



DOMCA – SMEthane Workshop

21st – 22nd September 2011, Birmingham

DOMCA SAU – COMPANY PRESENTATION AND OUR ROLE IN SMEthane PROJECT





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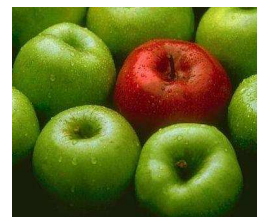
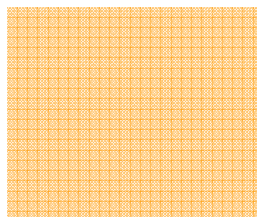
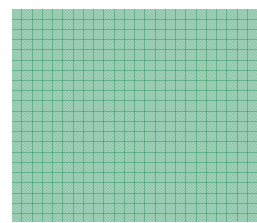
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DOMCA SAU

Family-owned company which was founded in 1977 in Barcelona and later, in 1980, translated to Granada.

DOMCA is a company dedicated to the development and manufacturing of ingredients and additives for the food industry. DOMCA fabricates a great number of products, from commodities to specific solutions (with high added value), for different sectors in the food industry:

- Dairy sector
- Meat sector
- Fish and Seafood
- IVth Range and Post-harvest
- Sauces and Prepared Meals





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21st – 22nd September 2011, Birmingham





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R&D DEPARTMENT. GENERAL LINES OF INVESTIGATION.
MICROBIOLOGY, BIOTECHNOLOGY, CHEMISTRY AND
NATURAL RESOURCES

- Search for **natural antimicrobials** and **antioxidants**.
- Development of selective products against **foodborne pathogens**.
- New functional additives and coatings.
- Natural **postharvest treatments** and **biocontrol agents**.
- Natural treatments for **environmental control**.
- Development of products with functional properties suitable for **active packaging**.
- Search for **natural alternatives** to antibiotics as **growth promoters** in animal feed.





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DOMCA'S PRODUCTS

- Antifungic **Cheese coatings** for the protection of cheese and ripened meat products
 - Plastic dispersions with preservatives
 - Edible coatings based on natural resources
 - Possibility of combination with natural preservatives derived from vegetable sources.
- **Pre - mixes** of preservatives, flavours, antioxidants, spices etc. for the elaboration of cooked, cured and raw meat preparations.





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DOMCA'S PRODUCTS

- Natural products for the **post-harvest treatment** of fruits and vegetables:
 - Garlic derivatives as natural antimicrobials to avoid rot and decay in the post-harvest period.
 - Protective coatings to avoid weight loss and physical damage.
- **Environmental control:**
 - Garlic derivatives for the disinfection of storage facilities and fabrication sites.





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NEW DEVELOPMENTS BASED ON NATURAL INGREDIENTS

Specific products which are based on natural active principles which come up with preservative, antioxidant and/or aromatic functions to protect foodstuff.

PROALLIUM

Substances derived from garlic and onion.

- Application in RTE meals and sauces.
- Application in Post-harvest.

Pantovital

Biocontrol agent for pre-and post-harvest treatment of fruits. Based on *Pantoea agglomerans*.

CYCROM DMC

Natural product for the selective control of *Listeria monocytogenes* in the food industry.

garlicon

Functional additive for animal feed



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CYCROM DMC : BIOCONTROL OF LISTERIA

DESCRIPTION

It is a product of a fermentative, food-grade process. It is suitable for the application in food, totally safe, natural and comes up with antilisterial properties.

COMPOSITION

Based on metabolites obtained from lactic fermentations in combination with natural flavours .

APPLICATION

CYCROM DMC prolongs the shelf life of many food products, fresh or heat processed ones, fresh, cured or cooked meat products, creams and sauces, mayonnaise, lactic products, prepared meals, IVth Range products, fish, etc.



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DOMCA'S ACTIVITY IN RESEARCH PROJECTS EUROPEAN CONSORTIUM

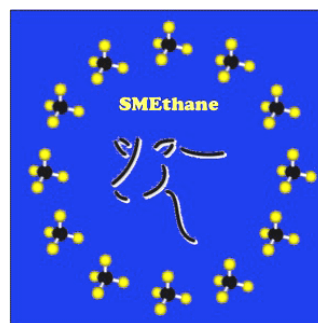
The logo for CheeseCoat, with 'Cheese' in white and 'Coat' in yellow, set against a dark blue background.

CheeseCoat

**Novel Processing Technology for
Manufacturing Low- fat Mozzarella
with Superior Performance in
Ready Meals**



**Active Multilayer Packaging based on
Optimized PLA formulations for Minimally
Processed Vegetables and Fruits.**



**Technological platform
to develop nutritional
additives to reduce
methane emissions from
ruminants.**



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DOMCA'S ACTIVITY IN RESEARCH PROJECTS

SPANISH CONSORTIUM



Valorization of plant agricultural subproducts: Screening for sustainable natural food additives.



Development of active packaging with antifungic and antioxidant properties for the prolongation of shelf-life of freshly packed fruits and dairy products.



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DOMCA'S ACTIVITY IN RESEARCH PROJECTS ANDALUSIAN CONSORTIUM



Development of biological products for
sustainable olive production



Plasticons

Development of plastic films for the
protection of foodstuff.



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DOMCA AND ANIMAL FEED

garlicon

Natural feed additive

NEBULO – FARM

Natural fogging treatment for the control of air quality and facilities in animal farms.

Further developments:

Natural feed additives with fly repelency

Based on our wide experience in the food sector our R&D team is capable of developing highly technical solutions as well for the feed sector.



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**DOMCA in SMethane -
Our experience in animal feed**

Patent N° EP 2 110 128 A1

garlicon

**USE OF PARTICULAR ANTIBACTERIAL COMPOUNDS, WHICH ARE DERIVED
FROM ALLIACEAE AS NATURAL ADDITIVES IN ANIMAL FEED.**





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DOMCA and ANIMAL FEED



ADVANTAGES

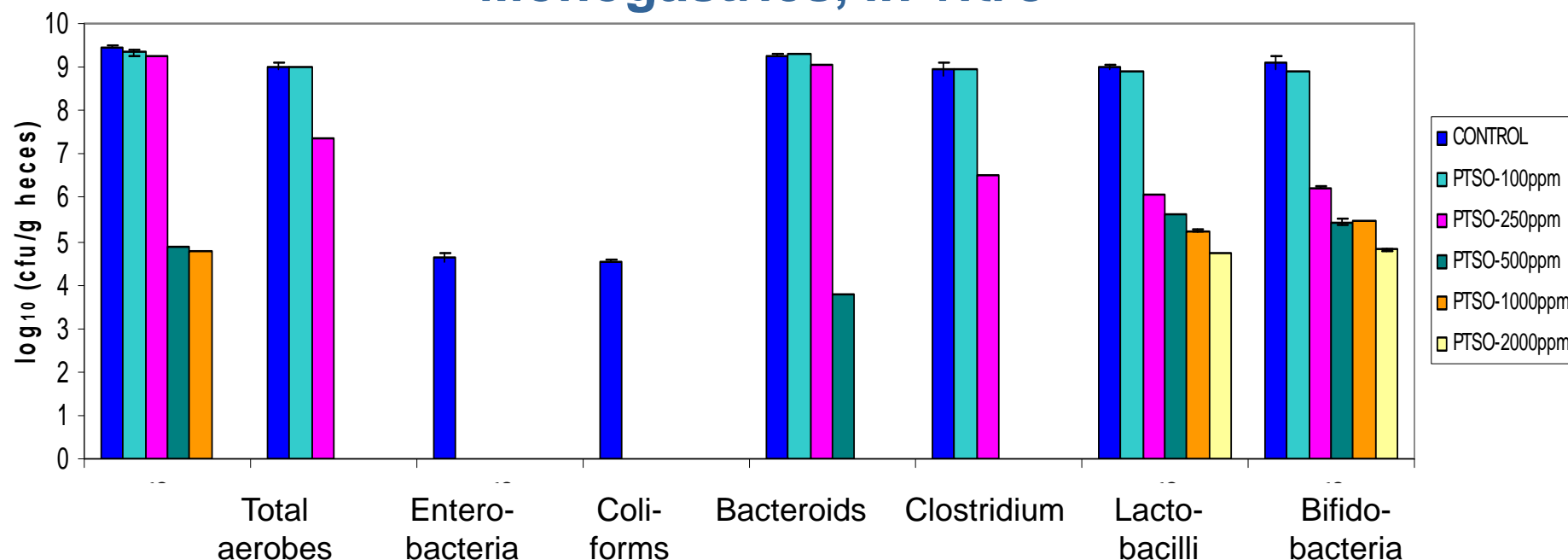
- **Natural alternative to antibiotics** as growth promoters in animal feed.
- Its antimicrobial activity has been **proven on common animal pathogens.**
- Improves the animal's defence against pathogens in gastric and respiratory system.
- Maintain a **positive balance of intestine and rumen microbiota.**
- Works as **natural preservative in animal feed.**
- The product is **stable, trazable and standardized.**
- Indications of **reduction of methane production** in ruminants.



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Monogastrics, *in vitro*



50 ppm of one of the active principle totally inhibit the growth of enterobacteria and coliforms (many times pathogens). Lactobacilli and bifidobacteria are less affected (beneficial intestinal bacteria)

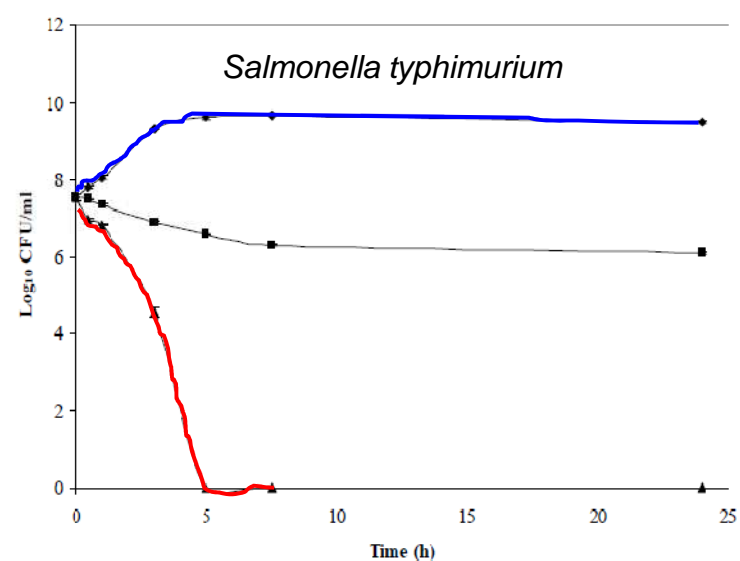
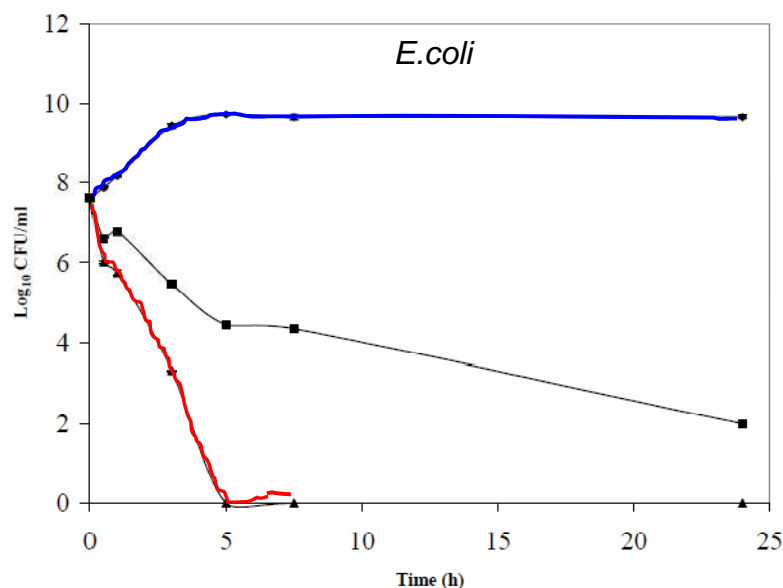
In cooperation with: CSIC, Estación Experimental del Zaidín, Granada, Unidad de Nutrición Animal.
Luis A. Rubio San Millán.



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Garlicon has great bactericidal activity against *Escherichia coli* and *Salmonella typhimurium*



High bactericidal power of active principles against *E. coli* and *S. typhimurium*:

100 ppm of Garlicon's active principle eliminate the two pathogens within 5 hours. Time-kill-curves of active principles (red & black) in comparison with control (blue).

In cooperation with: CSIC, Estación Experimental del Zaidín, Granada, Dptm. of Physiology and Biochemistry of Animal Nutrition. Luis A. Rubio San Millán.



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1. GARLICON ACTIVITY IN THE PREVALENCE OF SALMONELLA IN LAYING HENS



Experimental Design

The experiment was realized in a laying hens exploitation with **33.000 birds**. They were given the **GARLICON** additive (final concentration of **0,01%**) **with their drinking water during 7 days**.

The activity of Garlicon was evaluated on the enteric faecal flora, with special focus on **total enterobacteriaceae** and the incidence of ***Salmonella* spp.**

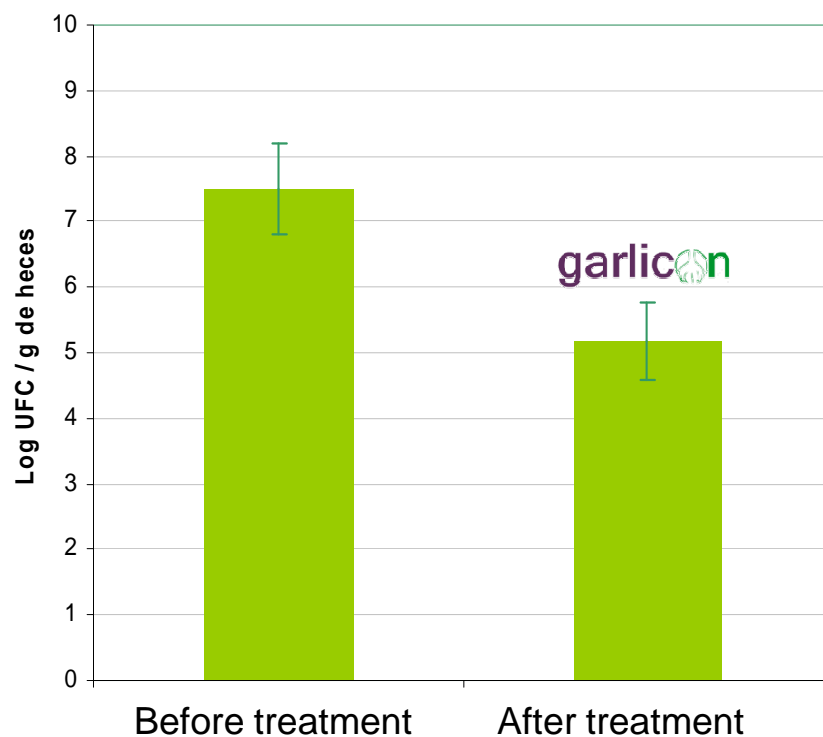




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GARLICON'S ACTIVITY AGAINST ENTEROBACTERIA IN LAYING HENS



**Decrease of enterobacteria
concentration in the heces of in
laying hens after the administration of
GARLICON in drinking water.**

Total enterobacteria	Log UFC / g feces
Before treatment	7,51
After GARLICON treatment	5,18

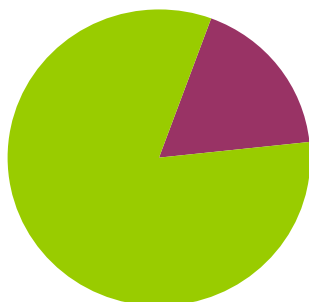


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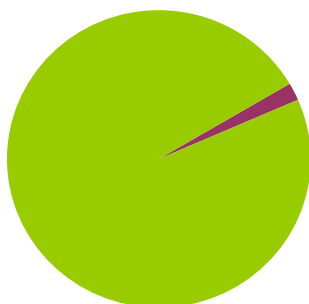
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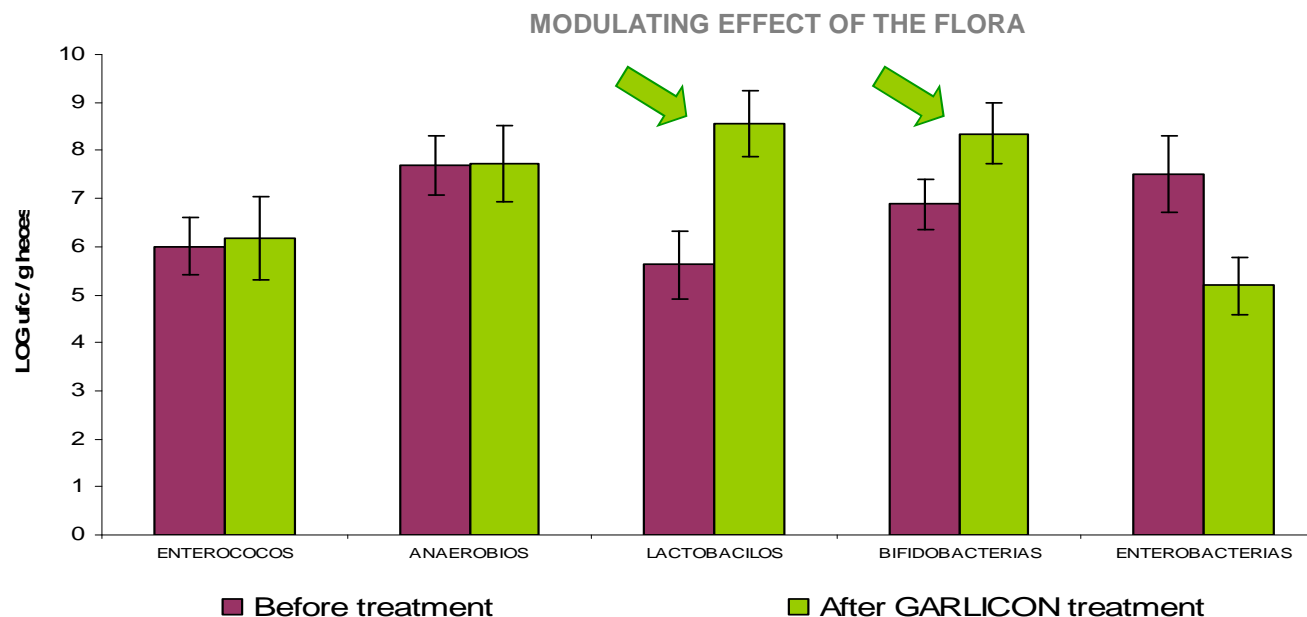
Salmonella incidence before
GARLICON treatment



Salmonella incidence after
GARLICON treatment



- **GARLICON** administration produces a decrease of total enterobacteria in the birds' intestinal tract.
- A high rate of *Salmonella* spp. is found in the exploitation (**17,8%**).
- Through the administration of **GARLICON**, the incidence decreased significantly to **2%**.
- These results show **GARLICON's** efficacy in the control of *Salmonella* spp. and others enteropathogens pointing out its use as a natural and efficient alternative for the improvement of health and hygiene in poultry installations.



Before treatment, counts of *Lactobacillus* and *Bifidobacterium* in feces show around 5,6 and 6,8 log, respectively. After **GARLICON** administration, these values increase to 8,5 and 8,3 logs, respectively.

These data give incidenc that **GARLICON** administration produces a modulating effect of the birds' intestinal microbiota and an increase of lactic acid bacteria.

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NEBULO –FARM

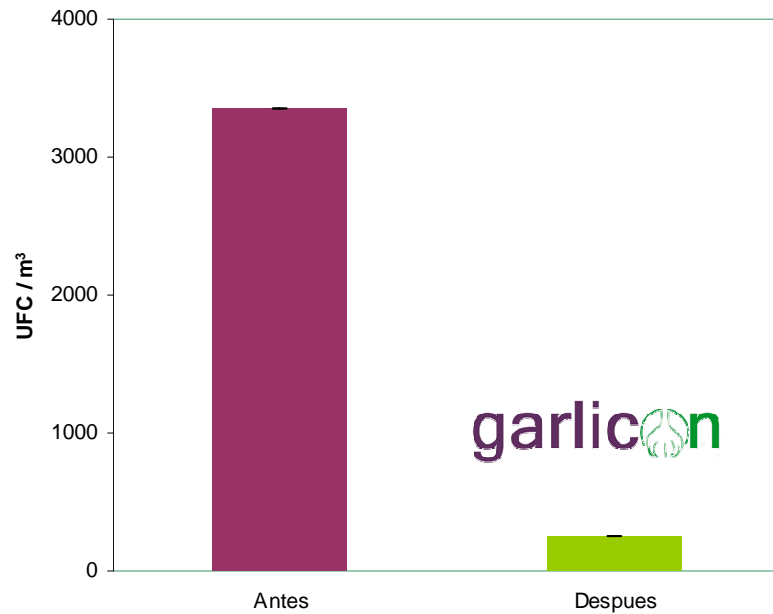
BIOLOGICAL CONTROL OF THE AIR AND FACILITIES IN FARMS

NEBULO FARM has been designed for the control of microbiological contamination of the air and surfaces of animal farms.

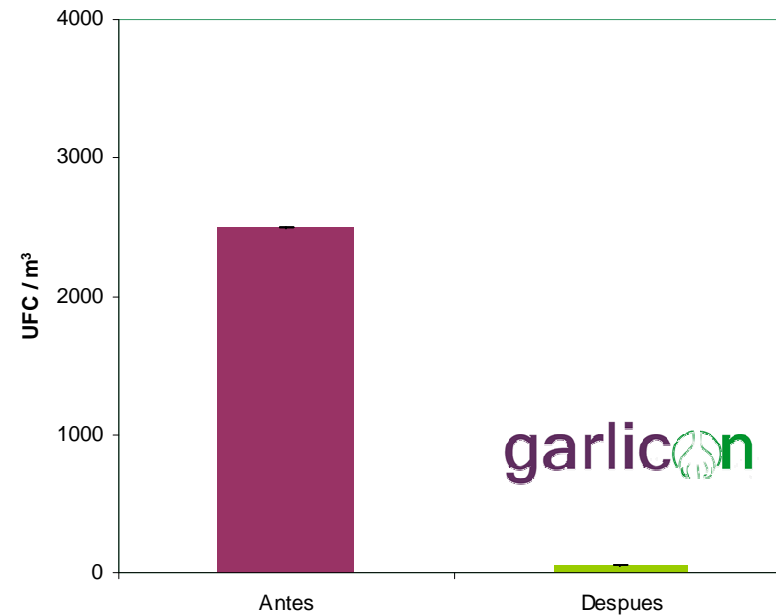
The product is applied by a fogging treatment. With 1 Litre of product approx. 2000 m³ can be treated.

NEBULO FARM is a mixture of natural ingredients that inhibits the development and spread of pathogenic micro-organisms such as *Salmonella*, *Campylobacter*, *E. coli*, *Clostridium*, *Vibrio*, *Listeria*, etc. but also mould and yeasts, allowing a complete disinfection of installations, air and equipment.

Decrease of total bacterias in the air



Decrease of fungus and yeasts in the air



CONCLUSIONS

Fogging with NEBULO FARM significantly improved the microbiological quality of installations, drastically decreasing the total microbial charge suspended in the air.





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21st – 22nd September 2011, Birmingham

Thank you very much for your attention

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