THE PERFORMANCE OF MALE BROILER CHICKENS FED A DIET CONTAINING SAGO STARCH

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Summary

An alternative energy source in broiler diets to substitute for expensive cereals gains is needed. A study was conducted to assess the effects of diets containing 10\% sago on the performance of male broiler chickens in PNG. Performance was compared with the normal commercial broiler starter and finisher diets used by the Niu Gini Table Birds Company. A complete randomised design was used with three replicates each of 135 birds for each of the two treatments. Feed intake and live weight were recorded weekly. The production performance of male broiler chickens fed a diet containing 10\% sago was not significantly different from chickens fed the control diets. Sago starch can therefore be included as a substitute for cereal grains in broiler diets at an inclusion rate of 10\% without detriment to growth and efficiency.

I. INTRODUCTION

There is a need to find an alternative energy source to grains to include in livestock diets in developing countries because of the high cost of importing grain. The total cereal imports for livestock feed into PNG are estimated at 47000 tonnes per year (DAL, 1992) with the Niu Gini Table Birds Company importing about 9500-10000 tonnes annually. There are several energy sources in PNG that have the potential to be developed, such as cassava, taro and sweet potato. These feedstuffs are low in energy compared to cereal grains, but can replace some of the ingredients in a diet (eg. Springhall, 1965; Mandich, 1989).

Sago (\textit{Metroxylon spp}) starch, which is extracted from the stem tissues of the sago palm, is one of the energy sources that could be developed for livestock feed. There are large areas of swampland covered with sago palms in the southern and northern parts of PNG that could be exploited for sustainable sago starch production. Commercial sago starch production has been developed in countries like Indonesia and Malaysia whereas in PNG the resource is yet to be developed. Successful use of sago in livestock feeding has been reported (Springhall, 1965; Springhall and Ross, 1965a,b; Dunsmore and Ong, 1970; Ong, 1973; Ong, 1976). The aim of this study was to assess the effects of diets containing sago on the performance of broiler chickens in PNG.

II. MATERIALS AND METHODS

As there is no sago processing company in PNG, Niu Gini Table Birds Company imported the sago starch from Malaysia. The control diets were normal commercial broiler starter and finisher diets formulated and mixed by the Niu Gini Table Birds Company. The experimental starter and finisher diets were formulated using sago to replace 10\% of the grain in the commercial ration. The crumbled starter diets contained 220 g CP/kg and the pelleted finisher diets contained 200 g CP/kg.

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A total of 810 day old (Tegel strain, TM80) male broiler chickens were used in the study. A completely randomised design was used with three replicates of 135 birds per treatment. Three pens in a broiler shed at the University farm were partitioned for the trial. The University farm is located in the lowlands of PNG. The relative humidity was high and ambient temperatures range between 25 and 30°C. All birds were weighed weekly. Chickens were fed ad libitum and the starter diet was changed to finisher diet at 21 days of age. Daily feed intake was recorded for the 42 d trial period. Live weights were recorded on a weekly basis. Mortalities were recorded as they occurred during the trial period. Data were analysed using the Minitab system (Ryan, et al., 1985).

III. RESULTS AND DISCUSSION

An analysis of feed intake, live weight gain and feed efficiency indicated that there was no significant difference in the starter or grower phase between the groups on the two diets (Table 1). There was no significant difference (P>0.05) in overall mortality rate in chickens fed the control and sago diets in the starter (3.7 and 2.7%) and grower (11.6 and 7.9%) phases respectively.

<table>
<thead>
<tr>
<th>Trait</th>
<th>0-21 days</th>
<th>0-42 days</th>
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<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Sago</td>
</tr>
<tr>
<td>Feed intake (g/kg)</td>
<td>1.05 ± 0.03</td>
<td>1.04 ± 0.01</td>
</tr>
<tr>
<td>Weight gain (g)</td>
<td>749 ± 5.8</td>
<td>742 ± 3.4</td>
</tr>
<tr>
<td>FCR</td>
<td>1.30 ± 0.03</td>
<td>1.30 ± 0.06</td>
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Mass within the same row and trait with the same superscripts are not significantly different (P>0.05).

These results showed no adverse effects of feeding sago at an inclusion rate of 10 percent of the diet, which confirms other findings (Springhall and Ross, 1965a,b; and Dunsmore and Ong, 1970). Further study of the effects of higher rates of dietary inclusion is indicated.

REFERENCES

Department of Agriculture and Livestock (DAL), (1990). Didimag, 22: (2) 3.