

High Country Production Surveys

1965/67–1971/73–1976/78

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This publication records in some detail the results of a series of surveys carried out by the Tussock Grasslands and Mountain Lands Institute, to assess pastoral production in the high country of the South Island.

Surveys were carried out for the years 1965/66, 1966/67, 1971/72, 1972/73, 1976/77 and 1977/78. The results presented here are averages for each of the two year periods, 1965/67, 1971/73 and 1976/78.

The results of the study are presented in two parts:

- a) A tabulation of the aggregate pastoral production, livestock performance and related data at each survey period for 288 runs which were common to all six surveys. These results are presented in part A.
- b) A similar tabulation of data for the 300 runs which were included in the 1976/78 survey. These results are presented in part B.

All the information recorded in earlier surveys (1965/67 and 1971/72) has, where possible, been verified and related to that of the most recent survey (1976/78).

The survey data were obtained during interviews with runholders.

A summary of the results of this survey has been published in the T.G.M.L.I. *Review* (Number 38 1979) and in the proceedings of the T.G.M.L.I. Hill and High Country Seminar held at Lincoln College in July 1979. It is anticipated that the more detailed results contained in this publication will be of most interest to those persons with a close interest in high country pastoral production.

Each contributing runholder has been sent a summary analysis of data for the property, together with a similar summary for the region in which the run is located. At their request, the implications of results of this analysis of data for the property have been discussed with the runholders concerned.

Using information from this survey, the authors have determined the frequency of distribution of many of the production factors relevant to high country farming, and are in the process of determining the appropriate input-output relationships.

Arising from this survey a close study of variations in liveweight of sheep between runs and between seasons and the relationship between liveweight and livestock performance is being planned.

Acknowledgement

Many people have participated with preparation of these results—runholders, managers, accountants, stock-firm and trust-company staff and officers of Government Departments. The authors, who sincerely appreciate their help and patience, are also indebted to past members of the Institute staff for collection and collation of survey data during the 1965-1973 period. They also wish to thank more recent and current members of the Institute staff who have assisted during the 1976-1978 period—Stephen Satterthwaite, Geoff Thompson, Graeme Carroll, John Graham, Brian Robertson, John Small, Pat Prendergast and Nan Thomson. The inspiration for these surveys, begun by the late J. G. Hughes, is remembered. The encouragement of Professor K. F. O'Connor is also acknowledged.

The Survey Region

The following lists show the high country runs surveyed for the collection of data presented. The classification of properties into 'dry', 'moist' and 'wet' zones follows that described by J. G. Hughes (1973) in 'High Country Production Survey 1971/72', Tussock Grasslands and Mountain Lands Institute *Review* No. 26. Dry regions receive less than about 500mm annual rainfall; moist regions receive between 560 and 1000mm annual rainfall; and 'wet' regions receive over 1000mm annual rainfall. The provincial classes (e.g. Otago) do not lie wholly in land districts of the particular province. The name merely indicates where most of the class is found.

The regions used to classify the high country properties are: Marlborough Moist (MM), Canterbury Moist (CM), Canterbury Wet (CW), Otago Dry (OD), Otago Moist (OM), Otago Wet (OW) and Southland Moist (SM). Data for low 'dry' runs in the Canterbury province are included in the Otago Dry category to ensure confidentiality. Runs in the Canterbury Wet and Otago Wet categories are referred to collec-

tively in comments accompanying the data as the 'gorge runs'. Some runs in the survey have been reassigned to different regions since the early survey results published by J. G. Hughes.

For the purpose of rating the changes in pastoral production between the 1965/67, 1971/73 and 1976/78 series of surveys, matching data for 288 runs were assembled and tabulated. A further twelve runs included in the second and third series of surveys did not have matching data for the first series.

The complete list of 300 runs surveyed is:

Marlborough Moist (MM):

Aotea	Leatheam
Awapiri	Molesworth
Blairich	Mt Gladstone
Bluff	Muller
Camden	Rams Head
Clarence Reserve	Rainbow
Cloudy Range	Spray Point
Glazebrook	Stronvar
Glen Alton	The Branch
Glenlee	The Jordan
Hossack	Upcot/Middlehurst
	Waihopai Downs

Canterbury Moist (CM)

Avoca	Curraghmore
Barrosa	Dry Creek
Bendrose	Flockhill
Ben Macleod	Foxs Peak
Ben More	Glenariffe
Ben Ohau	Glenrock (Methven)
Brooksdale	Glenrock (Fairlie)
Castle Hill	Grampians
(Springfield)	Grays Hills
Clent Hills	Guide Hill
Cloudy Peaks	Highland
Craigieburn	Omahau
Holbrook	Peak Hill
Inverary	Rata Peaks
Irishman Creek	Ruataniwha
Lilydale	Sawdon
Lochaber	Simons Hill
Maryburn	

Mt Dalgety
Mt Hay
Mt Hutt
Mt John
Mt Pember
Mt Somers
Mt Torlesse
Mt Whitnow

Simons Pass
Snowdale
Stew Point
Stoneleigh
Tasman Downs
The Wolds
Waitangi
Winterslow
Woodstock

Linnburn
Little Valley
Longacre
Manorside
Matangi
Mid Run

Timburn
Totara Peak

Canterbury Wet (CW):

Braemar
Double Hill
Erewhon
Eskhead
Ferintosh
Glenfalloch
Glenhope
Glen Lyon
Glenmore
Glens of Tekoa
Glentanner
Glenthorne
Glynn Wye
Godley Peaks
Grasmere
Island Hills
Lake Coleridge
Lake Taylor

Lilybank
Longfellow
Manuka Point
Mesopotamia
Mt Algidus
Mt Arrowsmith
Mt Cook
Mt Gerald
Mt Oakden
Mt Possession
Mt White
Pukaki Downs
Richmond
Rhoroborough Downs
St James
The Lakes
The Poplars
Upper Lake Heron

Otago Dry (OD):

Ardgour
Bendigo
Black Forest
Bog Roy
Bonspiel
Cairnmuir
Cloudy Peak
(Tarras)
Cluden
Cone Peak
Criffel
Earnsclough
Galloway
Geordie Hill
Glenburn
Glenroy
Goulburn
Haldon
Hawksburn
Ida Valley

Moutere
Mt Campbell
Mt Difficulty
Mt Rosa
Nine Mile
Northburn
Olrig
Omarama
Otematata &
Aviemore
Peak Valley
Poolburn
Queensberry Hills
Riverside
Roseneath
Rostriever
Rugged Ridges
Streamlands
Te Akatarawa
The Point

Otago Moist (OM):

Ahuriri Downs
Airdrie
Allan Peaks
Avalon
Awakino
Bains
Balmoral
Bargour
Bellamore
Bendhu
Ben Ledi
Benmore
Ben Nevis
Ben Omar
Berwen
Blackstone Hill
Branch Creek
Breast Hill
Buscot
Cambrian Hill
Carrick
Courthill
Craigroy
Dalrachney
Danseys Pass
Deep Creek
Dome Hills
Dunstan Downs
Dunstan Peaks
Dunstanburn
Eastburn
Eweburn
Forest Range
Glenbrook
Glencoe
Glenfoyle
Glenshee
Golden Race
Happy Valley
Hawkdun
Hillend

Kyeburn Syndicate
Lauder
Lindis Peak
Little Mount Ida
Locharburn
Longslip
Lowburn
Manchester
Matakanui
Merivale
Michael Peak
Morven Hills
Mt Alexander
Mt Dasher
Mt Pisa
Obelisk
Ohau Downs
Otamatapaio
Otekaieke
Pine Hill
Pisgah Downs
Poplar Grove
Quailburn
Quailburn Downs
Redcliff
Ribbonwood
Robrossa
Sandy Point
Shelton Downs
Shortlands
Soldiers Syndicate
Spotsburn
Springburn
Sunny Peaks
Tara Hills
Tarnbrae
The Downs
Twinburn
Twin Peaks
Two Mile
Waiorau

Home Hill	Waipori	Glendhu	Rees Valley
Idaburn Hills	Waitiri	Greenstone	Remarkables
Idavale	Wentworth	Halfway Bay	Routeburn
Kawarau		Hunter Valley	Temple Peak
Killermont		Huxley Gorge	Walter Peak
Kyeburn		Lake Hawea	West Wanaka
Otago Wet (OW):			Woodbine
Ben Avon	Lake Ohau		Wyuna
Ben Lomond	Loch Linnhe	Southland Moist (SM):	
Birchwood	Makarora	Allandale	Glen Nevis
Branches	Minaret	Argyle	Glenquoich
Cattle Flat	Motatapu	Cainard	Greenvale (Gore)
Cecil Peak	Mt Albert	Castle Hill (Athol)	Greenvale (Garston)
Closeburn	Mt Aspiring	Eyre Creek	Kingston
Coronet Peak	Mt Burke	Fairlight	Lorne Peak
Dingleburn	Mt Creighton	Glenaray	Nokomai
Earnslaw	Mt Nicholas	Glenlapa	Whitecombe
Elfin Bay	Mt Soho	Glenmore	

PART A

A historic comparison of high country production on 288 runs for the periods 1965/67, 1971/73 and 1976/78.

Index to tables:

- A1 Number of properties in survey and area.
- A2 Sheep numbers by breed.
- A3 Sheep numbers by class.
- A4 Ewes to ram and lambing percentage.
- A5 Sheep sold.
- A6 Sheep bought.
- A7 Wool production.
- A8 Cattle numbers by breed.
- A9 Cattle numbers by class.
- A10 Cows to bull and calving percentage.
- A11 Cattle sold.
- A12 Cattle bought.
- A13 Deer numbers by breed.
- A14 Deer numbers by class.
- A15 Deer 'sold'.
- A16 Deer 'bought'.
- A17 Stock numbers and stock units.
- A18 Land use.

- A19 New Land use-area and fertiliser.
- A20 Maintenance fertiliser.
- A21 Superphosphate use.
- A22 Area of winter feed.

Comments

The following comments, related to the tables in Part A, are not intended to discuss all trends or issues which the data display.

1. Number and area of high country runs (Table A1).

For the purpose of rating the changes in pastoral production between the 1965/67, 1971/73 and 1976/78 surveys, matching data for 288 runs were assembled and tabulated. A further twelve runs included in the second and third surveys did not have matching data for the first series.

The apparent change in areas of high country between the last two surveys was, in most cases, the result of the use of improved records. The criteria which determine the inclusion of pastoral runs in the survey are being reviewed.

Fluctuations in the number of runs per district for the periods 1965/67, 1971/73 and 1976/78 are the result of sales and mergers. This also explains the total of 289 runs for 1965/67. An attempt was made, for comparative purposes, to keep the ground area within each district category constant for all surveys.

2. Sheep numbers (Tables A2 and A3).

Over the period of the survey total sheep numbers in the high country rose relatively uniformly (eight percent from 1965/67 to 1971/73 and six percent from 1971/73 to 1976/78). The regions of greatest increase overall were Canterbury moist (16 percent), Otago dry (19 percent), Otago moist (21 percent) and Southland (17 percent). In Marlborough sheep numbers increased by three percent over the first period of the survey and declined (by nine percent) from 1971/73 to 1976/78.

The merino breed population in the high country increased by 29 percent over the whole survey and now accounts for almost half the flock. Whilst there was a five percent decline in the popularity of halfbred sheep in the earlier phase of the survey this trend then reversed. A seven percent fall in the numbers of all other breeds in the 1965/67 and 1971/73 period was followed by a 28 percent increase.

Since 1965/67 there has been a major change in the composition of most high country flocks toward a higher proportion of breeding ewes. Total ewe numbers increased by 19 percent between the first and second surveys and by 14 percent between the second and third. Breeding ewes now account for 52 percent of the flock compared with 43

percent in 1965/67. Except for the 'gorge' runs of the Canterbury wet region, all others followed this trend which was most marked in the Otago dry and moist areas.

Except for the Canterbury wet and the Southland moist zones, wether populations have declined overall by nine percent. As would be expected the greatest reduction in wether flocks took place in the regions where major increases in breeding ewe numbers occurred.

3. Lambing percentage (Table A4).

Together with a 31 percent increase in the total numbers of ewes mated since 1965/67, the average high country lambing percentage increased six percent. Almost all of this increase was recorded in the 1965/67 to 1971/73 phase of the survey. Of particular note is the nine percent increase in average lambing percentage on the Otago wet runs between 1971/73 and 1976/78.

The halfbred group of flocks averaged 80 percent, 87 percent and 88 percent (computed from aggregate "lambs marked" data not presented here) for the successive surveys. Comparison of the six to eight percent advantage recorded for halfbreds as a group (albeit diverse) over merinos as a breed, reflects the environment in which the halfbred flocks are managed and the effect of hybrid vigour.

4. Sheep traded (Tables A5 and A6).

The 15 percent increase in total sheep numbers from 1965/67 to 1976/78 was accompanied by a 51 percent increase in the number of sheep sold. Sales of sheep for meat increased by 153 percent (133 percent and 9 percent for the respective survey periods). Over the same period store stock sales, excluding 2T ewes, decreased by 19 percent (-24 percent and +6 percent respectively).

From a small base, the large increase in fat sheep sales by 'gorge' runs is a

notable feature of the overall change in the pattern of sheep sales. The reduced sale of annual draft breeding ewes reflects an increase in the number of ewes retained for breeding, and implies a reduction in 'normal' culling margins.

There was a marked increase in the purchases of wether hoggets between each phase of the survey (706 percent and 191 percent respectively). Even though wether numbers have declined in total, 'gorge' runs have continued as major purchasers of wether lambs during 1976/78 to increase their numbers (see Table A3).

5. Wool Production (Table A7).

The 15 percent increase in total sheep numbers over the total survey period was accompanied by a 10 percent increase in total wool production and a consequent four percent fall in production of wool per sheep.

With the exception of Marlborough (where sheep numbers declined) the fall in unit production was general and, though comparatively slight, is a matter requiring careful consideration. From a frequency distribution analysis of the 1976/78 wool production records there is known to be a wide range in the levels of unit production achieved by runholders, even within similar zones (Kerr et al 1979 High Country Production Survey 1965/67, 1971/73 and 1976/78 Tussock Grasslands and Mountain Lands Institute 'Review' No. 38).

6. Cattle numbers (Tables A8 and A9).

Between 1965/67 and 1971/73 the high country cattle herd doubled and over the succeeding five years increased by a moderate 13 percent. During 1965/67 17 percent of runs had no cattle at all. By 1976/78 only five percent of all runs (mostly in Otago) did not have cattle.

The relatively small herds of the Canterbury moist, Otago dry and Otago moist regions increased substantially

(150 percent, 123 percent and 206 percent respectively) between 1965/67 and 1976/78. Cattle numbers in Southland increased by 154 percent.

The already dominant proportion (46 percent) of the Hereford breed in 1965/67 was increased further (63 percent in 1976/78). Angus cattle numbers have increased by 171 percent to comprise 15 percent of the total high country herd. Hereford \times Angus cattle are now of considerably less importance as a class, even though total numbers have increased by 36 percent. For current herd composition refer also to the more complete set of data in Part B of this publication.

The proportion of breeding cows within herds reduced steadily (55 percent to 51 percent) from 1965/67 to 1976/78. An increase in the number of steer calves (203 percent) since 1965/67 has increased the proportion of steer calves wintered to 11 percent (from 8 percent) of the total high country herd.

7. Calving (Table A10).

Over the time of the high country production survey, calving percentages did not alter substantially. Angus herds appear to have a slight advantage over Herefords but are behind Hereford \times Angus herds. It is expected that most of these differences are environmental but are emphasised, in the case of the cross-bred cows, by hybrid vigour.

In 1976/78 calving percentage was spread over a wide range with several very disappointing results.

8. Trading in cattle (Tables A11 and A12).

The number of high country cattle sold increased by 85 percent from 1965/67 to 1971/73. A significant feature of these sales was the large increase (351 percent) in the proportion of stock sold for meat. This trend continued (by 179 percent) in the second phase of the survey in which the number of breeding stock slaughtered increased by 370 percent.

Unfavourable store stock market conditions led to a greater retention of steer calves (see table A9) in anticipation of improved sale prospects. Cattle purchases are a comparatively small part of the pattern of cattle trading in the high country. It is notable however that the higher than usual purchases of all classes of stock noted in the 1971/73 seasons has fallen markedly.

9. Deer (Tables A13, A14, A15 and A16).

In 1976/78, 30 high country runs were in the deer farming business, a completely new form of enterprise for the high country. Deer herds are currently expanding rapidly as other runholders become established in this field, and as live capture, purchases and reproduction enlarge existing operations. More than half the deer on runs in 1976/78 were in the Canterbury wet zone.

Trading in deer in the high country in 1976/78 was comparatively limited but nevertheless was an important source of stock for deer farmers elsewhere.

10. Stock units (Table A17).

The 15 percent increase in the sheep flock, the 129 percent increase in the cattle herd together with the advent of deer farming in the high country have brought about a 38 percent increase in total stock units since 1965/67. Because of the rapid build up in cattle, most of the increase took place between 1965/67 and 1971/73.

The proportion of sheep: cattle overall has changed from 29:1 to 15:1 in numbers and from 4:1 to 2:1 in stock units. With the exception of Marlborough the stock unit sheep to cattle ratios are highest in the more arid zones and lowest in the wetter 'gorge' runs and in Southland.

11. Land use (Tables A18, A19, A20 and A21).

Because the assemblage of infor-

mation on land use in the high country in 1976/78 differs from that recorded in 1971/73, overall comparisons are not possible.

Total 'developed' land in 1971/73 was 281167 ha (nine percent of total area) and 363649 ha (11 percent of total area) in 1976/78. This was an increase of 29 percent. The area of over-sowing and topdressing increased by 39 percent since 1971/73. At the same time the area of overdrilled native grassland decreased by 46 percent.

A pronounced feature of the 1971/73 to 1976/78 survey period was the large (-29 percent) fall in the rate of land development. The Marlborough and Southland regions were exceptions to this trend with recorded increases in the area of new land developed. While the area of new development declined, the average rate of initial fertiliser application increased from 0.22 t/ha to 0.27t/ha.

The fall in the rate of development in the high country has been, in part, matched by an overall 20 percent increase in the area of maintenance superphosphate application to land previously developed. An exception was the Canterbury moist zone which reduced the area maintained by 22 percent.

Total superphosphate application for 1976/78 was five percent greater than that in 1971/73.

12. Winter feed (Table A22).

Hay continued to be the predominant form of winter feed grown in the high country. Lucerne was clearly the preferred crop for hay in the drier regions but was markedly less popular in the 'gorge' runs.

Table A1—Number of properties in survey and area

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Number of properties	23	23	23	46	45	45	37	37	36
Total area (ha)	— 482768	505263		— 382983	388354		— 673840	647193	
Average area (ha)	— 20990	21968		— 8511	8630		— 18212	17977	

Notes: (1) 1971/73 area data are from 1972/73 survey only.

(2) 1976/78 total area data are from 1977/78 survey only.

Table A2—Sheep numbers by breed

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Merino	61627	75616	71981	109862	133523	133054	153080	172635	168293
Romney × Merino ½bd	0	8198	244	73489	74415	96038	8652	100	74
Eng. Leic. × Mer. ½bd	12371	5301	10652	30986	43690	32808	64867	59155	72139
Border Leic. × Mer. ½bd	0	4605	2618	0	5199	6215	0	1314	1224
Lincoln × Merino ½bd	21231	6688	4055	3835	3636	0	12131	0	9472
Corriedale	0	120	0	22460	24430	25440	10953	23076	17675
Romney	0	1648	2229	14576	10350	240	0	29	16
Perendale	0	0	0	0	0	0	0	0	0
Romney × Corriedale	0	0	0	0	3	0	8684	0	0
Border Leic. × Romney	3242	0	3	14197	0	0	1094	0	0
Other	920	260	1776	0	2556	18055	0	221	602
Total	99391	102436	93558	269405	297802	311850	259461	256530	269495

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
45	46	46	86	85	85	35	35	36	17	17	17	289	288	288
-	332176	362408	-	518800	542115	-	538343	537621	-	195430	209027	-	3124340	3191981
-	7221	7878	-	6104	6378	-	15381	14934	-	11496	12296	-	10848	11083

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
147800	166270	186830	132767	200316	209085	71346	99499	100196	0	33	2	676482	847892	869441
46878	39676	33179	159269	162637	148895	72185	49450	41319	110699	120026	112490	471172	454502	432239
2400	3575	0	8928	5836	4214	0	4157	0	0	0	1118	119552	121714	120931
0	4076	5008	0	13310	12157	0	0	0	0	0	0	0	28504	27222
11622	16476	22058	21590	17390	39583	21343	0	18620	3825	4190	7571	95577	48380	101359
33807	31282	34502	33518	33906	37327	17205	4843	233	0	0	0	117943	117657	115177
0	4038	4459	14991	3975	10525	7592	9398	10137	25158	34759	29177	62317	64197	56783
0	0	366	10768	10156	8991	3170	8255	12781	0	3141	12510	13938	21552	34648
0	2	0	4694	475	460	0	0	0	0	0	0	13378	480	460
20	0	1073	7346	3014	0	0	5953	0	0	0	0	25899	8967	1076
0	3927	10676	0	810	7281	0	380	31569	0	204	113	920	8358	70072
242527	269322	289151	393871	451825	478518	192841	181935	214855	139682	162353	162981	1597178	1722203	1829408

Table A3—Sheep numbers by classes

	MM			CM			CW			OD		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Flock Ewes	38463	43057	41357	123488	147256	166843	102717	102548	104967	116445	142334	
Dry 2T Ewes	6274	5641	4464	14806	12621	12035	15199	14662	16549	10693	10304	
Ewe hoggets	20616	12355	11674	59598	43717	46905	51575	28861	29711	51375	38325	
Wether hoggets	—	7935	7462	—	20781	19692	—	21797	23595	—	14650	
Flock wethers	32683	32084	27316	67697	68405	61314	87233	84944	91692	60760	59042	
Rams	1355	1364	1285	3816	5022	5061	2737	3718	2981	3254	4667	
Total	99391	102436	93558	269405	297802	311850	259461	256530	269495	242527	269322	
Properties with no sheep	2	0	1	0	0	0	0	1	1	0	0	

Notes: (1) For 1965/67 ewe hoggets and wether hoggets data were available only as an aggregate for hoggets.
 (2) The ewe hoggets data presented above for 1965/67 are the aggregate ewe hogget and wether hogget data.

OM			OW			SM			All Runs			
76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
180206	161998	223883	258775	79691	84018	100304	71736	85389	91554	694538	828485	944006
7602	11909	4882	6838	5167	3423	5461	1725	3132	1862	65773	54665	54811
45993	75370	55299	61379	33433	20095	25147	31846	24755	24945	323813	223407	245754
14038	—	26061	24038	—	12894	14070	—	12117	9608	—	116235	112503
45396	140021	136005	120839	72117	59034	67488	32467	34668	32978	492978	474182	447023
4916	4573	5695	6649	2433	2471	2385	1908	2292	2034	20076	25229	25311
298151	393871	451825	478518	192841	181935	214855	139682	162353	162981	1597178	1722203	1829408
0	0	0	0	0	0	0	0	0	0	2	1	2

Table A4—Ewes to ram and lambing percentage

	65/67		MM				76/78		65/67		CM	
	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%		
Merino	19252	80.3	24779	89.1	24623	82.5	40646	77.7	47091	83.8		
Romney × Merino ½bd	0	—	4915	80.3	45	86.7	40769	86.0	45166	86.9		
Eng. Leic. × Mer. ½bd	6125	77.2	3597	90.4	6920	92.3	11380	79.1	26949	87.4		
Border Leic. × Mer. ½bd	0	—	940	96.0	2010	99.9	0	—	4178	98.8		
Lincoln × Mer. ½bd	10646	87.0	7017	79.6	2404	87.9	1377	76.0	2220	75.4		
Corriedale	0	—	0	—	0	—	9586	84.4	11296	87.7		
Romney	0	—	0	—	2455	88.0	11104	100.9	7177	100.1		
Perendale	0	—	0	—	0	—	0	—	0	—		
Romney × Corriedale	0	—	0	—	0	—	0	—	0	—		
Border Leic. × Romney	2100	82.1	0	—	0	—	7680	93.1	0	—		
Other	295	78.0	0	—	809	92.2	0	—	2803	80.3		
Total	38418	81.7	41248	86.7	39266	86.0	122542	84.1	146880	86.7		

	65/67		OM				76/78		65/67		OW		76/78	
	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%
M	47419	74.6	77330	78.3	83759	79.4	20536	64.6	36801	69.3	30194	76.2		
R × M	69908	85.7	91276	93.7	88669	91.5	33173	68.1	25482	82.6	16718	83.3		
EL × M	2450	74.9	250	100.0	2759	100.3	0	—	1535	61.3	0	—		
BL × M	0	—	4318	79.7	5004	95.6	0	—	0	—	0	—		
L × M	9783	98.1	10465	97.8	29392	95.7	8804	58.0	0	—	11550	84.6		
C	16953	84.2	21559	92.4	23781	83.2	9475	86.2	2375	84.5	0	—		
R	9870	99.6	5565	95.7	6367	97.1	3417	70.8	7057	87.7	6935	106.4		
P	4362	68.2	4255	80.6	6392	81.2	3600	74.5	6725	83.4	8217	91.5		
R × C	1156	73.9	462	97.4	415	108.4	0	—	0	—	0	—		
BL × R	1497	74.1	2250	94.4	0	—	0	—	4274	82.6	0	—		
Other	0	—	0	—	3858	85.7	0	—	0	—	20082	93.5		
Total	163398	83.1	217730	87.8	250396	87.1	79005	68.6	84249	77.0	93696	85.8		

Note: Lambing % is computed as the $\frac{\text{total lambs marked}}{\text{total ewes to ram}} \times 100$

Total lambs marked and total ewes to ram data used are averages for the two years.

				CW				OD					
76/78		65/67		71/73		76/78		65/67		71/73		76/78	
E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%
52107	80.5	49157	68.3	55632	72.7	51966	71.4	58081	78.4	73021	83.6	97206	83.7
60348	90.6	5394	75.2	0	—	0	—	28769	91.4	26912	102.1	24073	92.8
19663	87.4	29009	69.5	32045	75.4	35827	73.6	1075	70.9	2550	82.4	0	—
2449	108.7	0	—	1644	72.4	1003	81.9	0	—	2949	91.3	1798	118.8
0	—	5070	66.1	0	—	3416	83.3	7202	96.2	11228	100.7	15901	102.7
12477	92.1	5889	75.7	10909	90.3	8775	84.8	21373	92.4	18996	96.6	24555	97.2
0	—	0	—	0	—	0	—	0	—	4800	108.3	3145	101.6
0	—	0	—	0	—	0	—	0	—	0	—	148	124.3
0	—	4432	83.8	0	—	0	—	0	—	2350	108.5	0	—
0	—	845	84.4	0	—	0	—	0	—	0	—	0	—
10427	84.3	0	—	0	—	0	—	0	—	1800	103.7	5580	100.8
157471	86.8	99796	70.2	100230	75.5	100987	73.8	116500	85.2	144606	91.7	172406	89.9

				SM		All Runs					
65/67		71/73		76/78		65/67		71/73		76/78	
E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%	E.toR.	%
0	—	0	—	0	—	235091	74.4	314654	79.2	339855	79.5
51046	75.2	58276	77.1	50461	79.0	229059	81.3	252027	88.2	240314	88.2
0	—	0	—	750	76.0	50039	72.9	66926	81.0	65919	80.8
0	—	0	—	0	—	0	—	14029	88.0	12264	100.9
2775	86.3	3115	85.2	5353	83.5	45657	82.5	34045	92.4	68016	93.6
0	—	0	—	0	—	63276	86.5	65135	92.2	69588	89.9
16610	74.7	25972	83.7	22824	84.5	41001	87.5	50571	90.2	41726	91.6
0	—	1997	90.6	7385	96.6	7962	71.0	12977	83.6	22142	90.6
0	—	0	—	0	—	5588	81.8	2812	106.7	415	108.4
0	—	0	—	0	—	12122	88.3	6524	86.7	0	—
0	—	0	—	0	—	295	78.0	4603	89.4	40756	91.4
70431	75.6	89360	79.6	86773	82.3	690090	79.3	824303	84.8	90995	85.5

Table A5—Sheep sold

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Fat lambs	5227	12686	11216	21393	46793	50811	2078	7838	11977
Store lambs	2531	4390	3192	17161	9801	16069	10130	11950	8736
Aged ewes for breeding	6830	12474	3832	19879	19589	19595	17169	13279	12053
Aged ewes for meat	825	1494	2266	3058	10051	8720	440	3981	1785
Aged wethers for meat	980	4085	2105	4824	8982	6006	1955	7344	5243
Aged store wethers	3698	2162	2371	8382	4453	3411	8101	7090	3169
2T ewes for meat	0	117	0	161	447	834	0	0	0
2T ewes for breeding	1161	876	383	3540	3792	4652	1511	1848	1934
2T wethers for meat	9	31	50	449	1946	1795	94	357	223
Store 2T wethers	548	491	486	924	842	707	1477	1320	844
Rams	187	117	71	598	446	320	317	548	138
Total	22006	38923	25972	80369	107142	112920	43272	55555	46102

Table A6—Sheep bought

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Rams	304	313	242	551	625	569	572	631	638
Lambs	40	0	180	835	475	75	889	200	500
Ewe hoggets	0	30	350	0	120	329	0	0	10
Wether hoggets	0	0	50	0	0	1210	111	306	1752
2T ewes	156	208	480	120	0	523	565	10	237
2T wethers	478	0	209	250	75	300	1032	714	653
Aged ewes	522	425	87	1815	1097	740	114	286	671
Aged wethers	196	210	448	63	83	650	92	680	0
Total	1696	1186	2046	3634	2475	4396	3375	2827	4461

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
30138	59366	75548	40373	90480	104504	7383	24726	35615	15185	28800	25947	121777	270689	315618
13573	11787	14255	17410	14485	23709	9178	5050	5932	2913	2984	8092	72896	60447	79985
17600	13792	12476	25051	20663	21582	7168	5115	4618	8374	9377	7882	102071	94289	82038
2146	7619	11632	3746	15144	17493	1559	5896	6107	1774	3954	4626	13548	48139	52629
3470	5554	2954	8170	15779	11193	1685	5655	4342	2523	4410	3478	23607	51809	35321
6245	6041	3607	11762	6412	3686	4519	1290	530	2776	1680	1102	45483	29128	17876
203	0	165	194	0	95	0	50	34	0	0	0	558	614	1128
2587	3581	4508	3172	3685	3302	969	832	1288	882	679	1566	13822	15293	17633
79	723	487	757	248	272	0	75	8	0	88	35	1388	3468	2870
2732	1997	1964	2171	1849	561	909	752	547	453	514	561	9214	7765	5670
368	748	798	30	88	434	52	113	148	0	63	16	1562	2123	1925
79141	111208	128394	112836	168833	186831	33422	49554	59169	34880	52549	53305	405926	583764	612693

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
700	884	797	1129	1334	1555	491	506	515	519	515	427	4264	4808	4743
65	284	810	2379	1468	2253	364	1466	410	204	608	310	4776	4501	4538
0	0	340	0	0	250	625	590	1408	0	0	441	625	740	3128
0	0	0	290	2128	3037	0	800	3349	0	0	0	401	3234	9398
198	785	979	1201	649	1321	714	1089	1878	625	546	475	3579	6521	5893
111	0	0	362	548	1081	2365	135	1883	89	0	0	4687	1472	4126
900	646	2258	2829	7530	5404	391	1826	3646	848	95	604	7419	11905	13410
768	248	92	3948	1416	970	588	776	1879	300	158	0	5955	3571	4039
2742	2847	5276	12138	15073	15871	5538	7188	14968	2583	1922	2257	31706	33518	49275

Table A7—Wool production

	MM			CM			CW			
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67
No. of properties	23	23	23	46	45	45	37	37	36	45
Total wool (kg)	426292	429436	408661	1045216	1113669	1157321	928305	890038	930141	1030730
Wool per sheep (kg)	4.29	4.19	4.38	3.88	3.74	3.71	3.58	3.47	3.45	4.41
Wool per hectare (kg)	—	0.89	0.81	—	2.91	2.98	—	1.32	1.44	—

Notes: (1) Areas used for wool shorn per hectare data are computed from total areas of properties with sheep.

(2) Area data for 1971/73 are from 1972/73 survey.

Area data for 1976/78 are from 1977/78 survey.

Table A8—Cattle numbers by Breed

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Hereford	2646	2971	8971	2436	4489	5855	5084	9563	12258
Angus	870	2819	4928	2031	4225	5169	2569	3329	5393
Hereford/Angus	9098	16540	13989	52	1637	1945	2152	3301	1687
Shorthorn	0	0	1	375	120	54	0	0	0
Hereford/Shorthorn	0	0	0	122	50	0	0	0	0
Shorthorn/Angus	0	0	4	263	1512	153	0	0	0
Galloway	0	117	39	0	120	89	0	1	0
Galloway/Hereford	322	565	78	0	0	0	0	0	152
Galloway/Angus	0	0	0	268	0	0	0	0	0
Galloway/Shorthorn	0	0	0	0	177	279	0	0	0
Friesian and Friesian cross	0	12	2	0	40	0	0	41	0
Other	0	1	30	0	59	319	0	3	1
Total	12936	23025	28042	5547	12429	13863	9805	16241	19491

Note: Figures shown exclude dairy cows.

OD			OM			OW			SM			All Runs		
71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	
46	46	86	85	85	35	35	36	17	17	17				
1143619	1234797	1549094	1735455	1762964	702478	670783	754041	508601	578960	592285	6190716	6561960	6840210	
4.25	4.27	3.93	3.84	3.68	3.64	3.69	3.51	3.64	3.57	3.63	3.88	3.81	3.74	
3.44	3.40	—	3.35	3.25	—	1.25	1.40	—	2.96	2.83	—	2.10	2.14	

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
2078	4957	6310	4283	13867	16342	7541	15468	19535	1385	6940	10321	25453	58255	79592
79	695	698	1179	1375	2144	131	162	414	262	345	553	7121	12950	19299
0	348	298	456	2720	1210	1074	3232	511	2920	3546	1813	15752	31325	21453
362	516	135	184	404	242	0	6	18	0	5	11	921	1051	461
535	1092	853	311	799	580	691	0	55	452	0	0	2111	1941	1488
54	0	19	0	0	31	0	0	0	0	0	0	317	1512	207
570	502	0	158	355	152	584	3	0	0	0	0	1312	1098	280
30	20	334	0	36	0	557	1338	747	0	2	0	909	1961	1311
0	166	0	138	0	0	0	0	0	0	0	0	406	166	0
280	19	0	298	6	0	0	0	0	0	0	0	578	202	279
29	150	0	0	270	568	0	22	0	0	0	0	29	535	570
0	61	329	0	47	148	0	22	109	0	0	28	0	193	964
4017	8526	8976	7007	19879	21417	10578	20253	21389	5019	10862	12726	54909	111189	125904

Table A9—Cattle numbers by class

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Breeding cows	5349	9276	11421	3158	7150	7256	6101	9706	10998
1½ year heifers	1658	3048	3362	743	1776	1548	1255	2210	2565
Heifer calves	1300	3377	4014	724	1828	2055	1047	2514	2675
Steer calves	1673	3077	3479	437	800	1528	566	820	1385
Adult steers	2639	3728	5129	390	521	1135	625	607	1048
Bulls	317	519	637	95	354	341	211	382	824
Dairy cows	6	11	14	15	23	16	11	30	15
Total	12942	23036	28056	5562	12452	13879	9816	16269	19510
Properties with no cattle	1	0	0	9	2	1	3	1	2

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
2149	3951	3932	4211	10332	11605	5891	12624	12441	3174	6238	6911	30033	59277	64564
485	1069	1056	849	2764	2250	1439	2567	2411	618	1203	1348	7047	14637	14540
306	1221	1431	624	3202	3161	1428	2948	2947	382	1784	1917	5811	16874	18200
423	809	1342	385	1243	2131	628	1058	1906	271	1146	1507	4383	8953	13278
558	1098	951	717	1841	1815	955	479	1170	449	213	774	6333	8487	12022
96	378	264	221	497	454	237	577	514	125	254	269	1302	2961	3303
10	11	10	44	26	16	21	22	14	0	24	16	107	147	101
4027	8537	8986	7051	19905	21432	10599	20275	21403	5019	10862	12742	55016	111336	126008
10	8	5	21	5	6	2	0	0	3	0	0	49	16	14

Table A10—Cows to bull and calving percentage

	65/67		MM 71/73		76/78		65/67		CM 71/73	
	C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%
Hereford	1080	73.5	1017	85.3	3481	81.2	1407	82.0	2655	78.3
Angus	468	86.5	637	76.9	1182	79.9	1115	90.2	2120	81.2
Hereford/Angus	3591	93.1	6955	84.5	5654	85.9	0	—	977	83.2
Shorthorn	0	—	0	—	0	—	265	83.8	52	75.0
Hereford/Shorthorn	0	—	0	—	0	—	91	89.0	26	96.2
Shorthorn/Angus	0	—	0	—	0	—	134	82.1	808	90.3
Galloway	0	—	0	—	54	96.3	0	—	70	78.6
Galloway/Hereford	210	76.2	146	84.9	0	—	0	—	0	—
Galloway/Angus	0	—	0	—	0	—	146	90.4	0	—
Galloway/Shorthorn	0	—	0	—	0	—	0	—	55	83.6
Friesian and Friesian cross	0	—	0	—	0	—	0	—	14	71.4
Other	0	—	0	—	0	—	0	—	0	—
Total	5349	87.9	8755	84.0	10371	83.7	3158	85.7	6777	81.4

	OM				OW							
	65/67 C.toB.	71/73 C.toB.	76/78 C.toB.	76/78 %	65/67 C.toB.	71/73 C.toB.	76/78 C.toB.	76/78 %				
H	2629	81.1	6792	82.6	10420	80.0	4157	81.5	8806	76.1	11567	77.9
A	662	85.8	479	87.3	822	83.5	100	91.0	121	82.6	326	80.7
A×H	343	88.6	1785	85.4	493	80.9	760	72.4	2030	76.7	330	70.9
S	115	67.8	185	67.6	196	85.2	0	—	0	—	0	—
H×S	132	84.1	303	82.8	331	87.9	324	87.7	0	—	0	—
A×S	0	—	0	—	0	—	0	—	0	—	0	—
G	90	62.2	265	74.7	82	86.6	300	85.0	0	—	0	—
G×H	0	—	0	—	0	—	217	76.1	935	70.5	485	76.1
G×A	82	79.3	0	—	0	—	0	—	0	—	0	—
S×G	148	87.8	0	—	0	—	0	—	0	—	0	—
F	0	—	40	77.5	232	78.9	0	—	0	—	0	—
Other	0	—	0	—	83	68.7	0	—	0	—	0	—
	4201	82.0	9849	82.8	12659	80.5	5858	80.8	11892	75.9	12708	77.8

Note: Calving % is computed as:

$$\frac{\text{total calves marked for breed for district}}{\text{total cows to bull for breed for district}} \times \frac{100}{1}$$

This method differs from that used in previous publications. Averages for the two years were used to compute the data.

CW						OD							
76/78		65/67		71/73		76/78		65/67		71/73		76/78	
C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%
4051	84.9	3263	78.9	4866	79.5	7464	79.6	1207	83.1	2348	82.8	3621	87.0
2674	87.4	1574	77.0	1862	77.7	2491	75.6	45	84.4	138	83.3	305	89.2
980	84.7	1259	80.2	2375	78.3	1089	82.6	0	—	340	92.1	136	86.8
25	88.0	0	—	0	—	0	—	144	86.8	115	85.2	10	80.0
0	—	0	—	0	—	0	—	217	81.6	480	86.5	263	83.7
75	81.3	0	—	0	—	0	—	33	97.0	0	—	0	—
161	81.4	0	—	0	—	0	—	400	87.5	240	75.4	0	—
0	—	0	—	0	—	84	86.9	0	—	0	—	194	72.2
0	—	0	—	0	—	0	—	0	—	205	78.0	0	—
0	—	0	—	0	—	0	—	78	69.2	0	—	0	—
0	—	0	—	35	91.4	0	—	6	33.3	40	107.5	0	—
190	83.2	0	—	0	—	0	—	0	—	0	—	36	88.9
8156	85.6	6096	78.7	9138	78.8	11128	79.1	2130	83.6	3906	83.7	4565	86.3

SM						All Runs					
65/67		71/73		76/78		65/67		71/73		76/78	
C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%	C.toB.	%
980	80.8	3813	79.0	5501	82.0	14723	80.4	30297	79.5	46105	80.7
230	80.4	198	91.9	398	89.2	4194	83.6	5555	80.5	8198	82.2
1709	79.2	2324	83.4	849	90.0	7662	85.6	6786	82.7	9531	85.0
0	—	0	—	0	—	524	81.1	352	74.4	231	85.3
255	77.6	0	—	0	—	1019	83.5	809	85.4	594	86.0
0	—	0	—	0	—	167	85.0	808	90.3	75	81.3
0	—	0	—	0	—	790	83.7	575	75.5	297	85.5
0	—	0	—	0	—	427	76.1	1081	72.4	763	76.3
0	—	0	—	0	—	228	86.4	205	78.0	0	—
0	—	0	—	0	—	226	81.4	55	83.6	0	—
0	—	0	—	0	—	6	33.3	129	89.9	232	78.9
0	—	0	—	19	78.9	0	—	0	—	328	79.8
3174	79.6	6335	81.0	6767	83.4	29966	82.4	55652	80.6	66354	81.6

Table A11—Cattle sold

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Breeding cows	223	930	138	178	307	415	323	511	431
Cows for meat	506	220	2139	86	344	1374	187	315	1251
Heifers	465	880	1082	137	150	756	356	287	319
Heifer calves	393	458	495	580	1057	1602	868	1112	1686
Steer calves	317	1327	1002	588	1875	1963	898	2731	2920
Store steers	2123	1844	1980	595	455	367	791	562	498
Prime steers	0	667	1175	1	361	558	56	76	270
Meat bulls	60	72	131	15	64	91	17	70	66
Total	4087	6398	8142	2180	4613	7126	3496	5664	7441

Table A12—Cattle bought

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Cows	11	45	95	18	84	114	61	18	0
Heifers	42	180	87	205	228	5	47	133	0
Heifer calves	0	329	54	114	147	161	31	18	0
Steer calves	55	312	25	25	12	16	145	30	0
Steers	466	160	55	78	0	8	12	0	0
Bulls	59	107	131	26	82	52	42	85	76
Total	633	1133	447	466	553	356	338	284	76

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
121	19	137	191	254	175	318	88	45	63	80	6	1417	2189	1347
45	275	1257	43	471	2152	110	355	1722	103	287	749	1080	2267	10644
97	112	686	334	253	1559	280	104	948	304	59	673	1973	1845	6023
310	577	663	965	1435	2351	841	1644	2055	407	1070	980	4364	7353	9832
369	888	1037	947	2880	3129	915	3438	3116	438	2006	1198	4472	15145	14365
618	107	323	733	817	1303	897	340	762	548	196	814	6305	4321	6047
0	1055	828	0	605	1425	14	216	555	0	221	311	71	3201	5122
15	47	199	25	116	130	28	61	124	5	39	52	165	469	793
1575	3080	5130	3238	6831	12224	3403	6246	1868	1968	3958	4783	19847	36790	54173

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
87	17	88	101	388	10	67	13	112	32	120	13	377	685	432
88	310	32	280	1059	201	132	227	40	66	187	0	860	2324	365
29	147	144	70	535	273	97	170	122	15	59	15	356	1405	769
275	423	366	145	260	216	0	75	34	0	113	13	645	1225	670
150	506	24	168	1032	581	17	0	33	12	204	40	903	1902	741
17	69	25	46	158	81	37	116	86	37	69	50	264	686	501
646	1472	679	810	3432	1362	350	601	427	162	752	131	3405	8227	3478

Table A13—Deer numbers by breed

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Red	—	—	142	—	—	318	—	—	1753
Fallow	—	—	0	—	—	1	—	—	15
Other	—	—	0	—	—	0	—	—	0
Total	—	—	142	—	—	319	—	—	1768

Table A14—Deer numbers by class

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Hinds	—	—	140	—	—	132	—	—	779
Fawns	—	—	0	—	—	102	—	—	463
Stags	—	—	2	—	—	85	—	—	526
Total	—	—	142	—	—	319	—	—	1768
Properties with deer	—	—	3	—	—	6	—	—	8

Table A15—Deer 'sold'

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Fawns	—	—	0	—	—	0	—	—	47
Hinds	—	—	3	—	—	18	—	—	67
Stags	—	—	3	—	—	33	—	—	19
Total	—	—	6	—	—	51	—	—	133

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
—	—	183	—	—	119	—	—	228	—	—	258	—	—	3001
—	—	0	—	—	16	—	—	103	—	—	0	—	—	135
—	—	0	—	—	0	—	—	0	—	—	0	—	—	0
—	—	183	—	—	135	—	—	331	—	—	258	—	—	3136

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
—	—	79	—	—	80	—	—	207	—	—	143	—	—	1560
—	—	70	—	—	29	—	—	42	—	—	85	—	—	791
—	—	34	—	—	26	—	—	82	—	—	30	—	—	785
—	—	183	—	—	135	—	—	331	—	—	268	—	—	3136
—	—	2	—	—	4	—	—	3	—	—	4	—	—	30

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
—	—	20	—	—	0	—	—	70	—	—	0	—	—	137
—	—	0	—	—	0	—	—	70	—	—	1	—	—	159
—	—	0	—	—	0	—	—	20	—	—	18	—	—	93
—	—	20	—	—	0	—	—	160	—	—	19	—	—	389

Note: Deer 'sales' include all deer sales and disposals.

Table A16—Deer 'bought'

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Fawns	—	—	2	—	—	29	—	—	12
Hinds	—	—	4	—	—	35	—	—	121
Stags	—	—	5	—	—	37	—	—	60
Total	—	—	11	—	—	101	—	—	193

Note: Deer 'bought' includes all deer purchased or captured.

Table A17—Stock numbers and stock units

	MM			CM			CW			OD		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Properties with sheep	21	23	22	46	45	45	37	36	35	45	46	46
Properties with cattle	22	23	23	37	43	44	34	36	34	35	38	41
Properties with deer	—	—	3	—	—	6	—	—	8	—	—	2
Total sheep numbers	99391	102436	93558	269405	297802	311850	259461	256530	269495	242527	269322	298151
Total cattle numbers	12942	23036	28056	5562	12452	13879	9816	16269	19510	4027	8537	8986
Total deer numbers	—	—	142	—	—	319	—	—	1768	—	—	183
Stock units—sheep	75340	78424	71977	207703	231965	245510	197252	195386	204607	188246	212162	239234
Stock units—cattle	63457	111394	136230	28675	64343	69951	51833	84673	100667	20679	42519	43709
Stock units—deer	—	—	299	—	—	615	—	—	3494	—	—	341
Total stock units	138797	189818	208506	236378	296308	316076	249115	280059	308768	208925	254681	283284
Total area (ha)	—	482768	505263	—	382983	388354	—	673840	647193	—	332176	362408
Stock units per hectare	—	0.39	0.41	—	0.77	0.81	—	0.41	0.48	—	0.77	0.78

Notes: (1) Area data are total property areas for district.
 1971/1973 area is from 1971/72 survey data only.
 1976/78 area is from 1977/78 survey data only.

(2) For comparison, number of deer in 1965/67 and 1971/73 is assumed to be zero.

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
-	-	0	-	-	15	-	-	4	-	-	0	-	-	62
-	-	0	-	-	26	-	-	183	-	-	1	-	-	370
-	-	0	-	-	5	-	-	17	-	-	0	-	-	124
-	-	0	-	-	46	-	-	204	-	-	1	-	-	556

OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
86	85	85	35	35	36	17	17	17	287	287	286
65	80	79	33	35	36	14	17	17	240	272	274
-	-	4	-	-	3	-	-	4	-	-	30
393871	451825	478518	192841	181935	214855	139682	162353	162981	1597178	1722203	1829408
7051	19905	21432	10599	20275	21403	5019	10862	12742	55016	111336	126123
-	-	135	-	-	331	-	-	258	-	-	3136
301030	353488	378841	147827	141106	166776	109131	127267	129146	1226559	1339798	1436091
37213	100915	108810	54626	106489	110400	26756	55469	64440	283239	565802	634207
-	-	269	-	-	683	-	-	488	-	-	6189
338243	454403	487920	202453	247595	277859	135887	182736	194074	1509798	1905600	2076487
-	518800	542115	-	538343	537621	-	195430	209027	-	3124340	3191981
-	0.88	0.90	-	0.46	0.52	-	0.94	0.93	-	0.61	0.65

(3) Stock units used:

Flock ewes	0.9	Breeding cows, Dairy cows	6.0
Dry 2T ewes, Flock wethers	0.7	1½ yr. heifers, Older steers	4.5
Ewe hoggets, wether hoggets	0.6	Heifer calves, Steer calves	3.5
Rams	0.8	Bulls	5.0
Hinds	2.1		
Fawns	1.4		
Stags	2.3		

Table A18—Land use

	MM			CM			CW			OD		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Cultivated pasture (ha)	—	2049	2034	—	9875	11607	—	6256	5806	—	5976	4581
Overdrilled pasture (ha)	—	166	931	—	2632	1785	—	192	10	—	3012	1705
OS/TD pasture (ha)	—	32781	49969	—	20541	25334	—	17548	22085	—	34501	52715
Irrigated pasture (ha)	—	—	27	—	—	128	—	—	184	—	—	3123
Dryland lucerne (ha)	—	—	287	—	—	1277	—	—	593	—	—	3272
Irrigated lucerne (ha)	—	—	0	—	—	41	—	—	16	—	—	676
Lucerne (ha)	—	148	—	—	1647	—	—	376	—	—	4498	—
Fallow (ha)	—	—	22	—	—	436	—	—	194	—	—	311
Crops (ha)	—	152	57	—	1950	994	—	785	664	—	532	573
Trees (ha)	—	—	9433	—	—	3861	—	—	8857	—	—	68
Unimproved (ha)	—	—	442503	—	—	342891	—	—	608784	—	—	295384
Total area (ha)	—	482768	505263	—	382983	388354	—	673840	647193	—	332176	362408

OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
-	13113	13533	-	6369	5279	-	5196	4684	-	48825	47524
-	3157	464	-	20	36	-	0	37	-	9179	4968
-	63689	84024	-	24169	35590	-	13610	17896	-	206839	287613
-	-	3144	-	-	239	-	-	0	-	-	6845
-	-	3216	-	-	325	-	-	153	-	-	9123
-	-	339	-	-	34	-	-	0	-	-	1106
-	3585	-	-	233	-	-	117	-	-	10604	-
-	-	549	-	-	180	-	-	243	-	-	1935
-	2004	1172	-	365	336	-	432	739	-	6220	4535
-	-	990	-	-	9333	-	-	5609	-	-	38151
-	-	434684	-	-	486269	-	-	179666	-	-	2790181
-	518800	542115	-	538343	537621	-	195430	209027	-	3124340	3191981

- Notes: (1) Due to limited data available for 1971/73, total of component areas shown do not necessarily include all land shown as total area for 1971/73.
For 1976/78 total of component areas shown do add up to total area for 1976/78.
- (2) 1971/73 areas are from 1972/73 survey data only.
For 1976/78, area of trees and total area are from 1977/78 survey data only, for all other 1976/78 areas averages have been used with unimproved area used as the balancing item.
- (3) Os/td aerial oversowing and topdressing.

Table A19—New land use—area and fertiliser

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Area									
Cultivated pasture (ha)	—	181	62	—	974	531	—	410	109
Lucerne (ha)	—	40	6	—	99	58	—	47	42
Overdrilling (ha)	—	4	0	—	372	146	—	4	0
Aerial os/td (ha)	—	1606	2131	—	2122	1173	—	2209	1432
Total new area (ha)	—	1831	2199	—	3567	1908	—	2670	1583
Fertiliser									
On new pasture (tonnes)	—	59	15	—	*359	136	—	*102	35
On new lucerne (tonnes)	—	*0	3	—	*40	14	—	9	13
On new overdrilling (tonnes)	—	1	0	—	75	40	—	1	0
On new aerial os/td (tonnes)	—	427	549	—	506	349	—	575	537
Total fertiliser	—	487	567	—	980	539	—	687	585

Notes: (1) 1971/73 data are from 1972/73 survey only.

(2) * indicates data shown were not available for one or two properties.

(3) ** indicates total affected by one or more data items described in (2) above.

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
-	141	354	-	813	265	-	179	168	-	179	260	-	2877	1749
-	158	263	-	403	285	-	62	41	-	0	21	-	809	716
-	86	65	-	41	26	-	121	0	-	0	33	-	628	270
-	9819	4702	-	8782	6876	-	3435	2955	-	748	1306	-	28721	20575
-	10204	5384	-	10039	7452	-	3797	3164	-	927	1620	-	33035	23310
-	33	83	-	*167	69	-	44	46	-	*63	80	-	**827	464
-	*26	68	-	93	92	-	30	13	-	0	11	-	**198	214
-	15	14	-	6	6	-	30	0	-	0	3	-	128	63
-	1633	856	-	1777	1532	-	781	1045	-	307	597	-	6006	5465
-	1707	1021	-	2043	1699	-	885	1104	-	370	691	-	7159	6206

Table A20—Maintenance fertiliser

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Area									
Cultivated paddocks:									
Lime (ha)	—	63	103	—	1297	1420	—	631	364
Superphosphate (ha)	—	1981	1445	—	8739	6828	—	4298	4436
Other fert. (ha)	—	—	0	—	—	50	—	—	60
Uncultivated paddocks:									
Lime (ha)	—	0	0	—	0	0	—	0	0
Superphosphate (ha)	—	9193	12496	—	10667	8385	—	5419	8026
Other fert. (ha)	—	—	0	—	—	0	—	—	0
Fertilisers (Tonnes)									
Cultivated paddocks:									
Lime	—	156	291	—	3984	3950	—	1555	909
Superphosphate	—	438	376	—	1833	1646	—	742	1107
Other fert.	—	—	0	—	—	21	—	—	19
Uncultivated paddocks:									
Lime	—	0	0	—	0	0	—	0	0
Superphosphate	—	1960	2064	—	2201	1395	—	1031	1613
Other fert.	—	—	0	—	—	0	—	—	0

Note: 1971/73 data are from 1972/73 survey only.

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78

-	64	214	-	229	262	-	429	478	-	460	522	-	3173	3363
-	3490	4419	-	10112	8638	-	6698	3720	-	4754	3996	-	40072	33482
-	-	15	-	-	51	-	-	38	-	-	63	-	-	277
-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
-	4831	8355	-	16819	26280	-	5581	13425	-	5399	7521	-	57909	84488
-	-	0	-	-	0	-	-	0	-	-	0	-	-	0

-	141	511	-	723	682	-	1251	1047	-	1227	738	-	9037	8122
-	715	878	-	1931	1622	-	1474	1066	-	1169	1113	-	8302	7808
-	-	6	-	-	18	-	-	11	-	-	28	-	-	103

-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
-	951	1385	-	3394	4092	-	1155	2467	-	1066	1752	-	11758	14768
-	-	0	-	-	0	-	-	0	-	-	0	-	-	0

Table A21—Superphosphate use

	MM		CM		CW				
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Super applied: (ha)									
New land use	—	1831	2199	—	3567	1908	—	2670	1583
Maintenance	—	11174	13941	—	19406	15213	—	9717	12462
Grain, green feed and brassicas	—	99	110	—	2084	1456	—	748	901
Total area	—	13104	16250	—	25057	18577	—	13135	14946
Super used (tonnes)									
New land use	—	487	567	—	980	539	—	687	585
Maintenance	—	2398	2440	—	4034	3041	—	1773	2720
Grain, greenfeed and brassicas	—	39	25	—	455	337	—	195	247
Total tonnes	—	2924	3032	—	5469	3917	—	2655	3552

Note: 1971/73 data are from 1972/73 survey only.

OD		OM		OW		SM		All Runs			
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78

-	10204	5384	-	10039	7452	-	3797	3164	-	927	1620	-	33035	23310
-	8321	12774	-	26931	34918	-	12279	17145	-	10153	11517	-	97981	117970
-	764	965	-	2062	1830	-	355	455	-	597	772	-	6709	6489
-	19289	19123	-	39032	44200	-	16431	20764	-	11677	13909	-	137725	147769

-	1707	1021	-	2043	1699	-	885	1104	-	370	691	-	7159	6206
-	1666	2263	-	5325	5714	-	2629	3533	-	2235	2865	-	20060	22576
-	143	152	-	417	375	-	79	99	-	246	267	-	1574	1502
-	3516	3436	-	7785	7788	-	3593	4736	-	2851	3823	-	28793	30284

Table A22—Area of winterfeed

	MM			CM			CW		
	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
Forage crops (ha)									
Greenfeed oats	16	11	22	100	190	57	56	16	33
Greenfeed barley	0	0	16	8	0	3	0	0	0
Greenfeed wheat	0	0	0	6	20	7	0	0	0
Greenfeed ryecorn	11	0	3	83	131	82	80	39	56
Tama, HI, Italian	167	0	10	346	93	244	338	16	110
Total forage	194	11	51	543	434	393	474	71	199
Root crops (ha)									
Turnips	89	63	35	569	863	487	469	397	467
Swedes	37	17	14	178	140	136	97	86	25
Choumoellier	4	8	10	0	73	96	0	85	32
Rape	4	0	0	32	86	71	0	26	16
Total root crops	134	88	59	779	1162	790	566	594	540
Grain crops (ha)									
Grain oats	0	0	0	*105	363	226	*4	83	69
Oats for chaff	4	0	0	28	4	0	0	0	0
Barley	0	0	0	26	83	16	0	0	93
Wheat	0	0	0	48	38	31	0	0	0
Total grain crops	4	0	0	*207	488	273	*4	83	162
Fodder crops (ha)									
Meadow hay	—	255	195	—	749	1031	—	648	815
Lucerne	*62	71	136	—	1074	1164	—	303	349
Oaten hay	4	0	5	—	174	80	—	165	104
Silage	29	0	0	—	148	165	*30	94	41
Straw/haylage	0	0	0	*0	247	57	—	0	141
Total fodder crops	—	326	336	—	2392	2497	—	1210	1450

Notes: (1) 1971/73 data are from 1972/73 survey only.

(2) * indicates data shown were not available for one or two properties.

(3) ** indicates total affected by one or more data items described in (2) above.

OD			OM			OW			SM			All Runs		
65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78	65/67	71/73	76/78
47	72	119	96	27	81	26	15	5	31	0	8	372	331	325
0	22	16	0	0	44	0	0	4	4	0	4	12	22	87
34	24	0	33	42	39	0	11	8	0	0	0	73	97	54
36	48	267	156	98	174	17	12	13	22	0	8	405	328	603
197	118	133	323	116	286	207	49	47	462	22	54	2040	414	884
314	284	535	608	283	624	250	87	77	519	22	74	2902	1192	1953
253	311	144	1081	1405	990	169	192	226	260	133	216	2890	3364	2565
42	34	24	105	42	62	61	16	50	253	255	359	773	590	670
0	6	6	0	8	6	0	8	0	125	76	17	129	264	167
0	0	0	17	48	21	7	0	6	0	15	54	60	175	168
295	351	174	1203	1503	1079	237	216	282	638	479	646	3852	4393	3570
*30	23	186	73	179	69	46	21	28	15	63	33	**273	732	611
8	0	24	*22	0	4	5	0	0	4	0	0	**71	4	28
5	52	46	2	59	48	0	18	21	3	15	19	36	227	243
35	54	0	18	38	6	77	13	47	46	18	0	224	161	84
*98	129	256	—	276	127	128	52	96	68	96	52	—	1124	966
—	129	269	—	554	802	—	727	752	—	587	565	—	3649	4429
—	1699	1925	—	1615	2012	—	152	283	*47	82	135	—	4996	6004
—	41	130	—	98	214	*16	26	43	0	19	13	—	523	589
0	20	0	2	0	69	*0	0	23	0	0	0	—	262	298
0	57	0	0	63	0	*0	0	0	0	53	0	—	420	198
—	1946	2324	—	2330	3097	—	905	1101	—	741	713	—	9850	11518

PART B

High Country Production Survey of 300 Runs for 1976/78.

Index to tables:

- B1 Number of properties in survey and area.
- B2 Sheep numbers by breed.
- B3 Sheep numbers by class.
- B4 Ewes to ram and lambing percentage.
- B5 Sheep sold.
- B6 Sheep bought.
- B7 Wool production.
- B8 Cattle numbers by breed.
- B9 Cattle numbers by class.
- B10 Cows to bull and calving percentage.
- B11 Cattle sold.
- B12 Cattle bought.
- B13 Deer numbers by breed.
- B14 Deer numbers by class.
- B15 Deer 'sold'.
- B16 Deer 'bought'.
- B17 Stock numbers and stock units.
- B18 Total land use area.
- B19 New land use—area and fertiliser.
- B20 Maintenance topdressing—area and fertiliser.
- B21 Superphosphate use.
- B22 Area of winter feed crops grown.
- B23 Sheep drenching frequency.
- B24 Cattle drenching frequency.
- B25 Deer drenching frequency.
- B26 Forestry area.
- B27 Land tenure area.
- B28 Labour.

Comments

The following comments, related to tables presented in Part B, generally only cover data not already presented in part A. For comments related to data in Tables B2 to B22 it is recommended that Part A be studied. Comments presented here are not intended to discuss all trends or issues which the data may display.

1. Number and area of high country runs (Table B1).

This data covers all 300 high country runs surveyed during 1976/78. Unless otherwise stated the data presented are averages for the two survey years 1976/77 and 1977/78.

The total area of the 300 runs surveyed was 3258605 ha.

2. Land use (Table B18)

Total developed land in 1976/78 was 373634 ha (11 per cent of total area). Cultivated grass and pastures accounted for 17 per cent and lucerne for three per cent of total developed land. The total area under irrigation was 7985 ha, 95 per cent of which was in the Otago runs.

3. Drenching (Tables B23, B24 and B25)

For sheep drenching, data were available from only 290 runs; three properties had no sheep. From available data in the 1976/77 season 96 per cent of runs drenched hoggets with an anthelmintic with or without selenium added; 72 per cent of runs drenched hoggets two, three or four times.

Ewe drenching was practised on 69 per cent of runs carrying sheep; 66 per cent of runs drenched ewes either once or twice.

Wether drenching was comparatively rare with 92 per cent of runs carrying wethers reporting no drenching at all.

For cattle drenching, data were available from 292 runs; 15 runs had no cattle. For the 1976/77 season, 72 per cent of runs drenched calves with an anthelmintic with or without selenium added; 63 per cent drenched calves once or twice a season.

Deer properties reported no drenching of deer in 1976/78.

4. Forestry (Table B26)

Exotic plantations on 180 runs in 1977/78 amounted to 0.1 per cent of the total area farmed in the high country. Native forests were recorded on 75 runs and occupied one per cent of the total area.

The area of new plantings of trees on 38 runs was approximately nine per cent of the existing exotic plantations in the high country.

5. Land tenure (Table B27)

The 1977/78 survey provided an opportunity to assemble information for the first time on land tenure in the high country.

Pastoral leases are by far the most significant form of land tenure; 240 runs had pastoral leases which comprised 72 per cent of the area of the high country. Marlborough has a comparatively low proportion

of land (36 per cent) as pastoral lease tenure and a high proportion of land (41 per cent) as land farmed by the crown. In addition, there was a higher-than-average proportion (15 per cent) freehold and Deferred Payment Licence land area in Marlborough.

6. Labour (Table B28)

The mean stock units per man-year for all runs was 2655. Stock units per man-year ranged from 2074 in Otago dry to 3253 in Southland. The 14 "all sheep" properties had, on average, a higher labour input per stock unit. The three "cattle only" properties had a lower labour input per stock unit than average.

Except for shearing the average run employed 2.7 labour units in 1976/78.

40 **Table B1—Number of Properties in Survey and area (1976/78 average)**

	MM*	CM	CW	OD	OM	OW	SM	All Runs
Number of properties	23	51	36	46	91	36	17	300
Total area (ha)	505263	432571	647193	362409	564519	537623	209027	3258605
Average area (ha)	21968	8482	17978	7878	6204	14934	12296	10862

Note: 1976/78 total area data are from 1977/78 survey only. * Includes Molesworth station

Table B2—Sheep numbers by breed (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Merino	71981	134129	168293	186830	209450	100196	2	870881
Romney × Merino ½bd	244	101824	74	33179	156899	41319	112490	446029
Eng. Leic. × Mer. ½bd	10652	41556	72139	0	4214	0	1118	129679
Border Leic. × Mer. ½bd	2618	6215	1224	5008	12157	0	0	27222
Lincoln × Mer. ½bd	4055	0	9472	22058	39593	18620	7571	101369
Corriedale	0	40634	17675	34502	50876	233	0	143920
Romney	2229	643	16	4459	10525	10137	29177	57186
Perendale	0	1018	0	366	8991	12781	12510	35666
Romney × Corriedale	0	0	0	0	460	0	0	460
Border Leic. × Romney	3	0	0	1073	0	0	0	1076
Border Leicester	49	119	65	611	207	101	0	1152
Other	1727	18299	537	10065	7089	31468	113	69298
Total	93558	344437	269495	298151	500461	214855	162981	1883938

Table B3—Sheep numbers by classes (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Flock ewes	41357	188124	104967	180206	271868	100304	91554	978380
Dry 2T ewes	4464	14285	16549	7602	6838	5461	1862	57061
Ewe hoggets	11674	52557	29711	45993	64026	25147	24945	254053
Wether hoggets	7462	20322	23595	14038	25137	14070	9608	114232
Flock wethers	27316	63659	91692	45396	125670	67488	32978	454199
Rams	1285	5490	2981	4916	6922	2385	2034	26013
Total	93558	344437	269495	298151	500461	214855	162981	1883938
Properties with no sheep	1	0	1	0	1	0	0	3
Properties with sheep only	0	1	1	5	7	0	0	14

In the 1965/67 and 1971/73 series the sheep numbers and classes were taken from shearing tallies. In the 1976/78 surveys, because of better records kept for various purposes, the figures used were those as at June 30 each year.

Table B4—Ewe to ram and lambing percentage (1976/78 average)

	MM		CM		CW		OD		OM		OW		SM		All Runs	
	E. to R.	% E. to R.	E. to R.	% E. to R.	E. to R.	% E. to R.	E. to R.	% E. to R.	E. to R.	% E. to R.	E. to R.	% E. to R.	E. to R.	% E. to R.	E. to R.	%
Merino	24623	82.5	52107	80.5	51966	71.4	97206	83.7	83759	79.4	30194	76.2	0	—	339855	79.5
Romney × Merino ½bd	45	86.7	64203	90.2	0	—	24073	92.8	93275	90.9	16718	83.3	50461	79.0	248775	88.0
Eng. Leic. × Mer. ½bd	6920	92.3	25163	84.2	35827	73.6	0	—	27.59	100.3	0	—	750	76.0	71419	80.2
Border Leic. × Mer. ½bd	2010	99.9	2449	107.1	1003	81.9	1798	118.8	5004	95.6	0	—	0	—	12264	100.9
Lincoln × Mer. ½bd	2404	87.9	0	—	3416	83.3	15901	102.7	29392	95.7	11550	84.6	5353	83.5	68016	93.6
Corriedale	0	—	24031	89.6	8775	84.8	24555	97.2	31081	84.2	0	—	0	—	88442	89.3
Romney	2455	88.0	400	100.0	0	—	3145	101.6	6367	97.1	6935	106.4	22824	84.5	42126	91.6
Perendale	0	—	100	100.0	0	—	148	124.3	6392	81.2	8217	91.5	7385	97.1	22242	90.7
Romney × Corriedale	0	—	0	—	0	—	0	—	415	108.4	0	—	0	—	415	108.4
Border Leic × Romney	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—
Border Leicester	0	—	0	—	0	—	103	127.2	15	120.0	0	—	0	—	118	126.3
Other	809	92.2	10427	84.3	0	—	5477	100.3	3843	85.3	20082	93.5	0	—	40638	91.3
Total	39266	86.0	178880	86.4	100987	73.8	172406	89.9	262302	87.0	93696	85.8	86773	82.3	934310	85.4

Note: Lambing % is computed as the $\frac{\text{total lambs marked for breed for district}}{\text{total ewes to ram for breed for district}} \times \frac{100}{1}$

Total lambs marked and total ewes to ram data used are the average total lambs marked and average total ewes to ram from the two years (1976/77 and 1977/78) data.

Table B5—Sheep sold (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Fat lambs	11216	58505	11977	75548	109757	35615	25947	328565
Store lambs	3192	18545	8736	14255	24516	5932	8092	83268
Aged ewes for breeding	3832	23610	12053	12476	22272	4618	7882	86743
Aged ewes for meat	2266	9861	1785	11632	18426	6107	4626	54703
Aged wethers for meat	2105	6201	5243	2954	11287	4342	3478	35610
Aged store wethers	2371	3421	3169	3607	3686	530	1102	17886
2T ewes for meat	0	834	0	165	95	34	0	1128
2T ewes for breeding	383	4652	1934	4508	3302	1288	1566	17633
2T wethers for meat	50	1795	223	487	272	8	35	2870
Store 2T wethers	486	707	844	1964	561	547	561	5670
Rams	71	365	138	798	434	148	16	1970
Total	25972	128496	46102	128394	194608	59169	53305	636046

Table B6—Sheep bought (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Rams	242	667	638	797	1601	515	427	4887
Lambs	180	275	500	810	2253	410	310	4738
Ewe hoggets	350	589	10	340	300	1408	441	3438
Wether hoggets	50	1255	1752	0	3037	3349	0	9443
2T ewes	480	523	237	979	1446	1878	475	6018
2T wethers	209	300	653	0	1346	1883	0	4391
Aged ewes	87	1765	671	2258	5579	3646	604	14610
Aged wethers	448	650	0	92	970	1879	0	4039
Total	2046	6024	4461	5276	16532	14968	2257	51564

44 **Table B7—Wool production (1976/78 average)**

	MM	CM	CW	OD	OM	OW	SM	All Runs
Total wool (Kg)	408661	1268250	930141	1234797	1833222	754041	592285	7021397
Wool per sheep (Kg)	4.37	3.68	3.45	4.14	3.66	3.51	3.63	3.73
Wool per hectare (Kg)	0.809	2.932	1.437	3.407	3.247	1.403	2.834	2.155

Note: Area used for wool shorn per hectare data is computed from total areas of properties with sheep. Area data are based on the 1977/78 year.

**Table B8—
Cattle numbers by breed (1976/78 average)**

	MM	CM	CW	OD	OM	OW	SM	All Runs
Hereford	8971	6939	12258	6310	17622	19535	10321	81956
Angus	4928	7506	5397	698	2147	414	553	21643
Hereford/Angus	13989	2807	1687	298	1428	511	1813	22533
Shorthorn	1	57	0	135	242	18	11	464
Hereford/Shorthorn	0	0	0	853	580	55	0	1488
Shorthorn/Angus	4	153	0	19	31	0	0	207
Galloway	39	89	0	0	152	0	0	280
Galloway/Hereford	78	0	152	334	0	747	0	1311
Galloway/Angus	0	0	0	0	0	0	0	0
Galloway/Shorthorn	0	279	0	0	0	0	0	279
Fresian and Fresian cross	2	0	0	0	568	0	0	570
Other	30	319	1	329	148	109	28	964
Total	28042	18149	19495	8976	22918	21389	12726	131695

Note: Figures shown exclude dairy cows.

Table B9—Cattle numbers by class (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Breeding cows	11421	9896	10883	3932	12512	12441	6911	67995
1½ year heifers	3362	1965	2565	1056	2391	2411	1348	15098
Heifer calves	4014	2821	2675	1431	3343	2947	1917	19148
Steer calves	3479	1807	1385	1342	2213	1906	1507	13639
Adult steers	5129	1221	1048	951	1980	1170	774	12273
Bulls	637	439	824	264	479	514	269	3426
Dairy cows	14	18	130	10	16	14	16	218
Total	28056	18167	19510	8986	22934	21403	12742	131798
Properties with no cattle	0	1	2	5	7	0	0	15
Properties with cattle only	1	0	1	0	1	0	0	3

Table B10—Cows to bull and calving percentage (1976/78 average)

	MM		CM		CW		OD		OM		OW		SM		All Runs	
	C. to B.	%	C. to B.	%	C. to B.	%	C. to B.	%	C. to B.	%	C. to B.	%	C. to B.	%	C. to B.	%
Hereford	3481	81.2	4550	84.9	7464	79.6	3621	87.0	11171	80.2	11567	77.9	5501	82.0	47355	80.8
Angus	1182	79.9	4262	83.9	2491	75.6	305	89.2	822	83.5	326	80.7	398	89.2	9786	81.5
Hereford/Angus	5654	85.9	1268	87.2	1089	82.6	136	86.8	598	81.6	330	70.9	849	90.0	9924	85.3
Shorthorn	0	—	25	88.0	0	—	10	80.0	196	85.2	0	—	0	—	231	85.3
Hereford/Shorthorn	0	—	0	—	0	—	263	83.7	331	87.9	0	—	0	—	594	86.0
Shorthorn/Angus	0	—	75	81.3	0	—	0	—	0	—	0	—	0	—	75	81.3
Galloway	54	96.3	161	81.4	0	—	0	—	82	86.6	0	—	0	—	297	85.5
Galloway/Hereford	0	—	0	—	84	86.9	194	72.2	0	—	485	76.1	0	—	763	76.3
Galloway/Angus	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—
Galloway/Shorthorn	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—
Friesian and Friesian cross	0	—	0	—	0	—	0	—	232	78.9	0	—	0	—	232	78.9
Other	0	—	190	83.2	0	—	36	88.9	83	68.7	0	—	19	78.9	328	79.9
Total	10371	83.7	10531	84.7	11128	79.1	4565	86.3	13515	80.7	12708	77.8	6767	83.4	69585	81.6

Note: Calving percentage is computed as the $\frac{\text{total calves marked for breed for district}}{\text{total cows to bull for breed for district}} \times 100$

This method differs from that used in previous institute publications. Averages for the two years were used to compute the data.

Table B11—Cattle sold (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Breeding cows	138	605	431	137	183	45	6	1545
Cows for meat	2139	1616	1251	1257	2188	1722	749	10922
Heifers	1082	839	319	686	1575	948	673	6122
Heifer calves	495	2054	1686	663	2590	2055	980	10523
Steer calves	1002	2736	2920	1037	3429	3116	1198	15438
Store steers	1980	408	498	323	1321	762	814	6106
Prime steers	1175	604	270	828	1545	555	311	5288
Bulls	145	124	67	239	174	159	52	960
Total	8156	8986	7442	5170	13005	9362	4783	56904

Table B12—Cattle bought (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Cows	95	152	0	88	41	112	13	501
Heifers	87	5	0	32	201	40	0	365
Heifer calves	54	192	0	144	273	122	15	800
Steer calves	25	16	0	366	291	34	13	745
Steers	55	8	0	24	581	33	40	741
Bulls	131	63	76	25	88	86	50	519
Total	447	436	76	679	1475	427	131	3671

Table B15—Deer 'sold'

	MM	CM	CW	OD	OM	OW	SM	All Runs
Fawns	0	0	47	20	0	70	0	137
Hinds	3	18	67	0	0	70	1	159
Stags	3	33	19	0	0	20	18	93
Total	6	51	133	20	0	160	19	389

Note: Deer 'sales' include all deer sales and disposals.

Table B16—Deer 'bought'

	MM	CM	CW	OD	OM	OW	SM	All Runs
Fawns	2	29	12	0	15	4	0	62
Hinds	4	35	121	0	26	183	1	370
Stags	5	37	60	0	5	17	0	124
Total	11	101	193	0	46	204	1	556

49 Note: Deer 'bought' includes all deer purchased or captured.

Table B17—Stock numbers and stock units (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Properties with sheep	22	51	35	46	90	36	17	297
Properties with cattle	23	50	34	41	84	36	17	285
Properties with deer	3	6	8	2	4	3	4	30
Total sheep numbers	93558	344437	269495	298151	500461	214855	162981	1883938
Total cattle numbers	28056	18167	19510	8986	22934	21403	12742	131798
Total deer numbers	142	319	1768	183	135	331	258	3136
Total stock numbers	121756	362923	290773	307320	523530	236589	175981	2018872
Stock units—sheep	71977	271992	204607	239235	396472	166776	129146	1480205
Stock units—cattle	136230	92214	100666	43709	116687	110400	64440	664346
Stock units—deer	299	616	3494	342	268	682	488	6189
Total stock units	208506	364822	308767	283286	513427	277858	194074	2150740
Total area (ha)	505263	432571	647193	362409	564519	537623	209027	3258605
Stock units per hectare	0.413	0.843	0.477	0.782	0.909	0.517	0.928	0.660

Notes: (1) Area data are total property area for district, from 1977/78 survey data.

(2) Stock units used:

Flock ewes	0.9	Breeding cows, Dairy cows	6.0	Hinds	2.1
Dry 2T ewes, Flock wethers	0.7	1½yr. heifers, older steers	4.5	Fawns	1.4
Ewe hoggets, wether hoggets	0.6	Heifer calves, steer calves	3.5	Stags	2.3
Rams	0.8	Bulls	5.0		

Table B18—Total land use area (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Total drilled pasture (ha)	2034	13841	5806	4581	14028	5279	4684	50253
Total overdrilled pasture (ha)	931	2011	10	1705	467	36	37	5197
Total os/td pasture (ha)	49969	28709	22085	52715	87265	35590	17896	294229
Total irrigated pasture (ha)	27	128	184	3123	3178	239	0	6879
Total dry land lucerne (ha)	287	1461	593	3272	3301	325	153	9392
Total irrigated lucerne (ha)	0	41	16	676	339	34	0	1106
Total fallow (ha)	22	436	194	311	549	180	243	1935
Total crops (ha)	57	1090	664	573	1184	336	739	4643
Total trees (ha)	9833	3979	8668	72	1024	9340	5609	38525
Total unimproved (ha)	442103	380875	608973	295381	453184	486264	179666	2846446
Total area (ha)	505263	432571	647193	362409	564519	537623	209027	3258605

Notes: (1) Area of trees and total area data are from 1977/78 survey data only. All other areas shown have been computed as averages for 1976/78 with unimproved area being used as the balancing item.

(2) Os/td is aerial oversowing and topdressing.

Table B19—New land use—area and fertiliser (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Area								
New drilled pasture (ha)	62	618	109	354	288	168	260	1859
New lucerne (ha)	6	73	42	263	303	41	21	749
New overdrilling (ha)	0	166	0	65	29	0	33	293
New aerial os/td (ha)	2131	1319	1432	4702	7186	2955	1306	21031
Total new area (ha)	2199	2176	1583	5384	7806	3164	1620	23932
Fertiliser								
On new drilled pasture (tonnes)	15	159	35	83	73	46	80	491
On new lucerne (tonnes)	3	19	13	68	97	13	11	224
On new overdrilling (tonnes)	0	45	0	14	7	0	3	69
On new aerial os/td (tonnes)	549	379	537	856	1625	1045	597	5588
Total fertiliser on above	567	602	585	1021	1802	1104	691	6372

Table B20—Maintenance topdressing—area and fertiliser (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Area (ha)								
Cultivated pasture								
Lime	81	1462	283	126	203	433	492	3080
Superphosphate	1243	6650	3955	2415	6906	3505	3909	28583
Other fert	0	18	33	0	26	30	46	153
Lucerne								
Lime	22	42	81	88	65	45	30	373
Superphosphate	202	1117	481	2004	1904	215	87	6010
Other fert.	0	32	27	15	25	8	17	124
Overdrilled pasture								
Lime	0	0	0	0	0	0	0	0
Superphosphate	0	120	0	412	87	0	0	619
Other fert.	0	0	0	0	0	0	0	0
OS/TD pasture								
Lime	0	0	0	0	0	0	0	0
Superphosphate	12496	9344	8026	7943	27079	13425	7521	85834
Other fert.	0	0	0	0	0	0	0	0

Fertiliser (tonnes)**Cultivated pasture**

Lime	242	3949	709	291	543	895	645	7274
Superphosphate	325	1562	982	466	1267	1007	1076	6685
Other fert.	0	5	9	0	8	8	22	52

Lucerne

Lime	49	97	200	220	144	152	93	955
Superphosphate	51	268	125	412	393	59	37	1345
Other fert.	0	16	10	6	10	3	6	51

Overdrilled pasture

Lime	0	0	0	0	0	0	0	0
Superphosphate	0	30	0	71	16	0	0	117
Other fert.	0	0	0	0	0	0	0	0

OS/TD pasture

Lime	0	0	0	0	0	0	0	0
Superphosphate	2064	1578	1613	1314	4224	2467	1752	15012
Other fert.	0	0	0	0	0	0	0	0

Notes: (1) 'Other' fertilisers related to lucerne refers to special lucerne mixes

(2) 'Other' fertilisers related to cultivated pasture refer mainly to nitrogenous fertilisers.

Table B21—Superphosphate use (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All runs
Area (ha)								
New land use	2199	2176	1583	5384	7806	3164	1620	23932
Maintenance	13941	17231	12462	12774	35976	17145	11517	121046
Grain, green feed and brassicas	110	1718	901	965	1855	455	772	6776
Total area	16250	21125	14946	19123	55637	20764	13909	161754
Tonnes								
New land	567	602	585	1021	1802	1104	691	6372
Maintenance	2440	3438	2720	2263	5900	3533	2865	23159
Grain, green feed and brassicas	25	400	247	152	378	99	267	1568
Total tonnes	3032	4440	3552	3436	8080	4736	3823	31099

Table B22—Area of winterfeed crops grown (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Forage Crops (ha)								
Greenfeed oats	22	57	33	119	93	5	8	337
Greenfeed barley	16	3	0	16	44	4	4	87
Greenfeed wheat	0	7	0	0	39	8	0	54
Greenfeed ryecorn	3	82	56	267	174	13	8	603
Tama, HI, Italian	10	276	110	133	299	47	54	929
Total area	51	425	199	535	649	77	74	2010
Root crops								
Turnips	35	557	467	144	990	226	216	2635
Swedes	14	203	25	24	62	50	359	737
Choumoellier	10	96	32	6	6	0	17	167
Rape	0	71	16	0	21	6	54	168
Total area	59	927	540	174	1079	282	646	3707
Grain crops								
Grain oats	0	310	69	186	69	28	33	695
Oats for chaff	0	0	0	24	4	0	0	28
Barley	0	25	93	46	48	21	19	252
Wheat	0	31	0	0	6	47	0	84
Total area grain	0	366	162	256	127	96	52	1059
Fodder crops								
Meadow hay	195	1216	815	269	802	752	565	4614
Lucerne	136	1342	349	1925	2059	283	135	6229
Oaten hay	5	84	104	130	214	43	13	593
Silage	0	167	41	0	69	23	0	300
Haylage	0	57	141	0	0	0	0	198
Total area (ha)	336	2866	1450	2324	3144	1101	713	11934

Table B23—Sheep drenching frequency (1976/77 survey)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Number of properties with sheep	22	51	35	46	90	36	17	297
*Selenium only								
Properties drenching:								
hoggets	3	4	11	7	10	5	0	40
ewes	0	4	3	3	16	4	2	32
wethers	1	1	3	0	1	0	0	6
*Anthelmintic only								
Properties drenching:								
hoggets	2	13	6	13	23	3	1	61
ewes	2	11	5	6	15	0	1	40
wethers	0	1	1	0	3	0	0	5
*Anthelmintic plus selenium								
Properties drenching:								
hoggets	18	39	26	31	65	31	15	225
ewes	18	29	16	15	50	25	8	161
wethers	2	3	6	0	5	3	0	19

58 **Table B23 (cont'd)—Frequency of sheep anthelmintic drenching**

		MM	CM	CW	OD	OM	OW	SM	All Runs
Hoggets	0	3	0	0	2	0	2	1	8
	1	0	4	4	6	5	2	0	21
	2	5	13	5	10	20	9	2	64
	3	4	7	9	12	26	9	5	72
	4	6	15	6	9	22	9	4	71
	5	2	2	5	3	8	3	2	25
	6	2	5	3	3	3	1	2	19
	7	0	3	0	0	3	1	0	7
Ewes	0	3	9	11	24	23	11	7	88
	1	7	20	7	15	42	15	8	114
	2	11	17	12	5	20	10	1	76
	3	1	3	2	1	2	0	0	9
	4	0	0	0	0	0	0	0	0
	5+	0	0	0	0	0	0	0	0
Wethers	0	20	45	25	45	79	33	16	263
	1	2	4	2	0	8	3	0	19
	2+	0	0	5	0	0	0	0	5

Notes: (1) Drenching data are from 1976/77 survey only. Frequency counts are from properties with sheep.

(2) Items marked * are mutually exclusive.

(3) 'Frequency of Anthelmintic' data includes 'ATH ONLY' and 'ATH PLUS SELENIUM'.

(4) Data above do not include data from several properties for which data were not available as follows: MM (0), CM (2), CW (3), OD (1), OM (3), OW (0), SM (1), All Runs (10).

Table B24—Cattle drenching frequency (1976/77 survey)

		MM	CM	CW	OD	OM	OW	SM	All Runs
Numbers of properties with cattle		23	50	34	41	84	36	17	285
* Selenium only									
Properties drenching:									
Calves		1	1	1	0	2	1	0	6
Other cattle		0	0	0	1	3	1	1	6
* Anthelmintic only									
Properties drenching:									
Calves		2	5	6	15	27	7	2	64
Other cattle		0	4	1	3	8	3	0	19
* Anthelmintic plus selenium									
Properties drenching:									
Calves		16	23	19	17	29	22	12	138
Other cattle		0	6	2	2	3	1	0	14
Frequency of calf anthelmintic drenching	0	5	20	6	8	28	7	3	77
	1	9	11	13	17	34	10	3	97
	2	5	15	7	13	16	17	5	78
	3	3	2	4	2	4	2	5	22
	4	1	0	1	0	1	0	0	3
	5+	0	0	0	0	0	0	0	0
Other cattle	0	23	38	28	35	72	32	16	244
	1	0	8	3	2	11	3	0	27
	2+	0	2	0	3	0	1	0	6

Notes: (1) Drenching data are from 1976/77 survey only. Frequency counts are for properties with cattle.

(2) Items marked * are mutually exclusive.

(3) 'Frequency of Anthelmintic' data includes 'Ath only' and 'ath plus selenium'.

(4) Data above do not include data from several properties for which data were not available as follows: MM (0), CM (2), CW (3), OD (1), OM (1), OW (0), SM (1), All Runs (8).

Table B25—Deer drenching frequency (1976/77 only)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Number of properties with deer	3	6	8	2	4	3	4	30
* Selenium only								
Properties drenching deer	0	0	0	0	0	0	0	0
* Anthelmintic only								
Properties drenching deer	0	0	0	0	0	0	0	0
* Anthelmintic plus selenium								
Properties drenching deer	0	0	0	0	0	0	0	0
Frequency of anthelmintic drenching deer								
	0	3	6	8	4	3	4	30
	1	0	0	0	0	0	0	0
	2+	0	0	0	0	0	0	0

Table B26—Forestry area (1977/78 survey)

	MM		CM		CW		OD		OM		OW		SM		All Runs	
	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)
Exotic plantation	14	2048	39	567	31	563	20	64	46	308	22	252	8	107	180	3909
Native trees	11	7528	14	3390	15	8077	1	2	4	699	20	9080	10	5502	75	34278
New forestry	4	257	10	22	7	28	4	6	6	17	7	8	0	0	38	338
Total		9833		3979		8668		72		1024		9340		5609		38525

Notes: (1) Data are from 1977/78 survey only.

(2) Area of exotic plantation and area of native trees exclude area of new forestry for 1977/78.

(3) No. is the number of properties contributing to each area.

Table B27—Land Tenure Area (1977/78 survey)

	MM		CM		CW		OD		OM		OW		SM		All runs	
	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)
Fee Simple																
Freehold	9	65633	31	34241	22	34583	26	19850	42	29282	23	17269	11	4175	164	205033
Deferred Payment Licence	4	9222	3	4762	0	0	4	3749	10	18623	1	800	2	4192	24	41348
Rights of renewal																
Lease in Perpetuity	1	185	0	0	0	0	0	0	9	2527	3	218	0	0	13	2930
Renewable Lease	2	2624	2	202	1	111	8	27389	12	24496	1	18	1	99	27	54939
Pastoral Lease	15	182204	41	318879	33	543378	37	290909	69	410293	31	426408	14	164014	240	2336085
Endowment Lease	0	0	3	32825	3	39507	3	16400	2	12471	0	0	0	0	11	101203
County Lease	0	0	7	1182	1	20	1	941	3	13136	0	0	0	0	12	15279
Other																
Occupation Licence	4	38161	5	16379	3	17832	1	3035	10	32715	7	48763	1	1303	31	158188
Grazing Permit	0	0	0	0	0	0	0	0	0	0	2	1137	1	998	3	2135
Special Lease	0	0	0	0	0	0	0	0	0	0	7	38328	0	0	7	38328
Forestry Lease	1	180	2	1302	3	5598	0	0	0	0	1	1011	0	0	7	8091
Park Lease	0	0	0	0	2	4746	0	0	0	0	0	0	0	0	2	4746
Army Lease	0	0	1	2913	0	0	0	0	0	0	0	0	0	0	1	2913
Miscellaneous Licence	1	245	6	1174	5	1418	3	136	7	1985	6	3671	0	0	28	8629
Crown Land																
	2	206809	2	18712	0	0	0	0	2	18991	0	0	2	34246	8	278758
Total		505263		432571		647193		362409		564519		537623		209027		3258605

Note: Crown land refers to land farmed by the Department of Lands and Survey.

Table B28—Labour (1976/78 average)

	MM	CM	CW	OD	OM	OW	SM	All Runs
Stock units								
Total sheep	71977	271992	204607	239235	396472	166776	129146	1480205
Total cattle	136230	92214	100666	43709	116687	110400	64440	664346
Total deer	299	616	3494	342	268	682	488	6189
Sheep only properties	0	2533	2554	13895	17052	0	0	36034
Cattle only properties	4543	0	1451	0	1374	0	0	7368
Deer only properties	0	0	0	0	0	0	0	0
Sheep and cattle only properties	182277	300029	222493	248544	459920	264641	130282	1808186
Sheep and cattle and deer properties	21686	62259	78802	20848	35082	13217	63792	295686
Man-weeks								
Total man-weeks	3748	7480	5709	7101	10256	4748	3102	42144
Sheep only properties	0	65	55	468	512	0	0	1100
Cattle only properties	65	0	1	0	13	0	0	79
Deer only properties	0	0	0	0	0	0	0	0
Sheep and cattle only properties	3245	6011	4077	5952	9012	4469	1943	34709
Sheep and cattle and deer properties	438	1404	1576	681	719	279	1159	6256
Stock units per man-week								
Total su per m-w	55.6	48.8	54.2	39.9	50.1	58.5	62.6	51.0
Sheep only properties	0	38.9	46.4	29.7	33.3	0	0	32.8
Cattle only properties	69.9	0	1451	0	105.7	0	0	93.3
Deer only properties	0	0	0	0	0	0	0	0
Sheep and cattle only properties	56.2	49.9	54.6	41.8	51.0	59.2	67.1	52.1
Sheep and cattle and deer properties	49.5	44.3	50.0	30.6	48.8	47.4	55.0	47.3
Stock units per man-year								
	2893	2536	2819	2074	2603	3043	3253	2655

Note: Categories of labour inputs recorded were: Owner, Manager, Shepherd, Musterer, Fencer, Casual, Other. Labour for shearing was not recorded.

References

- HUGHES, J. G., 1973: High country production survey 1971/72. *Tussock Grasslands and Mountain Lands Institute Review*, 26.
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