

## OPPORTUNITIES IN ORGANIC BREEDING OF CAPON POULTRY AND SUSTAINABLE FARM MANAGEMENT

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### Abstract

*Against the background of the scandals regarding the contamination of food with dioxin and nitrophenol, the Bovine spongiform encephalopathy (BSE - "mad cow" disease), the avian and swine flu, the infection of some vegetables with the enterohemorrhagic strain of the bacterium *Esterichia coli* (EHEC), as well as the fears regarding the use of genetically modified organisms, the request of agricultural products and ecological food increased a lot at the beginning of this millennium. An opportunity for the transition from subsistence agriculture to an agriculture based on economic principles is represented by systems of exploiting poultry on the ground, with free access to outdoor paddocks, as well as ecological growth. In this context, the present paper tries to bring to the fore some opportunities in the organic breeding of some poultry with a special taste, such as capons. The main objectives followed were: some historical landmarks regarding the growth of capons; the review of the practical elements of capon growing and some case studies that show the opportunity of capon growing in Romania for a successful business. The used methods included searching of the various databases with the latest publications in the field and identification of some relevant results. The breeding of capons represents an opportunity for Romanian farmers who want a profitable business, especially since currently, in Romania, the number of such micro-farms is very limited.*

**Key words:** capon, Breese, flavourful, opportunities, organic

### INTRODUCTION

The theoretical foundations of organic farming were between the years 1920 - 1960, immediately after the beginning of the process of industrialization of agriculture and the start of the "green revolution", by Rudolf Steiner in Germany, the founder of the concept of "agriculture biodynamic", Sir Albert Howard in England, on whose ideas the school of "organic agriculture" was founded, H. Müller in Switzerland, author of the concept of "organic-biological" agriculture and C. Lemaire and J. Boucher in France, the founders of the "biological agriculture" school.

In order to switch to organic production, a conversion plan is drawn up in advance, which can be carried out at the level of the farm or a well-defined plot of land and is evaluated every year, on the occasion of the control. All components of the conversion plan are established by mutual agreement with the inspection and certification body, in accordance with the legislation in force.

The conversion process is carried out over a sufficient period of time, during which an "adaptation" occurs, both of the ecosystem and of the farmer. Following the conversion process, the land, crops, harvest and animals must acquire the qualities specific to organic production [3, 14].

For animals, the mandatory conversion period is as follows:

- 12 months in the case of equidae and cattle, including the *Bubalus* and *Bison* species for meat production and in any case at least three quarters of their lifetime;
- 6 months in the case of small ruminants and in the case of pigs and animals for milk production;
- 10 weeks in the case of poultry for meat production, brought to the holding before reaching the age of three days;
- 6 weeks in the case of poultry for egg production [14].

In Europe, the relationship of consumers with organic production is exceptional [9]; from the point of view of organic area (% share of total utilised agricultural area), countries like

Austria, Estonia, Sweden, Italy, Czechia and Latvia is on the first places (Figure 1).

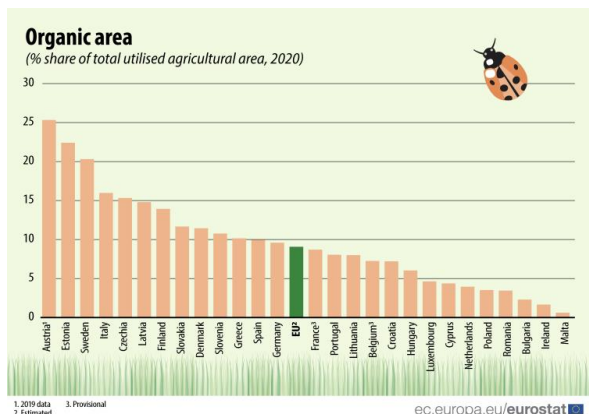


Fig. 1. Situation of organic farming in the European Union (2020)  
 Source: [9].

In an online statistical study conducted globally in 2016 (Nielsen Company, USA), consumers motivate their tendency to consume organic food as follows: these products are healthier (76% of respondents); want to avoid pesticides and other toxins (53%); organic foods have more nutrients (51%); it is healthier for the environment (49%); food is tastier (45%); etc. (Figure 2).



Fig. 2. The main reasons listed by consumers for the trend of choosing organic food  
 Source: [13].

Health-related problems seem to assume greater importance than concerns regarding the protection of the environment and, in particular, are related to the provision of healthy nutrition, motivated by ecological and hygienic-sanitary arguments, imposed by the radical change in consumer demand and the on-going concerns more insistent for food biosecurity.

Capon is a male chicken that is caponized (castrated) after reaching the age of 9 weeks. Proper care and feeding produce the appearance of thin layers of fat inside the muscle tissue, and this fact leads to the tenderness of the meat and a special taste [4, 15]. Thus, the capon meat is more delicate and flavourful than that of a hen or rooster, which is due to the way they are fed but also to hormonal differences during the development of the capon [12, 16], as well as the fact that these poultry are not as active like the ordinary roosters. Because of the loss of sex hormones, the normally aggressive rooster becomes docile and mellow capon.

According to the writings of Pliny the Elder in L'Histoire Naturelle, the Romans are credited with the invention of the valve, as early as 162 BC when Senator Gaius Fannius Strabo passed a law for limiting the consumption of chicken meat. The objective was to save the grain reserved for plebeian's food (the bottom layer of Roman society). The restriction mandated the consumption of a very small number of chickens at banquets, birds that should not have been fattened for this purpose. The senator suggested castrating the young roosters and feeding them dairy products, later finding that the roosters doubled in weight and size [7].

The story of the Bresse capons, the most famous breed, originally from France, began in 1591 in Bourg-en-Bresse, based on the local breeds Black Louhans, Gray Bourg-en-Bresse, White Beny. King Henry IV is said to have been seduced by the aroma of poultry given as a gift by the inhabitants of Bresse [7].

In 1825, Brillat Savarin in his book "Physiology of Taste" brings the Bresse breed to the fore and calls it "Queen of poultry, from the court of kings". Later, Bresse poultry became known in all European capitals.

## MATERIALS AND METHODS

In this short review, some main objectives were followed, namely: the positive impact of ecological agricultural practices on the environment and consumers health; some of the main reasons for choosing healthy foods

that ecological consumers support; some historical landmarks regarding the growth of capons; the review of the practical elements of capon growing and some case studies that show the opportunity of capon growing in Romania for a successful business.

The used methods included searching of the various databases with the latest publications in the field and identification of some relevant results. The main databases were Web of Science and Google Scholar as well as EUROSTAT and MADR statistics. The case studies from Romania were obtained from some online magazines like Ferma, Agrintel and Adevarul.

## RESULTS AND DISCUSSIONS

During the transition period from the communist era to the market economy, a number of poultry farms in Romania were closed down. Currently, most poultry farms are privately owned. In the pre-communist period, there were famous capons breeders and there was an important market; during the communist regime, however, it disappeared altogether, at the present time many consumers do not know anything about capons and have never tasted their meat.

The capon can be slaughtered only after exceeding the age of 150 days and a weight of at least 3 kg. It is generally ready for sale around Christmas.

On August 1, 1957, the French National Assembly voted to grant the title of Designation of Controlled Origin (Appellation d'origine contrôlée/AOC) to the Bresse breed of capons, and in 1976 to the Dinde de Bresse breed, which became AOP (Appellation of Origin protected). There is even a grouping of Breese capons breeders, established on December 15, 1962, shortly after AOC decree, which defines the production conditions of the Bresse capons. This grouping brings together the most responsible breeders.

In France, Spain and the United States, the capon is considered a festive chicken, and in Romania, at the great noble houses of the past there was a real cult for capon meat, with tasty recipes. Today, some luxury restaurants from

our country have begun to include capon meat in their holiday menus.

The French, the most famous capon breeders in the world, recommend the following breeds: La Bresse (predominant) but also the La Fleche, Faverolles, Label rouge breeds. According to the experts, the best capons are those from the Bresse breed, which have finer muscle fiber and finely divided fat deposits [7].

AOC requirements for the Bresse flap breed:

- Growing in freedom on grassy areas;
- Feeding with cereals, milk and dairy products, worms and molluscs;
- In the final fattening stage, feeding with honey for 4 weeks;
- Minimum weight: 3 kg;
- Marketing: 1 to 31 December;
- Commercial presentation: usually with the feathers on the head preserved, for the guarantee of the brand (Photo 1).



Photo 1. Two different commercial presentation of Breese capon  
Source: [2].

Being raised in an organic system, Breese capons gain weight a little harder. If broilers reach 2.5-3.5 kg in less than 42 days, La Bresse breed capon reach 3.5 kg in 150 days with an intelligent feed based exclusively on grain combinations, but the difference in volume between them and other types of chicken carcasses is noticeable (Photo 2).

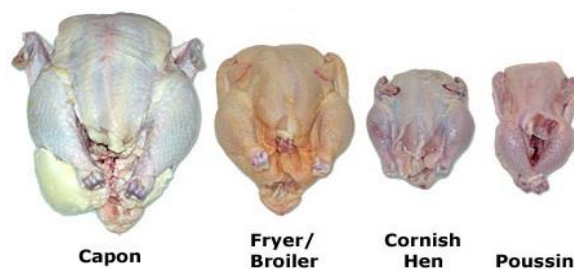


Photo 2. Types of chicken. Capon has more white meat and higher fat content than other chickens.  
Source: [15].

The rearing technology consists in growing exclusively in freedom, on pasture, in grassy spaces for 5 - 6 months. The feeding is done with cereals and protein crops of vegetable origin, as a supplement to grazing. In the Bresse breed, finishing is done at the age of 7-8 months, with corn and wheat soaked in milk.

Capons can be raised properly by feeding them only organic feed. From the time they are small, chickens need food that provides them with a minimum of 20% protein and about 3,000 calories daily. During the first 2 weeks they need a constant temperature of 28°C, as well as constant access to water and very finely ground grain, so that digestion is easy.

Capons must have a combined feed that contains all the elements they need for increased and healthy growth performance. The breeder must always pay attention and care to this poultry, because the breeding process is a complex one.

Their feed must contain carbohydrates (cereals - corn, wheat), proteins (soybean and sunflower groats, peas, bran), minerals (salt, calcium) and vitamins (grassy areas must also contain alfalfa and clover), all of which are necessary for the formation of bones, muscles and fat. Practically, 1/3 of the capon's food must be taken from the grassy spaces. In freedom, capons tirelessly eat worms, molluscs, grass and seeds throughout the day [11].

Water is very important in the nutrition of capons. In general, they consume about 2 times the amount of food; on hot days, they will drink up to 5 times more water. It is very important that the water is always fresh, and where possible it is recommended to use spring or well water [11].

In order to comply with the conditions regarding the system of capons growing on the ground, with free access to the paddock, from a functional point of view, a farm must have the following areas [6]:

- Veterinary sanitary protection area;
- Access driveway to the farm;
- Outdoor access paddock. The area required for capons access is delimited by a fence;
- Paddock access gates.

The perimeter of the farm must be protected with a mesh fence. Access to the perimeter of the production farm by foreigners is strictly prohibited. Employed personnel enter the production space only in compliance with biosecurity protocols [6].

The "caviar" nickname of the capon is due to the price of the meat, which can reach from 10-12 Euro/kg to 50-80 euro in the case of Bresse breed capon. The age of this breed and the fact that it is not genetically modified have determined the extraordinary resistance of Bresse capon. Basically, this breed does not show any sensitivity and it is recommended to be raised in an extensive system with natural food. They also lend themselves very well to growing in freedom - free-range, being birds with a lively temperament and great mobility. That's why Breese breed capon can also be recommended in Romania, where, 50 years ago, they were the main delicacy at all the noble courts.

Romania could become a good producer for this ecological poultry, exceptionally tasty and very well paid. The capon casing is eviscerated, and the feathers on the head and sometimes the tail are left intact so as not to mislead customers. In general, the weight of the carcass is around 3.5-5.5 kg, depending on the breed and the way of exploitation.

The opportunity for the capons breeding in Romania is also given by the extremely small number of breeders; thus, there are only a few micro-farms, e.g. in Lăpusel (Maramureș), Câmpulung (Argeș) and Baia Mare.

The system of growth and exploitation free range growth system of capons complies with the community rules regulated by Regulation (EC) No. 543 of June 16, 2008 establishing the rules for the application of Regulation (EC) no. 1234/2007 of the Council regarding the standards of commercialization of poultry meat, art 11 and annex V, where it is specified "Free-range" [6].

This term can be used only if:

- The capon's density is no more than 7.5 per m<sup>2</sup>, provided that they weigh no more than 27.5 kg live weight per m<sup>2</sup>;
- They had continuous access during the day to external paths covered mainly by



vegetation and representing at least 2 m<sup>2</sup> per capon;

- The food formula used during the fattening period contains at least 70% cereals;
- The shelter is equipped with exit hatches with a combined length of at least 4 m per 100 m<sup>2</sup> of shelter surface [6].

Because they are genetically resistant breeds, antibiotics are excluded from the meat of Breese capons. Farmers can use, if necessary, natural antibiotics (thyme oil or oregano oil), administered in water. However, there are certain obstacles in capitalizing, determined on the one hand by reluctance and on the other hand by the fact that the luxury restaurants that capitalize on this meat prefer to work with imports than with Romanian goods. It can be stated that for capon meat it is a growing market, but it all depends on the restaurants. In Romania, they can be produced at lower costs, compared to the costs at which they are grown in other countries [11].

Increasing the capons, however, requires specialists for the caponized procedure, a very delicate operation [8]. The biggest problem faced by a Romanian capon breeder is the high mortality following caponization, as there are very few specialists who can successfully perform this operation. Also, one of the major disadvantages is that the mortality rate after caponization is very high: almost half of the capons die after the operation, a fact that can discourage any investor. However, after three series of 100 heads, the business starts to work, according to the statements of a capon's breeder from Lăpusel (Maramureș), who in 2013 re-established the first farm of this kind in Romania. The farmer sells the carcasses of capons (of various breeds) in luxury restaurants, at advantageous prices, which ensure an excellent profit [5].

In 2016, a Bucharest resident decided to start a business with capons from the Breese breed in Câmpulung-Argeș (Photo 3).

The farmer invested in the Bresse breed starting from a queen flock of 18 purebred hens, which he obtained from eggs purchased through a distributor from Germany and France. In 2017, it managed to reach an

effective number of over 1,000 specimens [11].



Photo 3. Breese capons from Câmpulung (Argeș) microfarm

Source: [11].

The high fat accumulation (Photo 4) is extremely important for consumers seeking better-tasting meat [1, 10].

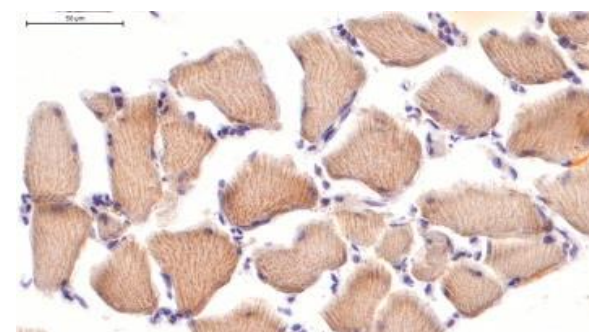


Photo 4. A muscle sample from a 16-wk-old capon and the adipose tissue accumulation

Source: [10].

This type of business can be revitalized today, because the clam meat is a real gastronomic treat.

The market is a niche one; e.g. it is estimated that around one million capons are produced annually in USA, compared to approx. 8 billion chicken heads for meat every year. Currently, commercial production of capons in USA is limited to a single producer, Wapsie Produce Company, in Iowa State.

In Europe, France is the largest producer, with over 2 million capons/year.

As the main French region for the production of exceptional poultry, its famous capon brings a bit of Burgundy to many French Christmas tables.

## CONCLUSIONS

The consumer public is alert in terms of product quality, when it comes to meat and other foods.

Capons are a unique type of meat poultry for a specialized market. They grow much more slowly than normal males and accumulate more fat, their meat becoming tenderer and much tastier.

La Bresse breed is among the most famous in the world. It has a meat with a special texture and special taste, close to pheasant, which makes it highly sought after by chefs at luxury restaurants. The "caviar" nickname of the capon is due to the price and special flavour of the meat.

The breeding of capons represents an opportunity for Romanian farmers who want a profitable business. These opportunity is also given by the extremely small number of breeders and micro-farms.

The best breeds for organic capon breeding are those with slow growth. From this point of view, the Bresse breed is recommended, as it is the only one in the world with controlled designation of origin, just like noble wines.

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