

THE DEVELOPMENT OF A HIGH PRODUCTION DAIRY HERD

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Milk production in northern Australia has historically been characterised by low quality diets and low production per cow (Lowe and Hamilton 1985). Since 1990 there has been a major change in feeding technology in the northern Australian dairy industry. In 1990, 3% of farms used silage while in 1995 this figure was estimated to be 30% with some farms producing up to 10,000 L/lactation. The applied research and extension group at Mutdapilly Research Station decided to develop a high production experimental herd (HPH) to demonstrate (a) that to the industry that high production per cow can be achieved economically and (b) that genetics were not limiting production.

The herd consisted of around 24 cows calving each autumn and spring from 1992 to 1994. The Australian Breeding Value (ABV) of the herd in 1992 was 13.2 kg fat and protein compared with the Australian ABV average of 17.5 kg. Animals in 1992 were randomly selected from the main herd of 1991 (Table 1). Heifers were introduced each season to replace cull cows and this was mainly for non-pregnancy. The feeding system consisted of a mixed ration (MR) fed between am and pm milking and pastures grazed at night. The MR (14-16 kg DM/day) consisted of maize silage, lucerne hay, grain, molasses, meat and bone meal, cottonseed meal, fat and minerals. Pasture intake was estimated at 4-6 kg DM/day. Pastures at 0.3 ha/cow were predominantly irrigated lucerne in summer or clover-ryegrass mixtures in winter. The cost of MR components and pasture were calculated each month. Animals within the HPH were used for various feeding and heat stress management studies over the 3 years.

Table 1. Milk yield, composition, liveweight and reproduction in each season

Parameter	1991		1992		1993		1994	
	Autumn	Spring	Autumn	Spring	Autumn	Spring	Autumn	Spring
Milk yield (L/cow)	4808	4547	6572	7089	7176	7285	7554	7538
Lactation (days)	291	254	293	294	291	300	299	297
Total cows	20	41	24	13	25	24	24	22
Heifers	11	13	5	1	5	12	5	4
Fat (%)	3.52	3.73	3.61	3.63	3.66	3.65	3.94	4.00
Protein (%)	3.17	3.11	3.25	3.05	3.24	3.22	3.11	3.02
Lactose (%)	-	-	4.98	4.93	4.97	4.90	4.89	4.87
Liveweight (kg)								
post calving	491	523	509	529	576	545	595	601
drying off	530	533	619	633	621	579	614	651
Pregnancy (%)								
first insemination	-	-	50	54	64	21	50	44
overall	76	54	79	54	92	54	67	63

In 1991/92 prior to the start of the HPH the Mutdapilly herd averaged 4611 L/cow and over 3 years production of the HPH rose to 7500 L/cow with most of this increase occurring from 1991 to 1992 (Table 1). This increase was a result of higher intakes, higher quality forages and regular ration formulation and was reflected in the increased milk fat per cent and liveweights with time. The average cost per cow of the MR was \$2.57/day with pasture costs of \$0.73/day to give a total feed cost of \$3.30/day or around 13c/L. This compares with industry average feed costs of 15 c/L for 1992-1995 (G. Busby, pers. comm.). The herd was a valuable demonstration to the industry of the speed and economy with which cows of below average genetic rating will respond to additional inputs of formulated, high quality feed.

LOWE, K.F. and HAMILTON, B.A. (1985). *Tropical Grassland Society*, Occasional Publication No.3.