



BROILER PROGRAM

KEMIN[®]

Main challenges in broiler production

DYSBIOSIS AND BACTERIAL ENTERITIS

Diseases of the gastrointestinal tract of chickens are complex issues. They can be caused by infectious and non-infectious agents - resulting from nutritional errors, neglect of hygiene, or irrational antibiotic therapy. Dangerous enteropathies of chickens can include Necrotic Enteritis (NE), caused by the uncontrolled multiplication of *Clostridium perfringens* in the gastrointestinal tract. Since NE causes a decrease in bird immunity, it can also be a complicating factor in parasite infestations. Chronic diseases of the gastrointestinal tract pose a lot of problems related to the flock hygiene, i.e. problems with wet litter. Wet litter is a serious danger to chickens. Even a short stay of chickens on such litter can cause pododermatitis. Inflammation of the foot pads and the accompanying microdamage on the skin are the gateway for infectious agents. Pododermatitis causes discomfort and is painful. Consequently, birds will be reluctant to move and feed intake will decrease. Pododermatitis is a cause of major economic losses for the producer. In some countries, the quality of the foot pad is an indicator of bird welfare.

REDUCTION OF THERAPEUTIC ANTIBIOTIC USE

The reduction of antibiotics is seen as one of the challenges for the agricultural industry of the twenty-first century. For instance, failure of antibiotic therapy during bacterial infections has an important impact on animal welfare (e.g. avian pathogenic *E. coli*, *Enterococcus* sp.). The resulting deteriorated growth, culling and mortality directly impairs performance and income. The limitations in terms of remaining treatment options further contribute to increased health costs and reduced profitability.

Different preventive measures can be considered, either from the poultry producer's or the health professional's end. They require a multidimensional approach that includes compliance with good management practices, nutritional recommendations, biosecurity and correct prophylaxis along the production chain.

The important factor to prevent antimicrobial use is the use of alternative strategies and getting reliable on farm technical support.

SALMONELLA AND QUALITY OF BROILER CARCASSES


As zoonotic agent, *Salmonella* poses a threat not only to poultry livestock, but this problem is considered mainly as a public health concern. In the European Union it is forbidden to market meat infected with *Salmonella Enteritidis* and *Salmonella Typhimurium*. The economic consequences are severe: the poultry producer loses profit, but the country of origin will suffer from export restrictions. Each country has implemented detailed plans for the monitoring and control of *Salmonella* in poultry production. Control measures include, but are not limited to, three important pillars such as farm biosecurity, vaccination of breeding herds (*Salmonella* contamination in eggs) and feeding strategies.

VACCINATION EFFICIENCY

The immune system plays an eminently important role in the life of birds. It is particularly important to support young birds in the maturation of the immune system.

MOBILITY ISSUES

Lameness is an important problem in conventional broiler production and becomes more prevalent in older birds. There are many causes for lameness: viral (reoviral tendinitis and sheath inflammation), bacterial (femoral head necrosis, *Enterococcus cecorum*) infections, as well as physiological factors, often genetic (Tibial Dyschondroplasia) and nutritional factors (vitamin D deficiency, abnormal absorption of micronutrients in the gastrointestinal tract, and an abnormal calcium / phosphorus ratio in the ration). *Enterococcus cecorum* is an emerging pathogen in broiler production. Protecting and regulating the intestinal microbiome is beneficial for the reduction of mobility issues. With procedures as simple as rebuilding damaged intestinal villi and modulating intestinal integrity, reduction of the occurrence of leg problems in flocks is possible.



Pododermatitis is a major welfare concern and directly linked to intestinal health

Stage	Challenge	Product name
0 - 1 WEEK	Colibacillosis	CLOSTAT®
		ButiPEARL™
		FormaXOL™
WEEK 2	Colibacillosis and bacterial enteritis	FormaXOL™
	Dysbiosis Clostridial enteritis, necrotic enteritis	CLOSTAT®
WEEK 3	Dysbiosis and bacterial enteritis	CLOSTAT®
	Mobility issues Clostridial enteritis, necrotic enteritis	CLOSTAT®
	Parasitic challenges (coccidiosis)	Aleta™
		CLOSTAT®
		ButiPEARL™
WEEK 4	Dysbiosis Bacterial enteritis	CLOSTAT®
	Mobility issues	CLOSTAT®
		ButiPEARL™
WEEK 5	Dysbiosis Bacterial enteritis	CLOSTAT®
	Mobility issues Clostridial enteritis, necrotic enteritis	CLOSTAT®
		ButiPEARL™
	Pododermatitis	CLOSTAT®
	<i>Salmonella</i>	FormaXOL™
END OF REARING AND SLAUGHTER	Contamination of carcass	FormaXOL™
	Foot pad lesions	CLOSTAT®
ALL STAGES	Welfare and poor management	Aleta™
	Reduction of therapeutic antibiotic use	Aleta™
		CLOSTAT®
	ButiPEARL™	
	Wet litter and foot pad dermatitis	CLOSTAT®
	Mycotoxins	TOXFIN®
Viral diseases and vaccination (IB, ND, ...)	Aleta™	

Products

Aleta™

A unique beta-glucan, derived from algae (*Euglena gracilis*), serving as an immune modulator to improve animal health.



MODE OF ACTION

Aleta is interacting with the immune system resulting in an immune modulation. Immune cells are rapidly recruited and activated to the site of infection increasing the ability of animals to cope with the disease. Consequently, Aleta will help animals during stress, disease and vaccination periods.



BENEFITS

- Improves vaccination efficiency
- Helps animals to resist stressful conditions
- Reduced morbidity and mortality during pathogenic challenges (diseases)
- Supports animals in antibiotic reduction programs and antibiotic growth promoter removal programs
- Provides consistent ROI: avoids performance reduction in situations of disease and stress
- Helps young animals to mature their immune system



Products

ButiPEARL™

An encapsulated and highly concentrated calcium butyrate. The encapsulation allows for superior handling ease and sustained release along the intestinal tract.



MODE OF ACTION

ButiPEARL's proprietary encapsulation technology allows release of its high concentration (50%) of butyric acid throughout the upper and lower gut, where it needs to be to perform its action:

- Enterocyte proliferation and villi growth
- Antimicrobial compounds secretion by paneth cells
- Tight junction reinforcement



BENEFITS

- Strengthens barrier against pathogens and avoiding a leaky gut
- Improves nutrient absorption for better performance
- Improves overall gut health, reduces diarrhea incidence
- Is a tool in antibiotic reduction programs
- Assists the GIT development in newborn and young animals



Products

CLOSTAT®

A proprietary probiotic, based on *Bacillus spp.* PB6 spores, originating from natural enteritis resistant chickens.



MODE OF ACTION

CLOSTAT spores germinate, start to multiply in the intestine and perform their action:

1. Modulates *Clostridium spp.*
2. Stimulates growth of Lactobacillus and Bifidobacterium in the intestine
3. Modifies inflammation response
4. Stimulates a well developed and diverse intestinal microbiome



BENEFITS

- Reduces the need to treat with antibiotics and the use of antibiotic growth promoters
- Tackles dysbiosis, wet litter and diarrhea problems
- Increases growth and uniformity
- Better survivability



Products

FormaXOL™

Non-antibiotic solution, supported by its encapsulation technology and empowering synergism in between its ingredients, to manage Enterobacteriaceae (e.g. *Salmonella*, *E. coli*).



MODE OF ACTION

Formic acid has been proven to kill *Salmonella* & *E. coli*. In FormaXOL, formic acid, citric acid, and functional flavours are microencapsulated with two specific technologies ensuring an effect along the digestive tract. Delivered at the right spot due to its technology, the functional flavours will damage the gram-negative bacterial cell wall and facilitate the entrance of the organic acid within the bacteria, resulting in bacterial death.



BENEFITS

- Is a non-antibiotic solution for bacterial control
- Works in the animal
- Contributes to food safety with safe meat
- Reduces carcass contamination in the slaughterhouse
- Avoids *E. coli* associated losses during production cycle
- Facilitates meat export (compliance with *Salmonella* regulations)



Products

TOXFIN®

Protecting the animal from the adverse effects following ingestion of mycotoxin contaminated feed, is the priority for the TOXFIN family. TOXFIN® range offers multiple solutions to reduce the bioavailability of mycotoxins and their negative effects in the animal, and to allow the production of safe feed.



MODE OF ACTION

Depending on the Toxfin product of your choice, different strategies to protect the animal from the adverse effects of mycotoxin contaminated feed are available. From eliminating mycotoxins by unique synergistic combinations of adsorbents to an all-in-one solution to tackle the adverse effects of mycotoxins in animals by combining different strategies:

- Reducing bioavailability of mycotoxins by unique adsorbent blend ((e.g. bentonite (1m558) fulfilling the European Regulation 1060/2013 as an aflatoxin B1 binder)
- Preventing oxidative stress
- Supporting and protecting the liver
- Modulating the immune system by a unique algae derived beta-glucan



BENEFITS

- Protects the animal from all kinds of mycotoxin threats
- Maintains availability of essential nutrients to the animal
- Reduces symptoms associated with mycotoxicosis
- Avoids performance reduction caused by mycotoxicosis
- Reduces the bioavailability of feed mycotoxins in the gastro- intestinal tract and promotes mycotoxin excretion via faeces
- Fortifies the natural defense system of the animal and safeguards the organs



DO YOU WANT MORE INFORMATION?

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HEALTH BY KEMIN



Aleta™
IMMUNE SUPPORT



Formyl™ - FormaXOL™
ENTEROBACTERIACEAE CONTROL



ButiPEARL™
INTESTINAL INTEGRITY



TOXFIN®
MYCOTOXIN MANAGEMENT



CLOSTAT®
INTESTINAL HEALTH

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