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Effect of age on survivability and profitability of commercial broilers

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Abstract

A study was carried out to analyze the impact of slaughter age on survivability of broilers and its impact in the profitability. The data on the mortality of broilers pertaining to 32 contract farmers with the average flock size of 4,000 birds per batch in and around Puducherry was analysed. The data pertaining to a total of 1,28,836 birds was collected with respect to survivability at 28, 35 and 42 days of age. It was found that on an average the survivability was 96.46, 94.73 and 91.65 per cent at 28, 35 and 42 days, respectively. As the age advances, survivability decreases which indirectly indicates that it's better to market the broilers at an early age. The profit obtained per batch was Rs.46,160 at the age of 42 days, if the same birds have been marketed at the age of 28 or 35 days of age the profit obtained would have been Rs.60,680 and Rs.75,680, respectively.Since the birds are marketed at early age, the production cost per batch will be reduced by 39.67 and 20.68 per cent on 28 and 35 days of age, respectively, in comparison to the production cost on 42 days of age. Also, number of batches per year can be increased due to the reduction in the marketing age. This indicates that farmers can increase the overall profit per year by about 40 per cent and 82 per cent by marketing the birds at 28 and 35 days, rather than at 42 days as being followed.Early marketing age increases number of batches to be reared which may increase the volume of operation and overall farm profit.

Keywords: Survivability, Mortality, Profit, Expenses, Broiler, Batches.

Introduction

The most important factors affecting income in the broiler industry is mortality. For a long time, it is believed that broilers slaughtered at 2 kg live weight is economically profitable. This concept of slaughtering the broiler at 2 kg of body weight was determined by considering the weight of birds attained without a decrease in the weight gain per day. But after the birds reach a weight of 1.25 kg, which on Indian conditions is achieved by 28 days of age, though there is a gradual increase in the body weight, the feed consumption and mortality increases exponentially thereby reducing the profit.

Materials and Methods

Farmers who were doing integration with various poultry integrators across Puducherry were identified. The system of rearing followed is intensive system on deep litter houses with the feed provided by the integrators. The study was mainly focused on the age of slaughter and the corresponding survivability. The birds taken under study belonged to different broiler strains. The data was collected when there was no major outbreak of any diseases in Puducherry so that the results won't be influenced by that. Vecerek *et al*. (2006) and Elsayed (2014) stated that the effect of season on mortality rate is the highest in summer (June, July and August) and winter (December, January and February). It was also made sure that on the period of study the climatic conditions were optimal for broilers so that growth rate and survivability won't be affected by the climatic conditions. Fifty contract broiler farmers were identified, of which only 32 farmers who maintained good management practices and also proper maintenance of records were taken for the study. The data obtained from these 32 farmers was mortality for every week. The birds were slaughtered only after they attained the slaughter weight of 2 kg or by 42 days of age on an average. The 32 farmers had a total of 1,28,836 birds i.e. on an average a farmer had 4,026 birds from the range to a maximum of 8000 birds and a minimum of 1600 birds. Feed was provided *adlibitum* till the date of lifting for slaughter. The integrators followed feeding with 4 phase of feed for broilers based on their age, i.e. Pre Broiler Starter (PBS) from 0^{th} day to 10^{th} day, Broiler starter (BS) from 11^{th} to 20^{th} day, Broiler Grower (BG) from 21^{st} day to 30^{th} day and finally Broiler Finisher (BF) from 31^{st} day till lifting / catch. Some of them followed only 3 phase of feed in any combination i.e. either BS, BG and BF or PBS, BG and BF. The nutrient content of these feed types were varied according to the age group of the birds and also based on the specific breed (Hubbard, Cobb, etc.,) or strain of birds that they use.

Results and Discussion

The data on survivability is depicted in the figures 1 and 2.

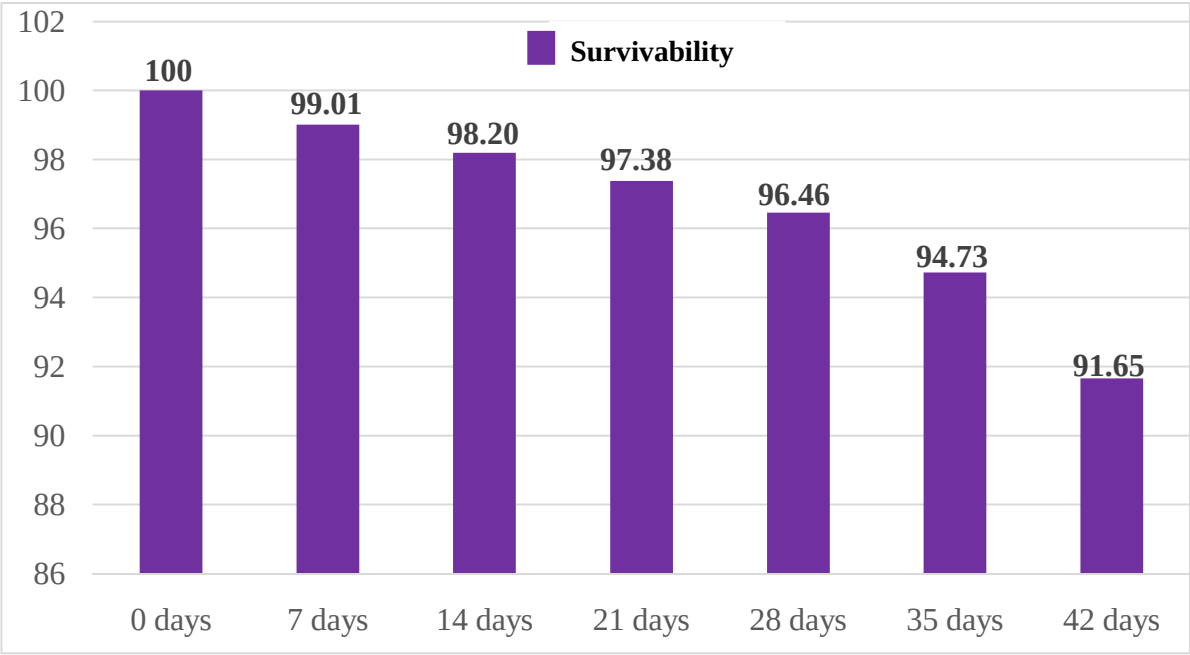

Figure 1: Weekly Survivability

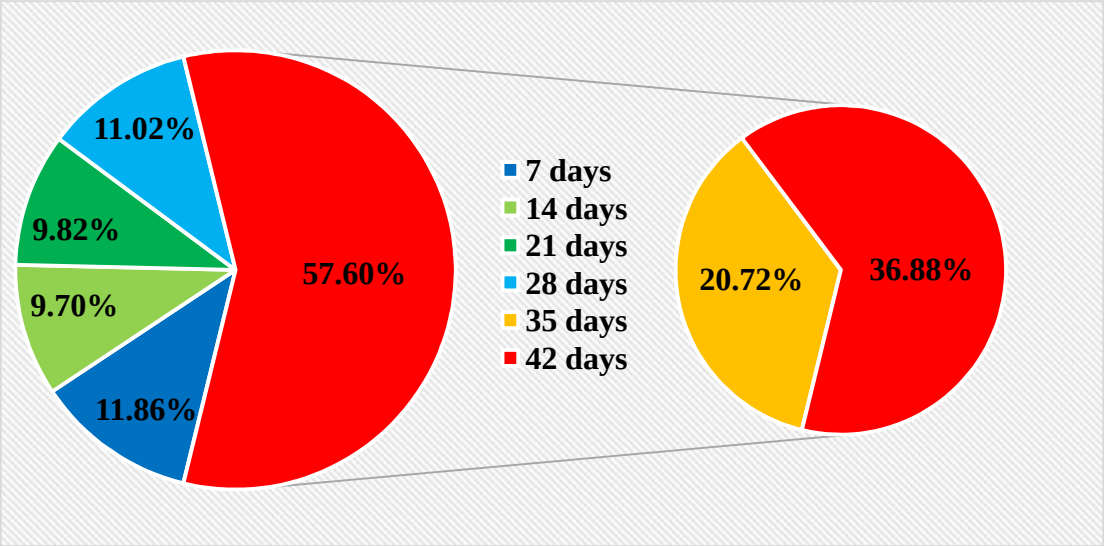

Figure 2: Weekly Mortality

The broilers raised up to the age of 28, 35 and 42 days had a survivability of 96.46, 94.73 and 91.65 per cent, respectively. From these data we observed that broilers may be marketed from 28 to 35 days of age for more profit and to increase volume of operation. The present study is in agreement with Arikan *et al.* (2017) who stated effect of early slaughter age, lower total losses in broilers slaughtered at a younger age than that in those slaughtered at an older age, independently of season and transportation distance and lower slaughter losses were observed in broilers slaughtered at the younger age than the older age. Granquist *et al.* (2019) stated that, there was a tendency for increased flock gait score being associated with wet litter, In addition, condemnations at postmortem inspection were associated with increasing gait scores. This signifies that condemnation of carcass poultry meat can also result in older flocks more often than in younger flock as older flocks will have more of lameness than younger flocks. Heier *et al.* (2002) stated that mortality during the first week is typically higher compared to the later growth period in broilers but Baéza *et al.* (2012) stated that, increasing the slaughter age increased the mortality by many folds. Here survivability of the birds decreased exponentially after 28 days of age, this thereby lead to decrease in the number of birds that could be taken for slaughter (Figure 1 and 2) after taking in lots of inputs in the form of feed.

The data on economics is presented in the table 1.

Table 1 Economics for 4000 broilers

Parameters	Age at Lifting / Catching		
	28 days	35 days	42 days
Number of birds per batch	4,000	4000	4,000
Feed cost per kg (Rs.)	30	30	30
Chick cost per unit (Rs.)	25	25	25
Cumulative Feed consumption / batch (kg)	7,724	11,624	15,872
Live weight of birds / batch (kg)	4,905	6,555	7,779
Cost of production / batch* (Rs.)	3,31,720	4,48,720	5,76,160
Income / batch (Rs.)	3,92,400	5,24,400	6,22,320
Profit / batch (Rs.)	60,680	75,680	46,160
Cost of production per kg live wt. (Rs.)	67.62	68.45	74.06
Sale price per kg live weight (Rs.)	80	80	80
Profit per kg live weight (Rs.)	12.38	11.55	5.94
Number of batches per year	7	6	5
Total profit per year	4,24,760	4,54,080	2,30,800

*Note: *The cost of production achieved per batch is the sum of chick cost and feed cost alone.*

The economics of production were worked out considering the farmer had 4000 birds per batch. The feed cost per kg, chick cost per bird and sale price per kg live weight were considered as Rs.30, Rs.25 and Rs.80, respectively. They were fixed based on the local pricing. The cost of production per kg of live weight was Rs.67.62, Rs.68.45 and Rs.74.06 on 28, 35 and 42 days, respectively (Table 1). Since the birds are marketed at early age, the production cost per batch will be reduced by 39.67 and 20.68 per cent on 28 and 35 days of age, respectively, in comparison to the production cost on 42 days of age. In addition to the profit being increased per batch the cost of production i.e. the amount of money to be invested per batch also reduces thereby reducing the risk of broiler farming. If the birds are lifted at an early age i.e. 4 weeks and considering the cleaning time / rest period per batch to be 3 weeks, the time taken to produce per batch will be only 7 weeks, rather than 9 weeks per batch if the birds were raised until they attain 2 kg of body weight which will take about 6 weeks. By saving 2 weeks per batch, the number of batches per year also increases to a total of 7 and 6 batches (28 and 35 days, respectively) rather than 5 batches (42 days). Considering the cost such as medicine, disinfectant and labor to be of same amount irrespective to the lifting age, the amount of cost saved per kg of live weight seems to be Rs.6.44 and Rs.5.61 on 28 and 35 days, respectively.

The results thereby indicate that, due to the addition of extra 2 batches per year and an increased profit per batch on 28 days lifting, there is an increase in the profit obtained per year by 40 per cent whereas the profit obtained per year by a farmer will increase by around 82 per cent if 35 days lifting is followed, this is due to the increase in number of batches from 5 (42 days) to 6 batches (35 days) per year and an increase in profit per batch.

Conclusion

Survivability decreases after 28 and 35 days of age which reducing the profit obtained per batch. The present study shows that slaughtering the birds from 28 to 35 days of age (1.25 to 1.73 kg of live weight) may be more economical than the conventional one.

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