

## BIOSTABILIZATOR POLIFLOCK-BTS

STIMULATION OF ACTIVATION AND REPRODUCTION OF NATURAL OCCURRING MICROORGANISMS IN THE MANURE OF LIVESTOCK - ENHANCEMENT OF AMMONIA AND ODOR REDUCTION

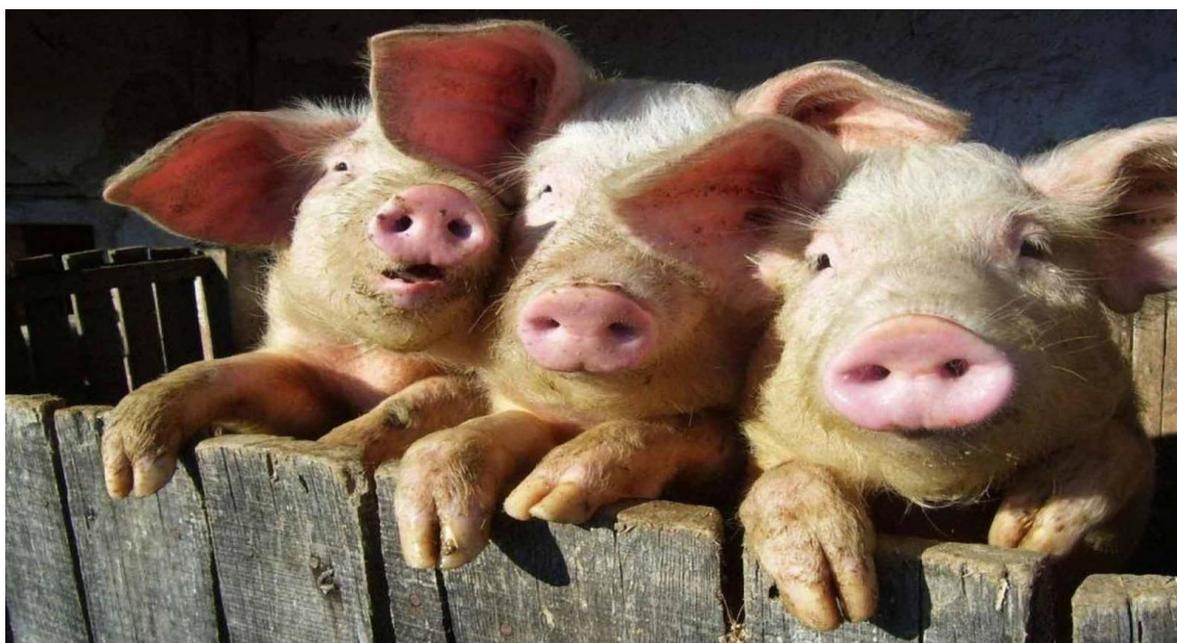
- **INTRODUCTION:** Intensive live stock breeding uses concentrate feeds for feeding. As the result of these feeds use the manure of livestock has high concentrations of nutrients and minerals. Due to an excess of nutrients in the manure and the conversion process of these materials to other forms it causes the bad odors release to the environment in the form of ammonia ( $\text{NH}_3$ ), hydrogen sulphide gas ( $\text{H}_2\text{S}$ ) and several other compounds like mercaptants which are created by an unbalanced manure. By adding or spraying **POLIFLOCK-BTS** to the manure the proper balance of nutrients for the active microorganisms development is restored resulting in a considerable reduction of odor. Furthermore it stimulates bacteria that take care of the mineralization of the manure. The manure maintains a much more homogenous composition.



- **OPERATION: POLIFLOCK-BTS** is a product, biostabilizator, that stimulates the activity and reproduction of natural occurring microorganisms in the manure of livestock. No microbes are added but the present microorganisms are stimulated to reproduce. The use of **POLIFLOCK-BTS** helps to ensure the natural balance of microorganisms ecosystems in a stable, microorganisms ecosystems become more resistant to adverse effects and it enhances the natural processes of manure mineralization and nutrients metabolism.

The example of **POLIFLOCK-BTS** operation is the activation of enzymes which are the catalyst of the urea fractions decomposition process. Urea is initially degraded by the enzyme urease, this step produces ammonium ( $\text{NH}_4^+$ ) which in it's turn can change into gaseous ammonia ( $\text{NH}_3$ ) when water is absent and unpleasant odors may be present. On purpose to avoid of bad odor formation the degradation of ammonium ( $\text{NH}_4^+$ ) to free nitrogen gas ( $\text{N}_2$ ) must be performed. For the efficient nitrification and denitrification process in the manure the sufficient number of the nitrifying and denitrifying bacteria is needed. **POLIFLOCK-BTS** stimulates the activity and reproduction of nitrifying and denitrifying microorganisms, supports the balance of nitrifying and denitrifying microorganisms ecosystems and avoids the formation and release of ammonia to the environment.

- **COMPOSITION: POLIFLOCK-BTS** is composed of fermented plant extracts, contains trace elements, vitamins, nutrients and enzymes that can be fully taken up by microorganisms which are present in the manure or living floor.
- **ADVANTAGES of POLIFLOCK-BTS use:**
  - No microbes are added to the environment of a stable, so no Health and Safety issues.
  - A stable, homogenous and active ecosystem is created in a stable.
  - Works as biocatalyst and enhances the efficiency of ecosystems performance in a stable.
  - Odor reduction (mainly NH<sub>3</sub>) for the environment.
  - Better food conversion of animals.
  - Less disease and mortality hence less veterinary and medical costs.
  - Good price/quality relation.
  - **POLIFLOCK-BTS** is safe for humans, animals, plants and the environment.
- **APPLICATION:**
  - **POLIFLOCK-BTS** is highly concentrated liquid which is diluted before use with water.
  - The product must be diluted on purpose to cover equally all the surface of the stable with the necessary dose of **POLIFLOCK-BTS** (guide the standard dosing program).
  - The dilution rate depends on the type and volume of the pulverizer (droppings, aerazol)
  - The dilution rate may vary from 10 to 100 liters of water for 1 liter of **POLIFLOCK-BTS**, the solution must be mixed well.
  - The diluted product must be sprayed over the surface of the stable or directly added to the manure.



**■ DOSES:****➤ Pig stables:**

- **1 liter of POLIFLOCK-BTS on 1000 m<sup>2</sup> of floor surface.**
- **The dosing frequency in pig stables: once per week.**
- **Usually it is started to use in the stables where pigs at least of 30 kilograms or more are grown.**

**➤ Poultry:**

- **1 liter of POLIFLOCK-BTS on 1000 m<sup>2</sup> of floor surface.**
- **The dosing frequency in poultry: once, on the fourth day after the chickens hatching.**

**➤ Turkey farms:**

- **Initial dose on the 5-6 week from the hatching of turkeys - 4 liters of POLIFLOCK-BTS on 1000 m<sup>2</sup> of floor litter after the turkeys transferring to the stable for the fattening**
- **Maintenance dose - 1 liter of POLIFLOCK-BTS on 1000 m<sup>2</sup> of floor litter every second week after the turkeys transferring to the stable for the fattening.**

**■ RESULTS:**

the practical use of POLIFLOCK-BTS helps to achieve the following results:

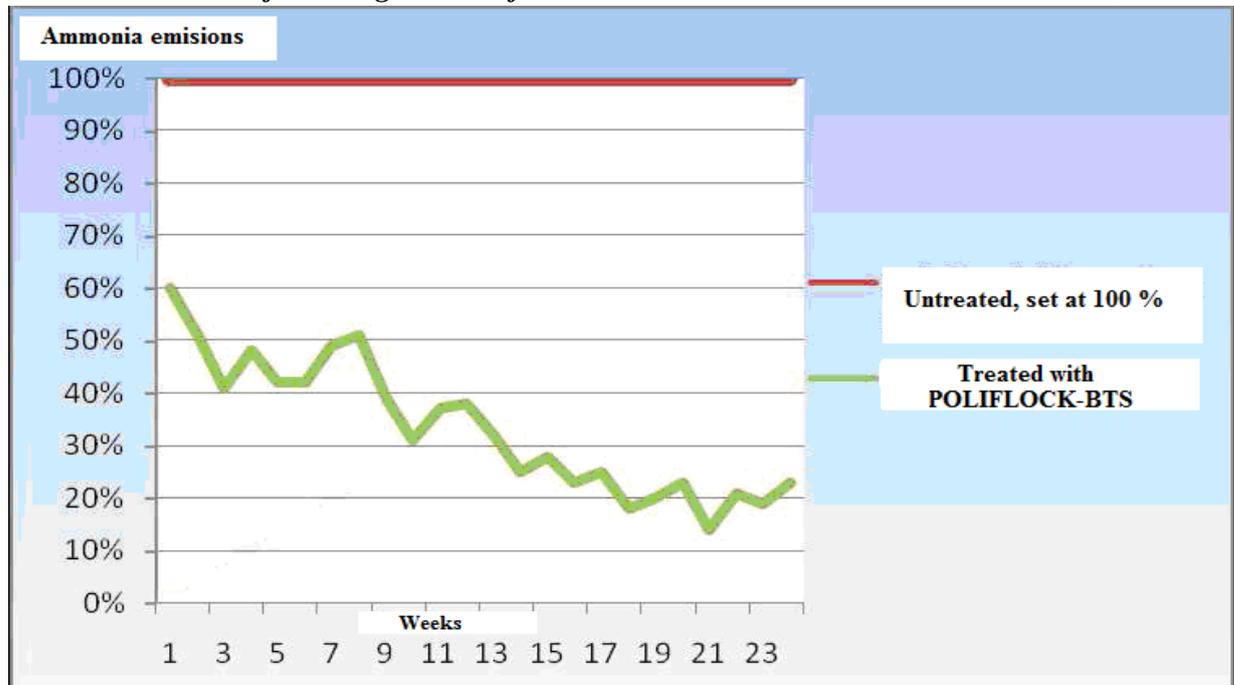
- Reduction of ammonia emissions.
- Improved fermentation, mineralization and effective degradation of organic materials and nutrients in the manure – more homogenous manure.
- Improved living conditions for the animals which experience less stress and diseases of respiratory system.
- Reduced mortality.
- The more safe and healthier environment in the stable.

**POLIFLOCK-BTS TEST RESULTS**

**1 TRIAL:**

- The trial was conducted with two identical stables with each of 50 piglets, mixed in such a way that both groups were equal in age and condition.
- Every group of piglets was separated from each other, the manure cellars were physically separated to prevent exchange between the 2 cellars and had separate ventilation system.
- In each stable digital ammonia sensors were installed at the ventilation ducts. The sensors measured the flow rate of the ammonia concentrations during the duration of the experiment.
- One stable was treated with **POLIFLOCK-BTS** (1x per week using 0,25 liter of **POLIFLOCK-BTS** diluted with 25 liters of water), which was nebulized over the floor surface. The floor in the control stable was nebulized with 25 liters of water.

*In 24 weeks the following results of ammonia emissions variation were summarized:*



**RESULTS**

- The ammonia emission in the stable treated with **POLIFLOCK-BTS** during the experiment was lower by 70 % than in the none treated.
- The mortality in the treated stable was zero, in the none treated stable animals died in the period of trials.
- In the period of trial less of piglets diseases occurred in the treated stable.

## 2 TRIAL:

The trial is performed in the chicken breeder with 2 identical stables containing each 20000 chickens. The stables were filled with baby chickens of 1 day old and after 6 weeks the chickens leave the stable with an average weight of 2 kilogram.

- The trial is performed with two identical stables of each 1000 m<sup>2</sup>. 20000 of one day old chickens in each stable, similar conditions in both stables - temperature, nutrition, water, etc.
- The living floor of one stable was treated with a solution of 1 liter **POLIFLOCK-BTS** in 10 liter water by using a manual nebulizer when the chickens are 4 days old.
- The test was conducted over a period of 1½ year, switching the treatment from one to the other stable. In total 12 trials were conducted.

## RESULTS

- The chickens in the stable treated with **POLIFLOCK-BTS** demonstrated more vital behavior than the chickens in the non treated stable. The treated stable demonstrated a reduction in mortality of 4 to 6% (that's 880 to 1320 chickens) in comparison to the non treated stable.
- The chickens in the treated stable demonstrated an increased slaughter weight between 50 and 80 grams (2,5 to 4% more weight) compared with the chickens in the non treated stable.
- The stable treated with **POLIFLOCK-BTS** emitted less ammonia than the non treated stable (measurements were conducted every day in the ventilation ducts). In the non treated stable the ammonia emission was 80 ppm NH<sub>3</sub> on average and in the treated stable the average ammonia emission was 20 ppm NH<sub>3</sub> during the 12 cycles, a reduction of 75% ammonia emission.

## 3 TRIAL:

- Tests were carried out in Lithuanian pig farms, each considered from 1000 to 1200 pigs. The area of one stable is app. 1000 m<sup>2</sup>.
- The weight of pigs stored in the stables was from 30 to 80 kilograms.
- During the experiment once per week **POLIFLOCK-BTS** was sprayed over the surface of the stable floor.
- The dose of **POLIFLOCK-BTS**: 1,5 liter of **POLIFLOCK-BTS** on the 1000 m<sup>2</sup> of the stables surface. Before the dosing **POLIFLOCK-BTS** was diluted with water in the range of: 1,5 liters of **POLIFLOCK-BTS** with 60-80 liters of water.
- In the period of the trials the contamination of air discharged through the ventilation ducts was measured – the concentrations of ammonia, hydrogen sulphide and etc.

**RESULTS:**

After four weeks from the beginning of **POLIFLOCK-BTS** dosing, the analyses of emissions discharged through the ventilation ducts out of the stable, was performed. After the analyses of data there was determined the reduction of ammonia and hydrogen sulphide concentrations – by 65 – 75 %. Also the bad odours were decreased in the area around the treated pig stables

**4 TRIAL:**

The trial performed in the turkey farm. On a purpose of ammonia emissions reduction, prevention of turkeys diseases the special biostabilizator **POLIFLOCK-BTS** was sprayed on the surface of stables floor litter.

- The tests were done in two turkeys farms:
  - **1 stable – research farm: 20 m x 80 m = 1600 m<sup>2</sup>.**
  - **2 stable – control farm: 20 m x 80 m = 2400 m<sup>2</sup>.**

*The type of turkeys farm litter – straw. The layer of the litter – 12 cm. Every week additional layer of the straw is added on the surface of present litter.*

**The dosing program of POLIFLOCK-BTS in the 1 stable:**

- 5 liters of **POLIFLOCK-BTS** diluted with water were sprayed on the surface of stable floor surface.
- Every second week additionally 1,5 liter of **POLIFLOCK-BTS** diluted with water were sprayed on the surface of litter. The surface of the litter was turned before the spraying. The spraying was repeated every second week till the end of growing period.
- The manual nebulizer was used for spraying of **POLIFLOCK-BTS**. The dilution rate of **POLIFLOCK-BTS** with water always depends on the type and volume of the nebulizer. The concentrated biostabilizator is diluted in a rate to cover all the stables surface in equal concentration of **POLIFLOCK-BTS**.
- **RESULTS: During the trial there was determined the reduction of ammonia to the environment from the turkeys stables, also the quantity of turkeys respiratory tract diseases was reduced. The manure was more homogenous comparing with the not treated litter. The volume of litter affected with bioaktivator POLIFLOCK-BTS was lower by 50 % comparing with not treated litters volume. The treated litter was much easier to transport and easier to handle.**