

Poultry: Ethical Problems and Breeding Goals

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Killing male chicks and discarding layers after one year of production

Poultry lines are highly specialized and used either for egg or meat production. Layers reach a body weight of about 2 kg after a rearing period of about 20 weeks, while broiler lines reach more than this weight after a fattening period of 6 weeks.

This divergence of layer and broiler lines leads to several problems:

Layers: High egg production and low body weight

- Negative reaction to slight variation from optimal environment
- Health problems associated with high egg production:
 - reduced bone strength
 - keel bone deformation
 - feather pecking
- Female birds only one year in production
- Male chicks and spent layers not used for human consumption or animal feed
- Fattening males is not economic (long fattening period, low feed conversion rate).

Broilers: Fast muscle growth and high body weight

- Health problems associated with fast growth of muscles compared to growth of supporting structures:
 - leg deformation and lameness
 - breast blisters
 - heart problems.

These problems are mainly caused by creating specialised lines, and they can therefore be decreased by breeding. There have been several attempts to overcome disadvantages of specialised lines with *dual purpose* chicken. These are expected to solve

- the problem of killing male chicks
- growth related health problems of broilers
- some health problems of layers.

As a third purpose, heavier hens of these lines would be better suited for human consumption after their life as a layer. However, all the results obtained with possible dual purpose lines so far have not been economically acceptable for large scale organic and low input egg or table bird production, while they may be for small scale speciality production.

An alternative to be considered is the prolonged use of layers. Egg and feathering quality as well as egg production naturally decrease in older layers. After an unproductive period, during which the feathering is renewed ("moulting") these problems are often substantially reduced.

In the past, moulting has been banned for animal welfare reasons e.g. by the Swiss organic regulations. However, “animal friendly” moulting systems without complete feed and light deprivation and with access to the veranda have recently been developed. These are now approved by the organic regulations and more and more applied in Switzerland. This development was reflected in the workshops for farmers participating in the “farmer participatory breeding network” of LowInputBreeds: the wish to have a layer suited for longer use (with or without moulting) and with a flat production curve (no peaks in egg production, good persistence) was expressed in all the Swiss workshops. Production planning by the egg traders was mentioned as the main obstacle.

Model calculations show that using hens longer without moulting (70 weeks laying period instead of 47) reduces the number of male chicks to be killed and old layers to be discarded per year by about one third. If layers are moulted and used during two laying cycles instead of one, there are about 50% less animals to be killed and discarded per year.

Management and health of the individual flock are crucial for the success of prolonged use or moulting. In addition, not all layer lines seem to be equally suited for prolonged use and moulting. Breeding is therefore an important element of success.

Uneven use of run by large flocks and feather pecking

Hens kept in large flocks use the outdoor run less frequently and less evenly than hens in smaller flocks. This leads to damage to the grass cover and, more importantly, over-fertilisation and nutrient leaching in the area close to the house.

Feather pecking is considered the major animal welfare problem on organic and free range farms. In a survey performed in LowInputBreeds on 320 flocks in the Netherlands, France and Switzerland the proportion of flocks not affected by feather pecking was 34%. 33% of the flocks were heavily affected by feather pecking. Other studies revealed that the risk was reduced in flocks with a better use of the outdoor run. Beak trimming is often used to prevent feather pecking. However, this mutilation is not acceptable in organic farming and also prohibited by many free-range labels.

Both, feather pecking and the readiness to use the run depend on management (e.g. structure of the house and outdoor run, light, feeding) but they also have a genetic component and selection is therefore possible.