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THE PROFITABILITY OF ALTERNATIVE SHEEP ENTERPRISES IN THE PASTORAL ZONE OF NSW

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ABSTRACT

The demise of the wool reserve price scheme in 1991/2, fluctuations in relative commodity prices and drought have placed pastoral producers under increasing pressure to adjust sheep enterprises in the face of declining farm cash income. Producers have shown considerable interest in alternative enterprises such as prime lamb production using terminal sires and introduction of new breeds such as the Dorper and Damara. Representative whole farm models were developed for the Upper Darling, the Murray-Darling and Far West regions in order to assess the profitability of a range of alternative enterprises including prime lambs from terminal sires, Merino wethers only, self replacing Merino ewes only, and self replacing Dorper and Damara enterprises. Financial returns were highest from the self replacing Merino ewe flock although reduced risk management opportunities are a constraint to this option. Returns for the traditional mix of Merino enterprises (the representative farm) and the Dorper enterprises, were similar and only slightly lower than the all ewe enterprise under the commodity prices and performance parameters assumed. We conclude that the traditional Merino enterprises that have evolved in the pastoral zone are well suited to their respective environments and that the economic incentives to switch to alternative production systems are not strong.

Key words: *farming systems, pastoral zone, representative farm, profitability, Merino, Dorper, Damara*

INTRODUCTION

The primary focus of agricultural production in the pastoral zone of NSW is the sale of wool and surplus sheep from self replacing Merino flocks (Woods et al. 1992). ABARE (2006a) reported that wool and sheep contribute about 70% of individual farm income in this region.

However, following the demise of wool reserve price scheme in 1991/2, fluctuations in relative commodity prices and drought the pastoral industry has undergone adjustments in terms of the number and sources of farm income. Between 1991 and 2005 there was only or slightly upward trend in the price of wool (0.3% per annum) whereas the price of lamb increased by 2.1% per annum. Receipt from the sale of wool and cattle declined by about 35% and 8%, respectively. The number of wethers per farm declined by about 40% while the proportion of ewes increased by about 7%. Income from the sale of sheep and crops increased by about 58% and 19% respectively, reflecting in part the steady decline in the relative price of wool (ABARE 2006b)

Production of prime lamb has not traditionally been an integral part of pastoral enterprises except for short term opportunities (T. Atkinson, pers. comm.). However, increasing numbers of pastoral producers are now integrating meat production into their businesses either by joining Merinos ewes to terminal sires in a crossbreeding enterprise or by introduction of new breeds specifically for meat production. The main breeds that have generated interest are the Dorper and the Damara which are perceived to adapt easily to the rangelands environment, and to have higher reproductive performance, better carcase characteristics, and lower production costs than Merinos and other meat breeds that have historically been used in Australia (Young and Kilminster, 2004). In crossbreeding enterprises

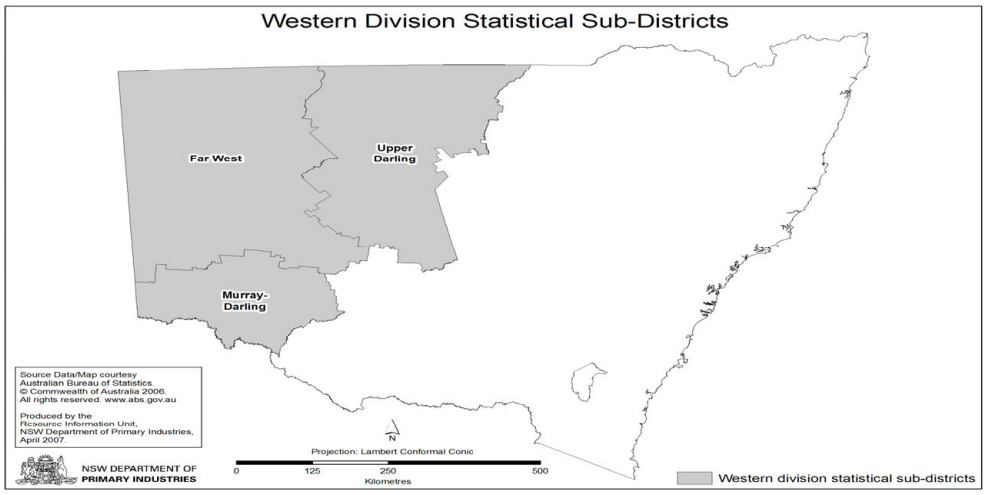
older Merino ewes are joined to a traditional terminal sire, such as Poll Dorset or Suffolk, and all progeny are slaughtered.

In this paper we present an assessment of the profitability of a range of alternative enterprises from a whole farm perspective.

METHODS

Representative farm models were developed for three sub-regions of the NSW pastoral zone - Upper Darling (UD), Murray-Darling (M-D) and Far West (FW), (Figure 1) - using data obtained by Local Consensus Techniques ((Jayasuriya et al. 1999; Murphy and Date 1989) and from farm surveys (ABARE 2006b). A '*representative farm*' model is more or less typical of a group of farms operating with similar resources and constraints. The model represents both the physical (land, livestock and farm machinery) and financial (liabilities, equity, enterprise gross margins, farm income and expenses, rates of return) characteristics of the reference farm and can be used to assess how farm income might be altered by a change in relative commodity prices, the introduction of a new technology, or a change in management (Patton & Mullen, 2001).

Figure 1: Sub-regions within the pastoral zone (The eastern boundary corresponds approximately with the boundary of the Western Division except in the north east).



The representative farm models for the UD, M-D and FW regions were used to assess the profitability of traditional Merino sheep enterprises with a range of alternatives including self replacing Merinos with a proportion (47%) of ewes mated to a terminal sire for prime lamb production, Merino wethers only, self replacing Merino ewes only, and self replacing Dorper and Damara enterprises. The proportion of Merino ewes that should be joined to terminal sires was determined using the Merino versus Terminal Sire Flock Model (CSIRO Livestock Industries and Australian Sheep Industry CRC, 2004) which estimates the proportion of ewes that can be joined to terminal sires while maintaining the self replacing Merino enterprise.

The potential financial benefits from these alternative enterprises were compared by adjusting the sheep enterprise mix in the representative farm models. Neither the area cropped nor the numbers of cattle were changed. Overhead costs also remained unchanged. While Dorpers and Damaras are often considered to have potential for organic meat production, no price premiums were included in this analysis. Similarly, the costs of transition to the new enterprise have not been assessed. What is presented is simply a 'snapshot' of farm income after the change.

RESULTS AND DISCUSSION

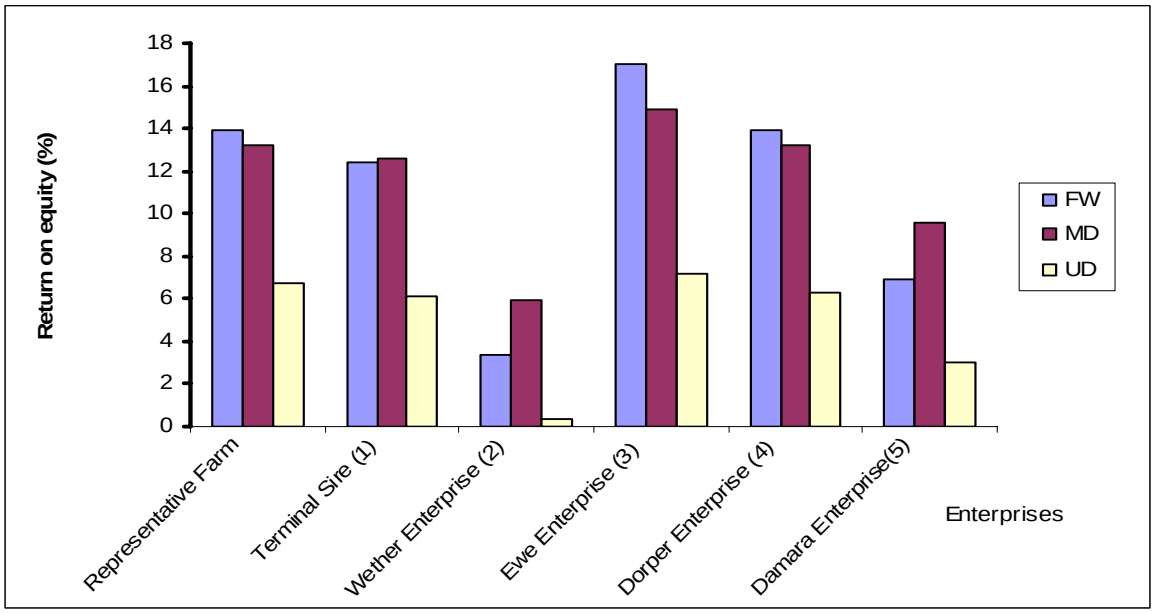
The UD region includes the Shires of Bourke, Brewarrina, Cobar and part of Walgett and is characterised by summer dominant rainfall averaging 380mm (Clewett et al. 2003). Agricultural production is primarily focused on sheep and cattle enterprises with limited dryland, irrigated and opportunistic cropping. Sheep enterprises contribute over 60% of total farm income, the remainder coming mainly from cattle. The UD representative farm has an area of approximately 24,000 hectares and carries about 9,000 DSE of livestock. Total capital investment is about $1.5 million with an equity ratio of 85% and an annual return on equity of 6.7%.

The M-D region includes the Shires of Balranald and Wentworth. Rainfall is winter-dominant, averaging 225mm per annum (ibid). Agricultural production is based on the integration of livestock and cropping which contribute 62 and 38% respectively to the total farm income. The M-D representative farm has an area of about 25,000 hectares divided between cropping (4000ha), nature reserve established under conservation trade-off arrangements (500ha) and native pasture (16,000ha) supporting 8,800 DSE. The total capital value is about $1.4 million with an equity ratio of 84% and 13.3% return on equity.

The FW region comprises the Shires of Broken Hill and Central Darling together with the Unincorporated Area of the Far West. Rainfall is low and variable, averaging 175mm per annum (ibid). Agricultural output is dominated by livestock production, mainly sheep for wool and meat, which accounts for 98% of total farm income. The FW representative farm has an area of about 35,000 hectares with 7,000 DSE. Total capital value is about $0.883 million with an equity ratio of 80% and 14% return on equity.

Return on equity for the alternative enterprises ranged from 3-7.2% in UD, 6-15% in M-D and 3.4-17% in FW (Figure 2). In all sub regions, the self replacing merino enterprise (3) achieved the highest return, but only slightly higher than the representative farm and the Dorper enterprise. The wether enterprise had the lowest return in all sub regions.

Figure 2: Rates of return for alternative sheep enterprises



Despite the apparent profitability of the self replacing Merino flock, very few properties would have the capacity to adopt this alternative in preference to their current mix of self replacing Merino and

Merino wether enterprises. This is because sale opportunities for merino ewes are limited to only two periods, about 6 weeks after weaning and 4 weeks after joining. At other times ewes are 'occupied' with the process of reproduction. Wethers on the other hand, while less profitable, play an important risk management role because they are always saleable and their numbers can be easily manipulated as the season dictates.

Furthermore, individual farms are likely to have different economic and physical constraints to the representative farms which may alter the relative profitability of the sheep enterprises. We are therefore reluctant to make definitive recommendations about the profitability of the alternative enterprises based on this analysis. However, our results do suggest that while it may be profitable for producers to mate a proportion of their ewes to terminal sires, or establish Dorper enterprises, the traditional Merino enterprise mixes that have evolved in the pastoral zone are well suited to their respective environments and there appears to be no compelling economic reason to change.

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