

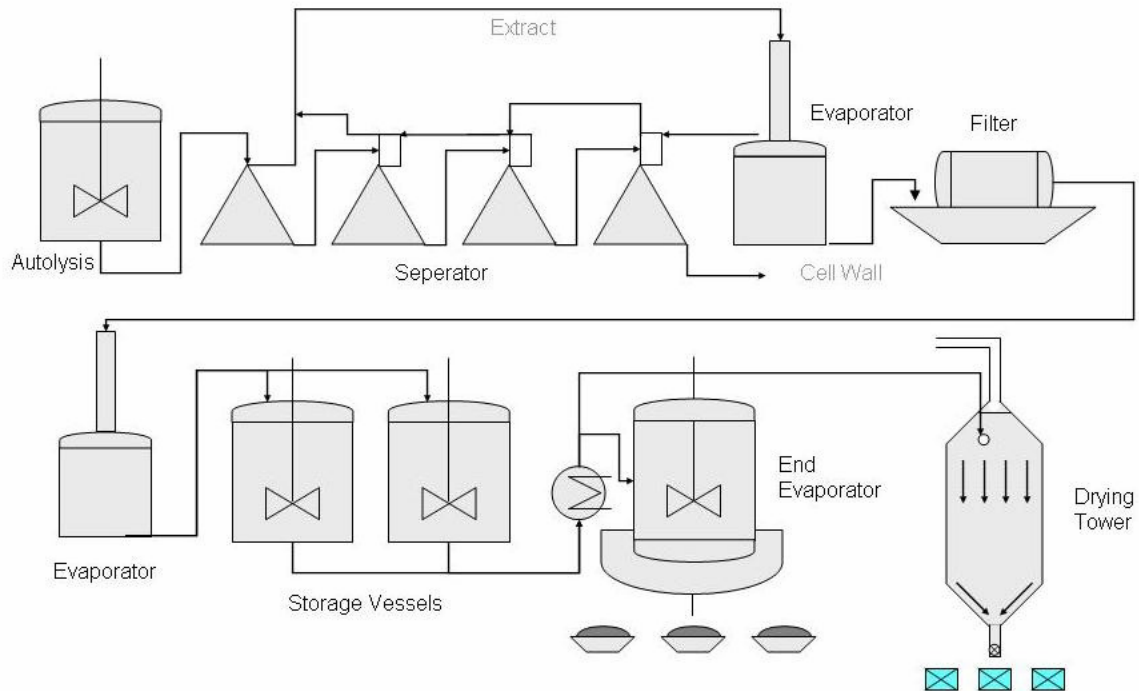
LEUCOGARD®

The natural immune stimulant
for animals



Production path for Leucogard®

Leucogard® is a natural product from the cell walls of yeast, pure baker's yeast cultures, *Saccharomyces cerevisiae*, after fermentation and an especially gentle drying process



We set high quality standards/expectations and offer excellent quality

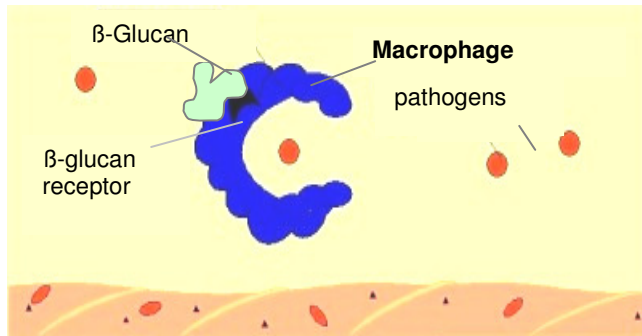
The advantage of our product Leucogard® is based on the careful manufacturing process, matured over many years of research. No aggressive or toxic solutions/solvents or chemicals are used. Rolling mill operation was also dispensed with, as this significantly reduced the effectiveness of the product. We put a very high value on the highest quality standard and guaranteed trackability. Each charge/batch is analysed and certificated. The manufacturing process takes place and adheres to DIN EN ISO 9001-2000 and HACCP. The production site is QS certified. Leucogard® is a high molecular natural substance; its basic building block is glucose. These basic building blocks are linked in a specific way and are termed (1→3),(1→6)-beta-D-glucan.

- DIN EN ISO 9001-2000
- HACCP
- GMP
- Analysezertifikat

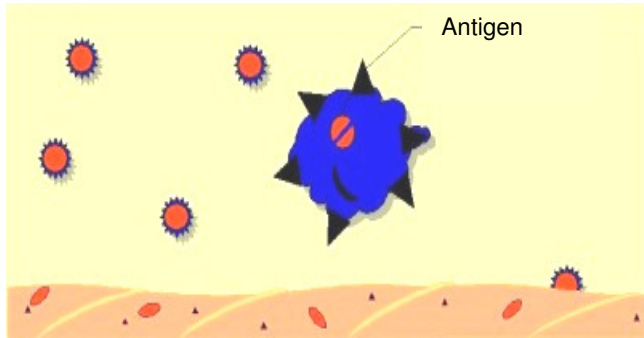
The Immune System

Macrophage is put into a higher activity alert by binding with Leucogard, recognises invading pathogens and phagocytes. (pic. 1 and 2).

pic 1

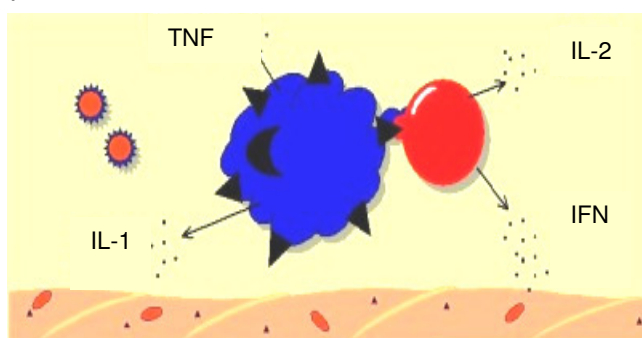


pic 2

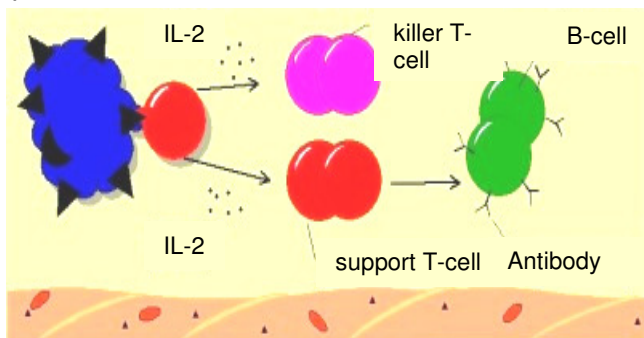


Fragments of pathogens are presented as antigens on the surface. The T-support cell recognises the antigen and binds it to the macrophage. The concerted action gives off regulative signal molecules. (pic 3 and 4).

pic 3



pic 4

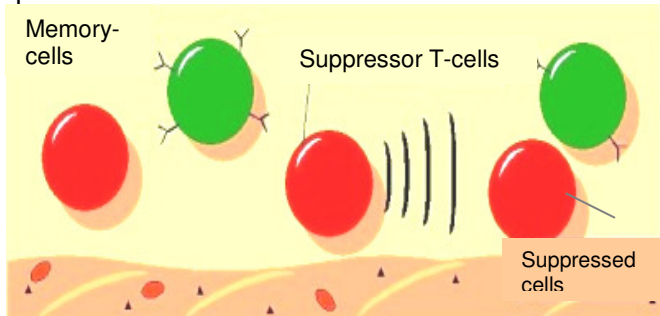


The signal molecule IL-2 activates the increase in creation of T-support and killer cells. The T-support cells also have the task to increase production of B-cells, which create antibodies against foreign bodies. These attach to the antigens and thus initiate phagocytosis with the help of the complementary system. (see pic 3 and 4). The T-killer cells destroy infected cells. At the end of the infection T-suppress cells stem and regulate the T- and B-cells. Memory cells are created to ensure instant recognition of bacteria, virus and other pathogens at next appearance and that the immune response can thus be more efficiently applied. (pic 5 and 6).

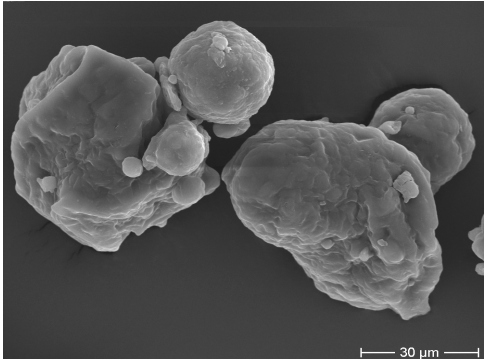
pic.5



pic. 6

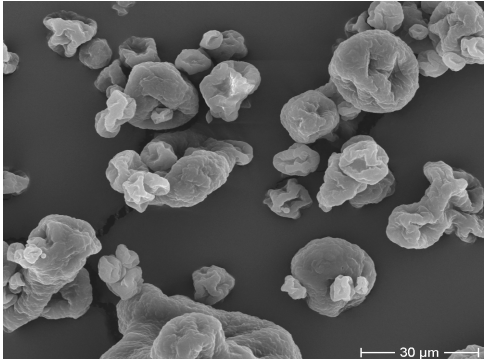


Comparison of our product against other β -glucan containing products:



Competition products

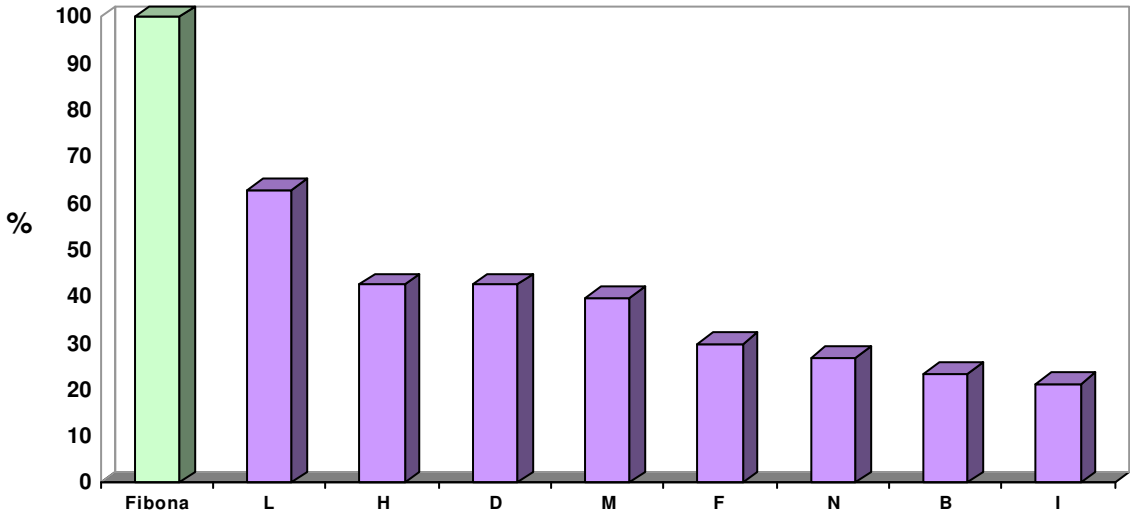
Clearly recognisable are the buddings at the poles, which indicate that the immune active ingredients have not been separated out.



Fibona products

The yeast has been separated autolytically. Only the cell walls contain the freely accessible and thus effective polysaccharides (mainly (1→3),(1→6)-beta-D-glucans).

Cumulative results of a product comparison analysis by the independent institution, FILT GmbH, Berlin in 2004 regarding the effect of beta-glucans at yeast base from various providers in relation to phagozytosis (radical creation), Interleukin-8-synthesis and neopterin synthesis on granulocytes from both humans and pigs:

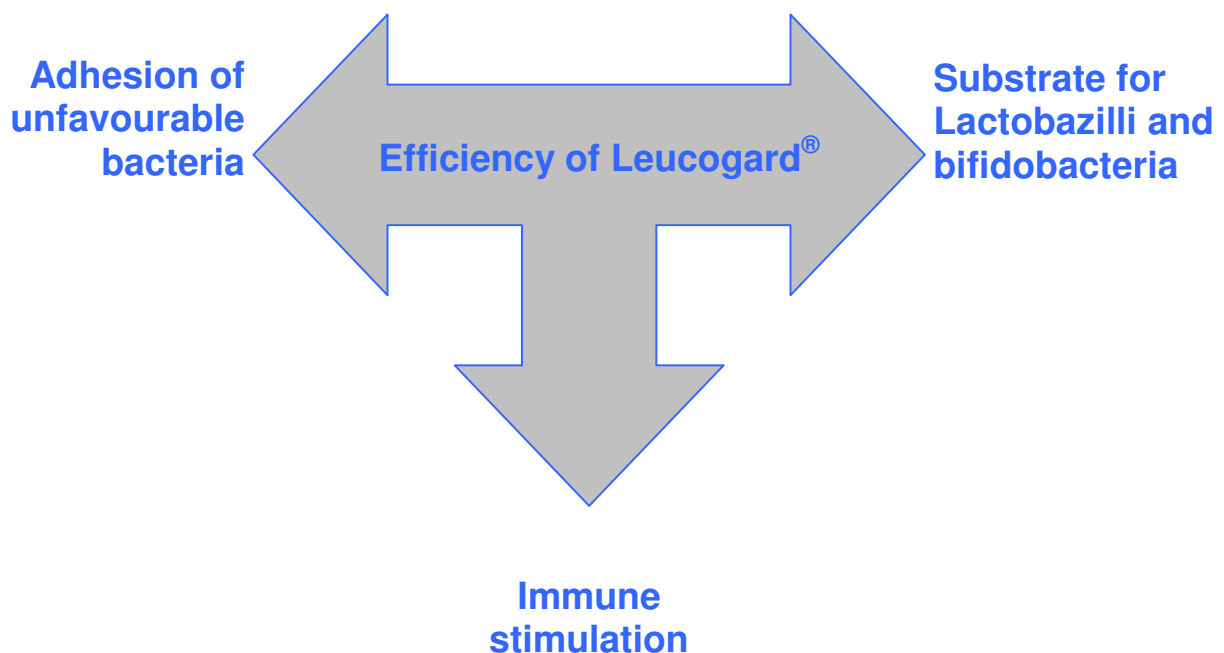


Properties of Leucogard®

Leucogard® is a combination of the main component β -glucan and a certain amount of mannans, produced in an extremely gentle process after years of intensive research. This ensures best possible preservation of its properties. β -glucans in Leucogard have the capacity, through their structure – similar to the key/key hole principle – to dock onto a specific receptor on the macrophages and other immune competent cells to put them into a higher reaction alert. They also have the heightened affinity to bind heavy metals and myko-toxins.

Mannans on the other hand are indigestible for the body's own enzymes and thus continue into the large intestine. Here they provide a nutri-substrate for the positive favoured bacteria (bifido bacteria and lactobacilli), stabilising the intestinal pH value, reducing the ammonia content and thus pushing back unfavourable bacteria (prebiotic effect). Their ability to bind bacteria to them, also prevents colonisation of unfavourable bacteria on the intestinal wall.

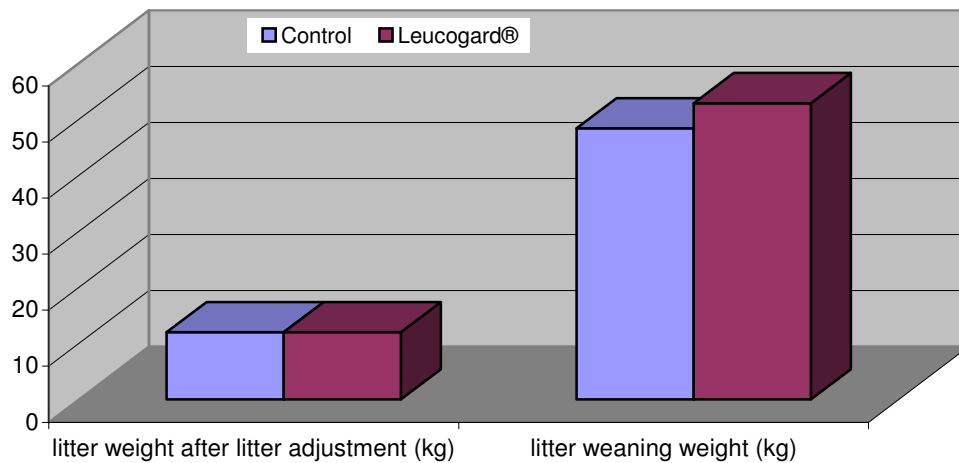
Efficiency of feed supplemented with Leucogard®:



Piglets

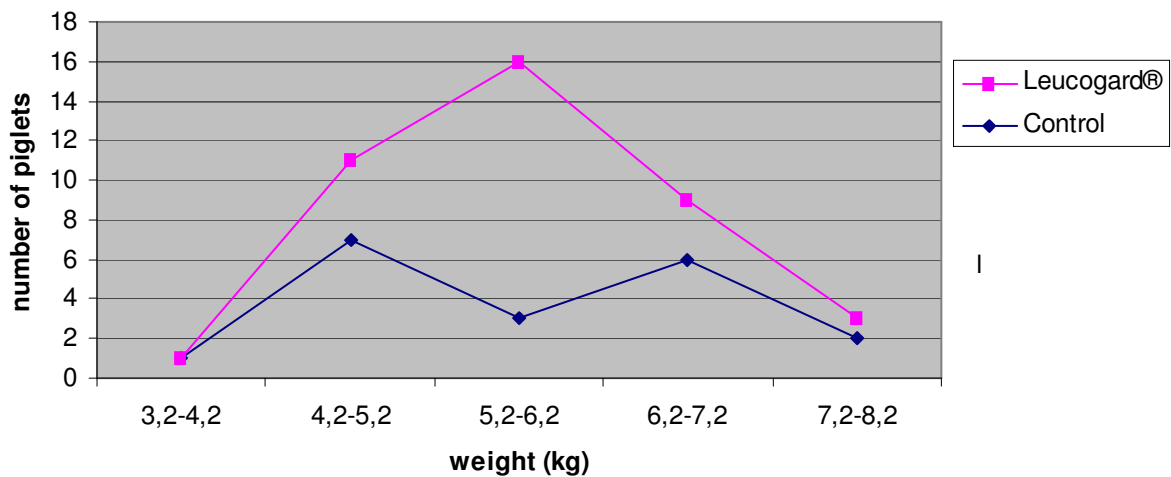
Improved Growth in piglets through Leucogard®

Sows fed with Leucogard® supplement during the lactation period, show higher litter weights after weaning i.e. 12.4% higher.



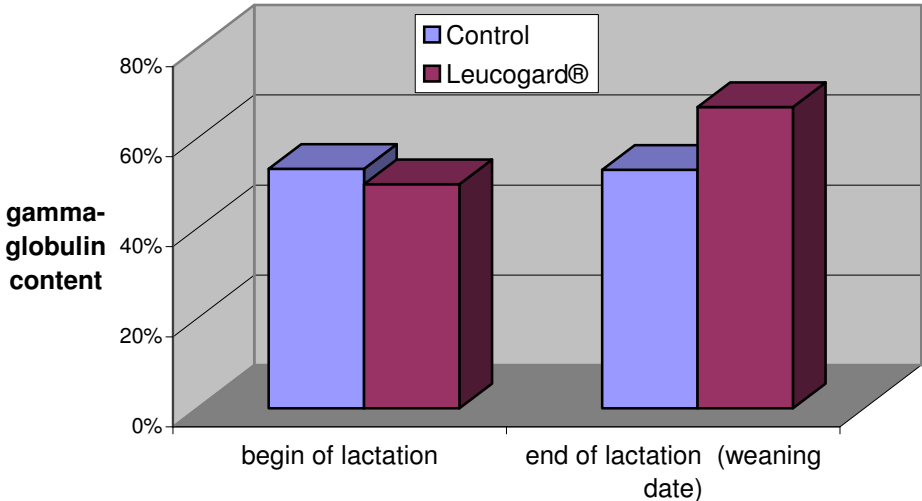
Leucogard® ensures more evenly balanced litters

The weights of weaned piglets of the control pigs cover a wide range and are unevenly distributed, while the weights of the weaned piglets of pigs fed with Leucogard, are grouped around a much smaller range.



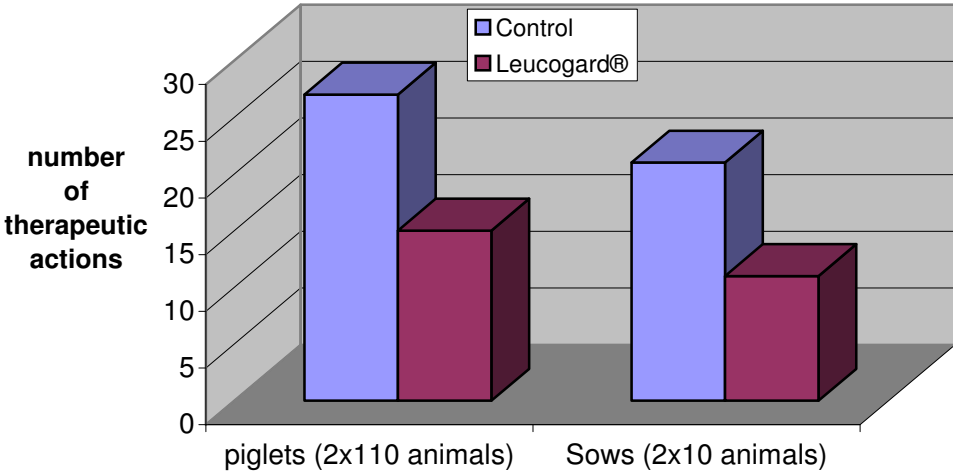
Leucogard[®] increases immune defence of pig's milk

The milk in sows fed with Leucogard[®] during the lactation period contains higher gamma globulins.

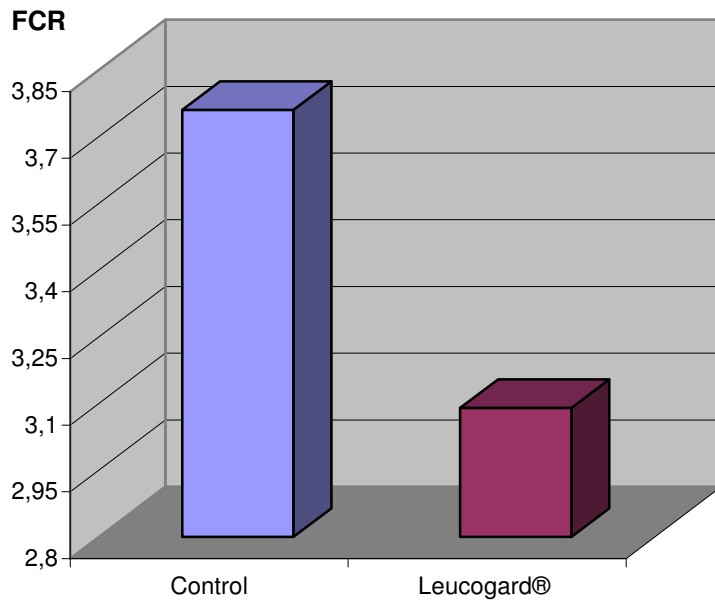


Leucogard[®] reduces vetmed costs

Sows, fed with Leucogard[®] - and their piglets - required less vet/med expenditure (number of therapeutic interventions).



Improved feed conversion rate through Leucogard®



Leucogard® leads to an increase in contribution

Contribution calculation on sample of piglet rearing:

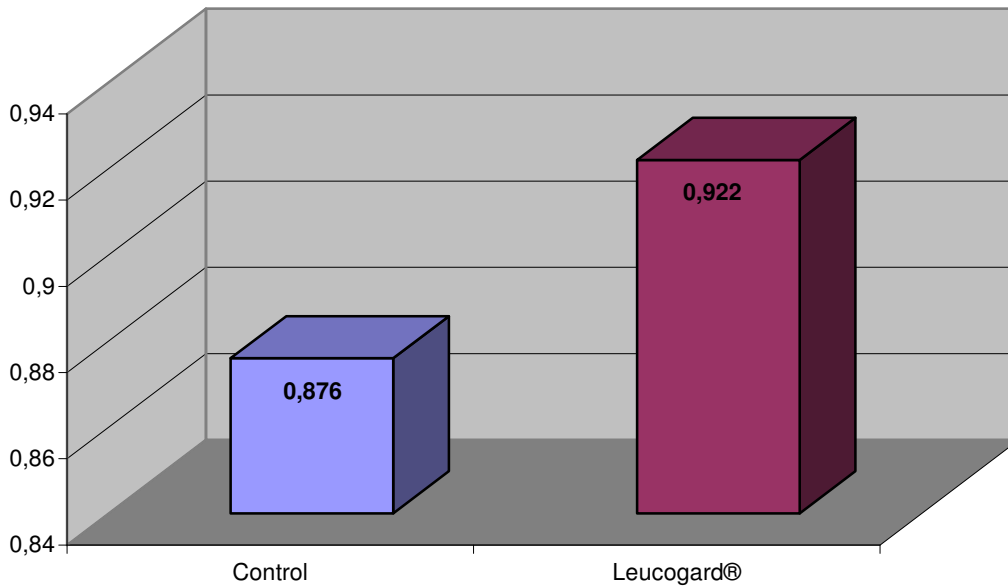
	Control	Leucogard
Litter/sow/year	2,18	2,18
Piglets born/litter	10,34	10,34
losses (%)	11,88	5,94
Selling weight piglet (kg)	29,20	35,54
Sow feed in €	180,00	207,12
Suckling piglet feed in €	180,00	249,00
Vet/med costs in €	70,00	50,00
Sum of variable costs (incl. Electricity etc.)	684,00	761,12
Market value (€)	1271,00	1465,00
Contribution (€)	587,00	703,88

Laying hens

Leucogard[®] optimises performance of laying hens

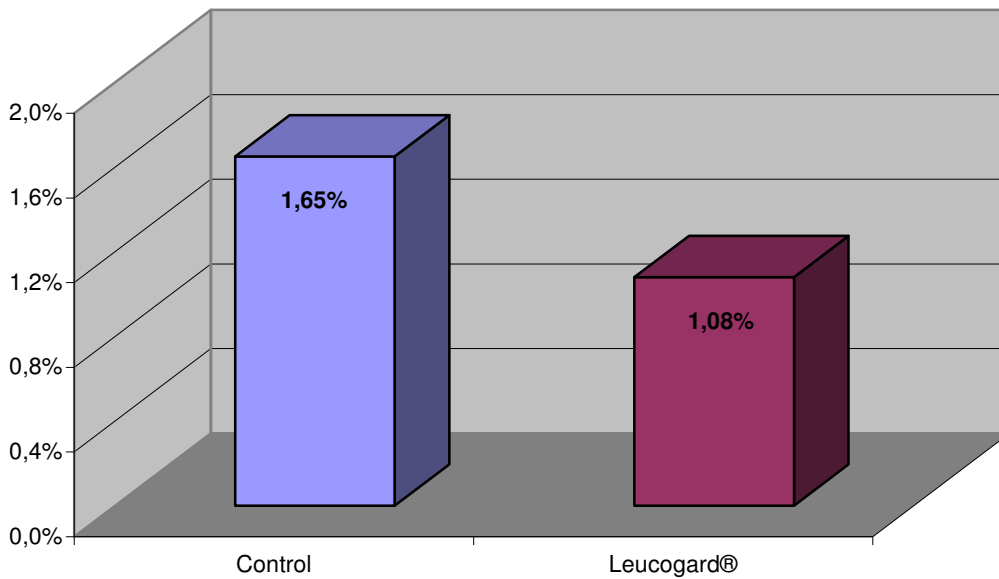
Leucogard[®] increases daily laying volume per hen

- Laying volume per hen per day



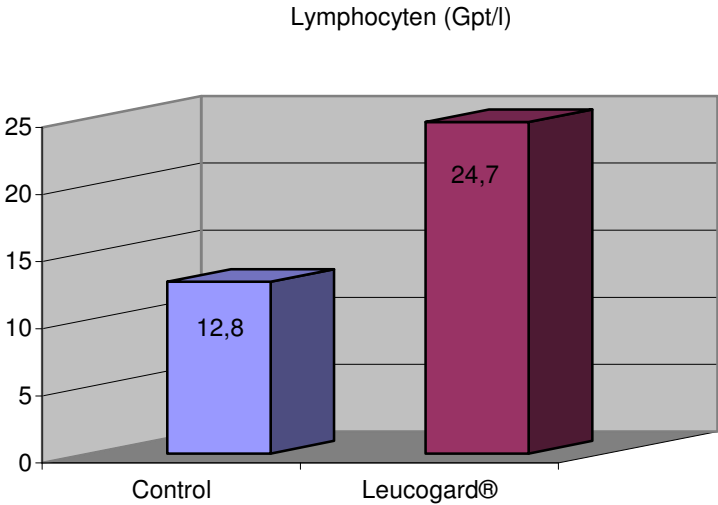
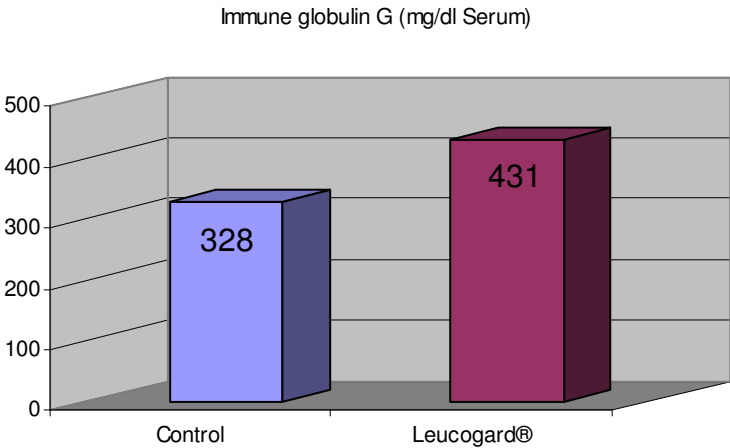
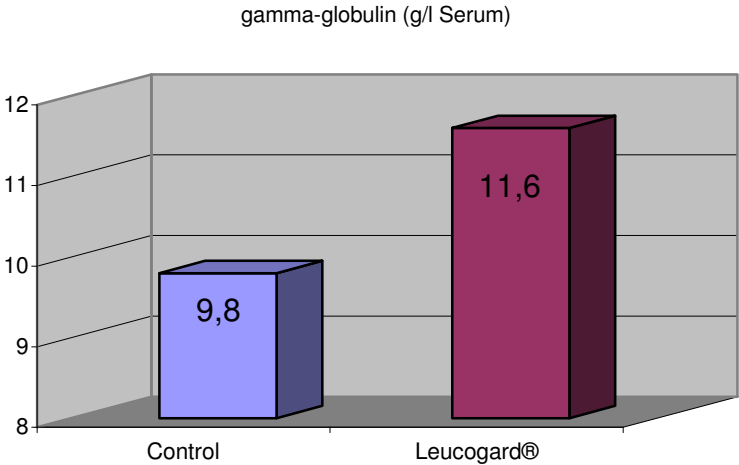
Leucogard[®] reduces losses with laying hens

- Losses in % of total in 60 days

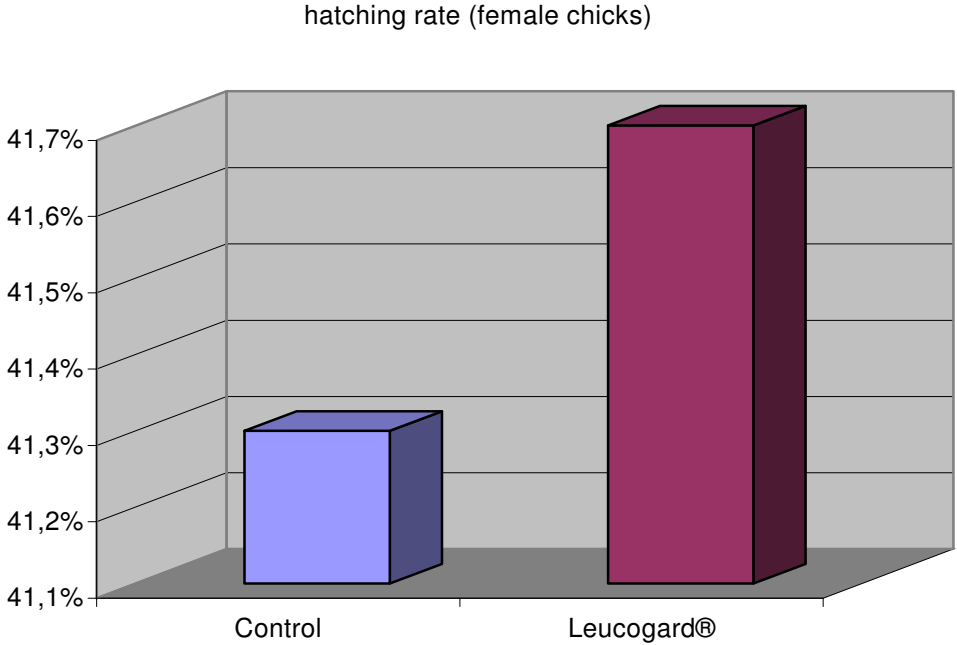


Leucogard® improves immune defence for laying hens

- recognisable in increased globulin and lymphocyte values

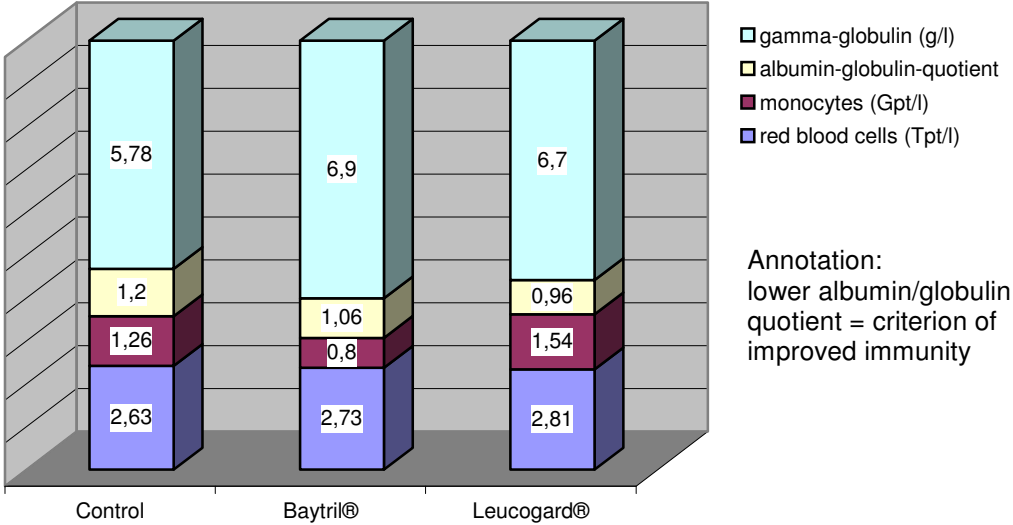


Leucogard[®] improves hatch rate of chicks



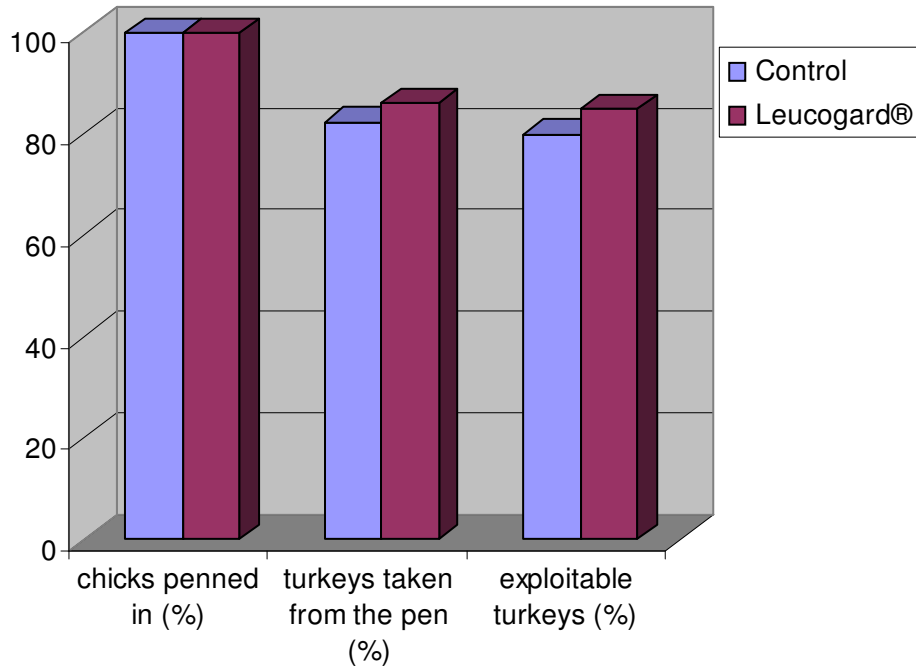
Leucogard[®] improves immune defence and the oxygen transport capacity of the broiler chicken

Test execution in comparison with the Antibiotic Enrofloxacin (Baytril[®])



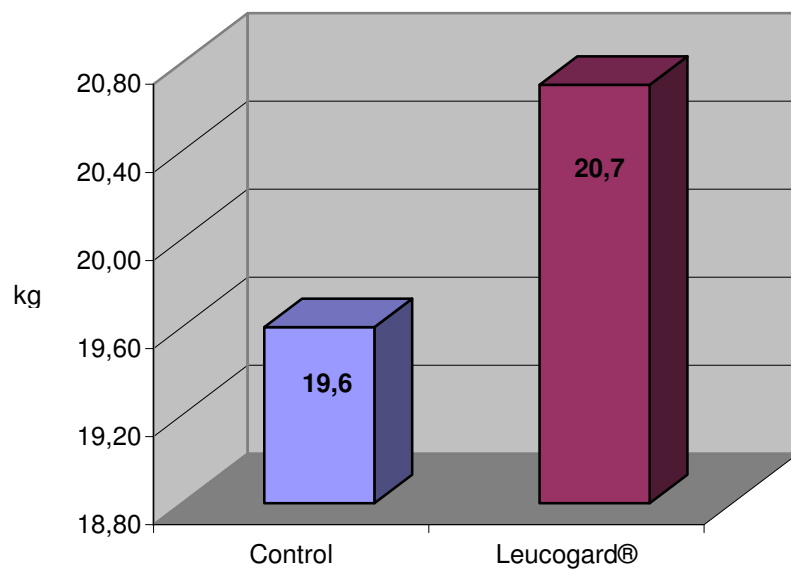
Turkeys

Leucogard® increases the number of utilized turkeys

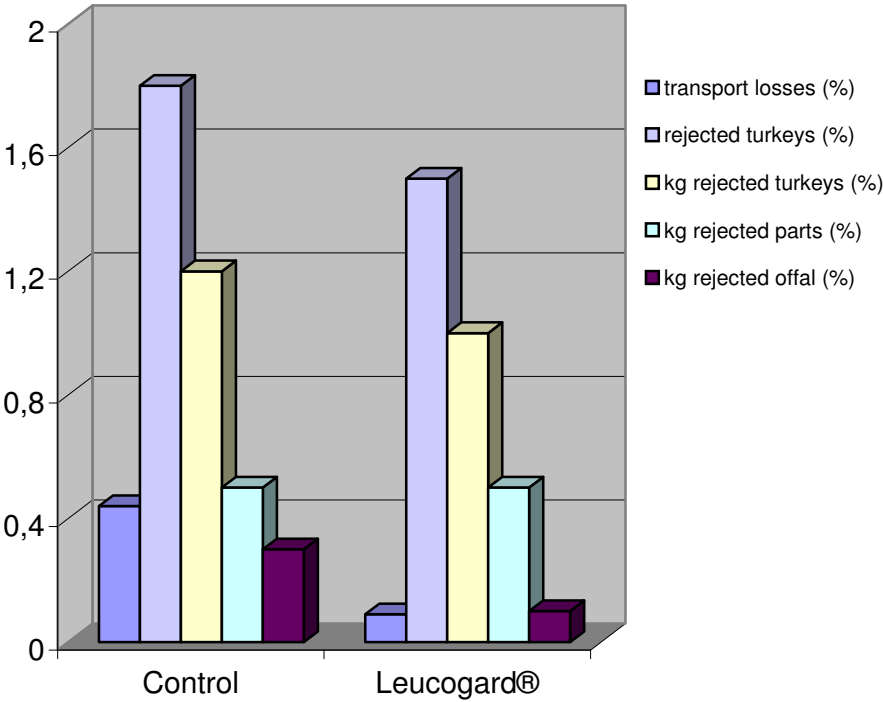
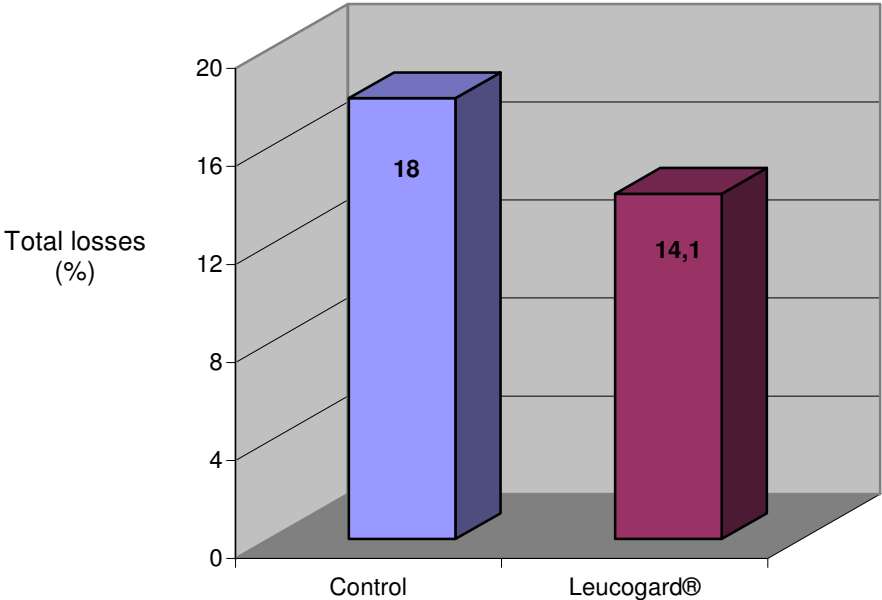


Leucogard® increases the weight of turkeys

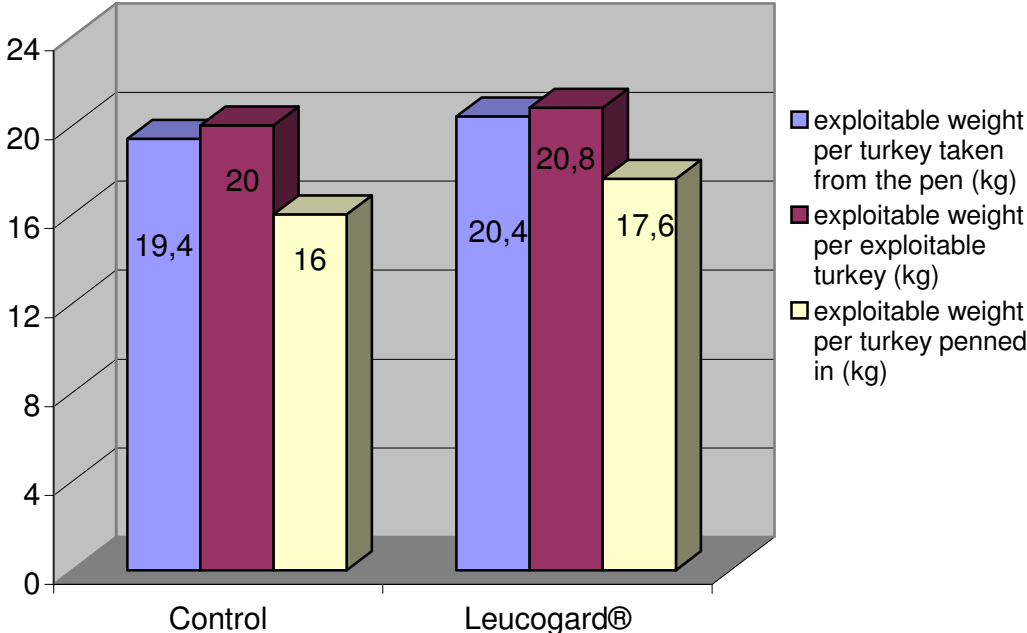
- weight per turkey when leaving the pen



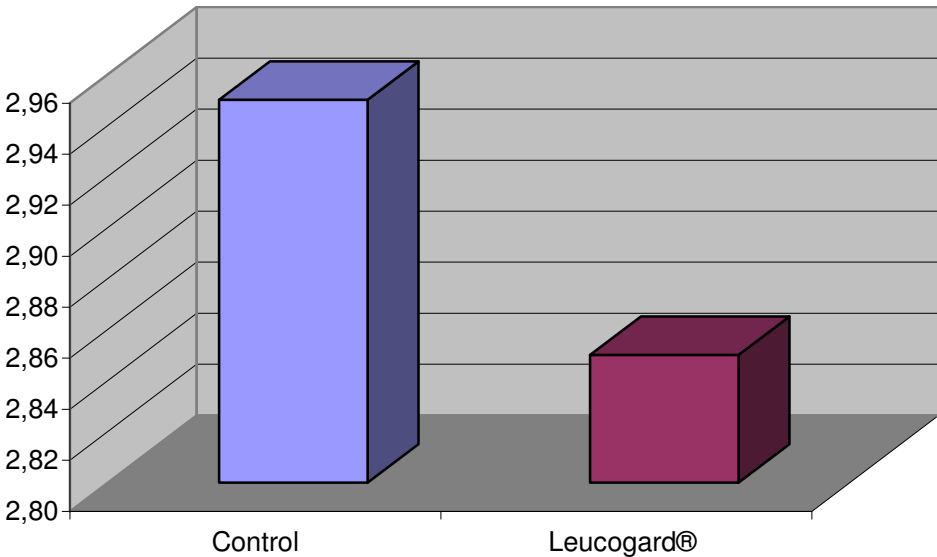
Leucogard® significantly reduces the percentage of losses



Leucogard increases the utilization weight



Improved feed conversion rate through Leucogard®



Datasheet Leucogard®

Average analysis:	
Dry matter	94 - 98%
Carbohydrate	45 - 55%
→ as glucans	22 - 26%
→ as mannans	typ. 25%
Protein (N x 6,25)	24 - 36%
Lipids	10 - 15%
pH (2 % suspension)	5,8 - 6,5
Ash	3 - 4%
<u>Selected Minerals:</u>	
Phosphorus	0,9 – 1,3%
Potassium	0,2 – 0,3%
Sodium	0,2 – 0,3%
<u>Microbiology:</u>	
Total plate count/g	< 100
Yeast and moulds/g	< 100
E. coli/g	neg.
Coliformes/g	< 10
Clostridia/g	< 10
Salmonella/25 g	neg.
<u>Physical Properties:</u>	
Appearance	pale to middle beige, fine powder
Flavor	yeast typical
Solubility	water insoluble
Molar mass:	Mw ≈ 100 kDa
(Light scatter after disintegration of the main structure components and lyophilisation)	
<u>Durability:</u>	
At least 12 months when stored dry and cool	
<u>Packaging:</u>	
25 kg bags with PE-inner bag on reusable Euro-pallet	

Our Experience – Your Benefit

- Years of research have lead to a mature producing process that ensures our product provides the capability to attach to the receptor on the macrophage
- Controlled, accurately defined production process
- Highest quality standard
- No chemical additives, extraction via autolysis process
- Scientific evidence regarding the interdependence of immune status and productivity with farm animals
- Scientific evidence of biological effectiveness via biochemical, haematological and immunological parameters
- Recommended dosage has been tested in practice and is easy to apply (premix plants, pelleting etc.)
- Animal specific offers:
 - Leucogard® for farm animals (Area of economically useful animals)
 - Vitagard H for dogs
 - Vitagard P for horses
- Side effects due to over dosage are not known

Advantage Overview

- Reduction of mortality rate
- Improved growth
- Improved immune defence in the milk
- Reduction of vet/med costs
- Increase in contribution
- Optimised performance of laying hens
- Increased weight increase and utilisation of weight
- High binding affinity to heavy metal and myko-toxins

FIBONA®

Fibona Health Products GmbH
Heinrich-Hertz-Straße 2 - 65232 Taunusstein - Germany
T.: +49 (0)6128 – 93 787 40
F.: +49 (0)6128 – 93 787 59
info@f-h-p.eu
www.f-h-p.eu