



TOOL
BOX
by LOHMANN

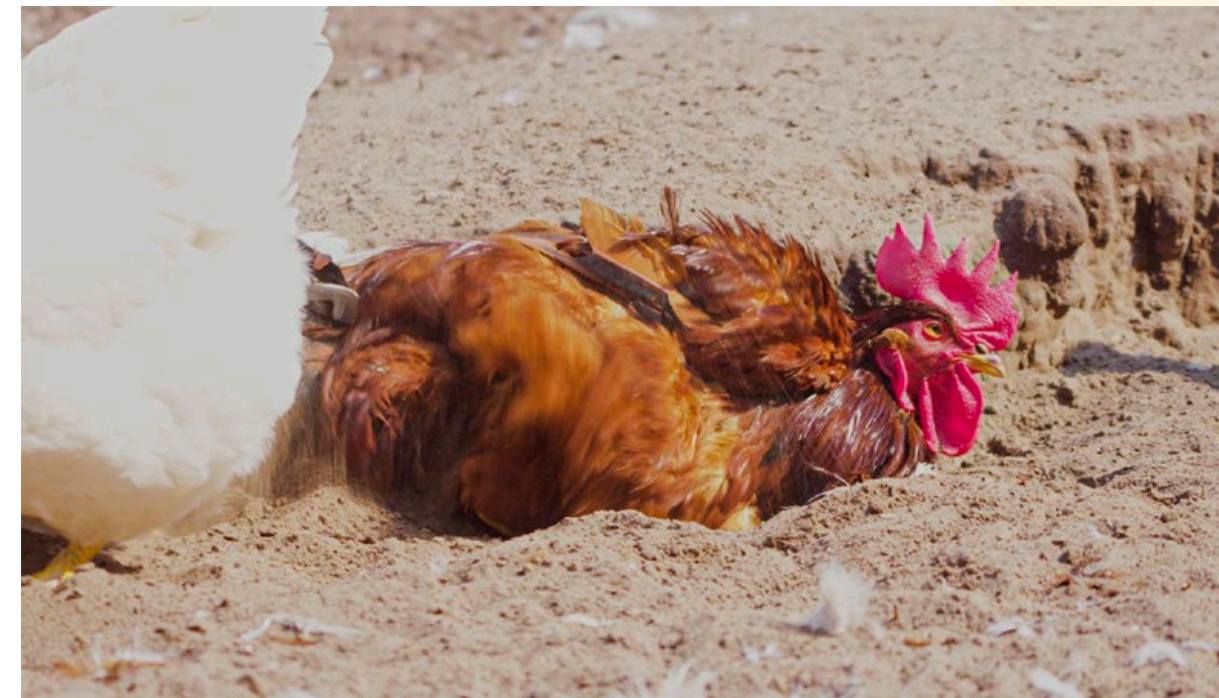
GRIT



ENG

During the last years, advances in genetics, nutrition and management resulted in a great productivity improvement. In addition, 1999 EU Directive and consumer demand, have driven production to cage free systems where main characteristic is that birds can now express their natural behaviour.

The combination of all requires changes starting with a better understanding this behaviour (*Picture 1 & 2*).



▲ *Picture 1. Birds in resting*



▲ *Picture 2. Birds in nature foraging*



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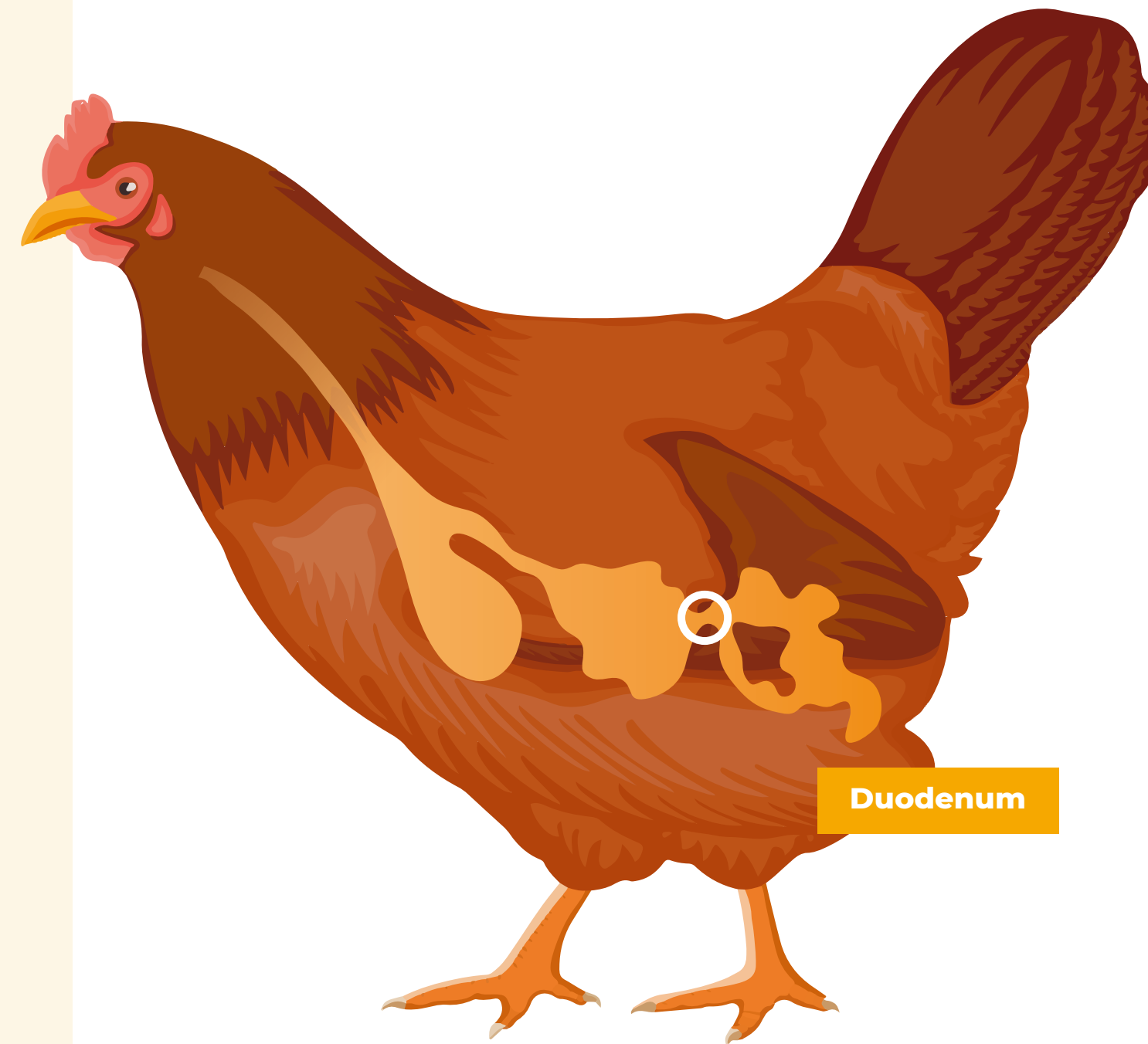


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NUTRITION

When observing wild birds' behaviour, they spend most of the time on feeding related behaviour, like eating and foraging (*Dawkins, 1989*).

Bird's ancestors were omnivorous and ate all sort of stuffs like seeds, insects, herbs, insoluble fibres, etc. (*Klasing, 2005*).



Grinding

In terms of digestion physiology, gizzard is the key. Main functions include particle size reduction, nutrients chemical degradation and regulation of digesta passage.

Bearing in mind that, most of the particles passing to the duodenum would be around 60-40 μ m of diameter, all stuffs may need, consequently, some grinding, reason why birds in nature also used to consume grit (insoluble stones) to improve mechanical grinding of food in the gizzard (*Gionfriddo, 1994*).

In order to get maximal performance, hen's diet should mimic "natural ones" reason why it's advisable provide them a homogenous mash feed, considering that not only allow hens to express natural feeding behaviour but also encourages gut health.





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NUTRITION

The presence of coarse particles in the feed will encourage grinding activity, reason why to make this process more efficient some stones, grits and sands would be advisable to support feed materials breakdown (Svihus, 2011).

Also, when some insoluble grit is provided, hen's ability to digest diets with higher level of fibre is improved.

So, as part of our feeding strategy, providing hens some grit, may help on supporting gut health. It's not only helping them to reduce particle size but also, when spread in the litter, redirects to feeding behaviour.



Grit definition

When looking at grit definition, it's related with small particles of stone or sand. But for our "grinding" proposes, not all grits are the same. Grits can be classified into soluble and insoluble. Soluble grit sources (**Picture 3 & 4. Limestone and oyster shell respectively**) are normally dissolved in the gizzard being a calcium and mineral source.



▲ **Picture 3.** Limestone



▲ **Picture 4.** Oyster shell





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NUTRITION

Insoluble particles of grit (granite), are the ones retained in the gizzard and promoting finding activity. Some examples are shown below.



Grit recommended levels

Providing grit into cage free birds diet from rearing, may increase animal welfare since it will give them the opportunity to have what is normally present in nature. Levels to include are shown below.

Week	Allowance	Particle size
1-3	1g/bird/week	1-2mm
4-9	2g/bird/week	3-4mm
9-13	3g/bird/week	3-4mm
≥ 14	4g/bird/week	3-4mm
Lay	4g/bird/4 months	3-4mm



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