

PROCEEDINGS OF THE AUSTRALIAN RANGELAND SOCIETY BIENNIAL CONFERENCE
Official publication of The Australian Rangeland Society

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The reference for this article should be in this general form;

Author family name, initials (year). Title. *In*: Proceedings of the nth Australian Rangeland Society Biennial Conference. Pages. (Australian Rangeland Society: Australia).

For example:

Anderson, L., van Klinken, R. D., and Shepherd, D. (2008). Aerially surveying Mesquite (*Prosopis* spp.) in the Pilbara. *In*: 'A Climate of Change in the Rangelands. Proceedings of the 15th Australian Rangeland Society Biennial Conference'. (Ed. D. Orr) 4 pages. (Australian Rangeland Society: Australia).

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THE CHARLEVILLE EASTERN MULGA SURVEY 1972-73 TO 1979-80
- AN EXAMPLE OF A MIXED SHEEP-CATTLE ECONOMY.

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ABSTRACT

Results are presented of a survey of costs, returns and profitability in the Eastern Mulga Land Resource Region of south-west Queensland. It was based on seven mixed sheep-cattle properties over the period 1972-73 to 1979-80.

The survey showed extreme fluctuations in net cash incomes, with the average for the period being below what would normally be regarded as adequate compensation for the capital and the family labour employed in earning those incomes. This situation began to change with market recoveries in 1978-79.

Sheep were about twice as profitable as cattle for the eight years as a whole, and the income from sheep was much more stable than that from cattle. Complementarity of sheep and cattle diets, however, and their complementary utilization of labour, should ensure that both types of stock will continue to be grazed on these mulga country properties, relative profitability notwithstanding.

INTRODUCTION

The Eastern Mulga Land Resource Region (Mills 1980) is regarded as one of the less productive areas of the Charleville district. The main problems of the region are poor sheep breeding results, grass seed (Aristida sp.) contamination of wool, relative inability to fatten cattle, and husbandry problems arising from mustering difficulties in thick scrub.

In December 1977 a survey of costs, returns and profitability was carried out in the Eastern Mulga. This survey was intended to determine the magnitude of the welfare problem which was evident at the time because of depressed wool and beef markets. Subsequently, this survey has been updated to monitor changing profitability as markets and seasons have changed. The survey initially covered 11 properties - now reduced to seven properties, all operated by their owners since before 1972-73, and all comprising country only within the Eastern Mulga land type. The survey now covers the period 1972-73 to 1979-80.

PHYSICAL DETAILS OF PROPERTIES

Properties surveyed all ran sheep and cattle, as do most properties in the Charleville area. Details of property sizes, stock numbers and family labour are shown in Table 1.

ENTERPRISE TYPES

Sheep enterprises generally were breeding with wether retention, although one property (the smallest) had consistently run wethers only, and two others changed over to buying wethers during the survey period. Sheep breeding performances were "marginal" (50 per cent lambings or worse), however graziers have persisted with breeding because the Charleville area generally is poor breeding country, and replacement wethers are difficult and expensive to obtain.

Cattle enterprises are primarily store breeding. The Eastern Mulga is not fattening country, though in some years fats can be produced, and older cattle will eventually fatten. During the beef recession of 1974-75 to 1977-78 the Eastern Mulga area was particularly affected, since store cattle prices were more affected than fat cattle prices. To cope with this situation graziers sold fat cows instead of steers, spayed and fattened some cows, and retained steers to an older age - both to allow eventual fattening and to wait for a market improvement. The beef recession resulted in most graziers avoiding as far as possible selling cattle until forced to do so by dry conditions, beginning in 1977-78.

GRAZING MANAGEMENT

With two exceptions, graziers ran sheep and cattle together in the same paddocks, even though most said they would have preferred to have kept them separate, or to have worked a system of sequential grazing (cattle - sheep - spell - cattle etc). In only one instance were any paddocks spelled and reserved for sale cattle.

The inconsistency between what graziers did and what they said they would like to do was explained by their not having enough paddocks to maintain separation of different categories of stock, while at the same time separating sheep from cattle. To achieve the required separations would require approximately 40,000 hectares and at least eight main paddocks.

The main benefits from separating sheep and cattle were said to

be more efficient mustering and better control of how the country is grazed. There would also be some nutritional effects, with cattle probably getting better diets, and sheep worse ones¹. The strategy adopted would be influenced to some extent by comparative wool and beef prices at the time.

INCOMES AND EXPENSES

Incomes and expenses (means of seven properties) are shown for each of the eight years in Table 2. Table 2 shows the extreme fluctuations in cash incomes over the period. Furthermore it shows that average incomes have been low for the period as a whole, bearing in mind that these represent the return to an average 1.6 male family labour units (unpaid except out of profits), and a capital investment which averaged about \$190,000 over the eight years.

What these figures do not show is the huge increase in average equity which occurred as a consequence of the lift in livestock and land values commencing in 1978-79. At the worst of the depression (1975-76) average capital valuation and equity had declined to \$160,000 and \$77,000 respectively. By 1979-80 these had recovered to \$300,000 and \$259,000 respectively. Prior to this recovery, land values had been declining steadily since about 1964, and cattle values had been well below those of the early 1970's. Those graziers who had "hung on" in the face of depressed incomes and values were thus rewarded for their patience.

COMPARISONS OF SHEEP AND CATTLE RETURNS

Cash gross margins of sheep and cattle are compared in Table 3. These are calculated as cash gross income less direct enterprise costs (such as shearing, crutching, chemicals and supplements costs). Table 3 also shows inventory changes (changes in stock numbers during the year). These represent non-cash additions to or charges against net income. If desired, dollar values can be calculated on the assumption of "appropriate" per head sheep and cattle values.

Cash gross margins from sheep were higher than from cattle over the period. Sheep comprised 55 per cent of the sheep equivalents, but provided 77 per cent of the total cash gross margin. More importantly, the income from sheep was more stable, which helped graziers cope with the four years of depressed cattle prices from

¹ For example see Graetz and Wilson (1980).

1974-75 to 1977-78.

It will be noted that the four years of low cattle prices do not coincide exactly with the period of low gross margins from cattle. In 1972-73 and 1973-74 cattle prices were buoyant, however most of the surveyed graziers were holding onto as many cattle as possible, or even buying cattle, to build up their numbers. Thus, these high price years were of virtually no benefit to them. Conversely 1976-77 and 1977-78 were periods of low cattle prices, but increased numbers and then dry seasons obliged graziers to commence selling. This sell off continued for the rest of the survey period and coincided with market recovery in 1978-79. By 1979-80 the drought was severe and the poor quality of cattle by then being sold once again depressed cattle incomes.

PHYSICAL PRODUCTIVITY

(i) Sheep. Due to lack of records it was not possible to calculate average wool cuts, although the most profitable three properties averaged about 4.5kg per head over their whole flocks. These flocks comprised about 40 per cent ewes, 40 per cent wethers, and 20 per cent lambs, with a few rams. All three properties were breeding, and net reproduction (lambs marked less sheep died) averaged 13.8 per cent of the whole flock.

(ii) Cattle. No data was obtained on weights of cattle sold, however net reproduction and turnoff were calculated from the accounting records. Mean net reproduction for the eight years was 23 per cent per annum, and turnoff was 25 per cent, the difference being explained by inventory decline of two per cent per annum.

MARKET MOVEMENTS AND RAINFALL

Survey information may be relevant to the present or the future only if it can be "adjusted" for changing economic or seasonal conditions. The means of adjustment are provided in Table 4, which shows prices, cost indices, and rainfall for the years of the survey.

DISCUSSION

The Eastern Mulga survey has revealed a large degree of income fluctuation, with most of the fluctuation originating in the cattle enterprise. Buying and selling decisions were important determinants of the longer term profitability of the cattle enterprise. Buying and selling skills were important also in the conduct of wether

enterprises, but were much less important to the success of breed-your-own sheep enterprises.

On the face of it, sheep were more profitable than cattle (per sheep equivalent) over the eight years. However, if sheep and cattle diets in mulga country are complementary, then this would imply that more sheep equivalents can be carried in a mixed situation than would be the case with only sheep or only cattle on the country. Thus, the gross margins as calculated may be understating the real contribution of cattle to net income.

Almost regardless of profitability, graziers in the Eastern Mulga will probably continue to run both sheep and cattle. The sheep are considered necessary to control mulga regrowth but labour limitations restrict the number of sheep which can be managed. Thus, especially on properties which are "large" relative to the supply of family labour, sheep numbers will be restricted by labour supply at critical times of the year (shearing, fly waves etc) rather than by land area. The "slack" can be expected to be taken up by cattle, which are then managed whenever the sheep do not require attention.

An input which biological research can make in the cattle-sheep-mulga system is to define the degree to which sheep and cattle diets are complementary. This information would help to evaluate relative profitability, and it would allow recommendations to be made on changes to grazing management (to favour sheep or favour cattle) in response to changing market conditions. Furthermore, such dietary studies may reveal how better to manage the pastures to achieve or maintain a more desirable balance of species in the pasture.

REFERENCES

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TABLE 1

Physical Details of Eastern Mulga Survey Properties 1972-73 to 1979-80
(Seven Properties)

	Smallest Property	Largest Property	Mean of Seven
Area (ha)	12,640	31,360	20,850
Family male labour units	2	2	1.6
Sheep carried (ha/sheep)	5,140 (2.46)	7,790 (4.03)	5,440 (3.83)
Cattle carried (ha/beast)	212 (59.6)	765 (41.0)	550 (37.9)
Sheep equivalents carried ^a (ha/S.E.)	6,836 (1.85)	13,910 (2.25)	9,840 (2.12)

^a Assuming one beast = 8 S.E.

TABLE 2

Income and Expenses, Eastern Mulga Survey
(Means of Seven Properties)

Year	Gross ^a Income	Operating Costs	Capital Expenditure	Interest Payments	Net Before Interest	Net After Interest
1972-73	\$26,860	\$16,510	\$2,120	\$2,030	\$8,230	\$6,200
73-74	52,030	19,970	4,300	4,780	27,760	22,980
74-75	25,030	18,160	660	6,070	6,200	130
75-76	28,690	20,850	1,580	6,840	6,260	-580
76-77	38,990	22,490	1,610	8,020	14,890	6,870
77-78	45,980	26,640	2,323	7,220	17,010	9,790
78-79	69,490	30,780	3,340	6,710	35,370	28,660
79-80	84,150	42,860	2,060	5,750	39,230	33,480
Mean	\$46,400	\$24,160	\$2,250	\$5,930	\$19,370	\$13,440

^a Wool receipts plus stock sales less purchases, all net of selling costs and freight.

TABLE 3

Gross Margins and Inventory Changes, Eastern Mulga Survey
(Means of Seven Properties)

Year	CASH GROSS MARGINS				INVENTORY CHANGE ^a			
	Sheep	(\$/Hd)	Cattle	(\$/Hd)	Sheep		Cattle	
1972-73	\$20,730	(\$4.00)	\$1,920	(\$4.70)	+460	(+9%)	+86	(+21%)
73-74	42,440	(8.00)	3,150	(6.20)	-136	(-3)	+116	(+23)
74-75	15,440	(2.90)	2,690	(4.50)	+332	(+6)	+ 56	(+9)
75-76	17,220	(3.20)	2,920	(4.40)	-352	(-7)	+ 96	(+14)
76-77	19,820	(3.50)	9,160	(13.00)	+788	(+14)	- 29	(-4)
77-78	24,126	(4.20)	9,790	(15.80)	-391	(-7)	-145	(-23)
78-79	27,070	(4.70)	31,460	(62.90)	+444	(+8)	- 87	(-17)
79-80	45,740	(8.90)	20,410	(53.70)	-1681	(-33)	-192	(-53)
Mean	\$26,570	(\$4.90)	\$10,190	(\$18.50)	- 73	(-1%)	- 12	(-2%)

^a Figures in parenthesis are percentages.

TABLE 4

Wool Prices, Beef Prices, Index of Prices Paid
and Rainfall 1972-73 to 1979-80

Year	Wool ^a	Beef ^b	Index of ^c	RAINFALL (mm) ^d	
	Price	Price	Prices Paid	Total	Oct-Mar
1972-73	183.8	74.6	143	538	459
73-74	181.2	78.9	165	746	514
74-75	127.0	31.7	215	398	292
75-76	143.3	38.6	251	699	568
76-77	182.7	48.5	281	567	407
77-78	187.4	52.9	310	286	144
78-79	205.9	110.3	342	510	215
79-80	244.0	153.4	381	230	158
Mean	181.9	73.6	261	497	345

^a A.W.C. Whole clip average cents/kg greasy.

^b 300-320kg Ox Cannon Hill, cents/kg estimated dressed weight.

^c Source B.A.E.

^d Location Charleville; source Bureau of Meteorology.