

**E R G O F I T O I N A C T I O N**

Give Nature What Nature Wants

## Chicken Bedding



ERGOFITO

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## **AMMONIA PROBLEMS IN CHICKEN PENS:**

Ammonia gas has a characteristic pungent odour. At high concentrations it is irritating to mucous membranes of the respiratory tract and the conjunctivae and corneas of the eyes. Damage to the mucous membranes of the respiratory system increases the susceptibility of birds to bacterial respiratory infection, especially E. coli infection. High levels also have a negative impact on overall livability, weight gain, feed conversion, condemnation rate at processing and the immune system of the birds.

Experimentally, broiler chickens kept in an environment with ammonia concentrations of 50 ppm and 75 ppm were shown to have reductions in body weight of 17% and 20%, respectively, at 7 weeks of age compared to broiler chickens kept in an environment with near zero ammonia concentration. Generally, maximum levels of ammonia in poultry pens have been set at 25 ppm by the National Institute of Occupational Safety and Health (NIOSH) and 50 ppm by the Occupational Safety and Health Administration (OSHA).

These levels have been established based on human safety and represent the limits for 8 hours of exposure. OSHA considers 50 ppm to be the lowest level to cause irritation to the eyes, nose and throat of the most sensitive individuals.

People can generally smell ammonia at concentrations between 20 and 30 ppm.

## **TWO WAYS TO REDUCE OR ELIMINATE AMMONIA:**

The usual sawdust or straw chicken bedding can be either treated once laid or simply composted prior utilization.

The simplest and immediate solution is as described in 1: below:

### **1: Spraying chicken bedding in house:**

Spraying the bedding with **Ergofito Bioflush** will have an immediate result on the ammonia abatement. Within minutes the levels of ammonia will drop.

However with pens holding an average of 5000 birds, spraying **Ergofito Bioflush** on the surface may prove impractical.

**Ergofito Bioflush** has no negative effect if sprayed directly on to the birds or feed.

In practice it is sprayed by mist sprayers placed under the roof on a manual or automatic method via an NH<sup>3</sup> sensor. This is the simplest solution.

### **Dosage for spraying:**

The level of ammonia dictates the amount of **Ergofito Bioflush** to be sprayed. However the average calculation is 5 grams of **Ergofito Bioflush** per square meter diluted in 1 liter of water. This application is generally done 5 times per month or as needed. Please note that any level of ammonia abatement in a chicken pens will be extremely beneficial to the bird's health and growth cycle.

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## 2: Composting the chicken bedding prior laying it in the chicken pens:

Procedure to Make Chicken Bedding From Fresh Sawdust.

The following quantities are for two tons of sawdust:

- 60 Kg Water
- 30 Kg Molasses
- 10 Kg Iron Sulphate
- 5 Kg Zeolite
- 5 Kg Chalk
- 0.5 Kg Micromix

### Procedure:

Dilute the above ingredients in the 60 kg of water in order listed above, ensuring that each ingredient is fully dissolved before adding the next one. Once the **Ergofito Micromix** is in the mixture, stir for 20 minutes. The product is now ready for use.

### Application:

To obtain best results follow these basic steps:

- The heaps must not exceed 3 meters in height and in width.
- Care must be taken as to the humidity control, which must not go below 60% and not above 80%.
- The pH. must always be between 6.5 and 7.2.
- Temperature control is also vital. In the first few days there must be a temperature raise towards the center of the heap, about 40 cm in depth, the minimum must be 40°C and the maximum 55°C.
- Visually, Mould should occur within the first 20 days on the heaps surface.
- In the first month the heaps must be turned at least once a week.
- In the second month turn every 15 days. If the heap enters a third month turn once a month.

### Caution:

Whilst the chicken bedding is composting the pH level may rise and may be reduced by using the following ingredients:

- Chalk
- Sulphur
- Phosphoric acid
- Citric acid

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The quantities are determined on the variants as well as the external temperature. Should the smell of ammonia be present, molasses can also be added with any of the above mentioned ingredients.

### **Transformation Time:**

To obtain a good chicken bedding quality, two procedures can be followed:

One procedure is to compost it in the open. The other is to compost inside the chicken shed. The difference is the humidity, as it is more controlled under cover. The time of transformation is then reduced to between 45 and 60 days.

One factor of time is also influenced by the type of sawdust used, if for instance it originates from acacia wood (wattle) the transformation time will increase to 90 days. Once the humus is placed on the ground as chicken litter, the same humus can be reused for 4 to 5 cycles of 45 days each. In between each cycle, the humus must be heaped in the center of the shed and left to rest for 15 days, after which it can be spread for the next intake. A thin layer of new humus should be added at every cycle.

### **Suggestions:**

Following the 5 to 6 cycles, the humus must be replaced. The recovered humus should be heaped outside and treated with **Ergofito Bioflush** and treated like a normal compost heap. All the parameters must be respected. After 150 to 180 days superior quality humus is then produced.

The above solution is more laborious but excellent production results are obtained. Furthermore, the chicken bedding now has a high fertiliser value, as it is microbiologically active. It can be applied to any field and any crop as a primary fertilisation program.



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