

Newsletter

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BiomIn®

> EDITORIAL

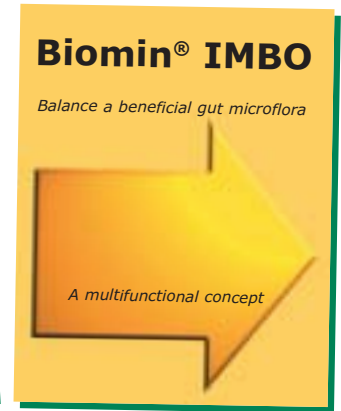
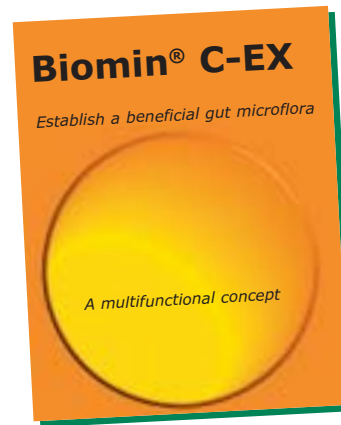
Nutrition forms the hub of efficient animal farming, be it swine or broiler operations. The animal industry faces many challenges in animal nutrition as well as economic viability. Before food reaches the tables of consumer's animals go through a very long and very complex production chain. Each link of this chain is important not only for the animals but also for the safety of the world food supply. Fact is that in order to produce a quality product you must use quality inputs. Such inputs are using quality livestock, feed stuffs, seeds as well as sound products. These are just a few and yet what remains is that the produce still has to properly be transported, processed, marketed and stored in order to meet consumer's expectations.

Commercially animals will never be raised in the absence of infectious pathogens. Multiple disease stressors are likely to be experienced even under good management and nutritional practices. Conditions and the challenges continue to change throughout the years. Poultry has changed in that expectations for faster growing birds is necessary, conditions in the hatchery are more or less sterile, and birds are relatively grown in smaller more intense areas. Therefore antimicrobial use has increased to deal with the intensification purposes. These changes may cause outbreaks of infections because of stress and also for a delayed establishment of a protective microflora because of the lack of environmental natural microorganisms. It is true bad bacteria can cause major problems in animal husbandry. However it has been known for decades that some bacterial are crucial to maintaining good health. The beneficial bacteria in which I am referring to are called probiotics. Its happening more extensively across the country perhaps even in your area, producers giving probiotics to their livestock in order to maintain and optimize animal health.



Ruben Beltran

BiomIn® C-EX and BiomIn® IMBO product line



Rationale for Probiotic Supplementation at a Glance

To help alleviate some of the problems that will occur by the removal of antibiotics in January 2006, poultry companies are focusing their attention towards probiotics and prebiotic products as well as other natural alternatives. Before the chick hatches, its intestines are sterile but very quickly, after hatching an intestinal microflora is produced. These microorganisms will benefit the life of the bird, both in the digestive process and also in the resistance to pathogenic organisms. The mode of action of probiotic cultures is for the bacteria to establish a physical barrier between the intestinal wall and the lumen of the gut. There is also competition for nutrients and an increased production of volatile fatty acids that leads to a decrease in pH. These mechanisms that provide protection create an unfavorable environment for **many of the unwanted bacteria.**

STRESS FACTORS WHICH EFFECT PROBIOTIC BACTERIA IN THE GUT

As mentioned previously animals undergo a variety of stress factors in all phases of production. From a commercial setting some factors actually alter the development of beneficial microorganisms in the gut that are needed to maintain animal

health. Tables 1 are prime examples, which can contribute to disturbances of the improper establishment of a protective microflora.



to gain a foothold. Treating with Biomin®C-EX and Biomin®IMBO immediately after antibiotics, help to repopulate the gut with good bacteria. In many cases applying probiotics minimizes secondary infections, which occur from pathogenic bacteria.

Probiotics must be able to withstand the animal's normal defense mechanisms and to travel through the intestines and to live and remain live and biologically active in the gut in order to be effective. Biomin®C-EX and IMBO offer these benefits and are very easy to apply from a commercial field standpoint. Some of these benefits include the following:

- **Helps to stabilize intestinal flora in animals.**
- **Decreases the risks of bacteria infections of the gastrointestinal tract.**
- **Enhances weight gain, and improves feed efficiency.**
- **Helps to repopulate the gut with beneficial bacteria after antibiotic therapy.**
- **Improves health condition and decreases mortality.**

Table 1: Factors affecting beneficial bacteria performance

Causes of Stress	
Nutritional	<p>Molds and mycotoxins Improper formulation of Diets Water quality Poor feedstuff material</p>
Environmental	<p>Excessive temperatures Excessive humidity Poor ventilation Wet/dry litter Ammonia High pathogen load</p>
Managerial	<p>Setting of dirty eggs Overcrowding Improper vaccination program Cannibalism Lack of removal of moribund & dead birds</p>
Use of antibiotics	<p>Uncontrolled antibiotic use Antibiotic destruction of normal microbes</p>
Lack of Association with Mother Hens	<p>Chicks that have never had contact with mother hens require a longer time to develop a protective microflora against pathogenic bacteria.</p>

Modified from: (Rev. Bras. Cienc. Avic. Vol.5 no.2 Campinas May/Aug. 2003)

GUT REACTIONS-THE BENEFITS OF BIOMIN®C-EX AND IMBO

We all know that antibiotics are beneficial and can appreciate their value. However in relation to maintaining a protective microflora in the animal they can be recognized as the "digestive enemy". Antibiotics not only destroy the good guys in the intestines, but they foster the ability for harmful bacteria

C-EX AND IMBO: A GUT CHECK FOR INTESTINAL HEALTH IN POULTRY PRODUCTION

In a recent trial which was conducted at Vilniaus Paukstynas farm in Lithuania in conjunction with Biomin® C-EX and Biomin® IMBO the results proved to be effective in optimizing animal performance.

The trial design consisted of the following:

- Total number of animals consisted of 77, 800 broilers of mixed sex, which were raised in 3 separate houses.
- **Group 1:**
Control- 26, 300 broilers which received no additives
- **Group 2:**
Control- 27,500 broilers, which received no additives
- **Group 3:**
Trial group- 24,000 broilers which received the combination of Biomin®C-EX and Biomin®IMBO

The application and dosages of Biomin®C-EX and Biomin®IMBO

- Biomin®C-EX- Day one spray application, day 2 and 3 C-EX was given via water administration at 20 grams per thousand birds.
- Biomin®IMBO was mixed directly into finished feed at 1kg/ton

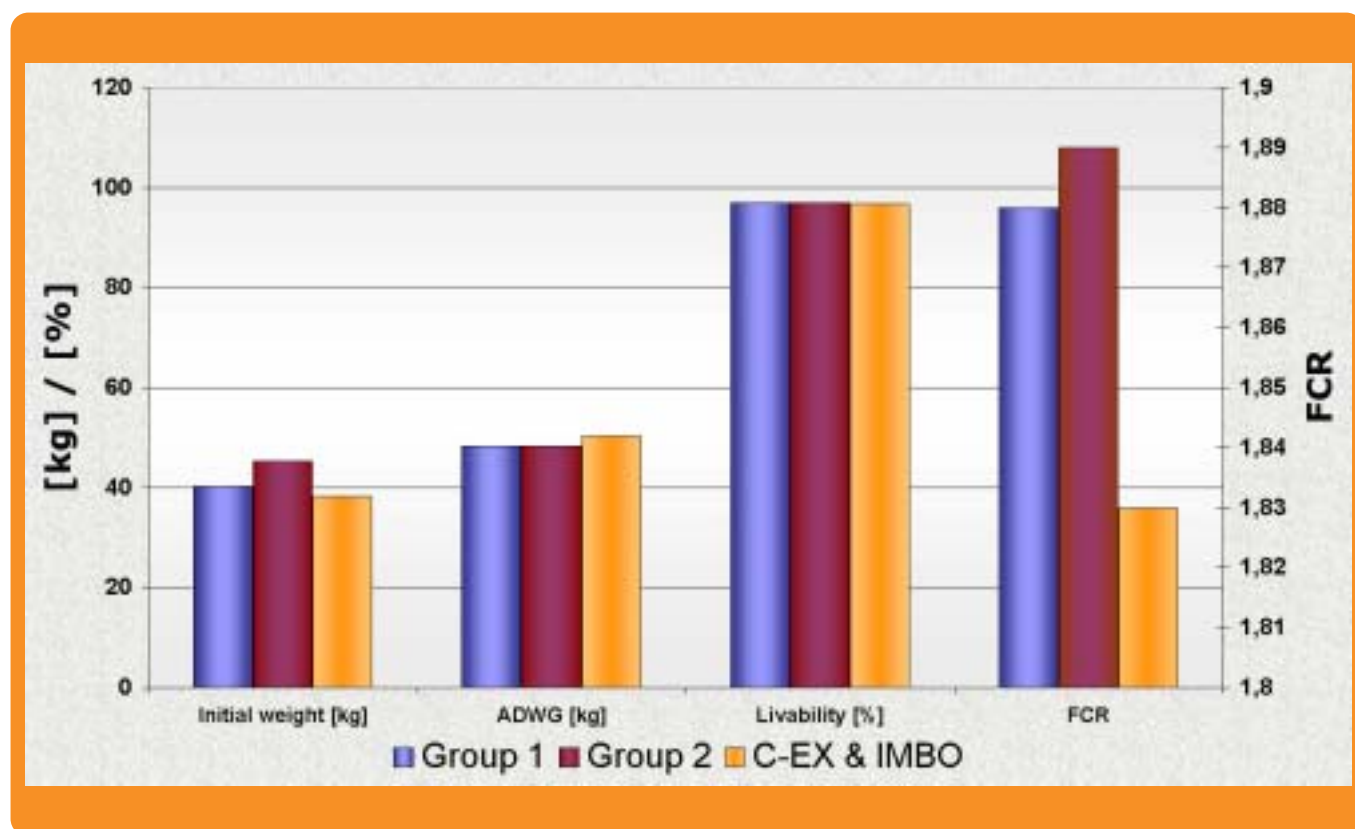
The duration of this experiment was 42 days and water and feed was provided ab libitum. The results of this experiment can be seen in figure 1. In observing the performance parameters the group that received C-EX and IMBO had improvements in: average daily weight gain, percent livability, as well as an improvement in the feed conversion ratio compared to group 1 and 2. Additionally there was a cost competitive advantage of using Biomin®C-EX and Biomin®IMBO. Deducting the cost of treatment utilizing the beneficial effects of C-EX and IMBO there was a cost benefit of .052 Euro cent per broiler.



Conclusion

In all animal production maintaining healthy animals through the use of quality feedstuffs is a main objective for profitability. Maintaining a healthy gut system through the use of Biomin®C-EX and Biomin®IMBO is a way to prevent disturbances in the gastrointestinal system. The healthier the animals, the faster they will grow with the reward of making livestock operators more productive. The animal industry seems to be entering into a new era now that sub therapeutic antibiotics are being removed in some countries. The use of probiotics and prebiotics such as Biomin®C-EX and Biomin®IMBO will give producers an advantage as times passes in this ever changing and demanding industry.

Figure 1: Performance Parameters after 42 days



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International Poultry Scientific Forum

26-27, 2005. January, Atlanta, Georgia USA

Australian Poultry Science Symposium

7-9, 2005. February, Sydney, New South Wales Australia

World Ag Expo

8-10, 2005. February, Tulare, California

> LITERATURE:

Blankenship, L.C., Bailey, J.S., Cox, N.A. Stern, N. J., Brewer, R. & Williams, O., (1993). Two-step mucosal competitive exclusion flora to diminish salmonellae in commercial boiler chickens. *Poultry Science* 72, 1667-72.

Nisbet, D.J., D.E. Corrier, C. M. Scanlan, A. G. Hollister, R.C. Beier, and J. R. Deloach, (1993). Effect of a defined continuous flow derived bacterial culture and dietary lactose on Salmonella colonization in broiler chickens. *Avian Dis.* 37:1017-1025.

EC Council regulation, (1999). EC Council Regulation 2821/98. Regulation Antibiotic Resistance in the European Union associated with Therapeutic use of Veterinary Medicines. Report and Qualitative risk assessment by the Committee for Veterinary Medicinal Products. The European

Agency for the Evaluation of Medicinal products. EMEA/CVMP/342/99-Final, 14 July 1999.

Goren, E. De Jong, W.A., Doornenbal, P., Koopman, J.p. & Kennis, H.M., (1984). Protection of chicks against Salmonella infection induced by spray application of intestinal microflora in the hatchery. *Veterinary Quarterly* 6, 73-9.

Huang, M.K, Choi, Y.J., Houde, J-W. Lee, Lee, B. & Zhao, X. (2003). Effects of Lactobacilli and an Acidophilic Fungus on the Production Performance and Immune Responses in Broiler Chickens. *Poultry Science Association, Inc.*

Mead, G. C., (2000) Prospects for Competitive Exclusion Treatment to Control Salmonellas and Other Foodborne Pathogens in Poultry. *The Veterinary Journal*, 159, 111-123.

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