

ALTERNATIVES TO BROILER CHICKENS BREEDING IN PEASANT HOUSEHOLDS

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Abstract

At the moment, in Romania, there are three hybrids frequently used in poultry industry: Cobb 500, Ross 308 and Hubbard Flex. Basically, these hybrids have similar productive characteristics and needs. Hybrid meat Cobb 500 has been designed so as to obtain higher performance with low costs. It is not choosy about nutritional requirements, so in terms of protein, start discussing about the recipe (the percentage of protein in feed prices in general affect the finished feed), the hybrid needs meat are 21% 22.5% PB (Gross protein), unlike Ross 308, which needs to vary between 22 and 25% PB Hubbard Flex 21 22% PB. For the types of farm we have studied, we followed the rules published in the Directive 2007/43/EC, which sets minimum standards of protection and welfare of chickens for meat production. Shelter used in practice to increase the number of 300 chicks were used two types of housing: a disabled worker's car and a bed of corn turned into a shelter for birds. According to this study results, a broiler chicken with a weight of 1.9-2.2 kg costs 7.06 lei, the initial investment is not particularly large and amortized by increasing the first series of chickens, which shows economic efficiency of an actual 300 broiler chickens in a household agro-industrial. If we take into account that a broiler chicken at a weight of 1.9 to 2.2 kilograms live can sell at a price about 12 lei/chicken, produces a net income of 4.94 lei/chicken. It results a total value of 1447.42 lei/series in each production cycle. Breeding broiler chicken in small herds will bring additional incomes in household/small farmers and the forages made by the breeders in their own farms are higher capitalized.

Key words: broiler chicken, profitable, household, investment, fodder, hybrid, cost

INTRODUCTION

If we consider that the most research studies and debates are directed to big exploitations and producers in poultry industry (both eggs and meat production), who have the financial possibilities to employ specialists and who have a wide variety of poultry tools and equipments, then we may say that the middle and small producers are kind of deprived of accessing high technologies in this field. Lack of money, the economical incapacity to contract long-term credits, as well as the internal instability on our markets, are the main category of reasons which cause the lower investments in these type of farms, no matter of production direction. That's why I've considered extremely necessary to study and to write articles and papers about improving the specific works in poultry farms, about a

minimum level of technology, machinery and equipments, presenting in the same time some offers for inputs and biological sources.

Due to the diversity of hybrids for meat that are currently on the market, we have to make an overview of them, in order to give the breeders the right informations and proper technologies.

Thus, in addition presentation parameters of technical guidelines, and present some details of practice growth and exploitation of meat chickens. At the moment, in Romania, there are three hybrids frequently used in poultry industry: **Cobb 500**, **Ross 308** and **Hubbard Flex**. Basically, these hybrids have similar productive characteristics and needs.

Hybrid meat Cobb 500 has been designed so as to obtain higher performance with low costs. It is not choosy about nutritional requirements, so in terms of

protein, start discussing about the recipe (the percentage of protein in feed prices in general affect the finished feed), the hybrid needs meat are 21%-22,5% PB (Gross protein), unlike Ross 308, which needs to vary

between 22 and 25% PB Hubbard Flex 21-22% PB.

Table 1 show the comparative needs of protein and energy metabolized for each of the three hybrids in your question.

Table 1
 The requirement of protein and energy metabolized

hybrids	Cobb 500			Ross 308			Hubbard Flex		
recipe	start	growth	Finishing	recipe	start	growth	Finishing	recipe	start
PB%	21-22,5	19-20,5	17,5-19	PB%	21-22,5	19-20,5	17,5-19	PB%	21-22,5
Em kcal/kg	2976-3150	3035-3200	3155-3250	Em kcal/kg	2976-3150	3035-3200	3155-3250	Em kcal/kg	2976-3150

Source: *****COBB, 2003: Cobb, Broiler Nutrition Guide, ***** ROSS, 2002: ROSS 508, Broiler Performance Objectives, *****Hubard Isa, 2002: Broilers Management guide.

Cobb 500

In terms of microclimate conditions, Cobb 500 is fastidious, requiring special care to maintain the parameters in accordance with the guidelines of operation. Because a high-speed growth, it presents both an increased sensitivity and the fact that increasing the permanent bedding, litter should be maintained in optimal conditions. Presents a high capacity feed intake, so that, in terms of time of light, can be applied programs light with a long dark. As hybrid, Cobb 500 has been created especially for the production of the chest and has a high yield at slaughter. As a major disadvantage of this hybrid of meat, because high speed of growth include the emergence of sudden death syndrome of chickens.

Ross 308

Ross 308 hybrid has been created for the production of the chest and legs are quite shapely. Requires a more expensive feed to gain performance, but presents a better

resistance to the microclimate. Is found widely in our Romania due that parents of hybrids Ross meat had a higher percentage of parents lay against the Cobb 500 and the fact that the hatching percentage is higher.

Hubbard Flex

Hubbard meat Hybrid Flex is a hybrid that is well adapted to conditions of food and microclimate empirical but not to expect great performance if you are not providing the necessary point of view of technology. In comparison, Cobb 500 requires exacting management technology with a prescription cheap fodder, Ross 308 requires a well balanced feed, and more expensive but in terms of management do not pose special problems. Hubbard Flex is a hybrid that does not raise any claim in terms of management and technology in terms of feeding.

In Table 2 we compared body weights of each hybrid and feed consumption for a kg of live meat.

Table 2
 Body weights of each hybrid and feed consumption

Hybrid	Age in days	Body Weight in grams	Feed Consumption kg feed/kg live
Cobb 500	7	175,4	0,856
	14	486,6	1,059
	21	931,8	1,261
	28	1467,3	1,446
	35	2049,2	1,611
	42	2633,7	1,760
Ross 308	7	167	0,880
	14	429	1,098
	21	820	1,304
	28	1316	1,460
	35	1882	1,590
	42	2474	1,721
Hubbard Flex	7	164	-
	14	432	1,25
	21	809	1,36
	28	1328	1,46
	35	1852	1,59
	42	2208	1,71

Source: *****COBB, 2003: *Cobb, Broiler Management Guide*, *****ROSS, 2002: *ROSS 508, Broiler Performance Objectives*, *****Hubard Isa, 2002: *Broilers Management guide*.

MATERIAL AND METHOD

This study was held in several households in Iasi county, in different villages, under financial limitations, but where the peasants were intending to improve and make more profitable the existing broiler chickens' breeding system.

The three broiler types presented in "Introduction" chapter were the biological material offered to the owners. I explained them the meat production advantages and financial capitalization for each type of broiler chicken. In the end, the farmer's option for one of the three hybrids was the result of his own wish, relayed on the existing conditions in that household but also a scientific choice, considering the documentation I've presented.

The researched was relied on some minimum but essential measures:

- actual birds specialized on a specific production (broilers in our case);
- minimum number of 300 head;
- compliance with a minimum of technical operating and maintenance;
- compliance with minimum health requirements.

For the types of farm we have studied, we followed the rules published in the Directive 2007/43/EC, which sets minimum standards of protection and welfare of chickens for meat production.

By analytic method of efficiency calculating and based on the zootechnic patterns in this study, I analysed the available materials in every household, observing, identifying and adjusting them to breeding systems that I determined and I decided to be the best solution for that medium or small farm. All the steps I made together with these breeders/peasants were relied on the existing rules and regulations for broilers rising and wellness.

The results and economic values for efficiency were determined by some formulas and efficiency index from specialized scientific papers.

RESULTS AND DISCUSSIONS

The shelter

Shelter used in practice to increase the number of 300 chicks were used two types of housing: a disabled worker's car and a bed of corn turned into a shelter for birds. Wagon used not require large investment, it was

necessary to achieve the just and the location of electrical sources of light, system of feed and drinking. Bed maize required more investment for the walls, ceiling and

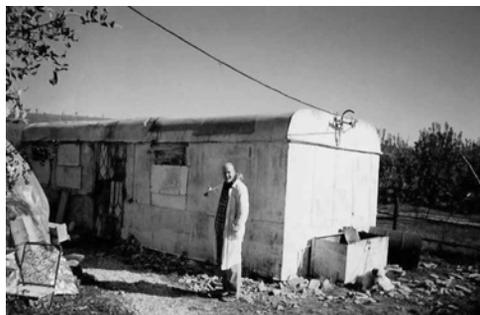


Foto 1. Shelter poultry workers wagon

insulation plus equipment. For walls and ceiling was wood, and as insulating the building were used textile waste, bevatex.



Foto 2. The heating outfit

- **The temperature** was provided by two flow controlled radiators, used for heating homes, with a power of 1800 w/h/radiator. Maintain the required temperature was achieved by two thermostats products company Siemens.

- **Ventilation tunnel type**, ie, forced evacuation and admission free. For evacuation were used two fans use type endeavor.

- **Lighting** was provided by two fluorescent light sources with a low 20 W/h/lamp. The program of light was done with a digital timer time.

Feeding and watering system

- **Feeding system**

For feeding as the operating principle and constructive type of wholesome we used in Figures 1, 2. In terms of manufacturing such system of feed is relatively simple and does not require too large an investment. These can be wooden or galvanized sheet, just respecting the principles of operation. A nutritious type it provides a front for feeding chicken to 37.5 for age over 21 days, so for a number of 300 head will be used 8 nutritious. As advantage, using this model does not involve the use of nutritious during starting, 1 7 days, other types of nutritious.

A disadvantage to be clear is reduced handling time of depopulation in the production hall. You must specify that these schemes are not specified the height adjustment depending on the age of chicks.

This factor remains to be explored and developed by each producer in terms of material available. We can only point out that it may fix an adjustable suspension system, it may have achieved that supports individual adjustable height. In terms of loss of feed, with this model are minimum losses. system of feed above will apply a cap to protect the feed from the inside. By the storage bunker to store system of feed 37 chickens for a period of approximately 1 3 days.

- **Watering system**

Watering system must ensure a clean water and discretion, to be distributed uniformly in the shelter, to provide front drinking under age and production class. Model constructive watering system presents to us is very simple. Principle of operation is shown in Figure 3, the water comes from the main water pipe in a tank bursting pressure with a float to maintain a constant level in the basin. Before the pool can put a filter for retaining the natural impurities in water. From the pool leaving a conduit provided with a valve closure, the horse pond. System drinking is provided with a floater to ensure a constant level of water in the horse pond. System drinking will make sheets of galvanized for corrosion protection against water and chemical agents in the existing shelter. The dimensions listed below provides the front 150 for feeding birds will therefore use two watering.

APPENDIX - CONSTRUCTION ELEMENTS

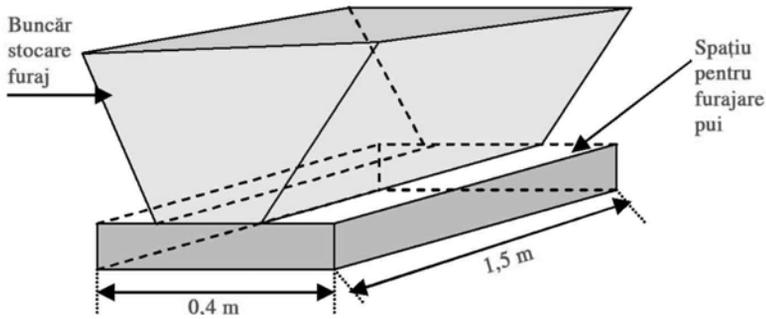


Fig. 1. Draft feeding system

Source: Stafie, C., Leonard și col., 2006: *Ghid de mecanizare și automatizare a adăposturilor de păsări*, Ed. Waldpress, Timișoara.

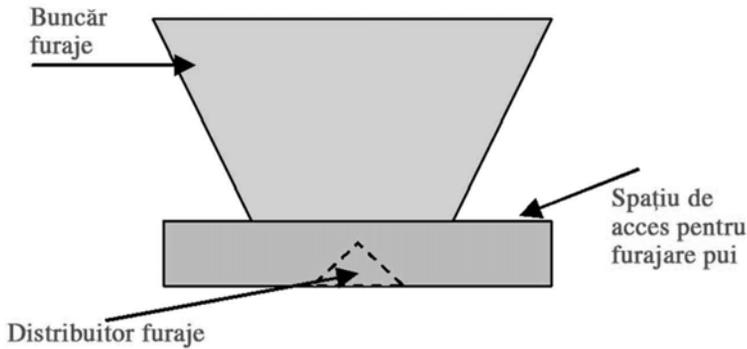


Fig. 2. Feeding system, side view

Source: Stafie, C., Leonard și col., 2006: *Ghid de mecanizare și automatizare a adăposturilor de păsări*, Ed. Waldpress, Timișoara.

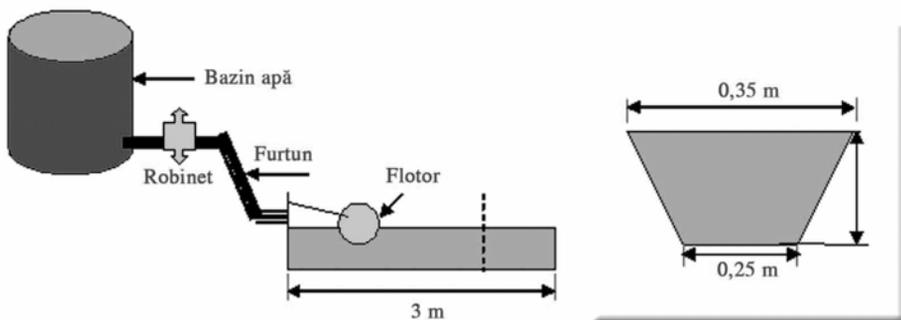


Fig. 3. Scheme and principle of operation of the drinking

Source: Stafie, C., Leonard și col., 2006: *Ghid de mecanizare și automatizare a adăposturilor de păsări*, Ed. Waldpress, Timișoara

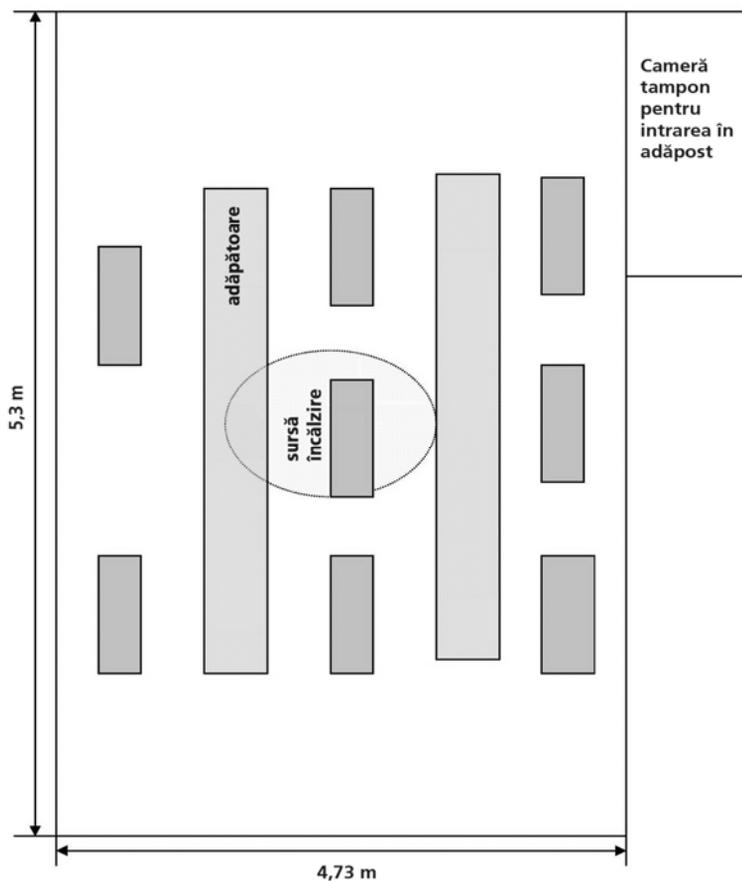


Fig. 4. Shelter outline

Source: Stafie, C., Leonard și col., 2006: Ghid de mecanizare și automatizare a adăposturilor de păsări, Ed. Waldpress, Timișoara.

Fodder consumption

Consumption of feed and feed consumption body weight obtained in a herd of 300 chicken meat in hybrid FF Hubbard Flex application in technology presented so far.

Table 3
 Feed consumption and body weights obtained

Age in weeks	Weight gr / chicken	Total feed consumption (kg) Actual 300 chicken	Feed consumption g/chicken/week
0	42	-	-
I	120	42	140
II	361	123	410
III	795	231	770
IV	1327	294	980
V	1723	303	1010
VI	2340	349,5	1165
TOTAL	2340	1342,5	4475

Economic calculations

Table 4
 Recipe forage and consumption for the starting period

Type fodder	Participation in feedingstuff%	Quantity consumed kg	Lei / quantity consumed
Maize	60	237	71,1
Wheat	1	3,96	1,188
Concentrate Type Atico start	10	39,6	91,8918
Soy grist	29	114,84	184,49
Pulvivit	1	3,96	12,73
TOTAL	101*	399,36	361,3998
<i>1 kg added vitamin pulvivit</i>		<i>* 1 kg feed starting 0.905 lei</i>	

Table 5
 Recipe and forage consumption for growth

Type fodder	Participation in feedingstuff%	Quantity consumed kg	Lei / quantity consumed
Maize	54	322,38	96,714
Wheat	10	59,7	17,91
Concentrate Type Atico start	10	59,7	136,403
Soy grist	25	149,25	239,8
Pulvivit	1	5,97	19,182
TOTAL	100	597	510,009
<i>1 kg increase in forage 0.8543 lei</i>			

Table 6
 Recipe consumption and forage for finishing

Type fodder	Participation in feedingstuff%	Quantity consumed kg	Lei / quantity consumed
Maize	65	227,175	68,153
Wheat	10	34,95	10,49
Concentrate Type Atico start	10	34,95	72,75
Soy grist	15	52,425	84,221
Pulvivit	1	3,495	11,23
TOTAL	101*	352,995	246,844
<i>1 kg added vitamin pulvivit</i>		<i>1 kg feed start 0.6993 lei</i>	

Prices for feed ingredients:

1. Atico start focusing type 2.3205 lei/kg
2. Atico type growth focused 2.2848 lei/kg
3. Atico concentrated type finishing 2.0813 lei/kg
4. grain maize 0.3 lei/kg
5. wheat 0.3 lei/kg
6. 1.6065 soy grist flower lei/kg
7. pulvivit 3.2130 lei/kg

Table 7
 Total expenditure for a number of 300 heads of chicken meat*

Cost type		Quantity	Lei /unit product	Lei/ total quantity	Lei/ chicken	Lei/300 effectively ends
Feed	Start	399,36 kg	0,905	361,3998	1,204666	361,3998
	Growth	0,8543 kg	0,883524	510,009	1,70003	510,009
	Finishing	352,995kg	0,6993	246,844	0,822813	246,844
Total		1349,355 kg	-	1118,2528	3,727509	1118,2528
1 day chicken buying and transport		300 buc	1,72	516	1,72	516
Electricity		720 kw	0,45	324	1,08	324
Medicated - decontaminate		-	-	60	0,2	60
Mortalities		2,2 %	-	50,27736	0,1675912	50,27736
TOTAL herd delivered		293 chop	-	2068,53016	7,059829	2068,53016
<i>*the owner's work was not calculated</i>						

CONCLUSIONS

From the data presented above shows that a chicken meat with a weight of 1.9 2.2 kg costs 7.06 lei / Chicken, the initial investment is not particularly large and amortized by increasing the first series of chicken, which shows economic efficiency of an actual 300 chicken meat in a household agro- industrial. If we take into account that a chicken meat at a weight of 1.9 to 2.2 kilograms live can sell at a price about 12 lei / chicken produces a net income of 4.94 lei / so put a total value 1447.42 lei / effectively in a production cycle of 9 weeks from 6 weeks to 3 weeks production and veterinary vacuum. Raising broiler chickens in small herds can bring additional income household, and a critical value are higher forage resources obtained by them (eg maize).

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