

Newsletter

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> EDITORIAL

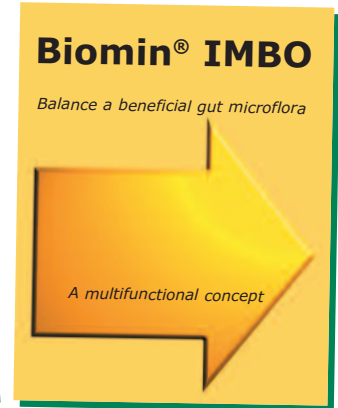
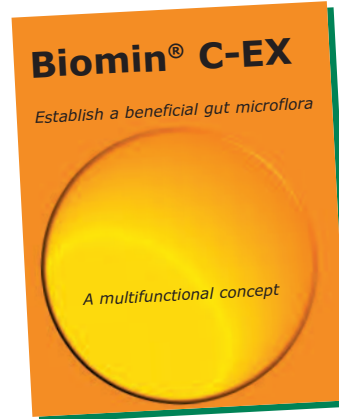
For many decades antibiotic growth promoters (AGPs) have been used in feeding farm animals to improve performance and suppress diseases. The use of antibiotics as feed additives has been restricted and is now totally banned throughout the European Union, because of the general problem of increased resistance of bacteria and the decreasing acceptance of the consumers for this type of additive. Consumers ask how their food is produced. Health aspects, safety issues and animal welfare are important for them. Alternatives to antibiotic growth promoters are already available in the market and BIOMIN has more than 20 years of experience with concepts associated with antibiotic-free feeding and the development of products for natural growth promotion. An alternative for AGPs are probiotics, which are live microorganism that exert a beneficial effect on gut health. Bacteria has served man very well in agriculture and nutrition for thousands of years just think of sour milk products such as yoghurt and kefir or silage or fermented cabbage. Probiotics were rediscovered for human and animal nutrition in the 1960s and 1970s. Today probiotics are widely used in modern animal nutrition because of their beneficial effect on the host. Prebiotics are defined as "non-digestible food (feed) ingredients" that beneficially affect the host by selectively stimulating the growth and / or activity of one or a limited number of bacteria in the colon, thus improving host health. Through the combination of probiotics and prebiotics in so called synbiotics synergistic effects can be achieved. With Biomin® C-EX and Biomin® IMBO the company BIOMIN has developed a synbiotic product line, which has already proven its ability to improve animal health and performance in numerous feeding trials and worldwide practice.

Enjoy reading.

Michaela Mohnl



Biomin® C-EX and Biomin® IMBO product line

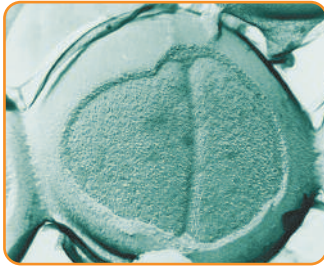


With Biomin® C-EX and Biomin® IMBO the company BIOMIN has developed a product line that is unique in the world of feed additives. These products are based on natural raw materials combining the beneficial effects of probiotics, prebiotics and immune-modulating substances. They are used particularly in the diets of young animals to establish a healthy gut and support the unspecific immune system. The probiotic component helps to establish and stabilise a beneficial gut microflora and to prevent pathogenic colonization due to fast proliferation, colonization and acidification in the gut. The immune-modulating components enhance the innate immune system and thus improve the resistance to infections. The beneficial gut micro-flora is additionally supported by the prebiotic component in the products. Young animals will be more resistant against invading pathogenic bacteria and thus to enteric disease.

Benefits from using Biomin® C-EX and Biomin® IMBO in poultry production

The addition of Biomin® C-EX and Biomin® IMBO to the young chick's diet supports the establishment of a well-balanced intestinal micro-flora and this paves the way for a healthy gut, resulting in good growth performance, a better ability to fight off infections with pathogens like Salmonella and an improved immune response. These benefits have once more been proven in recent trials.

Biomin® C-EX and Biomin® IMBO establish a healthy gut



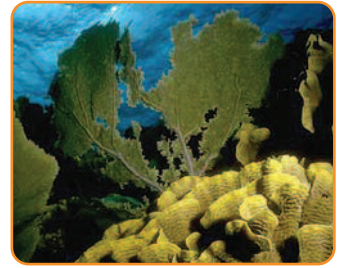
Probiotic



Prebiotic



Cell wall fragments



Phycophytic substances

Trial 1: Effect of Biomin® IMBO on broiler performance

In a feeding trial, which was conducted at the Department of Animal Nutrition, Slovak Agricultural University in Slovakia, Biomin® IMBO proved again its ability to improve broiler performance.

Trial design

200 day-old broiler chickens (Ross - 308) were randomly divided into two groups with 100 birds each. The broilers were housed on a deep bedding layer. Feed and water were given *ad libitum*.

Groups

Negative control group: no feed additives
 Biomin® IMBO group: Biomin® IMBO at 1.0 kg/ton of feed during whole period

The birds were kept under observation for 42 days and performance parameters like live weight, daily weight gain, feed intake, feed conversion ratio (FCR), mortality and animal health were recorded.

Results

The results are presented in Table 1 and Figure 1.

Table 1: Performance parameters after 42 days

	Negative control	Biomin® IMBO
Live weight (g)	2194 ^a	2313 ^b
Weight gain (g)	51.17 ^a	53.99 ^b
Mortality (%)	9.26	3.92
FCR	1.86	1.75
PI*	255	302

a, b Means within a row with different superscripts differ significantly (P<0.05)
 * $PI \text{ (Broiler Productivity Index)} = \frac{\text{Liveability } [\%] \times \text{Live weight } [\text{kg}]}{\text{age } [\text{d}] \times \text{FCR} \times 100}$

Health problems were not observed during the trial. At the end of the trial chickens were tested for Salmonella. Results for Salmonella were negative.

Conclusion

By the addition of Biomin® IMBO performance parameters like live weight and daily weight gain could be significantly increased in comparison to the negative control group. Furthermore FCR was improved and mortality was reduced. Through the inclusion of Biomin® IMBO the broiler productivity index which summarizes all performance data was improved by 18.4%. The results of the trial proved again that Biomin® IMBO is effective in optimizing broiler performance.

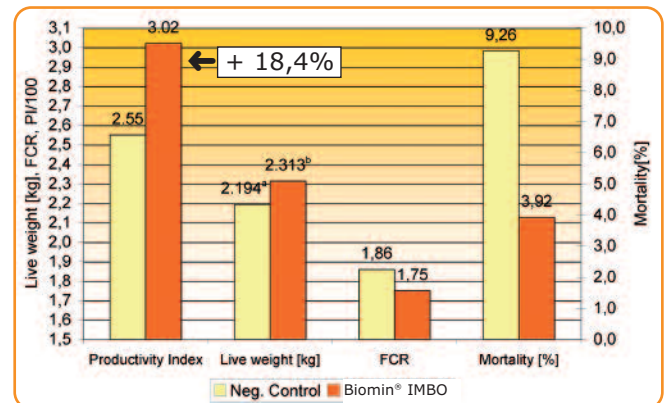


Figure 1: Broiler productivity index (PI), Live weight, FCR and Mortality after 42 days

Trial 2: Effect of Biomin® C-EX on performance and immune status of broilers

A feeding trial was conducted at the Poultry Research and Development Center at the Kasetsart University in Thailand. The objective of the trial was to investigate the effects of Biomin® C-EX on broiler performance and immune status in comparison with an antibiotic growth promoter.

Trial Design

1200 day-old Ross broiler chickens were assigned to three groups with 400 birds per treatment group. Each treatment consisted of 8 replicates with 50 birds per replicate. The broilers were housed on a deep bedding layer. Feed and water were provided to the birds *ad libitum*.

Groups

Negative control group: no feed additives
 Biomin® C-EX group: Biomin® C-EX at 20 g/1000 birds/day in drinking water for the first 3 days of age
 Positive control group: Avilamycin at the level of 5.0 g/ton of feed

The birds were kept under observation for 45 days and performance parameters like live weight, weight gain, feed intake, feed conversion ratio (FCR), mortality, animal health and immune status after IBD (Infectious bursal disease) vaccination program were recorded.

Results

The results are presented in Table 2.

Table 2: Performance parameters after 45 days and immune status after IBD vaccination program

	Negative control	Positive control	Bioimin® C-EX
Number of broilers	400	400	400
Live weight (g)	2247	2266	2307
FCR	1.73	1.72	1.72
PI*	283	285	288
IBD	1767.8 ^b	2219 ^{ab}	2682.4 ^a

a, b Means within a row with different superscripts differ significantly (P<0.05)

* $PI \text{ (Broiler Productivity Index)} = \text{Liveability [\%]} \times \text{Live weight [kg]} / \text{age [d]} / \text{FCR} \times 100$

Conclusion

Avilamycin is a very commonly used antibiotic growth promoter in animal husbandry. When looking at the performance parameters after 45 days expressed in the broiler productivity index it can be stated that the Bioimin® C-EX group showed considerable improvements when compared to the negative control group and was even better in comparison to the Avilamycin group. Furthermore the immune status after IBD vaccination was significantly improved in the Bioimin® C-EX group. Among the treatment groups, Bioimin® C-EX was found to have the highest titer response to IBD vaccination.

Trial 3: Effects of Bioimin® C-EX and Bioimin® IMBO on Salmonella prevention in a commercial layer farm

In a feeding trial, which was conducted in a commercial layer farm in Malaysia the combined effect of Bioimin® C-EX, Bioimin® IMBO and other Bioimin products on Salmonella prevention was tested. The objective of this trial was to search for an alternative solution to establish Salmonella free farm and its products without or with minimum usage of antibiotics.

Trial Design

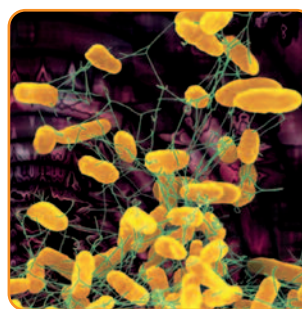
Number of houses: 3

Houses were located next to each other. Birds were managed in their usual practice by giving antibiotics, vaccines, vitamins, minerals supplementation and debeaking according to their program.

Number of animals per house: 60 000 Hisex breed layers

Groups

- Negative control group 1: no feed additives
- Negative control group 2: no feed additives
- Treatment group: Bioimin® C-EX, Bioimin® IMBO and Biotronic® SE
 Bioimin® C-EX: 20 g/1000 birds/day in drinking water for the first 3 days of age and after every vaccination and antibiotic treatment
 Bioimin® IMBO: 1.0 kg/ton of feed from day 0 to 60
 Biotronic® SE 3 kg/ton of feed from day 0 to 60



Picture 1: Salmonella

The birds were kept under observation for 60 days and 30 samples of cloacal swabs were collected on day 0, 8, 15, 22, 29, 39, 49 and 59 each time from the same chick and analyzed for Salmonella. All the positive cases were referred to a veterinary research laboratory for further identification.

Results

The laboratory results showed that 30 samples from the treatment group from the respective date were all negative for Salmonella, whereas the negative control group 1 was highly infected with *Salmonella enteritidis* and the negative control group 2 was highly infected with *Salmonella typhimurium*. The results are presented in Table 3.

Table 3: Bacterial results of Salmonella isolation from cloacal swabbings

Day	Group	<i>S. enteritidis</i> positive samples [%]	<i>S. typhimurium</i> positive samples [%]
0	Treatment group	0	0
8	Treatment group	0	0
15	Treatment group	0	0
22	Treatment group	0	0
29	Treatment group	0	0
39	Treatment group	0	0
49	Treatment group	0	0
59	Treatment group	0	0
59	Negative control group 1	33.3	0
59	Negative control group 2	0	26.6

Conclusion

In contrast to the negative control groups, there were no Salmonella-positive samples in the treatment group. Therefore, under the conditions of this study, the combined application of Bioimin® C-EX, Bioimin® IMBO and Biotronic® SE was efficient in protecting layers from Salmonella infections.





World Nutrition Forum

September 7th - 8th, 2006

Vienna Austria

Visit us at the VIV Europe booth 687 at the stand number 03.B124



Aqua

May 9th - 13th 2006, Florence, Italy

10th International Symposium on Digestive Physiology in Pigs (DPP)

May 25th - 26th 2006, Vejle, Denmark

ASDA/ASAS/CSAS Joint Annual Meeting

July 9th - 13th 2006, Cincinnati/Ohio, USA

International Pig Veterinary Society Congress (IPVS)

July 16th - 19th 2006, Copenhagen, Denmark

Poultry Science Association (PSA) Annual Meeting

July 16th - 19th 2006, Edmonton, Alberta, Canada

World Nutrition Forum

September 7th - 8th 2006, Vienna, Austria

XII European Poultry Conference (EPC)

9th - 14th 2006, Verona, Italy

> Literature

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> Impressum

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