

COMPARATIVE ANALYSIS IN BROILERS FATTENING BY SERIES SIZE

ANALIZA COMPARATIVA IN INGRASAREA PUIILOR BROILERI IN FUNCTIE DE MARIMEA SERIEI

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The paper aimed to present a comparative analysis in broilers fattening by series size. The experiments were carried out at Breeding Prod Commercial Company for two series of broilers as follows: Series S , Spring 2008, resulting 66,000 delivered fattened chickens at the age of 45 days and 2.36 kg live weight and Series S2 , Autumn 2008, delivering 68,400 fattened chickens at the age of 48 days and 2.64 kg live weigh . Series S1 produce 151,087 kg live weight, meaning 37.77 kg live weight per square meter fattening block while Series S2 registered 174,256 total live weight at delivery, meaning 43.56 kg per square meter. The higher the series size, the higher performance in broilers fattening. The only negative aspect was the length of fattening, which in case of S2 was by 3 days longer. In case, fodder consumption was 21.01 % higher than in case of S1 with a deep impact on production cost.

Keywords: comparative analysis, broilers fattening , series size

Introduction

Broilers fattening has become a real industry of aviculture in the whole world because broilers meat has a special flavor compared to meat provided by other species, it is a light and white meat, it has a low content of cholesterol , it contains high value proteins rich in essential aminoacids , it is commercialized at a low price , therefore there are a lot of reasons as consumers to prefer it (1). The continuous increase of chicken meat consumption had stimulated farmers to develop their business. It is considered that broilers meat production will exceed meat production coming from other species not only because of consumers preferences, but also due to the high biological performances, fodder palatability and conversion capacity into high quality meat, short fattening period , high daily gain and reduced fodder consumption per kilogram liveweight, low production cost (4).

In Romania , broilers fattening has been continuously developed recording high production performances and high profitability rate compared to other types of animal farming . Performances in broilers fattening are deeply influenced by

hybrid , feeding (fodder quality) , length of fattening and microclimat conditions in poultry sheds . For these reasons there are differences from a series to another concerning technological parameters (2,3,4) .

This paper aimed to present a study case how broilers are fattened in a small private farm and what factors have contributed to the differences between various broilers series.

Materials and Methods

The paper was carried at Breeding Prod Commercial Company , Giarmata , Timis County during the year 2008. The purpose of the comparison was to show in what manner the series size has an influence upon the production performance and which other factors could affect fattening results .The experiments were carried out at Ortisoara Farm for two series of broilers as follows: Series S1 , Spring 2008 and Series S2, Fall, 2008. The comparison between the two series was based on the following parameters length of fattening, number of chickens at the beginning of fattening, mortality rate, number of marketed broilers, average chicken live weight at the beginning and at the end of fattening, daily and total fattening gain, fodder consumption.

Results and Discussion

Technical endowment in fattening blocks. (a)Broilers Sheds. The technology for broilers fattening is based on chicken growing on permanent straw layer in two story blocs , whose surface per bloc is 2,000 square meters (1,000 s.m. for ground floor and 1,000 s.m. for the 1st floor). The blocks are hired for rent which counts for Euro 1,200 a month. The blocs are well endowed with modern equipment for broilers feeding, watering, heating , ventilation. **(b) Feeding equipment** is assured by 5 feeding lines , whose length is 46-47 m . Every 75 cm there is a feeding plate assuring combined fodder for about 40 chickens. There are 1,300 feeding plates per bloc. Food supply is assured from the outside bunker whose capacity is 20 tons. **(c) Watering equipment** is assured by the dropping installation . In every bloc there are 14 watering lines consisting of water filter, water meter , pressure regulator, automatic medicines dossier assuring a corresponding water level along the watering line. Every 25 cm , there is a dropper , therefore along the 50 m length there are 200 droppers, meaning 2,800 droppers in bloc. **(d) Heating installation** is represented by aerothermes based on Diesel oil . There are 4 heaters per bloc , operating continuously 18-20 hours during the first 3-5 days of broilers growing. **(e) Ventilation equipment** is represented by 4 big ventilators , whose capacity is 44,000 cubic meters per hour and other 2 small ventilators whose capacity is 17,000 is 17,000 cubic meters per hour. Air consumption is calculated in such a manner to assure 6-7 cubic meters air in winter season and about 10 cubic meters in Summer season per every kilogram of broiler live weight before delivery to slaughterhouse. Both heating and ventilating

installations are assisted by a computer whose sensors of temperature and humidity play the role to assure the optimum level for these microclimate factors inside the blocs. Air speed is assured by depression at the level of 3 m per second.

“All in” one day chickens . One day chickens are represented by ROSS 308 Hybrid provided by AVIS Deva, Drosera S.R.L Carei and Mach Dubrez Company from the Czech Republic. The hybrid has to weight 2 - 2.6 kg in 42 days of fattening. Before chickens to be received , a thick bed consisting of chopped straw of 7-10 cm is spread over the blocks floor . Bedding is assured by a soft and warm straw bed suitable for chickens . During Autumn and Winter season , about 800 straw ballots are used per 2 blocs , but during Summer season only 400 are sufficient for one series of broilers. Temperature is assured for 32 Celsius degrees during the first days but then it is continuously reduced to 18-20 degrees at the end of the fattening . Light and lack of noise are also required in the blocks for stimulating food consumption and avoiding fear and panic. Water must contain a few sugar (glucose) and C vitamin and be at the normal temperature. The one day chickens are supplied in boxes transported by conditioned trucks , a box containing about 80-100 chickens and a truck about 30,000 – 150,000 chickens. The chicken density depends on the season as follows : 17-18 chickens per s.m. or 34,000 chickens/block in Winter season and 16 chickens/ s. m, or 32,000 chickens per bloc in Summer season.

Feeding is based on the specific combined fodder , whose recipes correspond to each fattening stage as follows: Prestarter for the chickens ‘ age 0-12 days , Starter for the age of 13-20 days , Grower for the age 20-35 days and Finisher for the age 36-42 days. Normally , the average food consumption is about 2 kg /kg fattening gain , even less as fattening to be more efficient. This aspect depends on fodder quality. Normally, the content of protein must be : 23 % for Prestarter, 22 % for Starter , 21.5 % for Grower and 18-19 % for Finisher combined fodder . Fodder is granulated , the granule size being smaller the one day chickens and bigger for the older ones (2-2.5 mm) .

Broilers delivery is achieved when chickens weight is over 2.3-2.4 kg at the age of 42 days. Chickens are loaded in special trucks and delivered to the slaughterhouse . About 2-3 days are needed to evacuate the two blocs .

Cleaning and disinfection are achieved at the end of every broilers series . The dirty straw bed is evacuated manually in 4-5 days using part-time labor . Then , the sheds are carefully washed during other 3-4 days . Flaming is used for equipment , floor and even for walls for 1 m height and lasts about 2 days . About 6 gas bottles are used for flaming the two blocs. Disinfection is based on a solution consisting of 110 g Vircons (powder) for 15 liters water . Spraying is assured by 20-24 sprayers used for the two blocs. Disinfection is repeated after 7 days .

The parameters of broilers’ fattening are presented in Table 1.

The length of fattening .The Series S 1 started at February 4, 2008 and ended on March 24, 2008, therefore it lasted 45 days . The Series S2 started on

October 23 and ended on December 9, 2008, meaning 48 days, that is 3 days in addition compared to S1.

The number of chickens at the beginning of fattening was 66,000 for S1 and 68,400 for S2, that is by 3.64% more chickens.

Mortality rate was 3% for S1 and 3.5% for S2, a little bit higher because ventilation was not assured in the best way in the fattening blocks. Taking into account the number of chickens and mortality rate, mortalities counted for 1,980 heads in case of S1 and 2,394 heads in case of S2. Mortality was ranging between 3 and even 3.5%, especially to the smallest chickens which are more sensitive and its rate depends on the microclimate factors in the shed: temperature, ventilation and humidity.

The number of marketed broilers was 64,020 chickens in case of S1 and 66,006 heads in case of S2. Therefore, S2 delivered by 3.10% more broilers to the slaughterhouse.

One day chicken live weight was in average 40 g for S1 and 41 g for S2. Total live weight of all one day chickens was 2,640 kg in case of S1 and 2,804 kg in case of S2.

The average weight at delivery was 2.36 kg/head for S1 and 2.64 kg/head in case of S2. Therefore, S2 registered an average live weight per broiler by 164 g higher or by 6.21% higher compared to S1. The main clients of the company are Feldio Craiova, Pood 2000 TM and Avis Deva 3000.

The total fattening gain per broiler was 2.32 kg/head in case of S1 and 2.60 kg/head in case of S2.

The broilers total live weight at delivery was 151,087 kg for S1 and 174,256 kg for S2.

The total fattening gain per series was 148,447 for S1 and 174,256 kg for S2. Therefore, S2 registered by 15.50% more gain during the fattening period. Taking into account the length of fattening, the daily gain was 51.5 g/head in case of S1 and 53 g/head in case of S2.

The total live weight per square meter of fattening blocks was 37.77 kg in case of S1 and by 15.32% higher, that is 43.56 kg, in case of S2.

Fodder Consumption per marketed broiler was 4.72 kg in case of F1 and 5.54 kg in case of S2. The reason why the food consumption was by 17.37% higher in case of S2 is the fact that the broilers could not be delivered at the age of 45 days, but 3 days later, because of the slaughterhouse which did not respect the contract concluded with the farmer.

Table 1

Parameters of broilers' fattening by series

Crt. No.	Specification	MU	Series S1	Series S2	Differences S2-S1
1	All In Day	-	February 4,2008	October 23, 2008	-
2	All Out Day	-	March 24, 2008	December 9, 2008	-
3	Length of fattening	days	45	48	+3
4	Number of chickens at the beginning of fattening	heads	66,000	68,400	+2,400
5	Mortality rate	%	3	3.5	+0.5
6	Mortalities	heads	1,980	2,394	+414
7	Number of Marketed broilers	heads	64,020	66,006	+1,986
8	One –day chicken average live weight	g/head	40	41	+1
9	Total live weight of one day chickens	kg	2,640	2,804	+164
10	Average broiler live weight at delivery	Kg/head	2.36	2.64	+0.28
11	Fattening Gain per broiler	Kg/head	2.32	2.60	+0.28
12	Broilers total live weight at delivery	Kg	151,087	174,256	+23,169
13	Total fattening gain/series	kg	148,447	171,452	+23,005
14	Fattening Daily Gain	g/head/day	51.5	53.0	+1.5
15	Total live weight per square meter	k/s.m.	37.77	43.56	+5.79
16	Fodder consumption per marketed broiler	Kg/head	4.72	5.54	+0.82
17	Fodder consumption per series	Kg/series	302,174	365,673	+63,499
18	Fodder consumption per head/day	g/head/day	104.88	115.42	+10.54

As a result , food consumption per series totalized 302,174 kg in case of S1 and by 63,499 kg more , that is 365,673 kg , in case of S2. Food consumption per head/day was 104.88 g in case of S1 and 115.42 in case of S2 with a deep negative impact on the fattening cost.

Conclusions

1. This comparison proved that the higher the chickens series size, the higher the fattening performances. The higher the number of fattened chickens, the lower the production cost.
2. One of the factors affecting fattening performance is the broiler hybrid. The one day chickens purchased from the Czech Republic have registered better performances concerning daily gain compared to the ones bought from the Romanian suppliers.
3. Fodder quality is the second important factor deeply influencing the production performances. A lower percent of protein or an uncorresponding recipe structure involves a longer fattening period, meaning a higher food consumption and production costs.
4. Microclimate conditions in the fattening sheds are also very important. Temperature, ventilation and humidity must be very carefully kept under control. Otherwise, mortalities could be higher than admitted.
5. Delivery contracts must be concluded with serious clients. When they do not respect the delivery dates, the farmer is obliged to continue fattening, chickens become fatter which does not fit to consumers' preferences and production costs will be higher too.
6. As a conclusion, farmers have to pay a special attention to the genetic potential of the broiler hybrid, food quality, microclimate during the period of fattening and the clients with whom they conclude delivery contracts.

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