BIODUNDER: ITS USE AS A VEHICLE FOR THE DELIVERY OF SUPPLEMENTS TO GRAZING CATTLE

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Mixtures of molasses and water are the usual vehicle for dispensing supplements in roller-drum lickers. They suffer the disadvantages that molasses does not run freely from storage tanks, mixing equipment is needed, and that the mixture becomes unpalatable after four to seven days due to fermentation.

Biodunder is the liquid by-product of the fermentation of molasses and subsequent distillation for ethyl alcohol production, and is more stable in the field than molasses. It typically contains 60% water, 23% carbohydrate, 5.5% crude protein, 0.8% fat and 10.3% ash. Although biodunder has been fed to cattle as a molasses substitute during drought, no routine use in the beef industry has been established. While the high moisture content increases transport costs per unit of nutrient, it has benefits in terms of ease of on-farm handling and storage. The study reported here investigated the use of biodunder in the delivery of supplements of phosphorus and urea to grazing cattle. Of particular interest was the palatability to cattle and the intake of supplements mixed with biodunder.

A bench-top study confirmed that a mono-ammonium phosphate based fertilizer, Liquifert P (Incitec) was stable in solution for at least a month.

The first trial involved 49 yearling Brahman crossbred steers grazing at the National Cattle Breeding Station, Belmont. The trial commenced in December when pasture was green and concluded in October when only dry pasture was on offer. For the first nine weeks, biodunder alone was offered in a 1,200 L roller-drum licker (Poly Processing Aust. Pty Ltd). For the next eight weeks Liquifert P was mixed with biodunder to give a final concentration of 30 g Liquifert P/L. Later in the year during the dry season, urea was mixed with biodunder at a concentration of 42 g/L. Urea supplementation continued for another 22 weeks.

The initial daily intake of biodunder alone was 0.2 L/head increasing to 0.7 L/head in week five. The mean intake over nine weeks was 0.3 L/head. There was no decrease in biodunder intake when the phosphorus was added. The mean daily intake over the next eight weeks was 0.4 L/head (3.4 g P/head). This phosphorus intake would have been sufficient to allow steers of more than 350 kg liveweight to gain weight rapidly on phosphorus deficient country, provided all other nutrients were in adequate supply. The initial daily intake of the urea biodunder mixture was 0.3 L/head (12 g urea) increasing to 1.2 L/head (50 g urea) at the end of the dry season. The usual recommendation in Queensland is that the daily urea requirement of adult cattle during the dry season is 50 g/head.

The second trial was conducted with 120 lactating Brahman crossbred cows on a commercial property on phosphorus deficient country near Marlborough in Central Queensland. The concentrations of supplement in the biodunder and the methods for its delivery were the same as in the first trial. Over a 65 day period when green pasture was on offer, the mean daily intake of the phosphorus biodunder mixture was 0.6 L/head (4.6 g P). The recommended daily supplementary phosphorus requirement for lactating mature cows in phosphorus deficient country in Queensland is 4 g/head. During a further 60 day period in the dry season after the calves had been weaned, the mean daily intake of the urea biodunder mixture was 1.3 L/head (54 g urea).

This study has demonstrated that biodunder can be used successfully to supplement grazing cattle with phosphorus and urea. Biodunder alone or mixed with phosphorus or urea was readily accepted from roller-drum lickers by cattle. Even at a first attempt, the intakes of phosphorus and urea were near the recommended amounts. The palatability of biodunder suggests that intake of supplement could be controlled with some degree of precision by varying the concentration of supplementary nutrient in the mixture.

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