

**OPTIMISING FEED SUPPLY, REPRODUCTIVE EFFICIENCY AND PROGENY GROWTH TO MEET MARKET SPECIFICATIONS. 2. REPRODUCTION IN AUTUMN AND WINTER CALVING HERDS**

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In the Mediterranean environment of southern Western Australia, calving has traditionally been in late summer or autumn, between February and April, with the aim of producing cattle suitable for slaughter or sale at 8-10 months of age. As pasture production peaks in spring, calving during this period does not correspond with the nutritional demands of the cow. Calving in winter would more closely match the cow's nutrient demands with peak pasture production. The aim of this experiment was to compare the reproductive performance of cows that calve in either autumn or winter, while maintaining a common weaning time in early January.

Approximately 300 cows were mated in June (autumn drop) and a further 300 in September (winter drop) each year for 3 years, with a 1-off artificial insemination (AI) program (CIDR and prostaglandin). Two days after the AI program, back-up bulls were run with the cows for a period of 6 weeks. Calves from both mating groups were weaned at the same time at the beginning of January, being 9 months and 6 months of age, respectively.

**Table 1. Average liveweights (LW) and reproductive performance ( $\pm$  se) of autumn and winter calving cows.**

	LW at mating (kg)	Submissions to AI (%)	PTIC <sup>A</sup> (%)	LW at weaning (kg)
<b>Autumn</b>	June			January
Year 1	428.5 $\pm$ 2.36	82.0 $\pm$ 4.64	91.3 $\pm$ 0.69	609.8 $\pm$ 3.57
Year 2	518.6 $\pm$ 3.0	86.0 $\pm$ 3.51	90.5 $\pm$ 0.74	643.2 $\pm$ 3.40
Year 3	532.7 $\pm$ 3.17	91.7 $\pm$ 2.03	96.5 $\pm$ 1.79	664.9 $\pm$ 2.94
<b>Winter</b>	September			January
Year 1	420.3 $\pm$ 2.32	70.6 $\pm$ 2.40	77.8 $\pm$ 4.38	510.8 $\pm$ 3.34
Year 2	509.9 $\pm$ 2.93	83.7 $\pm$ 1.80	95.0 $\pm$ 1.31	587.9 $\pm$ 3.47
Year 3	579.1 $\pm$ 3.57	80.1 $\pm$ 3.30	96.4 $\pm$ 0.43	641.8 $\pm$ 3.39

<sup>A</sup> Pregnancy tested in calf

The liveweight of both groups of cows at their first mating in 2001 was below optimum due to the late arrival of seasonal autumn rains. While the submission to AI and in calf (PTIC) performance of the autumn cows was acceptable, those of the winter cows were adversely affected (Table 1). The liveweight of the autumn cows increased in the subsequent 2 years, and submission rates and PTIC results were maintained. Winter liveweight at mating considerably improved in years 2 and 3, which is reflected in submission to AI and PTIC results. This is likely to be due to the better match of pasture to peak demands and/or better stocking rate management. Liveweights of winter calving cow at weaning were lighter than autumn calving cows. It is likely that this was due to higher nutritional demands of their younger, suckling calves compared with autumn born calves. Although the winter cows were lighter at weaning, they had sufficient time to re-gain weight before mating.

The average number of calves weaned per cow was 0.91 and 0.80 for the autumn and winter herds, respectively. The lower values for the winter group were largely due to the poor submission to AI and the low in calf rate in year 1. Average weaning liveweights for the calves over the 2 years was 334 and 259 kg for autumn and winter calves, respectively.

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