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An investigation into the effects of different housing and
feeding systems on behaviour and milk production of dairy
ewes in mid and late stages of lactation

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Abstract

Comparisons of different New Zealand dairy sheep farm systems are currently lacking. The aim of this study was to evaluate the effects of different management systems on the behaviour and milk production of East Friesian cross-bred sheep at different stages of lactation. Two study groups were evaluated. In study group 1, a mob of 479 mixed-age, mid-lactation ewes were housed 24 h/day, and a separate mob of 473 mixed-age, mid-lactation ewes were managed in a hybrid system (housed between morning and afternoon milkings; grazed lucerne overnight). Both received a total mixed ration (TMR) indoors. In study group 2, a mob of 604 mixed-age, late-lactation ewes grazed pasture 24 h/day, and a separate mob of 452 mixed-age late-lactation ewes were in a hybrid system, grazing pasture overnight. For both study groups, individual milk yield, walking distance, lying time, ambient temperature, live weight, and body condition score (BCS) were recorded. All sheep gained BCS and live weight except the fully grazed late-lactation ewes. For study group 1, fully housed ewes in mid-lactation spent less time lying overall during the day, but more overnight compared with those in the hybrid system, which was likely due to the latter grazing overnight. Lying bout duration was similar between groups, while milk yield was 29% less in housed ewes compared with the hybrid ewes. For study group 2, grazing ewes in late-lactation spent more total time lying each day, had longer lying bouts, and walked further each day than those in the hybrid system. Both late-lactation groups had similar milk yields. Fully-housed sheep showed a positive relationship between daily lying time and increasing ambient temperature ($P=0.07$), however, more detailed weather information would be required to draw conclusions from this. In summary, the hybrid management system seems to improve milk yield in mid-lactation compared with the fully housed system, whereas there was no difference between the hybrid and fully grazed systems in late-lactation. Lying behaviour and walking distances (late-lactation group only) differed among different management systems, however, it is unclear what this means in terms of animal welfare, and warrants further investigation.

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Table of contents

Abstract.....	ii
Acknowledgements.....	iii
Table of contents.....	iv
List of figures.....	vii
Chapter 1:	
A review of the dairy sheep industry and physical and physiological factors affecting sheep milk production.....	1
Introduction	2
1.1 Overview of the dairy sheep industry.....	3
1.2 Factors effecting milk production	5
1.2.1 Genetics.....	5
1.2.2 Age and parity.....	8
1.2.3 Nutrition.....	11
1.2.4 Body condition	15
1.2.5 Stage of lactation.....	16
1.2.6 Number of lambs.....	18
1.2.7 Management system.....	20
Weaning system.....	20
Milking frequency.....	23
Activity level	25
1.2.8 Environmental factors affecting animal welfare and milk production.....	26
Heat stress.....	26
Housing.....	30

1.2.9 Mastitis.....	31
1.3 Methods of measuring sheep activity used in previous studies.....	33
1.4 Summary.....	35
Chapter 2:	
The impact of different management systems on behaviour and milk production of dairy ewes in different stages of lactation; a case study.....	38
Introduction.....	39
2.1 Materials and methods.....	40
2.1.1 Animals and management systems.....	40
2.1.2 Milk yield, BCS and live weight.....	42
2.1.3 Walking distance and lying behaviour.....	42
2.1.4 Weather.....	43
2.1.5 Statistical analysis.....	44
2.2 Results.....	45
2.2.1 Study group 1.....	45
2.2.2 Study group 2.....	48
2.3 Discussion.....	52
Chapter 3:	
General discussion.....	55
Background.....	56
3.1 Key findings.....	57
Milk yield of sheep in different housing systems.....	57
Walking distance of sheep in different housing systems.....	58
Lying behaviour of sheep in different housing systems.....	58

Ambient temperature in different housing systems.....	59
BCS and live weight of sheep in different housing systems.....	59
3.2 Limitations.....	59
3.3 Implications and future research.....	61
References.....	63

List of figures and tables

Figure 1.1 Effect of parity on total milk yield (L) of Laxta dairy sheep in Spain. Source: Ruiz et al. (2000).....	9
Figure 1.2 Average lactation curve of dairy sheep in New Zealand at their first (solid, n=22), second (dashed, n=48), and third or more (dotted, n=52) lactation. Source: Scholtens et al. (2017a).....	10
Figure 1.3 How milk fat concentration is affected by NDF concentration in feed in dairy sheep whose milk yield is >1.5 kg/d. Source: Pulina et al. (2006).....	15
Figure 1.4 Changes in body condition of primiparous (graph one) and multiparous (graph two) Lacaune ewes as they transition from twice-a-day to once-a-day milking (single lamb = ◦; twin lambs = •). Source: Gonzalez-Garcia et al. (2015).....	16
Figure 1.5 Average lactation curves for the first two months of lactation in EF sheep on one New Zealand farm, lambing at different times of the year. Source: Peterson et al. (2005).....	17
Figure 1.6 Weekly milk yield (•), somatic cell count (■), and lactose content (▲) of individual Churra dairy sheep from two weeks post-partum in Spain. Source: Fuertes et al. (1998).....	18
Figure 1.7 Daily milk yield (g) of single and twin-bearing, non-dairy, EF-cross sheep in New Zealand after lambing at different times of the year (*=significant difference; n for each group provided in each column). Source: Peterson et al. (2005).....	20
Figure 1.8 Total daily milk production by dairy ewes which are either machine milked once or twice-a-day and/or suckled by their lambs in Canada. Source: Cant et al. (2000).....	22
Figure 1.9 Milk secretion rate in mammary glands of Sarda dairy sheep in Italy in the hours after being milked. Source: Cannas et al. (2002).....	25

Figure 1.10 The relationship between maximum ambient temperature (°C) and average relative humidity (RH) and daily milk yield (g) of Mediterranean dairy sheep. Source: Finocchiaro et al. (2005).....	28
Figure 2.1 The housing barn used to house ewes in mid-lactation either full-time (n=479) or during the day (n=473), and ewes in late lactation during the day (n=452) in Taupo, New Zealand, over summer.....	41
Figure 2.2 Inside the housing barn with kiln-dried wood chips as bedding.....	42
Figure 2.3 Average daily milk yields (litres ± SEM) of dairy sheep in two study groups of two treatment groups each: study group 1: 1) mid-lactation housed indoors full-time, fed TMR, 2) mid-lactation in a hybrid housing system, housed during the day between morning and afternoon milking, fed TMR, grazing lucerne outside overnight. Study group 2: 1) late-lactation ewes grazing pasture outside full-time, 2) late-lactation ewes in a hybrid housing system, housed during the day between morning and afternoon milking, fed TMR, grazing pasture outside overnight. The vertical lines indicate the start and end of the transition period.....	47
Figure 2.4 Average hourly walking distance (m ± SEM) of dairy sheep in late-lactation grazing full-time versus those in a hybrid housing system, housed inside during the day and outside overnight, as measured on five ewes per treatment using GPS collars over a two-week period between days 23 and 36 of a 47-day trial. Vertical lines indicate the beginning and end of milking periods in the morning (0400-0700 hrs) and afternoon (1300-1600 hrs).....	49
Figure 2.5 A map of the research farm displaying the GPS recordings for one GPS unit attached to a sheep in the fully grazing group for each day (different days indicated by the colour of the location points). The housing barn is located at point A, and the milking parlour at point B. Aerial map shows fence lines of the previous cow dairy farm that have been re-fenced for sheep.....	50
Figure 2.6 Maximum daily ambient temperature (°C) in a housing barn (●) and outside (▲) versus the average daily lying time (mins) of dairy sheep in late-lactation grazing full-time and those in mid-lactation housed full-time, as measured by accelerometers during a two-week period in summer.....	51

Table 1.1 Average lactation characteristics of different dairy sheep breeds in their originating countries. Data for first three columns taken from Haenlein (2007).....	7
Table 1.2 Least-square means of milk component variables in Churra dairy ewes of different parity. Source: Fuertes et al. (1998).....	11
Table 1.3 Consequences of high and low feeding levels (FL) from day 140 of gestation on udder morphology and milk yield, averaged over 12 weeks of lactation (high FL=110% of nutrient requirement; low FL=90% of nutrient requirement). Source: Cannas et al. (2002).....	13
Table 2.1 Average lying behaviour of dairy sheep in different lactation stages and housing systems during the day and overnight, excluding milking periods (4-7 a.m. & 1-4 p.m.), as measured by accelerometers during a two-week period in summer. Values presented are averages \pm SEM.....	48