COMPULSORY WATER MEDICATION - SOME OBSERVATIONS

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The major thrust of the AMLRDC sponsored Northern Australia Programme is to lift productivity of current breeding herds 20% by 1994. A key component in this strategy is to optimise phosphorus intake by direct animal supplementation; and frequently fertiliser grade mono-ammonium phosphate (MAP) is the most cost effective choice. Traditionally this is offered in a variety of dry, loose mixes. Unfortunately, acceptance is often variable and frequently intake is lowest during the summer months when growth potential is at a maximum.

Where access to water is controlled, water medication based on crude phosphoric acid (CPA) dispensers has provided an alternative approach. However, results with this technique have been less than consistent and, in some instances, serious health problems and/or deaths have been recorded in supplemented cattle (cf. review by Winks, 1988).

The more recent development of reliable and fail-safe, dry granule dispensers - ideally suited to MAP based mixtures - has rekindled industry interest in this approach. Accordingly, we are examining various facets of compulsory supplementation with MAP in water.

Thusfar seasonal conditions have prevented us from quantifying one of our prime objectives ie voluntary water intake on MAP supplemented waters. However, two significant observations have been made. In the first instance MAP is used because of its price, ease of handling and claimed solubility. Repeated measurements at two sites have raised doubts as to the practical accuracy of this last assumption. Water "locked up" for 12 to 15 hours contained better than 95% of the targeted P concentration (0.31 g L^{-1}). However, initiation of the dispense/dissolution process either by cattle drinking or by manual emptying gave disappointing results. Two hours after the refilling process began, water still contained < 0.19 g P L^{-1}; and this occurred at water temperatures > 28 °C. The implications for the middle and tail of the mob are obvious. Animals failing to share the stood-over water would at best get 50 to 60% of the targeted P dose. This may help explain some of the highly variable results obtained even with P medicated water systems.

A second and potentially threatening observation concerned cadmium (Cd) levels in MAP treated water. At both sites, the Cd concentration of the treated water was markedly in excess of the maximum recommended level (0.010 mg Cd L^{-1}) for livestock. Obviously these levels will be influenced by numerous factors - not least the high Cd content of currently available MAP sources (Rayment, *pers* cm). The implications and management of this situation will be discussed.

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