

UREA MOLASSES BASED SUPPLEMENTS AS AN ECONOMICAL FEED
SOURCE FOR RUMINANTS

By

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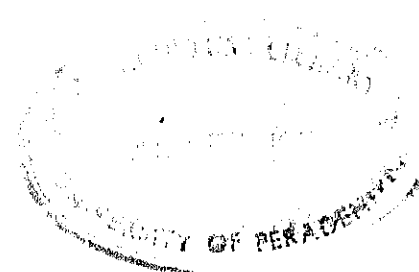
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ABSTRACT

Three experiments were conducted to study the suitability of urea molasses based diets for ruminants. The first experiment was carried out to identify a low cost supplement that would improve milk production in lactating sahiwal cows maintained under grazing condition in the coconut triangle by evaluating urea molasses based diets. Eighteen multiparous Sahiwal dairy cows were allotted at calving to three groups balanced by milk yield in previous lactation. Control group received the concentrate, which was formulated at the farm to feed the entire milking herd (diet 1). Other two groups received concentrate mixtures (diet 2 and diet 3) in which 40g urea per kg concentrate and 40g urea plus 30g fish meal per kg concentrate respectively have been used to substitute 50% and 75% of coconut poonac in the conventional mixture. All the cows were allowed with free grazing and were milked twice a day. Concentrate was provided during milking. Concentrate intake was recorded and proximate composition of representative samples was analyzed. During the first 200 days of lactation 24 hour milk yield of individual cows was recorded weekly. Milk samples were used to determine fat content. Concentrate intake of diet 2 was lower ($p < 0.05$) than control (diet 1) but higher than diet 3. Actual milk yield and 4% fat corrected milk yield were significantly higher ($p < 0.05$) in diet 2 compared with diet 3 or control (diet 1). The difference in milk yield between diet 3 and diet 1 was not significant. Milk yield per kilogram of concentrate was lower in group fed diet 1 compared with group fed diet 2 or diet 3. Cost of concentrate per kilogram of milk was 47% lower ($p < 0.05$) for diet 2 than diet 1.

Second experiment was conducted at the Department of Animal Science, University of Peradeniya, to study the effect of inclusion of undegradable dietary protein (UDP) in the urea molasses bolus feed used for sheep. Five sources of UDP namely,

local fish meal (LFM; T₁), imported fish meal (IFM; T₂), refuse tea leaf (RTL; T₃), heat treated soybean meal (HTSBM; T₄) and formaldehyde treated coconut poonac (FTCP; T₅) were incorporated in urea molasses bolus with a control (T₀) containing no UDP source, were tested in a total collection experiment with sheep. Treatments were arranged in a randomized complete block design with three replicates. Test feeds were supplemented, at a fixed level based on body weight (0.5kg/100kgBW), with untreated rice straw *ad libitum* as basal feed. Treatment effect was significant ($p < 0.05$) on straw dry matter intake and digestibility, but varied with the source of UDP. Source of UDP did not have any significant change in rumen parameters and blood metabolites of the animal ($p > 0.05$). There was a higher ($p < 0.05$) daily weight gain and nitrogen retention with refuse tea leaf as a source of UDP.

Third experiment was conducted to study the effect of feeding UDP on the degradation of rice straw. This *in situ* study was conducted at the Department of Animal Science of the University of Peradeniya. Urea molasses bolus formulae used for the experiment 2 (T₀ to T₅) containing five different sources of UDP and control were used. Canulated sheep were fed with basal feed of rice straw supplemented with test diets at 0.5kg /day/100kg body weight. Organic matter and dry matter degradation of rice straw were studied. The straw degradation characteristics obtained were in normal range irrespective of treatment.

The results of the first study suggest that 50% substitution of coconut poonac with urea in the conventional concentrate reduces the cost of concentrate by 47% which increases milk yield and persistency in lactating Sahiwal cows maintained under grazing condition in the coconut triangle. The results of the second and third study suggest that the inclusion of refuse tea leaf at the rate of 150g/kg in the urea molasses bolus increases weight gain in sheep.