

# LOVIT *GRANULE*

## Calm

Self-dispersing granules with a high content of tryptophan for balanced poultry flocks.

### **Convincing advantages:**

- Special formulation to reduce feather picking and cannibalism
- Compensates tryptophan deficiency
- Excellent solubility thanks to the granular formulation



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## Calm

### Effective support in the event of behavioural disorders.

Feather picking and cannibalism are serious economic problems in poultry husbandry. These behavioural disorders occur regardless of husbandry type and can be amplified through genetic predisposition or abnormal behavioural structures learned during the rearing phase. Prevention protects against the costs of rectifying cannibalism. The well-being and productivity of the flock are retained over the entire production cycle.<sup>1,2,3</sup>

**The knowledge behind LOVIT Granule Calm.** A lack of serotonin was determined in the brain of birds displaying feather-picking behaviour, comparable to a neurological disorder. In contrast, balanced animals showed a higher serotonin metabolism.<sup>1,3,4,5</sup>

Serotonin (5-hydroxytryptamine, 5-HT) regulates emotional modes of behaviour, appetite and sleep-wake rhythm. A reduced level of serotonin promotes environmental behavioural disorders, such as stereotype modes of action and obsessive-compulsive disorders.<sup>5,6</sup> Serotonin deficiency can be compensated through supplementation with **tryptophan**, the precursor of serotonin.<sup>3,4,5</sup>

This is particularly important in stress situations as here the degradation of tryptophan via the kynurenine metabolism leads to an increased requirement of this amino acid.<sup>7</sup> The essential amino acid tryptophan reaches the brain via the blood-brain barrier where it is converted into the neurotransmitter serotonin.<sup>6</sup>

**Magnesium** allows rapid and reliable relief in cases of aggressive behaviour. As a regulator it binds itself to the N-methyl-D-aspartate receptor (NMDA) in the brain. The NMDA receptor is a member of the glutamate receptor family and constitutes the basis for learning, memory formation and neuroplasticity through the modulation of synaptic signal strength. Incorrect stimulation of the receptor can easily lead to a neurogological disfunction. Through the binding of the magnesium, the activity of the receptor is adjusted and relaxation achieved.<sup>6,8</sup>

Furthermore, magnesium is essential for the relaxation of the muscles.<sup>9</sup>



**Self-dispersing LOVIT Granule Calm: For a balanced flock.** The interaction of tryptophan and magnesium in LOVIT Granule Calm promotes a balanced flock rapidly and efficiently. Thanks to its unique formulation as effervescent granules, LOVIT Granule Calm is fast and easy to use.

**Composition per kg:** organically bound magnesium in highly available form, tryptophan 100,000 mg, vitamin E 2,000 mg, vitamin B12 5,000 µg, niacinamide 10,000 mg, selenium 1.5 mg.

**Recommended use:** 0.5 – 2 kg per 1,000 l drinking water for a period of 3 – 10 days, repeat as required.

**Standard packaging:** 10 x 1 kg bags per box, 5 x 5 kg bags per box.

#### References:

- 1 Hartcher KM, Wilkinson SJ, Hemsforth PH, Cronin GM. Severe feather pecking in non-cage laying hens and some associated and predisposing factors: a review. *Worlds Poul. Sci. J.* 2016;72:103-114.
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- 3 Rodenburg TB, van Krimpen MM, de Jong LC et al. The prevention and control of feather pecking: identifying the underlying principles. *Worlds Poul. Sci. J.* 2013;69:361-374.
- 4 Van Hierden YM, Koolhaas JM, Korte SM. Chronic increase of dietary tryptophan decreases gentle feather pecking behaviour. *Appl. Anim. Behav. Sci.* 2004;89:71-84.
- 5 Van Hierden YM, Korte SM, Ruesink EW. Adrenocortical reactivity and central serotonin and dopamine turnover in young chicks from a high and low feather-pecking line of laying hens. *Physiol. Behav.* 2002;75:653-659.
- 6 Brady S, Siegel GJ et al. *Basic Neurochemistry.* Elsevier LTD 2011.
- 7 Oxenkrug, GF Tryptophankynurenine metabolism as a common mediator of genetic and environmental impacts in major depressive disorder: the serotonin hypothesis revisited 40 years later. *The Israel journal of psychiatry and related sciences.* 47:56-63.
- 8 Miczek KA, Meyer-Lindenberg et al. *Neuroscience of aggression.* Springer 2014.
- 9 Jeroch H, Simon A, Zentek J, Geflügelernährung. Ulmer 2012.