Profitability and Meat Yield Traits of Different Fast Growing Broiler Strains in Winter


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Abstract: A total of 100 ISA-Vedette, 100 Arbor Acres and 1000 Hybro fast growing broiler chickens were divided in to 5 replications having 20 chicks in each, reared up to 42 days of age to select the suitable broiler strain of better profitability and meat yield traits. A total of 30 representative male and female broiler from each breed slaughtered at 42 days of age to investigate the dressing yield. ISA-Vedette was the highest in respect of body weight (1562.25 m/b) and feed intake (3105 m/b) followed by Hybro (1401.60 and 2794 m/b) and Arbor Acres (1372.48 and 2749 m/b) respectively. Production cost and profitability of ISA-Vedette, Hybro and Arbor Acres were 44.23 and 25.77, 50.01 and 20.00 and 50.41 and 19.49 Tk/kg live bird respectively. The strains were significantly for body weight, blood weight and giblet weight. Despite there was no significant difference among the strains, ISA-Vedette was the superior for dressing yield to the other strains. That ISA-Vedette is the most suitable strain in tropical environment in comparison with the other strains (Hybro and Arbor Acres).

Key words: Broiler strains, profitability, meat yield traits, tropical environment

Introduction
Bangladesh is a developing country, where different types of broiler strains are available. These strains are not similar in productivity and adaptability at any climatic condition. Some investigator reported that the better body weight gain, feed efficiency, profitability and meat yield were found in winter to the summer season (Baghel and Pradhan, 1989; Islam, 2000). Bohren et al., 1982 reported that fast growing broilers were suffered at high environmental temperature. Growth performance as well as profitability of broilers is decreased with the increase of temperature (Harris and Nelson, 1975; Howlider and Rose, 1987). The detrimental effect of temperature was increased with the increase of body weight (May et al., 1999). An investigation showed that the crossbred hybrid from Nigerian local (LL) with Arbor Acres (AA) were better performer than the pure AA under Nigerian hot humid climate (Birnang and Nvou, 1994). A report from Haque (1993) showed the lower production performance of fast growing broiler (Shaver troticbro, Ross, Hybro, ISA-Vedette, Arbor Acres, Cobb and Hubbard) at 8 weeks of age in Bangladesh. Several studies indicated that environmental temperature affected on carcass composition and meat yield traits. The female chicken contained more fat, breast meat and skin weight than the male chicken at higher temperature (Howilder and Rose, 1989; Tavilak et al., 1986; Bray, 1983). Breast meat increased with the increase of age and size of the birds reported by Pererault and Leeson (1987). A few works has been done involving some broiler strains but not all broiler strains available in Bangladesh. So the present study was aimed to compare the performance of different fast growing broiler strains in selecting the best performed strain during winter season.

Materials and Methods
The experiment was carried out at Bangladesh Agricultural University poultry farm, Mymensingh for the period of December 1998 to January 1999. The fast growing three broiler strain; Arbor Acres, ISA-Vedette and Hybro were divided in to five replications in each strain. Twenty chicks were placed in each treatment. The birds were fed ad libitum diet, containing 22.24% crude protein (CP) and 1907.80 Kcal metabolizable energy (ME) per kg as starter diet and 16032% CP and 3010.00 K cal. ME/kg as finisher diet (3-6 weeks). The birds were kept on littered floor with a stocking density of 900 cm²/b. The birds were exposed to continuous lighting of 23 hours and 30 minutes in a day during the experimental period. The birds were vaccinated against Newcastle and Infectious bursal disease (Gumboro) as per schedule.

Body weight and feed intake were recorded weekly and mortality was recorded daily. Production cost (Tk/kg live bird) was calculated involving chilk cost, feed cost, mortality, labour cost, vaccine and medicine cost, litter cost and electric bulb cost etc. Profitability was calculated on the sale and production cost of per kg live bird. The representative birds in each replication had been selected and kept in fasting for 12 hours. Therefore the birds were slaughtered and recorded the following meat yield traits of individual male and female.

Blood weight, feather weight, shank weight, head weight, giblet weight (liver, heart and gizzard), dressing yield.

Meat yields traits were calculated as percentage. Temperature and relative humidity (RH%) were 79.12°F and 90.77% respectively during experimental period.

Statistical analysis: Data was analyzed using computer package program. The following statistical model was used for data analysis:

\[ Y_i = \mu + S_i + e_i \]

Where, \( Y_i \) is the observation in \( i \)th population
\( \mu \) is the overall mean
\( S_i \) is the fixed effect of \( i \)th strain (\( i = 1, 2, 3 \))
\( e_i \) is the random error, assumed to be distributed (\( 0, \sigma^2 \))

Results and Discussion
Male was heavier than that of female broiler. It had been found that ISA-Vedette gain the highest body weight followed by Hybro and Arbor Acres (\( P < 0.05 \)). Blood weight of male or female and their mean value were differed significantly (\( P < 0.05 \)) among the strain, where Hybro had the highest blood weight, intermediate on ISA-Vedette and the lowest on Arbor Acres (Table 2). Feather and shank weight within male and female, and their average value among the strains did not differ significantly (\( P > 0.05 \)). However, these were found highest on Hybro, intermediate on Arbor Acres and the lowest on ISA-Vedette.

Giblet weight was found to be highest on Arbor Acres followed...
by ISA-Vedette and Hybro broiler (P<0.05). The significant difference was not found among the strains for head weight and dressing yields. However, ISA-Vedette produced the highest percentage of dressing yield; Hybro and Arbor Acres produced dressing yields by 72.53 and 72.50% respectively. ISA-Vedette showed significantly higher body weight at 60 week of age compared to the Hybro and Arbor Acres strain, which was closely related with the findings of Azad (1998). This was also supported by Zullitch et al. (1989). ISA-Vedette consumed more feed in comparison with Hybro and Arbor Acres, which was consistent with Hornia-Kova (1986). He mentioned that heavier broiler strains consumed more feed. Despite there was significant difference among the strains for mortality, Hybro strain had the highest mortality (%), followed by ISA-Vedette and Arbor Acres, which was in agreement with the findings of Branie et al. (1985) who found 5.82 and 5.00% mortality on Hybro and Lohmann respectively. Despite there was no significant difference among broiler strains for production cost and profitability, ISA-Vedette showed the highest profitability due to its lower production cost in comparison with Hybro and Arbor Acres strains, this finding was in agreement with Islam (2000). Though the higher body weight and the blood weight were found on ISA-Vedette, feather, shank and head weight were almost similar among the strains, which was consistent with Akhter, (1996) who found the non-significant difference between the ISA-Vedette and ISA-157 bomber strains. This finding is also supported by Azad (1996) who found the non significant difference among Starbro, Hybro and ISA-Vedette but Arbor Acres showed significantly higher giblet weight than the ISA-Vedette or Hybro strains.

Despite non-significant difference was found for dressing yield among the strains, ISA-Vedette was the best for dressing yield, this was advocated with Rahman (1990) who found the non-significant difference for dressing yield among the different broiler strains.

References


Sarker et al.: Broiler strains, profitability, meat yield traits, tropical environment


