

## Abstract

The work consisted of 3 experiments in which Bresse chickens from 4 crossbred lines of Suchon *et al.* research work (2014) were used. Experiment 1. Three male plus 15 female Bresse chicken of each line were raised together in a cage at the ratio of 1:5. It was found that these 4 breed lines had similar performances. The average results were as follows: The onset of laying was at the age of  $150.5 \pm 12.8$  days. Egg weight was  $33.75 \pm 1.71$  g. Egg production was  $46.3 \pm 4.4\%$ . The fertile egg was  $94.7 \pm 1.6\%$  of the incubated eggs. Hatchability rate was  $79.0 \pm 6.2\%$  of the fertile eggs. Unfertile and death in shell eggs was as high as  $21.0 \pm 6.2\%$ . The chicks from these  $F_1$  parent stocks were sent to 12 highland farmers of Royal Project Foundation, in average of 171 heads/farm and being raised for 12 weeks. It was found that Bresse chicken had average body weight gain  $1.46 \pm 0.15$  kg., while feed consumption was  $4.00 \pm 0.82$  kg. FCR was  $2.73 \pm 0.47$  and mortality rate was  $9.37 \pm 4.78\%$ . The economic return evaluated by deduction only chick cost and feed cost was 4,172 Baht/month. The breed true to type characteristics of dark blue shank, white beak, all white body feather were found at 86.2, 98.7 and 96.2% of the flocks, which were higher than the generation of their parents.

Experiment 2, a total of 225 heads of mixed sexes 1 week old  $F_1$  Bresse chicken from experiment 1 were allotted into 3 groups, each with 3 replicates (25 heads/rep). Group 1 was fed with commercial control diets, containing 21 and 19 %CP during 2-4 and 5-9 weeks of age, respectively. Group 2 was fed with under-graded vegetable in the day time (8.00-17.00 h) while evening onward (17.00-8.00 h) they were fed with control diet. Group 3 was fed similar to group 2 but the roughages were silages made of leuceana leaf or napier grass. During week 10-12 of chicken age, all 3 groups were fed with 10% CP diet made of ground corn mixed with milk powder at the ratio of 4 :1. Feed and water were available for freely access. During the first 4 weeks of experiment which was brooding period, light was provided 24 hours. After that it was limited to 12 hours/ day. The result found that vegetables which were mainly Chinese cabbage and both kinds of silages contained very high water content. They had only 3.2 and 40.9-42.0% air dry matter and contained high fiber (8.0-16.2% of DM). Thus resulted in significant lower commercial feed intake of group 2 and 3 compared to group 1 during 2-9 weeks of age ( $2.22-2.27$  vs.  $2.44$  kg, respectively;  $P < 0.05$ ). The consumption of vegetable and silage was 0.03 and 0.06 kg air dry matter, due to very high moisture, high fiber and no palatable of these roughage. However the supplement of roughages did not significantly affected body weight gain, feed conversion ratio and mortality rate ( $P > 0.05$ ) except caused slightly smaller body size and higher feed cost. During 10-12 weeks of bird age when birds were fed with only ground corn plus milk powder, ADG was only slightly (9.5-12.4 g/d), thus caused high FCR of 5.91-7.61. At the end of the experiment 2 birds/rep of each sex (12 heads/group) were

slaughter by cutting jugular vein. There were no significant different among groups on carcass quality (dressing percentage, percent visceral organ weight and meat composition)

Experiment 3, two weeks old chicks from experiment 1 were sent to 4 highland farmers, lived at different elevation of 700 vs. 980 m above sea level. Each farm raised 120-150 heads of chicks for 16 weeks, fed according to exp. 2, i.e. commercial diet supplement with under-graded vegetable to allow bird picking for reducing stress. The other management was according to GAP for highland poultry. It was found that no significant difference on performance of birds (body weight, feed intake and feed conversion ratio) raised by farmers in different elevation ( $P>0.05$ ). But mortality rate at low elevation farms was significantly lower (11.6 vs. 21.6%), which might be due to the better take care of farmers. The economic return evaluated by deduction only chick cost and feed cost was 14,030-16,797 Baht/lot of 4 months. The highest satisfactions evaluated by farmers of both elevations were equal at 95% on growth rate and breed true to type characteristics. The average overall satisfactions of these farmers were equal at 82%. The average overall satisfaction on Bresse meat evaluated by consumers/customers was 83.9%. The highest percentage of 93.3% was found on carcass quality and breed true to type characteristics, while the satisfaction on meat quality, tenderness/juiciness was only 68.9%. The very low satisfaction of only 40% by two customers might be due to the big body size of male carcass.

Keyword: Bresse chicken, Highland, Under-graded vegetable, Silage, Production performance, Carcass quality, GAP for Highland Poultry Farm