ABSTRACT

STRATEGIES FOR IMPROVING THE NUTRITIVE VALUE AND UTILISATION OF COCOA (*Theobroma Cacao*) POD HUSKS AND RICE (*Oryza Sativa*) STRAW FOR RUMINANT FEEDING IN THE REPUBLIC OF TRINIDAD AND TOBAGO

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The study consisted of four experiments which examined the nutritive value of cocoa pod husks (CPH) and rice straw (RS), var. Oryzica I; and considered methods for their improved utilisation as ruminant feeds.

Experiment I investigated the effects of various processing methods on the nutritive value, bulk density (B_D), dehydration rate and production costs of CPH. The effects of various combinations of urea treatment on the nutritive value of CPH were considered in a 3 x 4 x 5 factorial arrangement in Experiment II. In Experiment III, the effects of graded levels (20, 30, 40 and 50%) of CPH on the digestibility of rations were determined using a 3 x 4 factorial combination. Experiment IV investigated the nutritive value of RS and the effects of urea ensiling on nutritive value in a 2 x 4 x 5 factorial arrangement.

The results indicated that CPH was of moderate nutritive value, containing over 9.0% CP and a good supply of minerals. Processing the husks prior to dehydration improved dehydration rate, bulk density and nutritive value. Production of CPH chips (CPHC) was the most feasible

processing method, but off-farm production was not feasible due to high transport cost. Urea treatment significantly ($P \leq 0.001$) improved nutritive value of CPH, with CPHC showing the best overall improvement. Optimum treatment combination was at 3.0% urea for three days. The digestibility of the experimental rations was significantly ($P \leq 0.001$) affected by the level and form of CPH inclusion. Calculated animal performance indicated that all treatments could satisfy the maintenance requirements for sheep. RS used in the study was of very poor quality, low in CP (< 5.0%) and digestibility (< 25%), and high in fibre (> 75%). Urea treatment significantly ($P \leq 0.001$) improved the CP and digestibility, but these were small in real terms.

It was concluded that CPH is a suitable feed ingredient for ruminants. When processed on-farm, it is a competitive feedstuff which can form the basis (up to 50% of diet) of a good maintenance ration capable of supporting limited production. Oryzica I is a very poor quality RS which may need considerable processing and treatment for acceptable improvements in nutritive value.

Key Words: Cocoa pod husks, Rice straws, Ruminant feeding, Urea treatment, Digestibility