Agricultural University of Tirana
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Department of Agrochemistry
and Soil Sciences

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Department of Ecological
and Sustainable Production

University of Sarajevo
Faculty of Agriculture
and Food Sciences

Research Institute of
Organic Agriculture
Switzerland

Joint Bachelor Course on Organic Agriculture 2014

Lesson 09 (04): Organic Laying Hens

Authors: Anna Bieber (anna.bieber@fibl.org)

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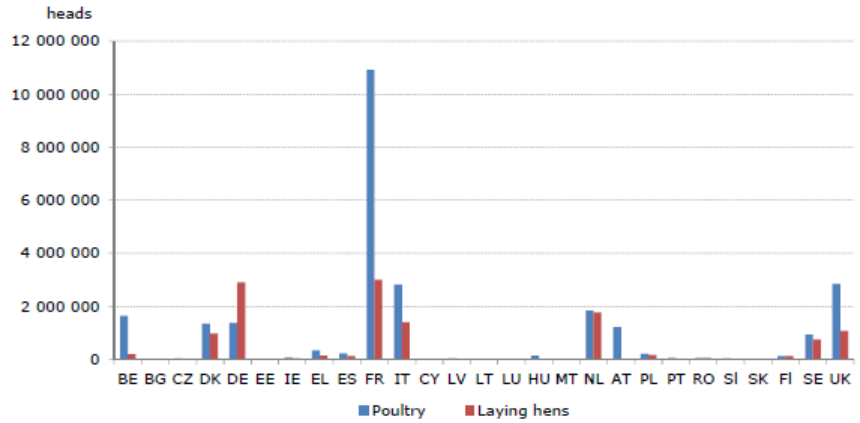
Laying Hens

Foto: T. Alföldi (2005), FiBL

Numbers and Figures

- 2011: 26.1 million organic poultry heads, of which 49% were laying hens
- Significance of organic laying hens much higher than of other poultry due to stronger demand in the egg sector
- France is leading Member State in organic poultry sector (10.9 million animals, of which 1/3 are laying hens)

Graph 34. Number of certified organic poultry and laying hens in 2011



Sources: Eurostat data on the basis of Council Regulation (EC) No 834/2007 on organic production (online data code: food_in_porg3). Data for DE from AMI Market study Strukturdaten im ökologischen Landbau in Deutschland 2011. *Data for poultry for AT for 2011 from* Grüner Bericht 2012. *Estimated data for poultry for IE, CY, LT and LU (2011). Estimated data for laying hens for EE, IE, LV, LU, LT (2011). Missing data for poultry for BG. Missing data for laying hens for BG, CY, AT and PT.*

Source: European Union, 2013

Natural requirements of laying hens and their consequences for organic farming (1)

Aspect	Characteristics	Consequences
Natural habitat 	⊙ Red Junglefowl: origines from Asia ⊙ Natural habitat: edge of the forest, bush	⊙ high temperature needs (especially in young chicken) ⊙ good ventilation, no air draft ⊙ structured outdoor run
Day period 	⊙ diurnal ⊙ sufficiently long night´s rest	⊙ limit artificial daylight ⊙ big windows (natural light) ⊙ sufficient light intensity ⊙ no fluorescent lights
Social behaviour 	⊙ social ranking ⊙ formation of groups with limited number of animals and a dominant cock	⊙ cocks for formation of subgroups in bigger herds ⊙ cocks care for natural social ranking

Source: FiBL 2004, supplemented according to Deerberg 1992; fotos: Esther Zeltner, Res Schmutz

Natural requirements of laying hens and their consequences for organic farming (2)

Aspect	Characteristics	Consequences
Reproduction 	⊙ mating ⊙ Search a protected space for egg laying	⊙ keep cocks in the herds ⊙ Provision of nest boxes with litter material
Exploratory behaviour 	⊙ walking, scratching, pecking ⊙ Food search approx. 30-50 % of daily activity	⊙ provide possibilities/ material for scratching and pecking in- and outdoors ⊙ scatter grains
Locomotion 	⊙ walking, running, flattering, flighing ⊙ Escape from birds of prey (e.g. to hide under bushes)	⊙ enough space in- and outdoors ⊙ sufficienlty high fences ⊙ Shelter in the outdoor run

Source: FiBL 2004, supplemented according to Deerberg 1992; fotos: Beat Bapst, Esther Zeltner

Natural requirements of laying hens and their consequences for organic farming (3)

Aspect	Characteristics	Consequences
Feed intake 	⊙ Scratching and pecking ⊙ Perceive acustic signals of other animals ⊙ Comminution of feed in the gizzard	⊙ Litter in the barn ⊙ Outdoor run ⊙ Scattering of grain ⊙ not too fine feed ⊙ supply of chalk and silicea sand
Comfort behaviour 	⊙ stretching of legs and wings ⊙ dust- and sun- bathing	⊙ Enough space ⊙ access to a dust bath
Resting behaviour 	⊙ Snoozing and resting ⊙ Seek bushes or trees at dusk	⊙ Offer sufficient elevated perches ⊙ Sufficiently long period without artificial light

Source: FiBL 2004, supplemented according to Deerberg 1992; fotos: Esther Zeltner, Res Schmutz

Minimal requirements concerning housing conditions

Indoor area

- 6 animals/ m²
- 18 cm perch/ animal
- Nest: 7 hens/ nest
- In case of common nest: 120 cm²/ bird

Outdoor area

- 4m² of area available in rotation/ head; provided that the limit of 170 kg N/ha/year is not exceeded
- exit/entry pop-holes of a size adequate for the birds, with a combined length of at least 4 m per 100 m² area of the house available to the birds

Regulations

- trimming of beaks not to be carried out routinely
- min. 1/3 of the floor area shall be solid (not of slatted or of grid construction), and covered with a litter material such as straw, wood shavings, sand or turf
- Max. 3 000 laying hens per poultry house
- Minimum 8 hours of continuous nocturnal rest period without artificial light
- access to an open air area for at least 1/3 of their life

Foto: Koenig (FiBL)

Foto: T. Alfoeldi (2009) FiBL

Housing: Free range systems

- As access to open air areas is required, free range systems are the usual housing systems in organic laying hen husbandry

Challenge:

- Main problem: Infrequent & uneven use of the hen run → hens in the run mostly remain close to poultry house = overuse of this area

  destroyed vegetation,

  nutrient overload

Foto: E. Zeltner (FiBL)

Free range systems

Why do hens not use the outdoor area evenly?

- Origin of our hens: Red Junglefowl
- Natural environment:
  on the edge of the forest, habitat is covered with vegetation

Recommendations:

- Structure the free range area: stimulate the use of the outdoor run by means of vegetative and artificial cover
- varity of structures has been shown to be more important than the number of elements
- structures serve different natural behavioural requirements: shade, protection

Possiblities to structure an outdoor run

Fotos: from E. Zeltner (FiBL)

Breeds used

- Organic farms use the same genetics (hybrids) as conventional farms

Reason:

- traditional pure breeds are currently not feasible to the big majority of organic egg producers for economic reasons (lower production potential)

Ethical concerns:

- Background: breeds are highly specialised either on laying or on fattening ability
- Laying hens: male chicks are killed after hatching and spent layers are discarded
- Dependance on very few companies that dominate the market for poultry genetics

Nutrition of organic laying hens

Challenges:

- Main challenge: to meet the nutritional needs by supplying diets with a balanced amino acid pattern, given the ban on synthetic amino acids and other restrictions in feed supplements
- Since 2012: 100% organic components mandatory
- Limited availability and high costs of organically produced and GMO-free soya
- Alternatives: home-grown protein sources: e.g. beans, peas, lupins; protein cake from oil crops such as rape seed
- development of diets relying more on home-grown ingredients has been subject of recent research in Europe

Problem: Feather pecking

- as routinely beak trimming is not allowed on organic farms, feather pecking is considered to be an even more severe problem than on conventional farms
- may be reduced when the hens use the free range area more frequently (Nicol et al. (2003); Bestman and Wagenaar (2004))

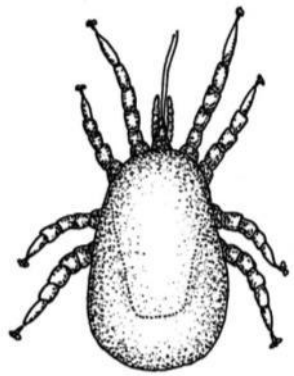
Risks factors for feather pecking (Knierim, et al. (2008)):

- High densities of chicks
- Poor environment
- Little elevated perch space
- Few drinking places
- No regular scattering of grain during rearing period
- Poor litter quality during laying period

Foto: Esther Zeltner

Animal health in laying hens

- Parasite problems tend to be worse than other health problems (Lund and Algers, 2003)
- Most important parasites of laying hens:
  1. Poultry red mite (*Dermanyssus gallinae)*
  2. Coccidia *(Eimeria spp.)*
  3. Gastro-intestinal helminths (mainly roundworms *Ascaridia gallii, Heterakis gallinarum)*



Female red mite, ca. 1 mm

How to cope with parasites?

- Possibilites to cope with *D. gallinae* in organic farming (Maurer et al., 2009):
  1. Prevention by good mangement practice (e.g. cleaning and disinfection of the empty house after each cycle)
  2. Application of physically acting substances to flocks (e.g. oil and desiccant dust)
  3. Selective application of acaricides of natural origin to highly affected places
- *Eimeria spp*.: vaccination is availably and widely used in organic flocks
- Helminths: no preventive use of synthesised drugs allowed; try to reduce by good management; alternative treatments (e.g. anthelmintic plants) need further investigation

Literature

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