

**Better performance**  
**Less inflammation & lower medication**

# Lumance<sup>®</sup>

**Intestinal Health & Medication Control**







**Intestinal health is the most determining factor for animal health in general, herd performance and eventually farm profitability.**

Pathogenic bacteria may colonise the gastrointestinal tract and result in clinical and sub-clinical disease. Reduced feed intake and daily gain, inactivity and decreased social interactions are all observed in animals with bacterial infections.

### **Low quality feed**

Livestock producers are often forced to make use of unconventional protein and carbohydrate sources or materials of lower quality. This means that animals are constantly challenged with changing diet compositions and quality, which pose risks for their health.

### **Stress**

Stress often leads to health challenges and intestinal disorders and is linked with the 'leaking gut' syndrome. The end-product is subclinical inflammation which can cost up to 30% of the animal's energy requirements.

### **Restrictions of antibiotic and ZnO usage**

Regulation, food safety and animal welfare are also setting up new trends towards limitations or restrictions of antibiotic usage for disease treatment, medicated feed, zinc oxide etc.

Lumance® offers a comprehensive INTESTINAL HEALTH MANAGEMENT program that achieves growth promotion with concomitant medication reduction by regulating beneficially the microbiota of the lumen and strengthening the intestinal integrity of the epithelium.

Lumance® is a proprietary complex technology which incorporates:

- **The newest generation of butyrate for slow and targeted release**
- **Protection technologies which ensure that:**
  - Organic Acids,
  - Medium-chain fatty acids,
  - Essential oils,
  - Anti-inflammatory compounds and polyphenols are delivered in the intestinal tract in an active way.

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### **Lumance®**

**is an effective and powerful tool to reduce inflammation, promote villi growth, tighten intestinal junctions and regulate beneficially the gut microbiota**

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## Lumance® modes of action:

### 1. Reinforces the gut integrity

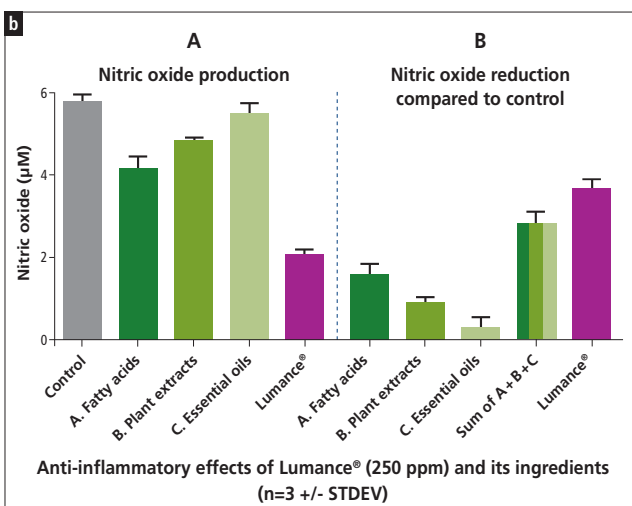
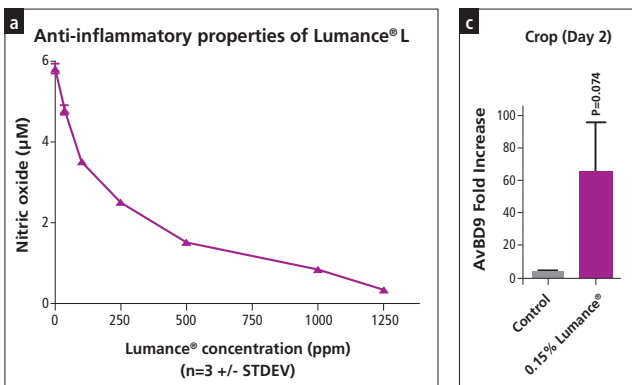
With targeted release butyrate which:

- Stimulates the growth of villi and micro-villi as it is their preferred energy source
- Reinforces the intestinal defense by stimulating release of Host Defense Peptides
- Enhances the intestinal barrier by facilitating tight junction assembly

### 2. Reduces inflammatory responses

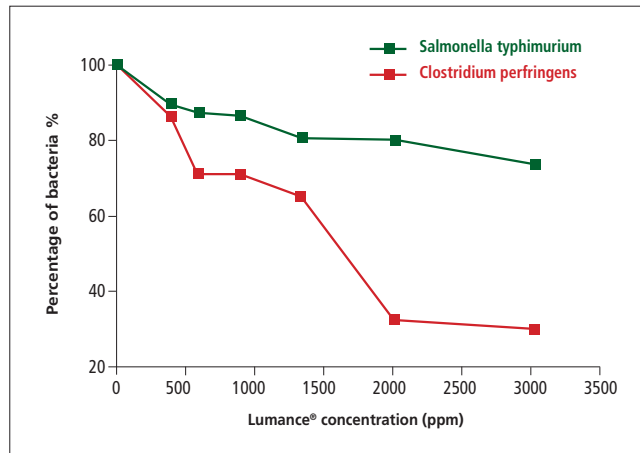
The anti-inflammatory properties of butyric acid are complemented by plant extracts rich in alkaloids and essential oils found in the unique Lumance® recipe. Their efficacy and synergistic effect have been demonstrated both *in vitro* and *in vivo*.

**Fig 1. a)** In vitro inhibition of LPS induced inflammation in macrophage producing cell lines by Lumance® expressed as reduction of Nitric Oxide, **b)** Demonstration of the synergistic effect of Lumance® and, **c)** In vivo demonstration of the anti-inflammatory effect of Lumance® (gene expression of the chicken Host Defense Peptide,  $\beta$ -defensin 9 - AvBD9)



### 3. Balances the lumen and its gastrointestinal microbiota

Lumance® has been carefully designed to reduce the impact of pathogens and support the growth of beneficial bacteria.



**Fig 2. The direct antibacterial effect of Lumance® in vitro against *Clostridium perfringens* and *Salmonella typhimurium***

### 4. Protects against Reactive Oxygen Species (ROS)

Butyrate stimulates endogenous glutathione release which is the most important antioxidant in the animal's metabolism.

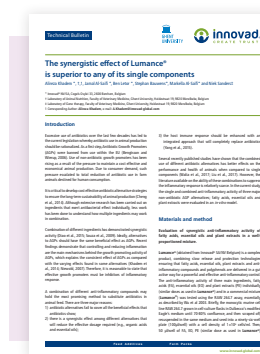
The plant extracts and essential oils added in Lumance® have been selected for their antioxidant activity and oxidative stress inhibitory effect, which complement those exerted by butyrate.

## Dosage and application

**In feed: 0,5: 3 kg/T** depending on challenge and objective

**Calf milk replacer: min 1ml** per liter of milk

**Via drinking water: min 0,5 ml/liter** of water



**Lumance® research:**  
The synergistic effect of Lumance® compared to its single components



SCAN ME

## Field trials

### PIGS



#### Replacement of antibiotics and ZnO

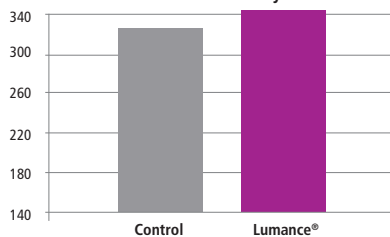
##### Commercial farm: Spain

- 40/40 piglets at weaning (21 days),
- Stop of regular neomycin treatment, stop ZnO & Performance improvement

GROUP	TREATMENT (IN FEED)
Control	Prestarter: Neomycin 150 ppm, ZnO 2500 ppm Starter: ZnO 1500 ppm
Lumance®	Lumance® 4 kg/t

### Results

Average daily weight gain (g) from 21 to 60 days.



FCR	Lumance®	Control
	1.275	1.357

No clinical symptoms of post weaning diarrhoea in Lumance® group. Digestive disorder in one box of control group.

### Conclusions

#### Lumance®:

- Replaced completely and successfully antibiotics and ZnO
- Outperformed the Control group when comparing ADWG and FCR



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### AVIAN - BROILERS



#### Replacement of antibiotics

##### Research trial:

- Oklahoma State University, Department of Animal Science, USA
- 360 male D0 chicks (Cobb 500)
- Trial period: D0 - D21

GROUP	TREATMENT	ADG (g/d)	BW (g)	FCR
Control group	Standard feed (antibiotic free)	31.23	698	1.97
Tylosin group	Standard feed + Tylosin (20 mg/kg)	39.72	876	1.61
Lumance group	Standard feed + Lumance (1 kg/T)	41.10	905	1.50

### Conclusions

#### Lumance®:

- Improved significantly the overall performance of broilers in the critical period from D0 to D21
- Proved a successful alternative to antibiotic growth promoters



#### Replacement of 3 alternatives for non-antibiotic ever program

##### Field (large scale) trial:

- 7.3 million broilers
- Control of coccidiosis - Amprol in the feed in both programs (control & trial)
- Trial period: D0 - D36 (the age when the birds were sold)

GROUP	TREATMENT	ADG (g/d)	BW (kg)	FCR
Control program	– Ca butyrate – A Probiotic – Natural anticoccidial product	54.5	1.96	1.68
Lumance® program	Starter: 1.5 kg/T Grower: 1 kg/T Finisher: 0.5/T	56.7	2.06	1.69

### Conclusions

#### Lumance®:

- Eliminated the risk of Necrotic Enteritis (NE): No cases of NE reported during the Lumance® program. Cases of NE were reported during the Control program
- Successfully replaced 3 feed additives used as alternatives to antibiotic growth promoters and for the control of NE
- Improved performance and production costs of broilers

