HOW DO ORGANIC, INTEGRATED AND CONVENTIONAL SHEEP/BEEF FARMS DIFFER IN MEAT PRODUCTION?

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Abstract

New Zealand's pastoral livestock farm systems, once predominantly breeding/finishing properties geared towards the commodity market have become increasingly diverse niche market producers leading to the development of additional farm management styles such as organic and integrated management. Farmers implementing these systems produce to specific standards, which may constrain their otherwise conventional management style.

ARGOS, a research project with the aim to investigate the economic, environmental, and social differences between organic, integrated and conventional systems of production, has collected 4 years of meat production data from 36 South Island sheep and beef farms and has used this to measure physical production differences between Organic, Integrated and Conventional sheep/beef farms. Net meat export was used as the performance indicator to compare these farming systems. Organic management systems had 60% net meat export of integrated and conventional systems for lamb however variability within the management systems masked significant differences for carcass weight sold or the distribution of monthly sales and purchases.

Likewise there were no significant differences between management systems when the net meat export values was used as a measure of production efficiency based on the net meat exported as a percentage of sheep wintered.

The variability highlights the uniqueness and complexity of individual farm systems

Keywords: Agriculture, organic, integrated management, sustainability.

Introduction

The relative physical and financial performance of organic and conventional farm management systems has been subject to previous studies over the last twenty years. For example, in New Zealand the costs and risks associated with conversion to organic production on sheep/beef, dairying, deer and arable farms were assessed in a MAF Technical Paper (MAF, 2002), which examined the changes in carrying capacity, production and financial performance that follow conversion, the technical challenges presented by organic systems, and impacts of risk on organic performance. However, there has been little or no analysis of the relative performance of the more recently developed integrated management systems that focus on producing to market specifications, and that may, consequently, constrain some farming practices.

Under the ARGOS research programme, established to investigate the economic, environmental, and social differences between organic, integrated and conventional systems of production, four years' meat production data has been collected from 26 South Island sheep and beef farms. These data have been used to measure physical production differences between organic, integrated and conventional sheep/beef farms.

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This paper outlines differences found in total meat production and distribution of animal sales and purchases amongst these farms. It attempts to develop a richer picture of physical farm performance by using net meat export as a key performance indicator, and discusses the difficulty of developing measures that illustrate differences between management systems where there is high variability between farms employing the same management system.

Background

The Agricultural Research Group on Sustainability (ARGOS) is an unincorporated joint venture between the AgriBusiness Group, Lincoln University, and the University of Otago. It is funded by the Foundation for Research, Science and Technology (FRST) and various industry stakeholders and commenced in October 2003. Initially a 6 year research project, ARGOS, was established to research the economic, environmental, and social differences between organic, integrated and conventional systems of production. The aim is to detail the impact of these systems and develop indicators which reflect the interactions across the social, economic and environmental factors.

Sheep/beef farms, in ARGOS were recruited to reflect typical farming systems from Marlborough to Southland on the East Coast of the South Island, New Zealand. Three farms, one each of organic, integrated and conventional, management systems were selected at twelve different locations/clusters to be geographically as close to each other as possible to enable some control of variability of climate, soil and topography in the analyses. They also had the same enterprise type, for example, sheep and beef or mixed cropping.

Farm management systems are defined as:

- Certified organic use accredited organic production protocols and have achieved organic accreditation status
- Integrated - Integrated farms follow protocols that aim to enhance supply for seasonal contracts, the quality of outputs and overall production performance of participating farms. The protocols aim for the optimal use of farm inputs and may result in some reductions in the use of inputs such as pesticides, herbicides and fertilisers compared with conventional farms.
- Conventional farms represent the status quo.

The clusters were then matched to Meat New Zealand (MeatNZ) farms for benchmarking (Table 1**Error! Reference source not found.**).

Table 1 Alignment of ARGOS Sheep/beef clusters with model farms in MeatNZ

ARGOS Cluster Number	ARGOS Cluster Locations	MeatNZ Class Number	MeatNZ Class Name South Island
1	Marlborough,	2	Hill Country
2	North Canterbury	2	Hill Country
3	Canterbury, Banks Peninsula	2	Hill Country
4	Canterbury, Selwyn	8	Mixed Finishing
5	Canterbury, Methven	8	Mixed Finishing
6	Canterbury, Ashburton	8	Mixed Finishing
7	Canterbury/Nth Otago	6	Finishing/Breeding
8	Otago, Outram	6	Finishing/Breeding
9	South Otago, Owaka	6	Finishing/Breeding
10	Western Southland, Gore	6	Finishing/Breeding
11	North Otago, Oamaru	6	Finishing/Breeding
12	South Canterbury,	6	Finishing/Breeding

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The ARGOS design enables researchers to compare management systems within each cluster, matching management systems across clusters (panels) and monitor this through time (longitudinally).

The farms cover a total of 14,346 hectares, carrying 119,000 stock units, in twelve locations from Blenheim to Gore. Farm sizes range from 145 to 1370 hectares, with a mean size of 340 hectares. Rainfall ranges from approximately 400 to 1100 mm/yr. The farms have similar overarching farming strategies in that their management is founded on pastoral based systems with varying degrees of cropping. Cropping types range from fodder to cereal to small seeds production, mainly in mid Canterbury to predominantly fodder crops in Southland. Livestock production on most farms is predominantly lamb sales with two farmers mainly bull beef.

Carrying capacities, when assessed (1 June) averaged 8.7, 9.5 and 10.3 stock units per hectare respectively over the four seasons for organic, conventional and integrated management systems. The range of farm carrying capacities for the farm management systems in ARGOS are shown in Table 2 as stock units per hectare.

Table 2 Minimum, mean and maximum carrying capacities as stock units per hectare for organic, integrated and conventional farms in the ARGOS project

	Organic	Integrated	Conventional
Minimum	4.4	5.9	2.7
Mean	8.7	9.5	10.3
Maximum	16.3	18.0	18.6

Methods

Net meat export

The net meat exported from a farm in any season was defined as the difference between the total weight of livestock on hand at opening (May 31) and the weight on hand at closing (June 1) plus the difference between the total weight of stock sold and purchased during the season. This data was collected for four seasons from 2006/07 to 2009/10. These data were collected from individual farm records and meat works. Carcass weight data for animals sold prime were collected from meat processing plants and from farmers' records, and where possible one was cross checked with the other. Stock sales, including live weight, data were collected from farm records while the live weights of animals on hand were estimated by the farmers. If live weight estimates were not available the standard estimates shown in Appendix A were used. Live weights were converted to carcass weights, using the dressing out assumptions detailed in Appendix A. Data collected were reconciled against opening and closing balances of farm accounts.

Ten farms, which were sold or underwent landuse change or for which data were unavailable, were omitted from the analysis. Of the twenty six farms included, nineteen purchased live stock for trading purposes.

Distribution of meat purchases and sales

Stock sale numbers, weight and dates were collated for each of the four seasons included in the analysis. Stock were classified as 'all stock', 'lambs', 'sheep' and 'cattle'. There was no independent category for deer but they were included as part of 'all stock'. The total carcass weights for these categories were assigned as purchases to their management system types of organic, integrated and conventional, and recorded as monthly meat inputs (kilograms of carcass weight per hectare) and outputs (percentage of total annual sales).

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Net meat lamb exports as a percentage of sheep meat carried

The estimated net weight of lamb meat exported was expressed as a percentage of the weight of sheep (including breeding ewes, breeding rams and replacement ewe hoggets) on hand at the start of the season. One conventional farm was excluded from this analysis because it was a lamb trading farm only.

Results

Differences in net meat exported

Statistical analysis was performed on net meat exported data using an unbalanced ANOVA analysis with cluster and season as blocking factors and management system as the factor of interest. Covariates for 'effective farm size' and 'percentage of income from cropping' were also included.

No statistically significant differences were detected in net exports of mutton and beef despite the considerable differences in the estimated mean values, particularly between integrated farms and others. However, the wide within-management-system variability of these parameters means that we are unable to say that no difference exists between systems, only that the analysis has insufficient poser to detect a difference. Total net meat exports (all meat) in kilograms per hectare from organic farms were significantly lower at the five percent level (approximately 90 kilograms per hectare) than from conventional farms (approximately 150 kilograms per hectare). On integrated farms net exports were estimated to be between the values for organic and conventional but not significantly different from either.

Table 3 shows that organic management systems had a mean lamb export of 55 kilograms carcass weight per hectare that was 60% (p = 0.008) of both integrated and conventional systems which were similar at 91.1 and 91.2 respectively. No statistically significant differences were detected in net exports of mutton and beef despite the considerable differences in the estimated mean values, particularly between integrated farms and others. However, the wide within-management-system variability of these parameters means that we are unable to say that no difference exists between systems, only that the analysis has insufficient power to detect a difference. Total net meat exports (all meat), in kilograms per hectare from organic farms were significantly lower at the five percent level (approximately 90 kilograms per hectare) than from conventional farms (approximately 150 kilograms per hectare). On integrated farms net exports were estimated to be between the values for organic and conventional but not significantly different from either.

Table 3 Results for analysis of net carcass weight exported per hectare

Net carcass weight exported kg/ha	Management system			Factor	Covariates	
	Organic n=10	Integrated n=8	Conventional n=8	Cluster (p-value)	Effective ha (p-value)	Crop % (p-value)
Lamb	54.9 [b]	91.1 [a]	91.2 [a]	0.064	0.008	n.s.
Mutton	3.8	11.6	2.5	n.s.	n.s.	n.s.
Beef	34.3	17.3	40.4	n.s.	n.s.	0.004
Total	89.4 [b]	125.9	147.5 [a]	n.s.	n.s.	n.s.

Note:

1. Different superscripts indicate a significant difference at the 5 % level.
2. The values do not add to the total because they do not include deer production, and the means are adjusted in each analysis by the factor and the covariates.

A significant difference is only apparent when a covariate for the percentage of the farm used for cropping was included, which then gave a significant difference between conventional and organic but not integrated. Table 4 shows the range of net meat exported from each management system in

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kilograms of carcass weight per hectare. A negative value means stock was retained for reasons such as increasing land size.

Table 4 Net carcass weight per hectare exported from organic, integrated and conventional farm in the ARGOS project

	Management system								
Net carcass weight exported kg/ha	Organic n=10			Integrated N = 8			Conventional n=8		
	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min
Lamb	109.6	54.9 [b]	-43.6	192.9	91.1 [a]	26.4	251.2	91.2 [a]	-2.8
Mutton	117.1	3.8	-74.7	57.2	11.6	-32.2	57.2	2.5	-108.8
Beef	147.2	34.3	-285.9	168.1	17.3	-100	168.1	40.4	-131.7

Carcass weights of animals sold

Average of the four years data showed that carcass weights were similar between the management systems. The average carcass weight for lamb differed by 0.8 kilograms, whilst sheep and cattle differed by 1.9 and 17.7 kilograms respectively across the three management systems (Figure 1).

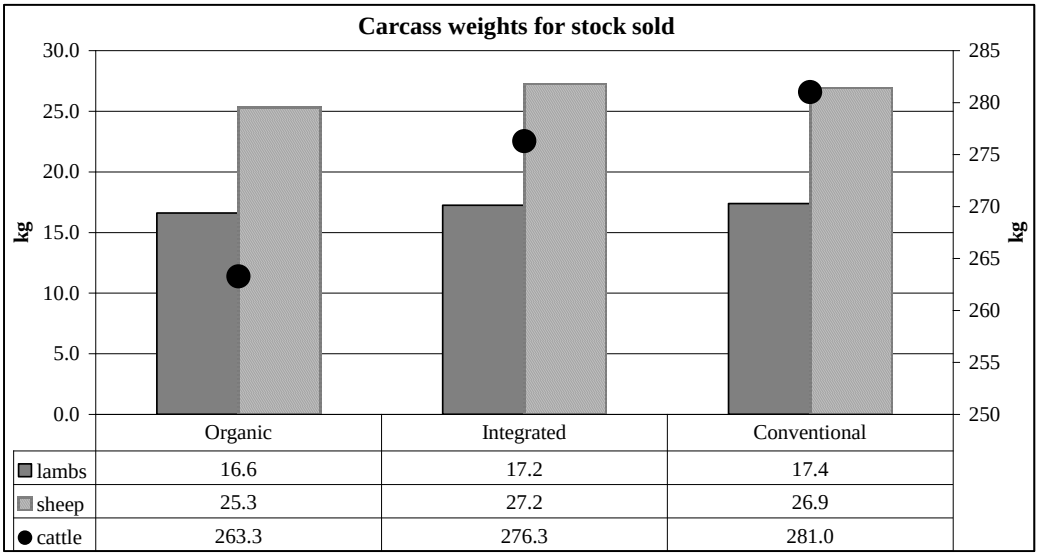

Figure 1 Average carcass weights of stock sold for organic, integrated and conventional management systems in the ARGOS project

Distribution of meat purchases and sales

All Stock:

Conventional management systems sold a greater proportion of their stock from July through to November, than organic and integrated management systems while organic management systems sold a greater proportion of their stock in April and May than integrated and conventional management systems, and less in November and December (Figure 2Figure). All stock included deer sold from conventional management systems and are not included in the later figures because of their low numbers.

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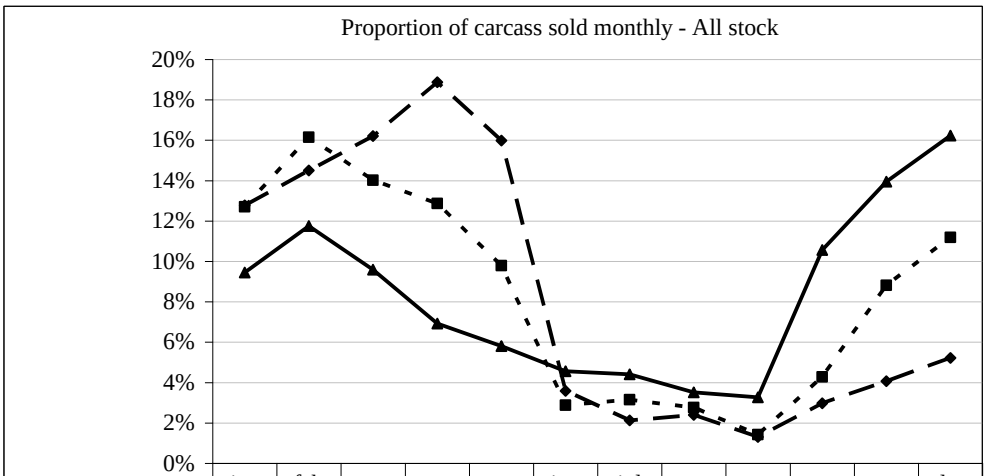
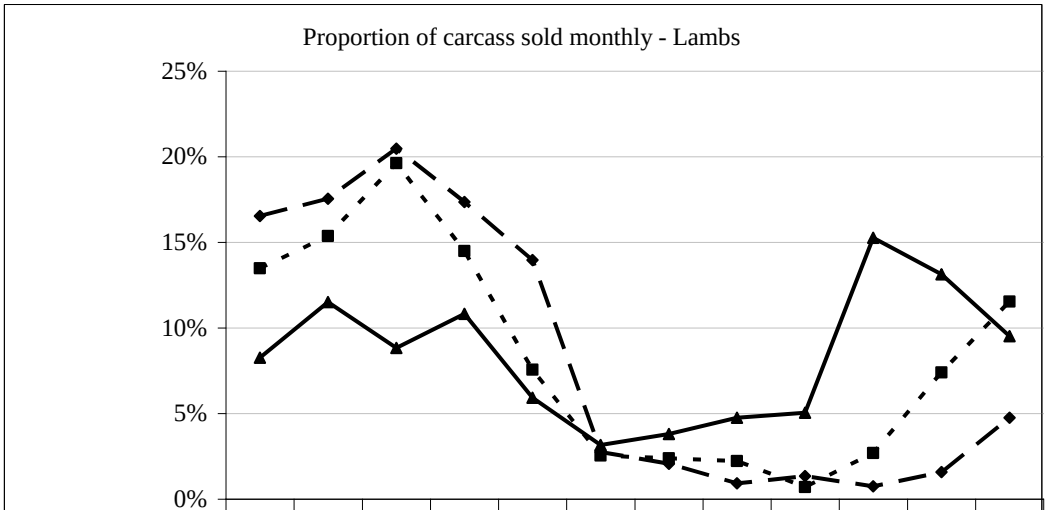


	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Organic	13%	15%	16%	19%	16%	4%	2%	2%	1%	3%	4%	5%
Integrated	13%	16%	14%	13%	10%	3%	3%	3%	1%	4%	9%	11%
Conventional	9%	12%	10%	7%	6%	5%	4%	4%	3%	11%	14%	16%

Figure 2 Monthly distribution of all stock sold comparing organic, integrated and conventional farm management systems in the ARGOS project

Lambs:
Conventional management systems sold a greater proportion of their lamb meat in July, August, September, October and November than the others, while organic management systems sold a greater proportion in April and May and less at all other times of the year (Figure 3).



	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Organic	17%	18%	20%	17%	14%	3%	2%	1%	1%	1%	2%	5%
Integrated	13%	15%	20%	14%	8%	3%	2%	2%	1%	3%	7%	12%
Conventional	8%	11%	9%	11%	6%	3%	4%	5%	5%	15%	13%	10%

Figure 3 Monthly distribution of lambs sold comparing organic, integrated and conventional farm management systems in the ARGOS project

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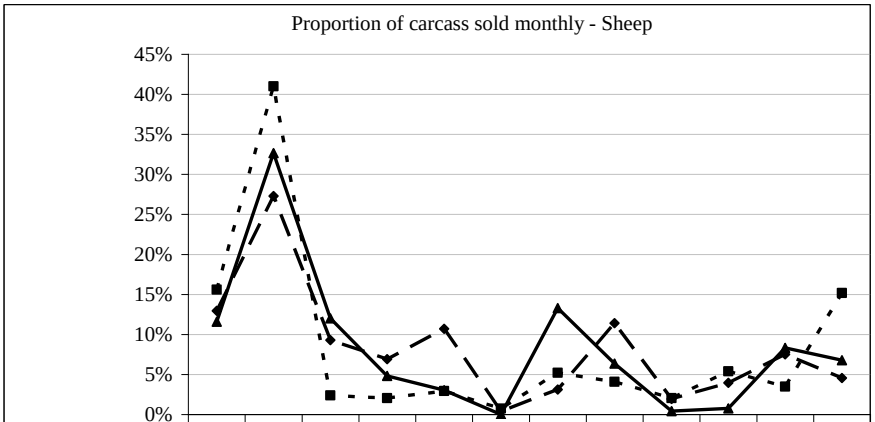
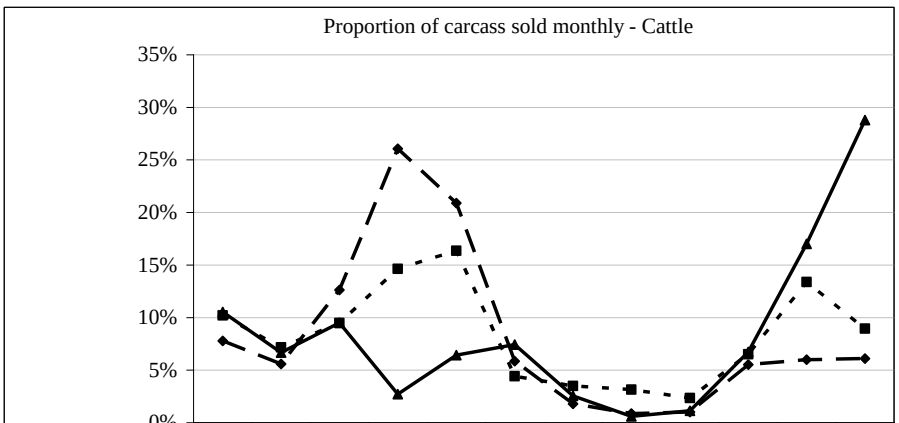
Sheep:
All management systems sold most of their ewes in February as cull ewes and the remainder in winter after scanning (Figure 4).



	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Organic	13%	27%	9%	7%	11%	0%	3%	11%	2%	4%	8%	5%
Integrated	16%	41%	2%	2%	3%	1%	5%	4%	2%	5%	3%	15%
Conventional	12%	33%	12%	5%	3%	0%	13%	6%	0%	1%	8%	7%

Figure 4 Monthly distribution of sheep sold comparing organic, integrated and conventional farm management systems in the ARGOS project

Cattle:
Cattle sales were similar under all management systems through the winter months, but differed in November and December with increased sales from conventional management farms and during April and May when both organic and conventional farms sold a greater proportion of stock than conventional farms. Organic and integrated management systems sold a greater proportion of their beef than conventional in April and May (Figure 5).



	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Organic	8%	6%	13%	26%	21%	6%	2%	1%	1%	6%	6%	6%
Integrated	10%	7%	9%	15%	16%	4%	3%	3%	2%	6%	13%	9%
Conventional	11%	7%	9%	3%	6%	7%	3%	1%	1%	7%	17%	29%

Figure 5 Monthly distribution of cattle sold comparing organic, integrated and conventional farm management systems in the ARGOS project

There were no significant differences detected in the timing of stock purchases or purchase weights between farms of differing management. Table 5 shows the minimum, average and maximum kilograms per hectare of carcass weight purchased annually for organic, integrated and conventional management systems averaged over the four year period.

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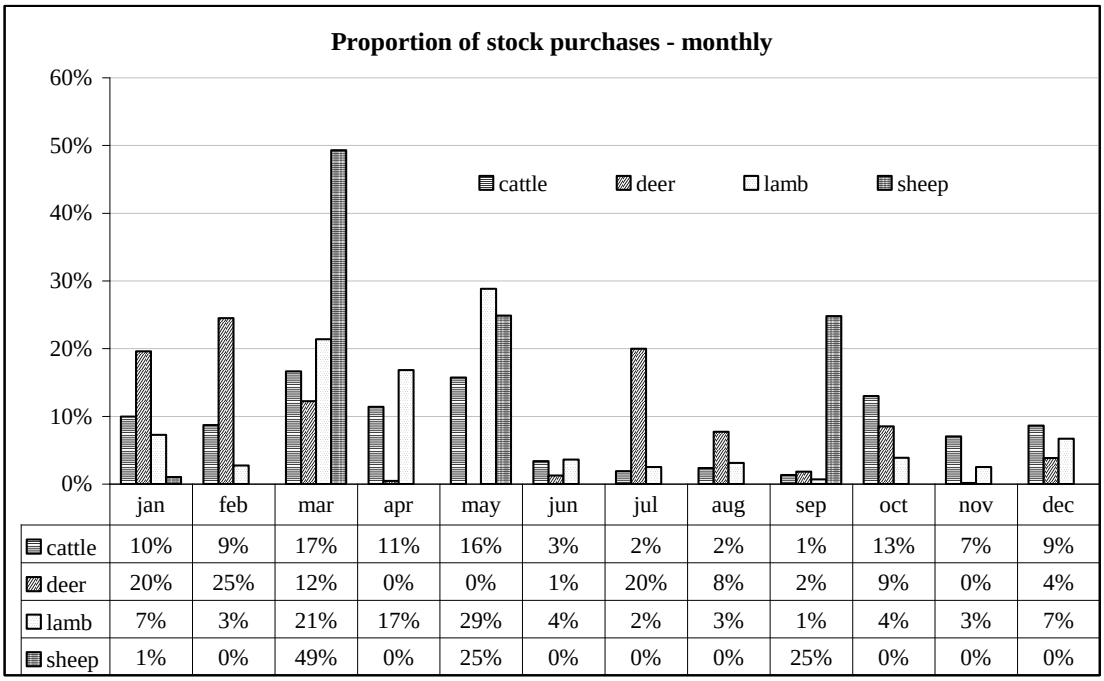
Table 5 Carcass weight, kilograms per hectare, purchased annually by farmers in the ARGOS project

	Organic			Integrated			Conventional		
	Min	Average	Max	Min	Average	Max	Min	Average	Max
Lamb	0	1	9	0	16	81	0	8	256
sheep	0	4	29	0	7	38	0	6	118
cattle	0	11	76	0	19	129	0	18	115
deer	0	0	0	0	0	0	0	98	6

Figure 6Figure shows that ARGOS farmers in total purchase the largest proportion of their stock through the autumn.



	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
cattle	10%	9%	17%	11%	16%	3%	2%	2%	1%	13%	7%	9%
deer	20%	25%	12%	0%	0%	1%	20%	8%	2%	9%	0%	4%
lamb	7%	3%	21%	17%	29%	4%	2%	3%	1%	4%	3%	7%
sheep	1%	0%	49%	0%	25%	0%	0%	0%	25%	0%	0%	0%

Figure 6 Proportion of stock purchased monthly as an average of 4 years of ARGOS data. All management systems are combined

Net lamb exported as a percentage of sheep wintered

The range of values of net exports as a percentage of the total weight of sheep wintered for each management system was considerable greater than the difference in estimated system means as Figure 7 shows. Consequently it is not possible to determine whether there is a difference that can be attributed to management system.

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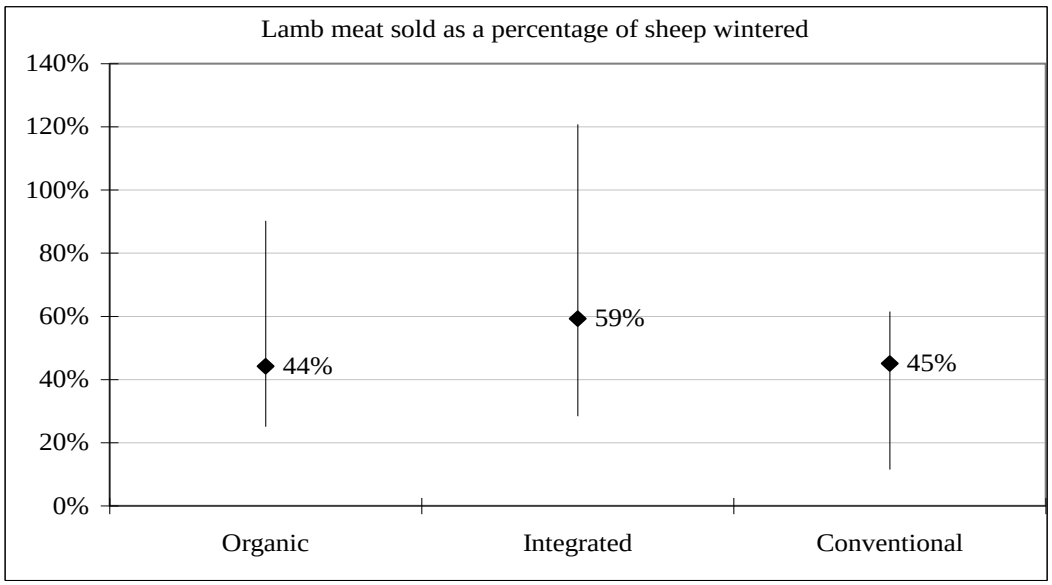

Figure 7 Lamb meat sold as a percentage of sheep meat wintered for organic, conventional and integrated management systems in the ARGOS project

Discussion

Basic farm management for all farmers in this research was similar in that they all had breeding ewes which had lambs; the lambs were sold, ewes were shorn and intestinal parasites were controlled for amongst other typical management activities for these farm types. However each of the management system types had characteristics distinctive to their group. For example organic farmers had a different approach to intestinal parasite control and integrated farmers marketed stock to specific requirements. Thus the core of meat production was similar for all farmers in the ARGOS project in respect to breeding, sales and purchases, and a common theme found through the analysis was the large variability within each of the management systems leading to small or no significant differences between systems.

Net meat export data was benchmarked with matching Beef + Lamb NZ stock classes and similar farm types and showed similar trends with lamb as the dominant meat sold, followed by cattle. Interestingly lamb sales for organics were less than Meat + lamb NZ, integrated and conventional in 2007/08 and 2008/09 under the S.I Hill country and S.I Finishing categories, but very similar under S.I Mixed Finishing (Table 6). This suggests intestinal parasites may be less challenging under a mixed cropping regime because farmers are able to 'cleanse' land of parasite larvae with a cropping phase.

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Table 6 ARGOS net meat exported data (kg/ha) benchmarked with Beef + Lamb New Zealand

		S.I Hill Country				S.I Finishing Breeding				S.I Mixed Finishing			
		2006/07	2007/08	2008/09	2009/10	2006/07	2007/08	2008/09	2009/10	2006/07	2007/08	2008/09	2009/10
	Lambs	51.1	59.7	59.2	43.8	94.0	79.7	82.8	99.0	20.4	83.2	66.2	67.5
	Sheep	9.3	-7.8	6.5	1.0	13.4	12.5	5.3	3.5	-1.1	-0.4	-20.1	1.6
	cattle	4.4	28.4	5.7	30.2	40.9	45.0	26.2	36.7	6.3	32.7	57.5	-0.6
	Deer	-0.2	0.0	0.0	0.0	-0.1	1.3	3.4	-0.2	0.0	0.0	0.0	0.0
ARGOS - All	Total	64.6	80.3	71.5	75.0	148.2	138.6	117.7	138.9	25.5	115.5	103.6	68.5
Meat + LambNZ	**Lambs**		**39.4**	**38.8**			**116.4**	**108.2**			**80.8**	**61.2**	
	Sheep		**-3.1**	**-1.8**			**-2.9**	**0.6**			**-2.3**	**1.4**	
	cattle		**18.8**	**19.6**			**44.2**	**42.5**			**30.3**	**33.2**	
	Deer		**0.3**	**0.5**			**3.8**	**2.3**			**4.5**	**3.1**	
	Total		**55.4**	**57.0**			**153.5**	**161.6**			**113.3**	**98.9**	
ARGOS - Organic	Lambs	7.8	24.9	25.6	31.8	81.1	57.3	57.9	78.9	25.4	71.9	74.1	90.0
	Sheep	19.4	-4.8	7.0	5.4	1.4	23.6	-14.8	13.8	-0.9	25.6	12.9	13.3
	cattle	-25.7	21.3	54.7	58.6	28.7	45.9	21.9	44.6	-125.2	-3.4	21.7	14.2
	Deer	0.0	0.0	0.0	0.0	-0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	1.5	41.4	87.3	95.7	110.6	126.7	65.0	137.3	-100.7	94.2	108.7	117.6
ARGOS - Integrated	Lambs	59.1	79.6	59.4	70.8	121.9	102.9	127.3	117.9	-6.8	74.6	84.7	70.9
	Sheep	36.6	-4.0	27.9	-0.2	15.0	6.1	34.6	10.1	0.6	-4.2	-8.9	-8.5
	cattle	42.3	21.1	43.9	37.4	20.1	5.5	12.6	8.9	69.8	36.2	142.9	-86.2
	Deer	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	137.6	96.6	131.2	108.0	157.0	114.4	174.4	136.9	63.7	106.6	218.6	-23.7
ARGOS - Conventional	Lambs	86.3	74.6	92.7	28.9	87.1	95.8	75.8	103.8	53.4	103.2	40.0	41.7
	Sheep	-28.1	-14.6	-15.3	-2.2	26.2	2.5	6.0	-12.1	-4.0	-44.8	-108.8	-1.9
	cattle	-3.4	42.9	-81.4	-5.3	69.1	83.2	46.2	51.0	30.4	65.2	8.1	70.2
	Deer	0.0	0.0	0.0	0.0	0.5	4.0	10.2	-0.6	0.0	0.0	0.0	0.0
	Total	54.9	102.9	-4.0	21.4	182.9	185.6	138.2	142.1	79.9	123.6	-60.7	110.0

For organic management systems meat production differed from integrated and conventional in that they had a net export of significantly less lamb (kg/ha) than the other two systems and this may be linked to the lower carrying capacity for organic farms, however cattle and sheep sales were similar. There were fewer lamb and cattle sales through spring and early summer with the majority of their sales in April and May. This is mainly a function of the integrated and conventional management systems ability to use management options to assist in increasing daily lamb growth rates that are unavailable to the organic management systems such as:

- Nitrogen based fertilisers use (e.g. Urea) to promote seasonally strategic feed supply. .
- Chemical anthelmintic use for parasite control
- A greater number of options for purchasing stock feed to overcome seasonal feed deficits

Premiums paid by processors for organic lamb typically ceased at the end of April (although this has been extended in some cases in the past) influencing farmers to sell, where possible, for the market premium. Additionally organic farmers tend to farm to pasture supply as part of their risk management strategy, which means carrying capital, as opposed to trading, stock only through the winter.

The pattern of sales for integrated management systems was similar to organic except a greater proportion of lamb was sold through the spring summer period and less through the late autumn period. Sales for conventional management systems differed from the other two systems in that they had a less proportion of their lamb sales through the autumn months and more through the winter and early spring months.

Lamb net meat exported for organic management systems was significantly different from the integrated and conventional management systems. No statistically significant differences were detected in net exports of mutton and beef despite the considerable differences in the estimate mean values, particularly between integrated farms and others. However, the wide within-management-system variability of these parameters means that we are unable to say that no difference exists between systems, only that the analysis has insufficient power to detect a difference. Total net meat exports (all meat) in kilograms per hectare from organic farms were significantly lower at the five percent level (approximately 90 kilograms per hectare) than from conventional farms (approximately 150 kilograms per hectare). On integrated farms net exports

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were estimated to be between the values for organic and conventional but not significantly different from each other.

Table 3 shows no significance in net beef exported per hectare despite the range of 34.3, 17.3 and 40.4 kilograms per hectare for organic, integrated and conventional management systems respectively suggesting wide variability in net meat export for beef within the three management systems.

Organic individual carcass weights tended to be lower for lamb, mutton and beef than the other two management systems although this did not test as significant. The market dictates their carcass specifications and farmers will target these, so the carcass weights in Figure 1 are influenced by market wants rather than different farm management system performance.

Net lamb exported as a percentage of sheep wintered is an efficiency measure and is not just a reflection of a good lambing percentage but looks at productive and rearing ability of the ewe of any size as well as management policy for wintering lamb production support stock such as ewe hoggets, rams and ewes not in lamb. The reason this did not test as significantly different between the farm management systems could be due partly to the wide range of data within each of the management systems. Figure 8 shows the average values of four years of data for the individual farms in the ARGOS project with a 'T' representing those farms that traded in lambs.

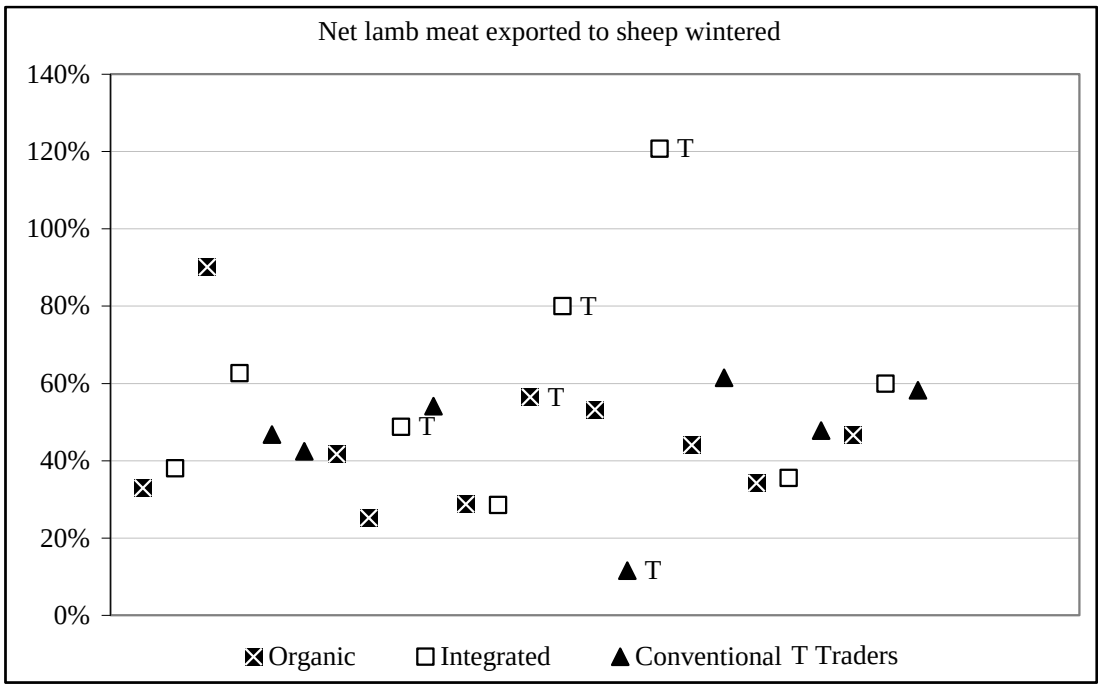

Figure 8 Average of four years of Net lamb meat exported as a percentage of sheep wintered data for organic, integrated and conventional farms in the ARGOS project.

The majority of the farms returned results of approximately 20 to 60% suggesting that there is potential for an increase in efficiency leading to productivity and financial gains.

For example, when comparing 2 similar farms, of approximately 350 hectares with 2000 breeding ewes, from Figure 8 increasing the efficiency from 44 to 61% would result in an extra 12,315 kilograms of lamb meat relating to an additional $67,732.50 in gross revenue.

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Summary

Net meat export is useful as a key performance indicator describing a properties' productive ability/potential. For example portraying a farm as one that produces 200kg/ha of net meat exports per annum indicates the productivity under a certain management style and can be used as part of a suite of key performance indicator tools to assessing farms forming the basis for farm valuation, production targets and general benchmarking amongst farmer, rural professionals and policy makers.

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Appendix

Livestock live weight and dressing out percentage assumptions for June 1

Weights are estimated for 1 June		
Weights are all in kilograms		
Weights		
Ewes = mating weights		
Rams	85	kg
E hgts	42	kg
R hgts	47	kg
W. Lambs	35	kg
Cow	500	kg
Heifer R2	400	kg
Heifer R1	230	kg
Steer/bull R2	450	kg
Steer/bull R1	250	kg
Bull M.A	800	kg
Bull R2	500	kg
Bull R1	250	kg
Stag M.A	200	kg
Hind M.A	100	kg
Stag Yrlg	120	kg
Hind Yrlg	85	kg
Dressing out %	%	
Ewes	45	
Rams	45	
E hgts	43	
R hgts	43	
W. Lambs	43	
Cow	52	
Heifer R2	52	
Heifer R1	52	
Steer/bull R2	52	
Steer/bull R1	52	
Bull M.A	52	
Heifer R1	52	
Steer/bull R2	52	
Steer/bull R1	52	
Bull M.A	52	
Bull R2	52	
Bull R1	52	
Stag M.A	60	
Hind M.A	60	
Stag Yrlg	58	
Hind Yrlg	58	

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PROBLEMS WITH FARM SUCCESSION: THE CASE OF SASKATCHEWAN, CANADA

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Abstract

The succession planning process should start years if not decades before the transfers take place. Unfortunately most farm couples in the exiting generation have not saved enough money outside the farm business to finance their retirement. They have to rely on the farm assets to generate their retirement income either through sale and/or rental. The situation is complicated further when the exiting generation wants the farm business to pass to the next generation intact and to also be fair to all their beneficiaries. A number of tools were investigated including sale of all assets, sale of livestock and machinery and rental of land, insurance on the exiting generation with non-farming beneficiaries claiming the proceeds, and incorporation of the farm business. The only tool that does not require the exiting generation to lower their retirement income and/or the incoming generation to have substantial off farm income is incorporation.

Keywords: succession, planning, goals, rental, insurance, incorporation

Introduction

Succession planning is about finding the right strategy for handing over or selling your business to someone else, whether it be staff, family, friend or entrepreneur, and being prepared for all that transfer entails (Government of Canada, 2010). Succession planning or lack thereof in the farm business context is a major contributor to the changing structure of primary agriculture throughout the world. A lack of planning causes the exiting generation to require substantial assets from the farm business to support their retirement. This leaves the incoming generation in a financially unviable position to continue on in the business without a substantial amount of off farm income. The result, either immediately or within a few years is one less farm reported in the statistics.

Succession planning, in the context of this paper, is part of personal financial management that should begin years, if not decades, before the transfer takes place. Personal financial management consists of insurance management, debt management, and retirement planning. Insurance management entails securing the proper amount and kind of life, disability and liability insurance that suits the life style and life stage of the people involved and the type and size of farm business. Proper management of any farm business requires that debts be serviceable and kept to a conservative level with respect to assets (SMAa). Retirement planning is affected by the goals and objectives of both the exiting generation and the incoming generation and whether the exiting generation needs to rely on farm assets to finance their retirement.

The paper concentrates on the financial calculations associated with transferring the farm business to the next generation. How do the financial position and the goals of the exiting generation affect the resulting financial position of the incoming generation? The other challenges of succession planning with regards to transferring decision making roles and dealing with the associated emotions of those involved are not discussed. Rather, the paper will follow three hypothetical couples through the succession planning process. These couples are labelled as the mattress investors, the conservative investors and the couple more willing to take on risk. The numbers used apply to Saskatchewan, Canada but the situations are applicable to most developed countries in the world.

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