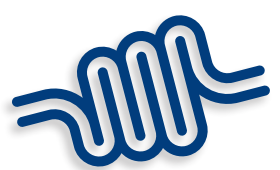


Better performance
Less inflammation & lower medication

Lumin[®] L

Intestinal Health & Medication Control
through drinking water

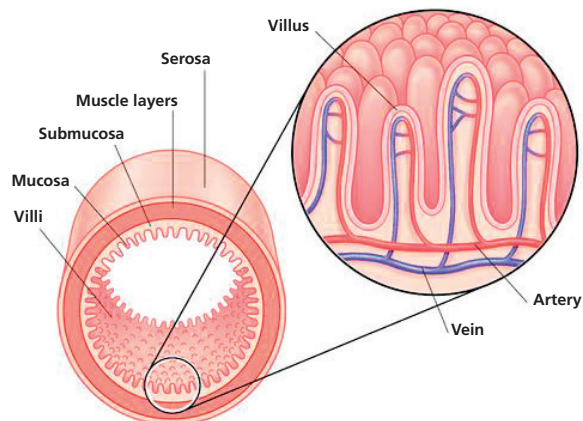




Intestinal health is the most determining factor for pig and poultry health in general, herd performance and eventually farm profitability. Harmful bacteria such as *E.coli* may colonize in the gastrointestinal tract, resulting in clinical and sub-clinical diseases. Reduced feed intake and daily gain, inactivity and decreased social interactions are all observed in animals with bacterial infections.

Lumin® L modes of action:

1. Reinforce gut integrity
2. Reduce inflammatory response
3. Balance the lumen and its gastrointestinal microflora
4. Protect against ROS



1. Reinforce gut integrity

The area of the intestinal wall carries an important responsibility in selecting what can be absorbed and what should remain outside the body of the animal. To put this into the right perspective, it is important to realize that the surface of the intestinal tract is 300 times the size of the surface of the skin. At the same time, it should give a similar level of protection against invaders, while being highly permeable in order to absorb nutrients.

Tight junctions, a complex protein structure formed between epithelium cells, play a crucial role in protecting the insides of the animal from the challenges present in the lumen. Many molecules present in the digestive tract (free radicals, toxins,...) put these tight junctions under continuous stress, which increases the risk of passage of toxins and/or pathogenic bacteria through the intestinal wall, inside the animal's body.

The totality of the intestinal integrity can additionally be protected by means of an intestinal coating. This protective layer,

Important butyrate modes of action to reinforce gut integrity

- **Stimulating growth of villi and microvilli** as preferred energy source
- **Reinforcing the intestinal defense** by stimulating intestinal release of HDP (host defense peptides)
- **Enhancing the intestinal barrier** by facilitating tight junction assembly



which is the result of complexation of tannin rich extracts with proteins present in the mucus layer, can reduce the impact of invading mechanisms on the intestinal integrity itself.

2. Reduce inflammatory response

Inflammation of the intestinal tract is the result of an overactive immune response that is linked to an increased challenge of the intestinal immunity. As such, the production of inflammatory cytokines is a natural and positive response of the immune system, but the process is extremely energy demanding and will reflect almost instantly and significantly in the performance data of the farm. Although the anti-inflammatory properties of butyric acid are present and beneficial, certain plant extracts rich in alkaloids can largely be accounted for the anti-inflammatory reactivity of **Lumin® L**. Their mode of action is well defined and understood. The results show immediately in gain and FCR figures.

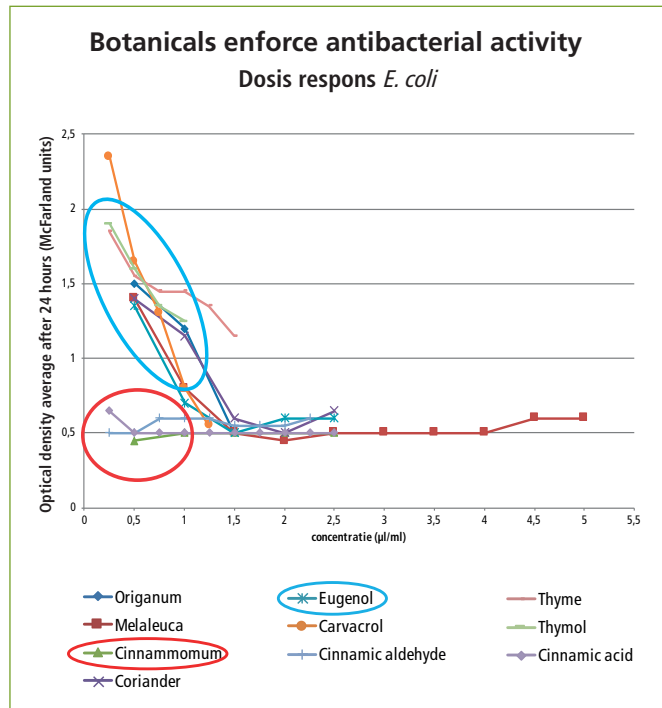
3. Balance the lumen and its gastrointestinal microflora

As important as intestinal integrity may be, proper attention should be given to a balanced microflora. In this context, **Lumin® L** does not strive to be an antibiotic complex, which eliminates all pathogens and beneficial bacteria. It is especially designed to reduce the impact of the pathogenic bacteria. Organic acids have been used for over 15 years to positively influence the intestinal balance of microorganisms. Besides short chain fatty acids, medium chain fatty acids (MCFA's) are also promising antibacterial compounds as they target pathogenic bacteria, which are less sensitive to SCFA.

Plant extracts are general hydrophobic and are likely to enter into cell membranes of microbes, which disturbs their normal functionalities. Different essential oils are likely to have different molecular targets, which might explain the fact that combinations may be more effective than a single essential oil.

4. Protect against ROS

Different plant extracts, such as essential oils, are added because of their antioxidant activity which act complementary to the butyrates. Butyrates stimulate endogenous glutathione release which is the most important antioxidant in the animal's metabolism.



Eugenol and Cinnamic aldehydes interfere with the intracellular ATP (energy). They reduce the bacterial energy generation.

Dosage and application:

0.5 - 1 ml/l of drinking water.

Broiler (ml/kg BW)

- Broilers starter: 0.12 - 0.24
- Broilers grower/finisher: 0.06 - 0.12

Pullet – Layer and breeder (ml/kg BW)

- Pullet (1-14 weeks): 0.06 - 0.09
- Pre-Lay (14-18 weeks): 0.06 - 0.09
- Layer (>18 weeks): 0.06 - 0.09

Turkey (ml/kg BW)

- Week 1-4: 0.07 - 0.14
- > 4 weeks: 0.03 - 0.07

Pig (ml/kg BW)

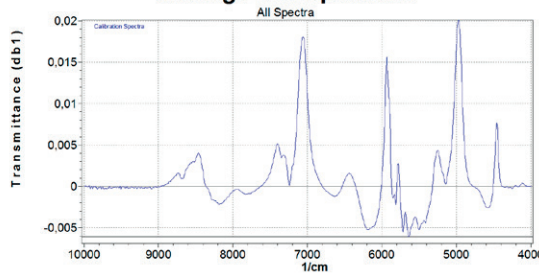
- < 6 weeks after weaning: 0.04 - 0.11
- > 6 weeks after weaning: 0.01 - 0.03
- Sow: 0.03 - 0.05



For more information on the optimal dose, contact our technical service.

Lumin L



Scope	The increasing animal genetic potential puts a significant stress on the animals' digestive system, often leading to a suboptimal digestive process and nutrient absorption. The negative impact of sub-optimal feed utilization has a significant impact on the economic viability of the farm. Butyric acid is an important dietary component that can help balance and stimulate a healthy intestinal microflora. Complementary to this beneficial molecule, essential oils, plant extracts and specific fatty acids support the natural symbiosis between host and microflora under stressful conditions.
Description	Flavoring agent for livestock and poultry.
Components	Tributylin, glycerin, natural and artificial flavoring substances and emulsifier.
Physical & Technical Specifications	<p>Physical appearance : liquid</p> <p>Colour : amber</p> <p>Density : 1,12 - 1,22 kg/l</p> <p>Moisture (KF) : max 2,5 %</p> <p>Colour change or variation does not affect performance.</p> <p style="text-align: center;">Average NIR Spectrum</p> 
Application & Dosage	Drinking water: 0,5 - 1 ml/l
Packaging	<p>High quality HDPE export worthy recipients on wooden fumigated pallets.</p> <p>Available net weights:</p> <ul style="list-style-type: none"> • 0,5 L - 1 L - 5 L nitrogen flushed and induction sealed, unit packs are packed in an outer carton up to max. 25 kg. • 25 L drums.
Shelf Life	2 years when stored in a cool and dry environment out of direct sunlight in unopened packing.
Item Reference	10323

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