instances wool was prepared for sale by qualified classers on the property and in 25 by men with no formal training. Wool which was bulk-classed or handled by qualified men represented 70 per cent. of the clip.

Wool Production

An analysis of fleece weights, by sheep enterprise, is shown in Table No. 57.

TABLE No. 57

FREQUENCY DISTRIBUTION OF CUT PER HEAD OF SHEEP AND LAMBS SHORN: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

Cut per head	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Other	Total
4 lb. and less than 5 lb.	—	—	2	—	2
5 lb. „ „ „ 6 lb.	3	1	4	1	9
6 lb. „ „ „ 7 lb.	1	—	11	—	12
7 lb. „ „ „ 8 lb.	6	4	14	1	25
8 lb. „ „ „ 9 lb.	6	5	14	—	25
9 lb. „ „ „ 10 lb.	7	1	6	2	16
10 lb. „ „ „ 11 lb.	2	1	5	—	8
11 lb. „ „ „ 12 lb.	—	—	2	1	3
12 lb. and more	1	—	—	—	1
Total	26	12	58	5	101
Average	8.5 lb.	8.1 lb.	7.6 lb.	8.9 lb.	8.1 lb.

Merino properties averaged slightly more, and crossbred wool and fat lamb properties slightly less, than the over-all average. The range—from 4.6 lb. to 13.6 lb.—was extremely wide; to some extent, this was due to varying proportions of lambs to sheep in the numbers shorn.

Diseases and Pests

Practically all property owners reported some diseases or pests which were of economic significance and required control. However the average cost for drenches, dips and vermin destruction was only £31 per property or about 1 per cent. of the total.

Fly-strike

Largely as a means of fly-strike control, all properties crutched sheep. Fifty-four crutched all the sheep once a year and 44 more often; three properties crutched ewes only. The mules operation was carried out on two properties, one property operating on ewes and the other on all sheep.

External Parasites

Dipping was carried out on all properties; 87 used plunge dips and 14 spray dips. Arsenical dips were used in 81 instances, benzene hexachloride in 12 and arsenic plus a vegetable compound in the remaining eight.

Diseases and Internal Parasites

In addition to footrot which was active on 16 properties, the most common reports were of enterotoxaemia and black disease, as well as infestation by liver fluke and worms. In all cases suitable control measures were being used.

Rabbits

Only three properties were free from rabbits. Myxomatosis was reputed to have been beneficial on 98 properties, but supplementary measures such as ripping, fumigating, poisoning and hunting with dogs were being undertaken in most cases.

Sheep Feeding Practices

Supplementary feeding of stock is usual during the normal periods of seasonal scarcity in the wheat-sheep zone, but the 1952-53 season was comparatively good and stock were hand-fed on only half the properties. Thirty-eight fed from reserves and 14 purchased their requirements. The quantities varied but averaged 84 lb. of hay per sheep on 37 properties and 38 lb. of oats per sheep on 27 properties. Twelve properties fed both hay and grain.

Fodder reserves, either in the form of hay or grain, were held on 75 properties. The average amount represented 2.2 cwt. of hay and 0.9 bushels of grain per head of sheep carried.

Forage crops, mainly oats, were grown on only 15 of the 101 properties. These were grazed at different periods between April and November but particularly during June, July and August; they provided grazing for an average period of 2.7 months.

FINANCIAL ANALYSIS

Capitalization

The methods of computing total capital investment are set out on p. 4 in the Introduction. Table No. 58 shows the average capital structure for the 101 sample properties.

TABLE No. 58
CAPITAL STRUCTURE: WHEAT-SHEEP ZONE

Item	£	%
Land	15,043	58.4
Water supply	1,103	4.3
Fencing	2,724	10.6
Buildings	1,795	7.0
Land and improvements	20,665	80.3
Plant	2,627	10.2
Sheep	2,270	8.8
Cattle	165	0.6
Other stock	36	0.1
Total stock	2,471	9.5
Total	25,763	100.0

Total capital investment averaged £25,763 and ranged from approximately £8,700 to slightly less than £109,000. The distribution of capital invested is shown in Table No. 59.

TABLE No. 59
FREQUENCY DISTRIBUTION OF CAPITAL: WHEAT-SHEEP ZONE

Capital	Properties
£5,000 and less than £10,000	3
£10,000 ,, ,, ,, £30,000	41
£30,000 ,, ,, ,, £50,000	51
£50,000 ,, ,, ,, £100,000	5
£100,000 ,, ,, ,, £200,000	1
Total	101

Land values varied considerably throughout the zone. For the sheep only properties unimproved values ranged from £3 10s. 0d. to £49 10s. 0d. per acre on a property with a large proportion of irrigation, the average being £12. The value of land and improvements on the sheep only properties averaged £25 per sheep carried.

Returns

In analysing the structure of returns the enterprise categories have been reduced to three: sheep only, sheep-cereal and " other ". The last includes the one sheep-cattle, the four sheep-dairying and the one sheep-other crops properties.

The average gross returns and their structure are shown in Table No. 60.

TABLE No. 60
AVERAGE GROSS RETURNS PER PROPERTY: WHEAT-SHEEP ZONE

Item	Sheep only	Sheep–cereal	Other	Total
RETURNS				
	£	£	£	£
Wool	2,802	2,183	2,708	2,386
Skins and sheep trading	698	693	720	696
Sheep enterprise	3,500	2,876	3,428	3,082
Cereals	—	3,602	67	2,429
Beef cattle	44	39	58	41
Dairying	11	12	1,020	72
Other returns	—	5	67	7
Total	3,555	6,534	4,640	5,631
STRUCTURE OF RETURNS				
	%	%	%	%
Wool	78.8	33.4	58.4	42.3
Skins and sheep trading	19.6	10.6	15.5	12.5
Sheep enterprise	98.5	44.0	73.9	54.7
Cereals	—	55.1	1.4	43.2
Beef cattle	1.2	0.6	1.3	0.7
Dairying	0.3	0.2	22.0	1.3
Other returns	—	0.1	1.4	0.1
Total	100.0	100.0	100.0	100.0

The distribution of gross returns, which ranged from £1,000 to £43,600 is shown in Table No. 61. More than half the properties received from £1,000 to £5,000.

TABLE No. 61
FREQUENCY DISTRIBUTION OF GROSS RETURNS: WHEAT-SHEEP ZONE

Returns	Sheep only	Sheep-cereal	Other	Total
£1,000 and less than £2,000	11	4	1	16
£2,000 ,, ,, ,, £5,000	10	29	3	42
£5,000 ,, ,, ,, £10,000	5	28	2	35
£10,000 ,, ,, ,, £20,000	1	5	—	6
£20,000 ,, ,, ,, £50,000	—	2	—	2
Total	27	68	6	101
Average	£3,555	£6,534	£4,640	£5,631

Returns from Wool

Wool contributed more than 40 per cent. of the total returns and the average price received was 77d. per lb., in comparison with the State average of 79d. In Table No. 62 the distribution of price per lb. by sheep enterprise is shown.

The range was from £1 3s. 0d. to £4 9s. 5d. and more than half the properties received between £2 and £3. As a result of higher prices and better fleece weights returns on Merino properties were substantially greater than in the other groups.

TABLE No. 62

FREQUENCY DISTRIBUTION OF WOOL PRICES: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

Price per pound	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Other	Total
50d. and less than 60d.	—	4	13	1	18
60d. „ „ „ 70d.	—	1	21	—	22
70d. „ „ „ 80d.	5	2	19	2	28
80d. „ „ „ 90d.	8	4	5	1	18
90d. „ „ „ 100d.	4	1	—	1	6
100d. „ „ „ 110d.	5	—	—	—	5
110d. „ „ „ 120d.	4	—	—	—	4
Total	26	12	58	5	101
Average	95.2d.	73.2d.	65.2d.	74.8d.	77.0d.

Wool prices varied from property to property, ranging from 52.3d. to 114.5d. All Merino clips exceeded 70d. and one-third realized 100d. or more. The average price for the group was 95.2d.—more than 20d. better than either crossbred group. No property in these groups reached 100d. and there was also a marked difference in their average price, with fat lamb properties realizing 8d. less.

Taken in conjunction with the average cuts per head the average gross return from wool per sheep and lamb shorn was £2 12s. 2d. per head. An analysis by sheep enterprise is shown in Table No. 63.

Returns from Sheep Trading

In Table No. 56, which shows changes in sheep numbers, sales of 49,472 sheep and purchases of 20,146 are listed. The sales realized £136,447 and the purchases cost £67,279 giving a cash balance of £69,168.

After allowing for inventory changes and the value of sheep consumed as rations the stock trading profit averaged £693 per property or 18s. 2d. per head of sheep carried. On individual properties the return per sheep ranged from a loss of £1 6s. 0d. to

TABLE No. 63

FREQUENCY DISTRIBUTION OF RETURNS FROM WOOL PER SHEEP AND LAMB SHORN: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

Returns from wool	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Other	Total
£1 0s. 0d. and less than £1 10s. 0d.	—	1	2	—	3
£1 10s. 0d. „ „ „ £2 0s. 0d.	—	1	18	1	20
£2 0s. 0d. „ „ „ £2 10s. 0d.	2	5	20	2	29
£2 10s. 0d. „ „ „ £3 0s. 0d.	7	3	13	—	23
£3 0s. 0d. „ „ „ £3 10s. 0d.	9	2	5	1	17
£3 10s. 0d. „ „ „ £4 0s. 0d.	5	—	—	1	6
£4 0s. 0d. „ „ „ £4 10s. 0d.	3	—	—	—	3
Total	26	12	58	5	101
Average	£3 7s. 10d.	£2 9s. 10d.	£2 1s. 10d.	£3 0s. 0d.	£2 12s. 2d.

a profit of more than £4 and there were also considerable differences between the sheep enterprise groups.

Merino properties, with a low proportion of breeding ewes and hence a low proportion of sheep numbers for sale averaged 9s. 10d. per head. Crossbred woolgrowing and breeding properties made rather more from sheep trading—13s. 6d. per head—and crossbred fat lamb properties, where the emphasis is on the breeding and sale of lambs, averaged £1 8s. 1d. per head of sheep carried.

Returns from the Sheep Enterprise

These are the aggregate of the proceeds from the sale of wool and skins and the returns from sheep trading. The frequency distribution per sheep carried is shown in Table No. 64.

The range of return per sheep from the sheep enterprise was £1 10s. 0d. to £7 6s. 0d. and the average £4 1s. 5d. More than half the properties obtained returns of £3 to £5 per sheep.

The performance of the different types of sheep enterprise may be summarized up to this stage as in Table No. 65.

TABLE No. 64

FREQUENCY DISTRIBUTION OF RETURNS PER SHEEP FROM THE SHEEP ENTERPRISE: WHEAT-SHEEP ZONE

Returns per sheep carried	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Other	Total
£1 and less than £2	—	—	1	1	2
£2 „ „ „ £3	4	3	8	—	15
£3 „ „ „ £4	9	3	17	3	32
£4 „ „ „ £5	5	4	17	1	27
£5 „ „ „ £6	6	2	9	—	17
£6 „ „ „ £7	1	—	3	—	4
£7 „ „ „ £8	1	—	3	—	4
Total	26	12	58	5	101
Average	£4 7s. 0d.	£3 17s. 10d.	£3 18s. 5d.	£3 6s. 0d.	£4 1s. 5d.

TABLE No. 65

SUMMARY OF RETURNS PER SHEEP: BY SHEEP ENTERPRISES: WHEAT-SHEEP ZONE

Item	Unit	Merino	Crossbred woolgrowing and breeding	Crossbred wool and fat lambs	Other	Total
Properties	no.	26	12	58	5	101
Average sheep carried	no.	1,035	728	639	758	759
Average sheep and lambs shorn	no.	1,177	942	782	974	912
Breeding ewes	no.	322	308	475	308	407
Ewes to total flock	%	31.1	42.2	74.2	39.5	53.6
Lambs marked	lb.	231	203	383	220	312
Lambs marked to ewes mated	%	72.0	65.9	80.0	71.4	76.7
Cut per head	lb.	8.5	8.1	7.6	8.9	8.1
Price per lb. for wool	pence	95.2	73.2	65.2	74.8	77.0
Gross return from wool per sheep shorn	£ s. d.	3 7 10	2 9 10	2 1 10	3 0 0	2 12 2
Sheep enterprise return per sheep carried	£ s. d.	4 7 0	3 17 10	3 18 5	3 6 0	4 1 5

Merino properties showed high wool returns per sheep and largely because of this they also gave the highest average sheep enterprise returns. The cross-bred fat lamb properties had the lowest returns from wool, but as the result of high sheep trading returns finished with the second best sheep enterprise returns, less than 10s. below the Merino group.

Returns from Cereal Cropping

Cereal cropping was a source of returns on 70 properties, including the 68 in the sheep-cereal group. Of the total cereal returns wheat contributed 87 per cent., barley 7 per cent. and oats 6 per cent. Returns from oats were very low in relation to the area sown (30 per cent. of the total area under crop), because many oat crops were fed off and the bulk of those harvested—either as grain or hay—was used for supplementary feeding or fodder conservation.

Wheat yields in 1952-53 were at a record level of more than 22 bushels per acre. For the 63 sample properties which grew wheat they ranged from less than four bushels per acre to more than 40 bushels. Table No. 66 shows the distribution.

TABLE No. 66

FREQUENCY DISTRIBUTION: WHEAT YIELDS: WHEATGROWING PROPERTIES: WHEAT-SHEEP ZONE

Yield	Properties
Bushels per acre	
Less than 10	8
10 and less than 15	9
15 „ „ „ 20	11
20 „ „ „ 25	10
25 „ „ „ 30	14
30 „ „ „ 35	5
35 „ „ „ 40	4
40 and more	2
Total	63

Among the sheep-cereal properties there was a range from some which obtained almost all returns from sheep with cereals as a small sideline, to others whose main enterprise was cropping with sheep as the sideline. For the group as a whole, cereals represented 55 per cent. of returns but the range was from less than 10 per cent. to more than 90 per cent. Table No. 67 shows the distribution.

TABLE No. 67

RETURNS FROM CEREAL CROPPING AS A PERCENTAGE OF TOTAL RETURNS: SHEEP-CEREAL PROPERTIES: WHEAT-SHEEP ZONE

Returns from cereals as a percentage of total returns	Properties
Less than 20%	11
20% and less than 40%	12
40% „ „ „ 60%	20
60% „ „ „ 80%	16
80% and more	9
Total	68

Returns from Beef

Although more than half the properties ran cattle, only one could be classified as sheep-cattle. In 1952-53 it sold 166 cattle as fats at an average price of £27. Some had been bred on the property and others purchased as stores.

Returns from Dairying

Eleven properties received incomes from dairying. In seven instances it was a third enterprise on sheep-cereal properties and contributed only a small proportion of total returns. On the four sheep-dairying properties the average dairying return was £1,510 with one property receiving over £3,000. This property milked 56 cows and the average for the four properties was 29.

Other Returns

Only six properties received other returns. The one property where they were of more than minor importance obtained slightly more than 20 per cent. of returns from poultry farming.

Costs

The cost structure and average costs of the sample properties are shown in Table No. 68. Allowances for the operator's labour and for interest on capital are introduced at a later stage of the analysis.

TABLE No. 68
COST STRUCTURE: WHEAT-SHEEP ZONE

Item	Costs			
	£	£	%	%
Labour				
Wages	427		14.2	
Contracts	110		3.7	
Shearing and crutching	148		4.9	
Stores and rations	12		0.4	
Total		697		23.2
Materials				
Fuel	258		8.6	
Fertilizer	193		6.4	
Seed	59		2.0	
Fodder	37		1.2	
Packs, bags and twine	76		2.5	
Drenches, dips, &c.	16		0.5	
Shearing supplies	—		—	
Vermin destruction	15		0.5	
Maintenance:				
plant	278		9.3	
improvements	154		5.2	
Total		1,086		36.2
Services				
Freight and cartage	64		2.1	
Marketing:				
wool	98		3.3	
stock	78		2.6	
wheat	174		5.8	
Rates and taxes	114		3.8	
Insurance	49		1.6	
Droving and agistment	9		0.3	
Miscellaneous	92		3.1	
Total		678		22.6
Rent		39		1.3
Depreciation		502		16.7
Total costs		3,002		100.0

The frequency distribution of costs is shown in Table No. 69.

TABLE No. 69
FREQUENCY DISTRIBUTION OF COSTS: BY ENTERPRISES: WHEAT-SHEEP ZONE

Total costs	Sheep only	Sheep-cereal	Other	Total
Less than £500	1	—	—	1
£500 and less than £1,000	6	1	—	7
£1,000 „ „ „ £2,000	8	16	2	26
£2,000 „ „ „ £5,000	11	41	3	55
£5,000 „ „ „ £10,000	1	9	1	11
£10,000 „ „ „ £20,000	—	1	—	1
Total	27	68	6	101
Average	£1,868	£3,472	£2,750	£3,002

Costs for more than half the properties fell between £2,000 and £5,000, the average being £3,002.

Table No. 68 shows that labour accounted for 23 per cent. of total costs, materials for 36 per cent., services for 23 per cent. and rent and depreciation for 18 per cent.

Labour

Wages, the main item here, included both payments made to employees and allowances for unpaid family labour. Such allowances represented 60 per cent. of wages for the sample as a whole.

The permanent labour force on 26 properties consisted of the owner-operator alone and on 17 properties of the owner with family assistance. On 16 properties he had both family and hired assistance, and on 52 hired labour only.

Materials

The major items were fuel, fertilizer and maintenance of plant. Fertilizer (6.4 per cent.) was not nearly so heavy a cost as in the high rainfall zone, notwithstanding the large areas under crop.

Services

Selling charges for wool wheat and stock represented 11.7 per cent. of total costs and more than half all services.

Depreciation

Depreciation was calculated at standard rates as set out on p. 5, and the charge averaged £502 per property, or 16.7 per cent. of total costs.

Interest

Interest paid averaged £33 per property; if it is assumed that the interest rate was 5 per cent. this represents an average debt of only £660 on an investment with a total value of almost £26,000. More than half the properties did not pay any interest at all.

Costs per Sheep

Discussion of costs per sheep is confined to the sheep only properties. The sheep enterprise contributed 98.5 per cent of the total returns for this group, so that all costs incurred can be directly attributed to wool and sheep. The cost per sheep carried averaged £2 10s. 8d. and it ranged from £1 0s. 7d. to £6 7s. 0d.

Table No. 70 shows the composition of the average cost per sheep and Table No. 71 the distribution of costs on individual properties.

TABLE No. 70

COSTS PER SHEEP CARRIED: SHEEP ONLY ENTERPRISE PROPERTIES: WHEAT-SHEEP ZONE

Item	Cost	
	£ s. d.	£ s. d.
Labour		
Wages	11 3	
Contracts	2 10	
Shearing and crutching	3 11	
Stores and rations	5	
Total		14 2
Materials		
Fuel	3 2	
Fertilizer	4 9	
Maintenance:		
plant	2 9	
improvements	2 9	
Other materials	3 7	
Total		17 0
Services		
Marketing: wool and stock	4 1	
Freight and cartage	1 1	
Rates, taxes and insurance	2 10	
Miscellaneous	1 7	
Total		9 7
Rent		5
Depreciation		9 6
Total		2 10 8

TABLE No. 71

FREQUENCY DISTRIBUTION OF COST PER HEAD: SHEEP ONLY PROPERTIES

Cost per head	Properties
£1 and less than £2	8
£2 „ „ „ £3	11
£3 „ „ „ £4	4
£4 „ „ „ £5	2
£5 „ „ „ £6	1
£6 „ „ „ £7	1
Total	27
Average	£2 10s. 8d.

Income

Income can be measured at various levels. The first measure used in this analysis is that of farm income which is the difference between gross returns and gross costs as previously determined.

Farm Income

An analysis of farm income for the 101 sample properties is shown in Table No. 72.

TABLE No. 72

FREQUENCY DISTRIBUTION OF FARM INCOME: BY ENTERPRISES: WHEAT-SHEEP ZONE

Farm income	Sheep only	Sheep-cereal	Other	Total
Loss	2	1	1	4
Less than £500	2	5	—	7
£500 and less than £1,000	7	8	—	15
£1,000 „ „ „ £2,000	7	18	3	28
£2,000 „ „ „ £5,000	7	24	2	33
£5,000 „ „ „ £10,000	2	10	—	12
£10,000 „ „ „ £20,000	—	1	—	1
£20,000 and over	—	1	—	1
Total	27	68	6	101
Average	£1,687	£3,062	£1,900	£2,629

Farm income averaged £2,629. One property suffered a loss of £940 and the highest income was £24,300. On sheep only properties more than half received less than £1,500.

Farm Income per Sheep

The farm income per sheep carried on the 27 sheep only properties averaged £2 5s. 4d. with a range from a loss of £3 to a profit of £4 8s. 0d. Among the sheep only properties there were two groups—12 Merino properties and 11 crossbred wool and fat lamb properties—which can be compared on the basis of farm income per sheep. This is done in Table No. 73.

TABLE No. 73

FREQUENCY DISTRIBUTION OF FARM INCOME PER SHEEP: SHEEP ONLY PROPERTIES: WHEAT-SHEEP ZONE

Farm income per sheep	Merino	Crossbred wool and fat lambs	Others	Total
Loss	—	2	—	2
Less than £1	1	—	—	1
£1 0s. 0d. and less than £1 10s. 0d.	3	—	—	3
£1 10s. 0d. „ „ „ £2 0s. 0d.	2	2	2	6
£2 0s. 0d. „ „ „ £2 10s. 0d.	1	2	1	4
£2 10s. 0d. „ „ „ £3 0s. 0d.	2	1	1	4
£3 0s. 0d. „ „ „ £3 10s. 0d.	2	3	—	5
£3 10s. 0d. „ „ „ £4 0s. 0d.	1	—	—	1
£4 0s. 0d. and more	—	1	—	1
Total	12	11	4	27
Average	£2 6s. 9d.	£2 6s. 2d.	£1 19s. 10d.	£2 5s. 4d.

There was a wide range in each group and the group averages were almost identical.

Labour and Management Income

This is obtained by deducting from farm income a standard charge of 5 per cent. on the total capital investment. The average labour and management income for the sample properties, classified by enterprise, is shown in Table No. 74.

TABLE No. 74

AVERAGE LABOUR AND MANAGEMENT INCOME: BY ENTERPRISES: WHEAT-SHEEP ZONE

Item	Sheep only	Sheep-cereal	Other	Total
	£	£	£	£
Returns	3,555	6,534	4,640	5,631
Costs	1,868	3,472	2,750	3,002
Farm income	1,687	3,062	1,890	2,629
5% charge on capital	1,125	1,345	1,365	1,288
Labour and management income	562	1,717	525	1,341

This indicates that only the sheep-cereal properties earned sufficient to give the owner more than the standard wage for a station hand (£658) in 1952-53. The distribution of labour and management income is shown in Table No. 75.

TABLE No. 75

FREQUENCY DISTRIBUTION OF LABOUR AND MANAGEMENT INCOME: BY ENTERPRISES: WHEAT-SHEEP ZONE

Labour and management income	Sheep only	Sheep-cereal	Other	Total
Loss	7	16	2	25
Less than £500	10	12	1	23
£500 and less than £1,000	3	9	2	14
£1,000 „ „ „ £2,000	4	10	—	14
£2,000 „ „ „ £5,000	3	16	1	20
£5,000 „ „ „ £10,000	—	3	—	3
£10,000 „ „ „ £20,000	—	2	—	2
Total	27	68	6	101

There were 25 properties on which a 5 per cent. charge on capital would leave no income for labour and management. Almost 50 per cent. of the sample properties, these 25 included, had a labour and management income of less than £500. The proportion was even higher—17 out of 27—on sheep only properties. It appears that the market values of many properties were too high to show bank rate of interest on the investment, notwithstanding the high prices of wool and cereals which were current in 1952-53.

Return to Capital and Management

A third measure of income may be obtained by deducting an allowance of £658 for the operator's labour. This gives a return to capital and management and, when expressed as a percentage of capital,

gives a rate of return to capital and management. No attempt has been made to assess the monetary value of the management function.

Table No. 76 gives the average return to capital and management.

TABLE No. 76

AVERAGE RETURN TO CAPITAL AND MANAGEMENT: BY ENTERPRISES: WHEAT-SHEEP ZONE

Item	Sheep only	Sheep-cereal	Other	Total
Returns	3,555	6,534	4,640	5,631
Costs	1,868	3,472	2,750	3,002
Farm income	1,687	3,062	1,890	2,629
Allowance for operator's labour	658	658	658	658
Return to capital and management	1,029	2,404	1,232	1,971
	%	%	%	%
Rate of return to capital and management	4.6	8.9	4.5	7.7
No. of farms	27	68	6	101

The average rate of return to capital and management was 7.7 per cent., and only the sheep-cereal properties returned a higher than average rate. The sheep only properties received a rate of return to capital and management of less than 5 per cent.

Table No. 77 shows a frequency distribution by enterprise of returns to capital and management.

TABLE No. 77

FREQUENCY DISTRIBUTION OF RATE OF RETURN TO CAPITAL MANAGEMENT: BY ENTERPRISES: WHEAT-SHEEP ZONE

Rate of return to capital and management	Sheep only	Sheep-cereal	Sheep-other	Total
Loss	6	10	1	17
Less than 5%	12	22	3	37
5% and less than 10%	4	12	1	17
10% „ „ „ 15%	5	12	1	18
15% „ „ „ 20%	—	5	—	5
20% „ „ „ 25%	—	3	—	3
25% „ „ „ 30%	—	2	—	2
30% „ „ „ 35%	—	1	—	1
35% and more	—	1	—	1
Total	27	68	6	101

Of the 101 properties surveyed, 17 properties made a loss and 54 properties earned less than 5 per cent. on the capital invested. On the other hand a number of properties, particularly in the sheep-cereal groups, showed very handsome returns on capital.

Because they are based on only one year's results, reasons for the better performance of the sheep-cereal properties can only be tentative. An examination of the two groups—sheep-cereal and sheep-only—showed that, although the latter group was not undertaking cash cereal cropping there was no difference in the market value of the land. Returns, however, were considerably lower than where cereals were grown and sold.

In addition, sheep-cereal properties were larger and profitability tended to increase with the scale of operations. It was on large properties which received a major proportion of income from cereals that the highest rates of return to capital were made.

Part IV: Comparison of Zone Results

During the past 25 years increases in sheep numbers in both the high rainfall and wheat-sheep zones of Victoria have been of the order of 50 per cent. There was a steady growth until the drought in 1944 caused a serious decline but subsequently, a far more marked increase to the present level of 23 million occurred.

In the high rainfall zone the major influence underlying the increase in sheep has been the improvement of natural pastures through topdressing and the sowing of introduced clovers and grasses. In the wheat-sheep zone there was first the more general adoption of the wheat-sheep combination in place of the specialized wheat farm and subsequently an increase in the potential for sheep through the spread of ley-farming practices.

A comparison of present land use on the sample properties with owners' estimates of their potential suggests that in the high rainfall zone there is still considerable scope for extending the area under improved pasture. In addition carrying capacity could be increased by lifting the productivity of pastures already established. In 1952-53 the properties were carrying 1.3 sheep to the acre. It does not seem too much to suggest that this figure might be doubled when full development of all properties is achieved. The potential of the wheat-sheep zone is more difficult to measure. Already almost all land on the sample properties which is considered to be arable has been cleared. The development of the area appears to depend on the further extension of ley-farming, in the drier as well as more favoured areas. No attempt is made to assess what this might mean in increased production from cropping and livestock.

The comparison of the zonal results which follows is based on averages only. In almost all instances there were wide variations about these averages, details of which are supplied in the frequency distribution tables in the earlier sections of the report. In addition, the results refer to one season only, so that any conclusions can only be tentative until confirmed by the results for later years which are being obtained by follow-up surveys.

In the high rainfall zone, properties averaged 906 acres of which only 17 were under crop and 484 under improved pasture. In the wheat-sheep zone the average area was 1,642 acres with 267 under crop and 187 under improved pasture. As a result of the higher carrying capacity of land in the former zone the average flock size was 1,106 (1.3 per acre) against 759 (less than one to two acres) in the wheat-sheep zone. There was, of course, also considerable cereal production in this zone.

Enterprises

Table No. 78 shows the property enterprises for the two zones.

TABLE No. 78

ENTERPRISE CLASSIFICATION: BY ZONES

Enterprise	High rainfall	Wheat-sheep
Sheep only	55	27
Sheep-cattle	29	1
Sheep-cereals	10	68
Sheep-dairying	18	4
Sheep-others	5	1
Mixed enterprise	2	—
Total	119	101

Diversity is the characteristic of the high rainfall zone while sheep-cereal and to a lesser extent sheep only properties are the only ones of importance in the wheat-sheep zone.

Both zones, however, have substantially the same pattern of sheep enterprises. Almost 30 per cent. of properties in each zone were running Merinos—breeding replacements in all but a few instances. There was a difference between the zones in that, among the properties which were running crossbreds, a greater proportion in the wheat-sheep zone were producing fat lambs; in the high rainfall zone there were almost as many properties running crossbreds for woolgrowing and breeding as for fat lamb production.

Breeding and Lambing

The greater proportion of fat lamb properties in the wheat-sheep zone is reflected in the figures of breeding and lambing as shown in Table No. 79.

TABLE No. 79
BREEDING, LAMBING AND FLOCK REPLACEMENT: BY ZONES

	High rainfall	Wheat-sheep
	%	%
Ewes mated as a proportion of total flock	41	56
Lambs marked as a proportion of ewes mated	76	74
Lambs marked as a proportion of total flock	31	41
Deaths and rations as a proportion of total flock	11	7
Net natural increase	20	34

In that zone the proportion of ewes was considerably higher (56 per cent. against 41 per cent.). Even though the lambing percentage was lower the number of lambs marked was equivalent to 41 per cent. of the sheep carried, as against 31 per cent. in the high rainfall zone. A proportion of lambs to total flock of 20 per cent. is normally required for flock replacements. The difference—21 per cent. in the wheat-sheep zone and 11 per cent. in the high rainfall zone—gives a rough estimate of the relative turn-off of fat lambs or other young sheep. Wheat-sheep properties were better off to that extent and in addition, with a lower proportion of deaths and rations, had more aged sheep for sale. The effect appears in that zone's better sheep trading results.

Returns from Wool and Sheep

Table No. 80 summarizes the returns per sheep from wool and from the total sheep enterprise.

TABLE No. 80
RETURNS PER SHEEP FROM THE SHEEP ENTERPRISE: BY ZONES

Item	Unit	High rainfall	Wheat-sheep
Sheep carried	no.	1,106	759
Sheep and lambs shorn	no.	1,257	912
Wool produced	lb.	10,246	7,381
Cuts per head	lb.	8.2	8.1
Price per lb.	d.	87.4	77.0
Return per sheep from wool	£ s. d.	2 19 4	2 12 2
Return per sheep from the sheep enterprise	£ s. d.	3 17 10	4 1 5

Cuts per head were similar in the two zones but the price in the high rainfall zone was 10d. per lb. more. Although there were the same proportions of Merinos, those in the high rainfall zone had finer wool. In addition crossbred woolgrowing properties, which were concentrated in this zone, tended to run sheep with better wool than fat lamb properties. As a result wool returns per sheep shorn were 7s. 2d. better in the high rainfall zone.

The return per sheep from the sheep enterprise shown in the last line of Table No. 80 takes into account:

(a) wool return per sheep,
(b) the difference between the number of sheep and lambs shorn and the number carried,
(c) the profit made in sheep trading.

Advantages held by the wheat-sheep zone in the last two of these factors more than offset the greater wool returns in the high rainfall zone.

Returns from Associated Enterprises

In the high rainfall zone some 90 per cent. of returns were obtained from the sheep enterprise with almost all the balance coming from beef cattle and dairying. In the wheat-sheep zone almost as great a proportion of returns was obtained from cereal cropping as from sheep. The structure of returns is compared in Table No. 81.

TABLE No. 81
STRUCTURE OF RETURNS: BY ZONES

Source of returns	High rainfall	Wheat-sheep
	%	%
Sheep	87.9	54.7
Cereal cropping	0.9	43.2
Beef cattle	6.9	0.7
Dairying	3.0	1.3
Other	1.3	0.1

Returns, Costs and Income per Sheep

The simplest measure of costs which affords a comparison between the zones is "costs per head of sheep carried". This however means that the analysis must be confined to sheep only properties; these are a minority in the wheat-sheep zone, and in addition a group which suffer by comparison with sheep-cereal properties there.

A comparison of sheep only properties in the two zones—for returns and income as well as costs—is shown in Table No. 82.

TABLE No. 82

RETURNS, COSTS AND INCOME PER SHEEP: SHEEP ONLY PROPERTIES: BY ZONES

Item	High rainfall	Wheat-sheep
	£ s. d.	£ s. d.
Gross returns per sheep	4 3 5	4 16 0
Costs per sheep	2 7 9	2 10 8
Farm income per sheep	2 1 8	2 5 4

Although wheat-sheep zone properties had higher costs per head the difference in returns was even more in their favour so that they obtained a greater income per sheep.

Return on Capital

A more satisfactory measure, and probably the best available, for comparing the results of the zones as a whole is the rate of return shown on the capital investment. This is set out in Table No. 83.

TABLE No. 83

RATE OF RETURN ON CAPITAL: BY ZONES

Item	High rainfall	Wheat-sheep
	£	£
Returns	4,898	5,631
Costs	2,710	3,002
Farm income	2,188	2,629
Allowance for operator's labour	658	658
Return to capital and management	1,530	1,971
Total capitalization	33,186	25,763
	%	%
Rate of return on capital	4.6	7.7

There was little difference in the relationship between costs and returns in the two zones. Costs represented 55.3 per cent. of returns in the high rainfall zone and 53.3 per cent. in the wheat-sheep zone. In relation to the market value of the investment, however, returns and hence incomes were considerably better in the wheat-sheep zone.

The two main causes of the difference were the high yields and prices of cereals in 1952-53 and the comparative levels of land values, which were greater in the high rainfall zone. This is no doubt due, to some extent, to the smaller risk of bad seasons in the better rainfall areas.

Conclusion

The report reveals that, in 1952-53, the sheep industry in Victoria contained elements of both strength and weakness. Returns, both from sheep and from cropping, were at high levels and incomes were satisfactory on most properties. Indebtedness was very low and the development of properties through pasture improvement and the extension of ley-farming practices was being undertaken.

On the other hand there was a substantial group of properties—many of them small—on which incomes were so low that the continuation of development, financed from income, was not possible. In addition the level of costs, at over 50 per cent. of returns, made the industry vulnerable to downward price movements or adverse seasons.

Results from properties in the wheat-sheep zone for 1953-54 and 1954-55, which were obtained in a follow-up survey last year and published in the *Quarterly Review of Agricultural Economics* in January 1957, show that, in fact, that section of the industry withstood the effects of lower cereal prices extremely well. There was some reduction of incomes in 1953-54 but a substantial recovery in the following year as a result of increased returns from sheep.

Results from the remaining properties in the State are now being obtained for the three years 1953-54, 1954-55 and 1955-56. They should reveal how the industry in the high rainfall zone has reacted to the falling wool prices during that period.

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