

THE EFFECT OF THE CATTLE TICK ON GROWTH RATES AND REPRODUCTIVE RATES OF
BOS INDICUS CROSS HEIFERS IN NORTH QUEENSLAND

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Tick infestation occurs over $1.3 \times 10^6 \text{ km}^2$ in northern Australia. It has been difficult to estimate the economic effects of ticks due to a lack of information on their effects on growth and reproduction (Anon 1975).

In August 1975, 120 weaner heifers (50% Bos indicus) were randomly allocated on fasted liveweight and tick susceptibility into six groups. There were two treatments, dipped and undipped, with three replications. The heifers grazed native pasture in sub-coastal north Queensland at 1 beast to 2 ha until July 1976 when stocking rates were reduced to 1 beast to 2.7 ha. Cattle were mustered three weekly for weighing, tick counting and dipping. Mating for three months commenced January 1977.

TABLE 1: Liveweight gains and tick counts of heifers.

Seasonal conditions		Dry	Wet	Dry	Wet	Overall
Time of year		Aug.- Oct.75	Oct.75- Jul.76	Jul.- Nov.76	Nov.76- June 77	Aug.75- June 77
ADG* kg/day	Dipped	0.166	0.280	-0.306	0.655	0.306
	Undipped	0.207	0.227	-0.359	0.622	0.273
	LSD P<0.05	0.042	0.019	0.028	0.031	0.017
No. ticks (4.5-8mm) side ⁻¹		18.0	8.6	16.2	8.7	11.4
Standard deviation		8.7	6.6	15.5	6.6	7.1
B ⁺		-0.0034	-0.0039**	-0.0022*	0.0004	-0.0014
± SE of B		0.0027	0.0013	0.0008	0.0027	0.0013

* Average daily gain.

+ Regression coefficient of ADG against tick counts * P<0.05 ** P<0.01.

Dipped heifers had significantly higher ADG in all seasons except the first dry season. Significant negative correlations between ADG and mean tick counts on undipped heifers occurred during the yearling to two-year-old phase. One heifer from the undipped group died, attributed to heavy tick infestation. Dipped heifers conceived two weeks earlier (P<0.05) than undipped heifers, but final pregnancy rates were similar in both groups (93.4% v 90.8%).

To our knowledge this is the first time that significant correlations between ADG and tick counts have been reported. Johnston and Haydock (1969; 1971) failed to show significant correlations in similar animals in a similar environment except over very short periods. However, the resulting weight differences were insufficient to affect overall conception rates, suggesting that tick control is unnecessary in replacement Bos indicus cross heifers. The delayed conception in undipped heifers may have a deleterious effect on fertility at subsequent matings.

ANON (1975). "Cattle Tick in Australia". Inquiry by the Cattle Tick Control Commission. Australian Government Publishing Service: Canberra.
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