PHOSPHORUS FERTILIZATION AND ANIMAL PRODUCTION

P.C. KERRIDGE and R.W. McLEAN

CSIRO Division of Tropical Crops and Pastures, St. Lucia, Queensland 4067

Pasture improvement through legume introduction and superphosphate fertilization has been central to the philosphy of improvement of grazing lands for the beef industry over the last thirty years. More recently there has developed the idea that improvement can be made with very low inputs of fertilizer by using legumes adapted to low fertility soils.

A research program at the CSIRO Narayen Research Station is investigating the effects of P fertilization of legume pastures on animal production.

The experimental area is on a light textured soil of low P status. Over the first 3 years under low to moderate grazing pressure, the results have shown that while legume and subsequently grass production have increased due to P fertilization, animal production is primarily related to the P status of the pasture or soil. This is irrespective of the botanical composition of the pasture. Diet selection and bone biopsy studies have suggested portion of the response is due to P deficiency in the diet. This will be further investigated by means of direct supplementation.

Response does not occur above available soil phosphorus levels (BSES) of 10-12 ppm. Many of the light textured soils in south-east Queensland have soil phosphorus levels above this range and may not be responsive to P fertilization. But where the P status is lower large increments of LWG for small additions of P fertilizer are likely to occur.

Over the longer term, where high grazing pressure is maintained, the effect of P fertilization through increasing pasture growth is likely to become more important.