

Raising cockerels from free range egg production

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About

Worldwide most males from layer type poultry are currently killed at hatch. Yet farmers with laying hens, consulted in the LowInputBreeds project, revealed they despised this practice and look for possibilities to raise cockerels, possibly working with dual purpose chickens. This technical note explains the best option with regard to resource use efficiency and what production costs might be to raised to market cockerels of specialized layer strains.



Raising cockerels: History and current issues

In the past, it was not possible to sex day old chicks, so all birds were reared to six or eight weeks, when cockerels and pullets could be distinguished and separated.

Cockerels would then be slaughtered as 'giovanni galli' or 'Hähnchen' at about 16 weeks and pullets kept for egg production.

When sexing of day-old chicks permitted cockerels and pullets to be separated at hatch, and it was no longer necessary to raise all birds, poultry production started to specialize in layers for eggs and broilers for meat. Fewer and fewer males of layer type were reared for meat. Currently, most layer type males are killed at hatch.

In some Asian countries, the day old chicks are consumed as a snack; in several European countries these chicks are processed as zoo and pet food, and sometimes they are simply destroyed.

In many European countries this practice is challenged: Killing chicks immediately after hatch is considered ethically unacceptable. Ethical objections are generally stronger among consumers of free range

and organic eggs, who question if cockerels can be reared for meat. But what are the possibilities and opportunities?



Today, nearly all the male chicks of the layer type are killed. Photo: Livestock Research, WUR

Raising of cockerels

For a standard family of four, a chicken with an oven ready weight of 1000 to 1500 grams is nice, which implies a live weight at slaughter of 1500 to 2000 grams. Cockerels are 25 to 30 percent heavier than pullets at the same age, so for most layer genotypes cockerels might reach this size between 14 and 18 weeks of age. Slaughtering before sexual maturity at around 18 weeks is an advantage to prevent excessive fighting among the cockerels.



Young cockerels ranging under fruit trees.
Photo: Livestock Research, WUR

The cockerels can be housed separately or reared together with pullets especially in the first weeks of life, when chicks need a warm and protected environment. Joint housing saves on energy and money. High stocking densities, however, will harm development of both males and females. At later ages, when heating is no longer required, males can be transferred to separate facilities, preferably with outside access. Then, cockerels can receive a higher energy diet suitable for growth and finishing, which would be inappropriate for females that will become laying hens.

Costs of production

Raising cockerels is not very complicated, but production costs are high - be it conventional or organic - compared to producing poultry meat from specialized broilers. This is caused by the rather slow growth rate of cockerels from layer strains. Whereas standard broilers reach 2000 grams at about 5 weeks of age, and organic broilers are 2400 grams at 12 weeks of age, the layer cockerels need about 18 weeks to attain 2000 grams. They have a higher maintenance requirement and need more feed than the broiler genotypes. Feed conversion of conventional broilers is about 1.7:1 and of organic broilers about 2.1:1. Layer type cockerels require at least 3 kg of feed for 1 kg of live weight. Due to this unfavourable feed conversion and the long rearing period, production costs of cockerels are high. Slaughtering also adds to production costs, as these birds do not fit automated broiler slaughter plants and have to be slaughtered manually, if

numbers are low and do not justify a dedicated slaughter facility.

In field trials in Germany and The Netherlands the costs of production for a ready to cook whole bird on a conventional diet proved to be at least 10 euro per kg and more likely 15 euro per kg, compared to 5 euro for conventional broilers and 10 euro for organic broilers. These trials concluded that production costs are too high for a successful product.

Cockerels with higher growth rates might well have lower production costs, but then their sisters will also be bigger and need more food to maintain their larger body. Simple calculations indicate that such hens need so much extra feed for egg production, that the improved feed efficiency of the cockerel will not compensate the extra feed intake of the hen.

Leenstra et al. (2010) calculated the extra production costs for different options of a combination of egg and meat production from the same genotype. Based on data of egg production, feed efficiency for eggs and meat, growth rate and carcass yield (table 1), it was calculated i) how many hens are required to produce one billion eggs, ii) what the extra costs are for egg production when compared to a standard layer, iii) and what the extra costs of raising the brothers of the laying hens are when compared to standard broilers (table 2).

Table 1: Standard data for egg and meat production for different genotypes (from Leenstra et al, 2010)

	Layer, brown	Layer, black	Cross layer x broiler	Dwarf broiler	Regular broiler
Final weight of hens (g)	2'000	2'100	2'500	2'800	3'500
No. of eggs per production period	351	342	260	200	165
Feed conversion (kg feed/kg eggs)	1.99	2.14	2.97	3.86	5.22
Slaughter weight of males (g)	1'800	1'800	2'000	2'200	2'200
Slaughter age of males (days)	98	94	84	56	40
Feed conversion (kg feed/kg live weight)	3.8	3.6	2.7	1.9	1.7

Table 2: Production costs of eggs and poultry meat from different genotypes (from Leenstra et al, 2010)

	Layer, brown	Layer, black	Cross layer x broiler	Dwarf broiler	Regular broiler
No. of hens (mil.)	3.26	3.35	4.09	4.58	4.86
Extra costs eggs (mil.)	0	2	30.1	58.5	83.3
Extra costs males (mil.)	3	2.7	2.2	1	0
Total extra costs (mil.)	3	4.7	32.3	59.5	83.3

The calculations show that the best option for resource use efficiency and production costs is to raise and market cockerels of specialized layer strains, like the current brown egg layers. When the eggs are produced by a heavier genotype (like the black feathered laying hens or hens from a cross between layers and broilers) hens need extra feed due to their higher body weight. Their brothers have a better feed efficiency and higher slaughter yield than those from the standard egg laying genotypes, but this does not compensate for the extra feed required by heavier hens. Development of a dual purpose genotype (heavier than a layer type, higher egg production than a broiler type) thus might look attractive, but in terms of physiology and production efficiency this is not an improvement.

Culinary quality and market

In several parts of Europe cockerels were liked very much for their culinary properties: real chicken taste, firm but tender meat. They are a valuable ingredient for paella, coq au vin or the Flemish dish 'waterzooi'.

Also in Africa and Asia there are many dishes that benefit from a cockerel instead of a standard broiler. However, many people are now accustomed to low price, modest taste, tenderness and ease of preparation of broiler meat. Sales of cockerels have therefore diminished significantly since the 1980s and are currently almost negligible.

Cockerels require greater cooking skills and appear rather bony. Marketing of cockerels is not easy, although the current revival of authentic food and cooking might make it possible to develop a (niche) market.

Although citizens like the idea of raising cockerels, not many consumers are prepared to pay the premium price necessary. Therefore new ways to build a significant market need to be explored. In Germany, limited numbers of cockerels are marketed through a ready to eat product by Geflügelhof Schubert (www.gefluegelhof-schubert.de) and Bruderhahn Initiative (www.bruderhahn.de) is another option. Consumers are asked to pay 4 cent extra for an egg yielding about 10 euro per hen and year, which is used to market the brothers as a 'Junghahn'.

Specialization of poultry farmers combining egg production and raising cockerels supports this marketing approach. Such an approach might also fit into biodynamic agriculture. Farmers could work with a long term contract with their consumers in a kind of subscription system for eggs, and occasionally a cockerel or a spent hen. In this way, consumers can take responsibility for their own ethical concerns.

Further reading

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Imprint

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LowInputBreeds

LowInputBreeds is the acronym of the project 'Development of integrated livestock breeding and management strategies to improve animal health, product quality and performance in European organic and 'low input' milk, meat and egg production'. It is funded under the Seventh Framework Programme of the European Community for Research, Technological Development and Demonstration Activities (Contract No. 222623).

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Review

Gillian Butler, Newcastle University; Veronika Maurer, FiBL; Gilles Weidmann, FiBL; Helga Willer, FiBL.

Cover picture

Combi-chicken project, The Netherlands. Photo: Otto Kalkhoven.

Publishers

Consortium of the LowInputBreeds project, c/o Newcastle University, UK, and
Research Institute of Organic Agriculture (FiBL), Frick, Switzerland

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