

Abstract

# Milk Delivery in Tropically-Adapted Neonatal Beef Calves <sup>†</sup>

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**Abstract:** Across beef breeding herds of northern Australia, poor pre-partum nutrition of cows is consistently associated with increased calf wastage between confirmed pregnancy and weaning. With key nutrients at play (especially energy, protein, phosphorus and water) also being associated with milk yields, a specific problem mediating calf mortality is likely to be low milk production and delivery during the highest-mortality-risk period that is the first week after birth. Recent research demonstrated that milk-deprived newborn calves die of dehydration within 1–3 days. Newborn Brahman and tropical composite calves across three grazing herds (n = 75) and two penned herds (n = 106) were investigated. Calf milk uptake during the first 1–2 days of life was measured by plasma immunoglobulin (IgG) levels and overall milk uptake and health during the first two weeks of life was measured by growth rate from birth. Grazing calves with average IgG levels of 2247, 2508, and 2656 mg/100 mL had respective average growth rates of 0.5, 1.0, and 1.4 kg/d. Penned calves with average IgG levels of 2064, 2498 and 2504 mg/100 mL had respective average growth rates of 0.6, 1.0, and 1.4 kg/d. The association between calf immunoglobulin uptake and initial growth demonstrates individual variation between tropical beef calves for early milk uptake and that risk factors limiting milk delivery in the first days of life would place calves at greater risk of poor health and mortality.

**Keywords:** calf; survival; neonatal; milk

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