The use of leucaena leaf meal (LLM) in practical poultry rations has been impaired by the presence of a toxic alkaloid, mimosine. This toxicity can be removed by supplementation with metal ions. In this way, mimosine chelates with the metal ion, preventing its absorption in the gastro-intestinal tract. Ferrous or aluminum sulphate have been used as chelating agents (Acamovic and D'Mello, 1980, 1981). The level of inclusion of LLM varies between 5-20% (Rivas et al., 1978; Chen et al., 1981).

Leucaena was harvested and allowed to pre-wilt for 3 days, sun-dried for 4-5 days, milled, and incorporated into layer rations. Three rations were tested with 30 week old layers: A = control, B = 10% LLM and C = 20% LLM. Feed intake, body weight, egg production, egg weight, egg shell thickness, and yolk color were recorded. The experiment lasted 8 weeks.

Initially, layers on the experimental diets lost weight with a drop in egg production. After the second week there was an improvement in body weight due to a linear increase in feed intake. Also, egg production improved and though there was no significant difference among the LLM diets, production was higher than those on the control ration. Layers on 20% LLM produced larger and heavier eggs but the differences were not significant between the LLM diets. Egg yolk color improved in the LLM diets. This has been attributed to the higher xanthophyll pigments in the LLM. Egg mottling was observed in the LLM diets, which is attributed to the interference of tannins present in leucaena with pigment metabolism in hens (Armanious et al., 1973).

There was no incidence of mortality, which could be attributed to the detoxification by the prewilted and sundrying. The carcasses of layers on LLM had lower fat content than the control due to the fact that saponins in LLM cause reduction in fat deposition in laying hens (Whitehead et al., 1981). The result suggests that a simple and inexpensive treatment of LLM is sufficient to remove toxicity and render LLM usable in poultry rations.

References: