



POULTRY SIGNALS

A PRACTICAL GUIDE FOR BIRD FOCUSED POULTRY FARMING



Poultry Signals

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Introduction	4		
1 Seeing more by looking more closely	8	4 Laying hens	56
Pick up the signals	9	Schedules aren't written in stone	56
Using the signals	10	The ideal curves	57
Know yourself	12	Feed and feed management	58
What she wants	13	Feed and light	59
Bird behaviour	14	Feeding in hot weather	60
Anatomy	18	Deficiency signal: eating feathers	60
Senses	20	What to look out for in feeding systems	61
Chicken sounds	21	Water	62
Checking individual birds	22	External egg quality	64
		Internal egg quality	66
2 The chicken and her environment	24	What makes a nest attractive?	68
Ideal home	24	Avoid floor eggs	69
Choosing a system that works for you	25	Gear management towards nesting peak	70
Moving in	26	A second laying period?	71
Perches	27	Pecking, feather pecking and cannibalism?	71
Litter	28	Difficult to reverse	72
Climate under control	30	Feather pecking	73
Skin temperature	31	Preventing feather pecking	74
Air	32	Cannibalism	75
Light	33		
Dust	34	5 Broilers	76
Home on the range	36	Checking the chicks on arrival	77
The facts	37	Ventilation	78
How do you get them outdoors	38	Distribution of the chicks in the house	79
Gimme shelter	39	Assessing your birds	80
Bad behaviour and problematic pests	40	Signals from manure	82
Covered range or winter garden	41	Poor litter	83
		Feed signals	84
3 Rearing hens	42	Drinking	85
The early days	43	Weak chicks	86
Quality of day-old chicks	44	Identify causes of death	87
Assessment at 16 weeks	45	Broiler parent birds	88
Light	46		
Teaching good behaviour in aviaries	47	6 Health	90
Vaccinations	48	Disease signals	91
The right way to vaccinate	49	Biosecurity outside the house	92
From small to big in 18 weeks	50	Biosecurity in the house	93
Feather pecking during rearing	52	What seems to be the trouble?	94
Beak trimming	53	Gastrointestinal problems	95
Smooth transition	54	Respiratory Diseases	96
		Egg production problems	98
		Locomotion organs disorders	100
		Sudden increase in mortality	101
		Summary of the main diseases	102
		Viruses	102
		Bacteria	105
		Gut parasites	107
		Worms	108
		Red mites	110
		Keywords	112

The chicken and her environment



Cage or floor: there is a world of difference between the two. With caged chickens, it's mainly the farmer who calls the shots. In non-caged systems the hens determine what happens and you, the poultry farmer, have to respond accordingly. You can control their behaviour with food, water, light and other factors.

Good management requires thinking about things from the hen's point of view and looking out for them properly.

Ideal home

The chicken prefers her living environment to be divided up so that there is a separate area for each activity: resting, laying eggs, scratching, eating and drinking, dust bathing. For resting, laying eggs and dust baths she needs quiet places where she won't be disturbed by other chickens coming and going.

A healthy living environment naturally also includes the right temperature and the right amount of light, air, food and water.



These perches are at the top of the house where there are no other facilities. The resting chickens are not disturbed there, so they can get real peace and quiet.

Choosing a system that works for you

The choice of a husbandry system is not a purely financial one. There are many other factors involved, such as how much time you have and what sort of jobs you like to do. There is no unequivocally 'good' or 'bad' system. Compare the various systems and consider the objective pros and cons of each one, but also think about what you yourself regard as pros and cons.

Downsides of switching to alternative

1. Floor eggs
2. Dehydrated hens
3. Hens that start moulting from a lack of feed and water
4. When something goes wrong the consequences are more serious. With an alternative system, an infection can spread through the entire poultry house more quickly, for example.

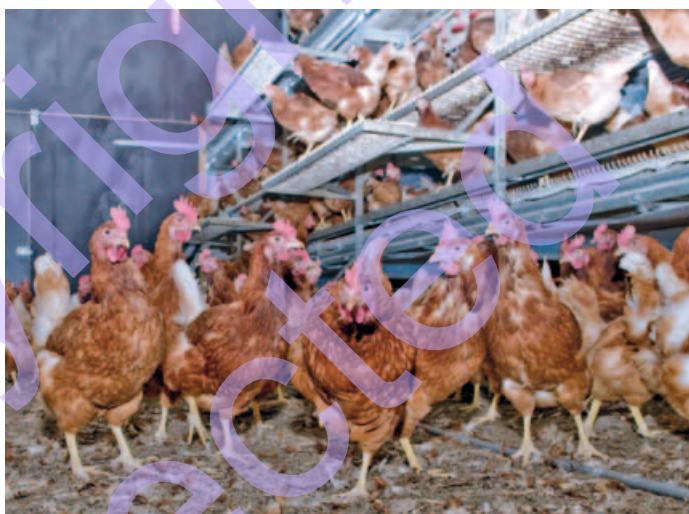
Driving licence

'If keeping caged chickens is like cycling, keeping chickens in a floor system is like driving a car, and keeping aviary chickens is like driving a lorry. You need a pilot's licence to keep organic chickens.'

A poultry farmer

Points to consider with non-caged systems

- As a poultry farmer you have less leisure time because the work is less easy to delegate to others
- When something goes wrong the consequences are more serious
- You must be more aware of the behaviour of your birds and know how to respond to it
- You must spend more time in the poultry house with the hens, so it is more hands-on
- The laying phase must follow on seamlessly from the rearing phase; consult your supplier about this.
- Ventilation systems work differently in non-caged housing:
 - fewer chickens, so less heat is generated
 - more sensitive to weather influences
 - with a range, ventilation based on underpressure is not possible.



Infections spread faster in a house with non-caged chickens than in a caged system because the chickens spread the germs all over the house.

Differences between husbandry systems

This table is of course mainly theoretical. As a poultry farmer you must also be committed to a particular method of keeping chickens. If you keep chickens in an alternative system without really believing in it, you are asking for trouble.

	Cage/ enriched cage	Colony housing	Traditional floor system	Aviary	Free- range	Organic
Cost price	++	++	+/-	+	-	--
Labour	++	+	+/-	+/-	-	-
Operational safety	+/-	++	+	+	+/-	+ / -
Leisure time	++	++	+	+/-	-	-
Animal health	+	+	+/-	+/-	-	-
Dust	+	+	--	--	--	--
Ammonia in house	+	+	-	+/-	-	-
Food safety	++	++	+/-	+/-	-	-
Natural behaviour	--	-	+	+	++	++
Image	--	-	+	+	++	++

Rating: ++ very good, + good, +/- average, - poor, -- very poor

Tips for looking after the new arrivals

- Make sure that there is food and water in the poultry house before unloading the hens.
- Put the new hens in the laying house in the morning, ideally near the feeder and drinker. You might like to leave the lights on longer on the first day.
- Make the feeding and drinking water regime the same as in the rearing house, and coordinate feeding times. The first delivery of feed in the laying house should ideally be the same as during the last weeks in the rearing house. Don't switch from coarse to fine feed.
- Make the lighting and the lighting times the same as in the rearing house. To prevent delays and lower production, the light strength and day length should be no less than at the end of the birds' time in the rearing house. A sudden increase in light intensity will make the birds nervous.
- Encourage activity and movement by walking through the house at irregular times. For a few days after the chickens arrive, chase them off any levels without feed or water to prevent individuals from going hungry or thirsty.
- In the evenings, go into the shed to pick up the chickens off the ground and put them into the system. This also prevents hens from laying floor eggs.
- Use step slats to make it easier for the hens to get in and out of the system.
- Make sure that the shed is at the right temperature (18°C) and that there is plenty of litter.
- Know how many hens you are getting and know their age.
- Examine the weight and the uniformity of the hens carefully. What stage of moulting are they at?
- Release the hens in the system or let them get out of the crates themselves.
- Check the distribution of the animals in the poultry house.



18°C is a comfortable poultry house temperature. Warm up the poultry house if necessary before the hens arrive. After all, the hens have not eaten for a while and will get cold more quickly, risking getting off to a poor start.

Moving in

Moving to a new home is very disruptive for the birds, so it is important to do all you can to help them settle in quickly. Think of it like friends coming to visit: you would also offer them a nice cup of tea and a biscuit in a comfortable room. The same applies to how you welcome your new hens. After a long journey they are arriving at their new home. Make it quiet and comfortable.

For example, make sure they can find everything easily and that the temperature is right. The better you do this, the more likely you are to have a good cycle and the less likely you are to have problems. In effect, you are simply continuing to rear the birds. You only become a laying hen farmer when the first egg is laid; until then you are a rearer - just as a woman only becomes a mother when she has her first baby.



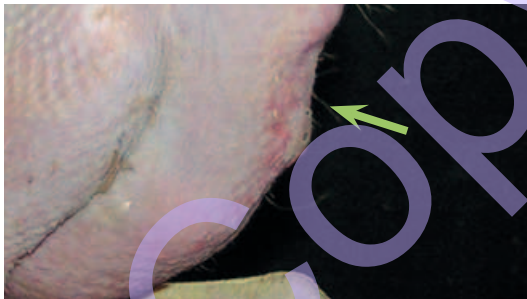
The drinking water system in the rearing poultry house must be similar to the system in the laying poultry house. If you have a nipple drinking system, Make sure the drip is visible so the birds recognise it as a water source. The colour of the nipple might play a role as well, so you could also use some nipple in the 'rearing colour'.

Perches

Chickens naturally like to rest and sleep high up to keep out of the reach of predators. In addition, conflicts between hens are resolved sooner if the hens can take refuge on perches. This makes for a calmer environment. A minimum of 15 cm of perch length per hen is required by law (or 18 cm on organic farms). Perches made of plastic or metal are very hard-wearing and stay very clean. Wooden perches soon get soiled with manure and are a breeding ground for red mites.



The top perches fill up first: if they don't, you have a housing problem.

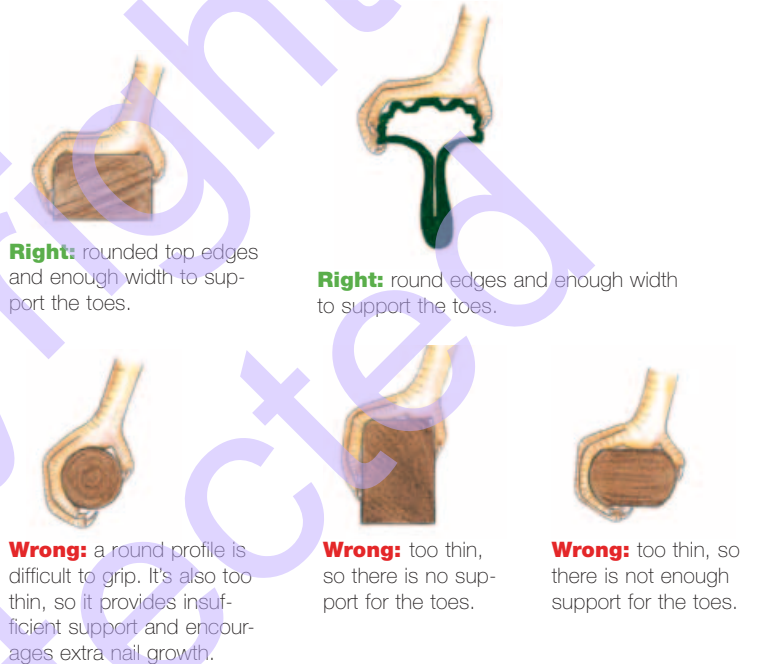


Older chickens can suffer from a softening of the breastbone. The breastbone also becomes porous as a result of calcium, phosphorus or vitamin D3 deficiency. Under these circumstances sitting on a perch can cause the breastbone to become deformed.



Positioning the perches

Perches in cages must not get in the way or prevent the hens from walking on the slats. Perches must be at least 6 cm above the slats to allow eggs to roll under them.



Right: rounded top edges and enough width to support the toes.

Right: round edges and enough width to support the toes.

Wrong: a round profile is difficult to grip. It's also too thin, so it provides insufficient support and encourages extra nail growth.

Wrong: too thin, so there is no support for the toes.

Wrong: too thin, so there is not enough support for the toes.

Not all perches are appropriate. The best shape is flat on top with rounded edges. This gives the chicken a good grip.



LOOK-THINK-ACT

A night light for chickens?

This photograph shows a dark aviary house with only the system lights on. This is a good way of enticing the hens into the system for the night. You can do this in two ways: firstly by using dimmable lighting, and secondly by switching off the lights in groups, from the bottom to the top of the system and finally the lure lights at the very top. Make sure these lights are above the resting places so that they actually lure the chickens onto the perches. You don't want all the hens to move up to the lamps, so don't leave them on too long.

Litter

Chickens have two basic needs for which they need litter: scratching and dust bathing. For a chicken, scratching (scraping with the feet) is inextricably linked to eating. Dust baths are for keeping the feathers clean and free of parasites. Dust baths reduce the risk of feathers becoming brittle

and breaking, so the plumage remains in good condition for longer. This also keeps your feed bill down. Wood shavings and straw are good for scratching in, but smaller particles such as sand are needed for a dust bath.

Keeping nails trim

In non-caged systems nails stay short as the hens scratch through the litter and scabble across the concrete floor. In cages, chickens can only keep their nails short by providing special facilities like abrasive strips on the egg protection panel which the hens scabble across while feeding. This abrasive material is compulsory in cages. Materials that meet this requirement include scouring pastes, hard metal strips with a rough surface and stone abrasive strips. Perforated egg protection panels are slightly less effective and are actually only used for brown hens as the nails on brown hens grow more slowly. Adhesive strips are cheap but they generally do not last more than one laying cycle.



The nails of these chickens are too long. Fit new abrasive strips.

Bath time bliss



This photograph shows hens on a litter mat in a colony cage. They are very busy with the litter that has just been provided. To make the litter mat more suitable for dust baths, the litter is deposited on the mat from the pipe at the back of the cage. This should ideally be done several times a day. An additional benefit is that this also reduces the risk of feather pecking.



These birds have litter, but if the flock is large or there are a lot of feather peckers, their dust bath behaviour is interrupted too often, so they don't get the full benefit of the dust baths.

Clean and dry

Store packaged products such as wood shavings and chopped straw indoors or under cover and on pallets to prevent the litter from getting wet. Avoid damaging the packaging; this will reduce the risk of contamination and vermin.

Wood fibre delivered loose must be stored in a dry place. Cover it with breathable cloth to prevent contamination by wild birds and mould formation from condensation. Vermin control is essential in all cases.



A bale of straw or alfalfa gives chickens the chance to peck and scratch. They pull the bale to pieces.

Pros and cons of litter material for laying hens

Litter material	Dust formation	Availability	Poultry health	Dust bath	Moisture uptake
Wood shavings ⁽¹⁾	-	+/-	+/-	+	++
Sawdust ⁽¹⁾	--	+/-	Risk of crop blockage	+	+
Chopped Wheat straw ⁽²⁾	-	++	+/-	-	+
Chopped rape seed straw ⁽²⁾	-	++	+/-	-	++
Maize silage ⁽²⁾	+	++	Good for intestinal health on account of acidity level. Reduces footpad lesions	+	+/-
Peat ⁽³⁾	--	-	Reduces footpad lesions. Risk of crop blockage	++	++
Alfalfa	+	+	Positive effect of raw fibres on intestinal health	++	--
Sand ⁽⁴⁾	+	++	Improves gizzard function. Risk of contamination with pathogens	-	+/-

++ very positive, + positive, +/- average, - negative, -- very negative

⁽¹⁾ Availability of wood products has declined in recent years and is seasonal. Supply is limited during the winter months.

⁽²⁾ These products can contain mould spores. Greater risk of mould formation if stored inappropriately or in damp places in the house. Straw and maize in poultry manure are better for the soil than wood products, despite the risk of weed seeds.

⁽³⁾ Peat is extracted in countries like Scandinavia and the Balkans; may contain high concentrations of heavy metals.

⁽⁴⁾ If chickens eat too much sand, this can cause problems in the abattoir and with manure incineration.

Climate under control

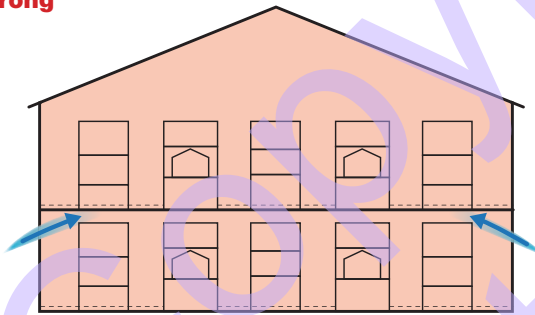
The climate in a house is a combination of temperature, air velocity, indoor air composition, dust and light. These factors can impact on one another. Get a climate expert to check both the climate computer and the climate once or preferably twice per year. The expert works with these systems every day and knows what the best setting should be. Sometimes it will be different from the manufacturer's recommended setting. The expert can also pick up on changes in the sensors which could indicate that the climate is no longer being optimally controlled. Naturally you should also be alert to signals that indicate whether or not the climate is right. Chickens might avoid certain places or crawl on top of each other, for example, or there may be a musty smell. You get used to bad air quite quickly, so go with the impression you get when you enter the house.



When setting the house temperature, take the quality of the plumage into account. A featherless hen needs a higher temperature.

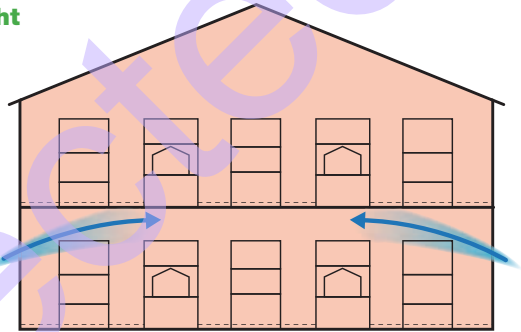
Air flow in an aviary house

Wrong



Bad air circulation can occur in houses containing a small number of chickens and a relatively large number of obstacles. Air does not circulate properly in aviary houses that are too low. There are also 'dead corners' in the middle of the house.

Right



There is plenty of room above the tiers to allow the air right into the middle of the house. There is therefore less of a risk of 'dead corners'. You can also direct air to the middle of the house with pipes or ducts from outside running along the ceiling to the middle.



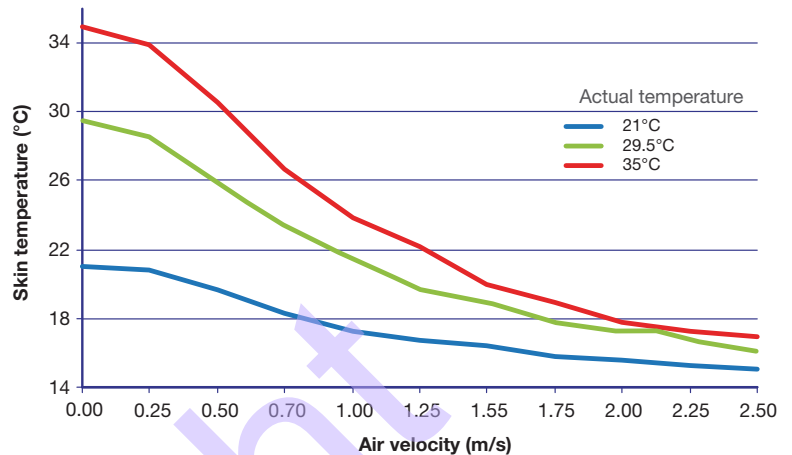
LOOK-THINK-ACT

What is wrong with this temperature sensor?

This temperature sensor is level with the top perch. That's too high. For accurate temperature measurement, it is important that the temperature sensors register the temperature where the chickens are. So it must be in among the chickens, but not in a position where the chickens can sit against it. Check regularly that the temperature sensors are working properly by hanging a good manual thermometer next to them.

Skin temperature (wind chill factor)

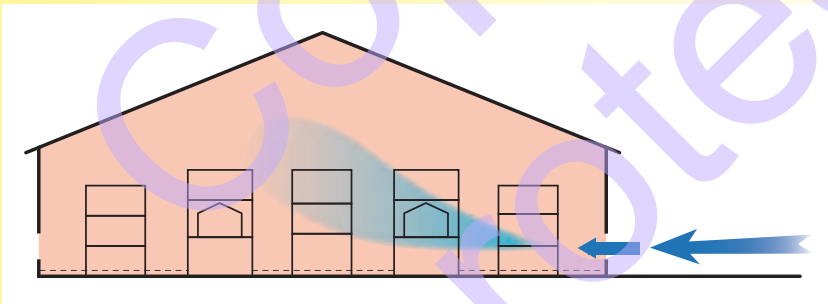
As it becomes warmer outdoors, poor ventilation can cause the house to become musty. This is one of the causes of feather pecking. So you will need to ventilate the house well, ensure a good air velocity and monitor the temperature. Make sure the set minimum ventilation is appropriate to the number of hens, and assume 0.7 m³/kg live weight per hour. Ventilation-directed air flow has a cooling effect on the hens, because the wind chill factor increases as the air velocity increases. Watch out for draughts. Hens will avoid draughty places. The optimum skin temperature for hens in cages is 20 to 24°C. For hens in non-caged systems it is 18 to 22°C. Higher temperatures over long periods of time, particularly above 28 to 30°C, combined with high relative humidity can lead to heat stress. In case of acute heat stress, hens sit with their beaks open and their wings spread out. This causes higher mortality and a drop in production. Chronic heat stress has more gradual effects.



The temperature the chickens experience depends on the combination of outside temperature, relative humidity and air velocity. Higher air velocities in high outside temperatures can create a strong cooling effect. But watch out for draughts.

Wind: not too little, not too much

One disadvantage of natural ventilation is that there is virtually no ventilation when there is no wind. Use auxiliary fans to ensure sufficient air circulation. Fresh air can also reach the birds via the aeration of the manure conveyors.



In houses with natural ventilation, the wind affects the interior climate. Too high air velocities can create draughts, and draughts can also pop up at different places in the house.



An evergreen windbreak or vertical walls outside the range openings around the house is one way of reducing the effects of wind.

POULTRY SIGNALS

A practical guide
for bird focused
poultry farming

**'The equipment in the house is just a
small part of keeping chickens. You are
a far more important factor than you think.'**

Not all poultry farmers maximise the full potential of their birds. This applies equally to laying hen farmers and broiler farmers. For a good performance during the production period, the house has to be equipped and managed correctly and efficiently. But how do you know that what you are doing is right? Your chickens continuously send out signals: about their health, how well they know their way around their surroundings and whether they feel happy and comfortable.



Do you recognise the signals your chickens are giving? And do you know what to do if, for example, there are too many floor-laid eggs or if the chicks are spilling too much feed? Do you know the difference between abnormal, runny droppings and healthy caecal droppings? And how do you recognise thirsty chickens when the flock has just been set up?



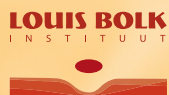
If you recognise the signs that point to potential problems, then make sure you are armed with information to take the appropriate steps to get your flock back on track. And the things you should take into account if switching from caged to free ranging birds. A lot can be achieved using ventilation, lighting and different routines. But to do so, you must know all the ins and outs of your own farm and be able to assess the impact these changes will have on your animals.

Poultry Signals® presents practical knowledge of animal-oriented poultry farming in an easy, accessible format.

Poultry Signals® is a practical guide that shows you how to pick up the signals given by your animals at an early stage, how to interpret them and which action to take.



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