EFFECT OF DAY-OLD DEBEAKING AND FOWL POX VACCINATION ON THE PERFORMANCE OF BROILER CHICKENS IN PAPUA NEW GUINEA

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ABSTRACT

In a 2 × 2 completely randomised factorial design, 3000 day-old broiler chickens were assigned to four treatment combinations of debeaked, non-debeaked, fowl pox vaccinated and non-vaccinated groups.

By the end of the first three weeks, the control and vaccinated-only groups were slightly heavier than the two debeaked groups. At nine weeks of age, only the control group was slightly heavier. No significant differences were noted for the four groups as to feed efficiency or mortality.

In tropical developing countries it may be beneficial to not debeak broilers rather than to rely on unskilled labour to perform the operation. Vaccination had no real effect in this experiment. Non-vaccinated chickens, however, may be subjected to the risk of fowl pox.

INTRODUCTION

Debeaking and vaccination against fowl pox are carried out by hatcheries in Papua New Guinea on day-old broiler chickens before despatch to customers. Day-old debeaking is known to reduce the incidence of cannibalism. The effect on performance has been reported by many authors with conflicting results. Darrow and Stotts (1954) showed that removal of one third to one half of the maxilla at one day of age had no effect on body weight but feed efficiency was improved. Lee and Reid (1977) observed that the debeaked birds consumed less feed and were lower in body weight compared with non-debeaked birds, but feed efficiency was not affected. Combs *et al.* (1955), Huston *et al.* (1956), Andrews and Goodwin (1969) and Andrews (1977) observed that debeaking at one day of age had no effect on feed efficiency or growth rate.

Lubbehusen *et al.* (1936) suggested that vaccination at day old with fully potent fowl pox virus presented a considerable danger as the chicken's resistance to other diseases was lowered. However with the use of less potent pigeon pox vaccine and the administration of antibiotics in modern feed formulas, there appears to be no effect of vaccination on the performance of chickens (Hungerford 1962).

In tropical developing countries, the lack of skilled labour to perform debeaking and vaccination is evident. Unskilled labour may cause injury and stress to the chickens. In addition, vaccination and debeaking are carried out during the cooler period of the mornings and the chickens are transported during the hot afternoons. The chickens could be ready for despatch in the morning, and thereby avoid heat

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stress, if the time taken to perform vaccination and debeaking is saved.

The following experiment was conducted to investigate the value of vaccination and debeaking under the local conditions.

MATERIALS AND METHODS

Three thousand day-old broiler chickens of the Tegel TM 70 strain from Morobe Breeder Farm were used in this experiment. The chickens were divided into 4 groups of 750 chickens each. Vaccination and debeaking were carried out as follows:

Group (1) Debeaked only.
Group (2) Vaccinated only.
Group (3) Debeaked and Vaccinated.
Group (4) Without Vaccination and Debeaking (Control).

The control group was delivered at 0800h. The three other groups were vaccinated and/or debeaked at the hatchery and then delivered at 1400h. On arrival, each group was further divided into 3 equal groups of 250 chickens in each group to form 3 replicates per treatment.

All chickens received uniform management in an open sided bush material house with a deep litter floor of 0.1 m^2 per bird. They were fed a standard commercial broiler starter feed for the first 28 days and broiler finisher feed thereafter to 63 days of age. Measurements of mortality, body weight, feed intake and feed efficiency (grams feed/gram gain) were carried out when the chickens were 10, 21, 35, 49 and 63 days of age. At the same time, all chickens were examined for any signs of fowl pox and feather picking. The data were analysed by variance analysis; differences among means were tested for significance by the "t" test (Steel and Torrie, 1960).

RESULTS AND DISCUSSION

Analysis of variance of progressive body weights, and final feed conversion and mortality did not show significant interaction between debeaking and vaccination treatments. On the basis of these results the main effects of debeaking and vaccination were calculated (*Table 1*). There were numerically but not significantly lower body weights in the debeaked groups compared with the non-debeaked groups. Final feed conversion and mortality were not statistically different among all groups. There were no signs of feather picking even in males which are slow feathering. No symptoms of fowl pox were observed.

The results indicate that there were no real benefits of debeaking under the conditions of adequate management and balanced nutrition prevailing in

Table 1.– **Body weight, feed conversion and mortality in broiler chickens as affected by fowl pox vaccination and debeaking**

	Body weights in grams					Feed conversion at 63 days	Mortality at 63 days (%)
Treatments	10 Days	21 Days	35 Days	49 Days	63 Days		
Not debeaked	145.0	390.0	974.0	1612.0	2110.0	2.351	8.15
Debeaked	135.5	376.0	958.0	1602.0	2066.0	2.366	7.25
Not vaccinated	137.5	385.0	961.5	1612.5	2102.0	2.345	7.40
Vaccinated	143.0	381.0	970.5	1601.5	2075.0	2.372	8.00
SED*	3.84	9.42	13.10	17.60	37.70	0.0188	0.89

* SED–Standard error of the difference between means (8df).

this trial. Fowl pox vaccination had no effect on the chickens in this experiment. However, occasional risk of the disease if the chickens are not vaccinated cannot be ruled out.

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