



AGRIBEN®

What is AGRIBEN® and how is it working?

AGRIBEN® consists of high swelling clay minerals activated with micro-organisms and materials which advance their activities.

The part of clay mineral mainly montmorillonite develops by swelling in the liquid manure an active sorption surface of about 400 m²/g.

The montmorillonite is capable of swelling because of a special crystallization. This distinguishes the montmorillonite from other clay minerals or rock-meals. But the chemical properties of the different clay minerals resemble each other strongly. Whereas montmorillonite has a specific surface (inner and outer surface) of about 400 m²/g, non-swelling clay minerals respectively rock-meals have only a specific surface of about 10 m²/g.

These special qualities make it possible to absorb substances impeding decomposition in the liquid manure.

Furthermore the fine clay lamellae of the montmorillonite crystals (see picture) are important for the transmission of the micro-organisms and for the deposition of their metabolism products. In this way the decomposition process of the liquid manure will be improved. It is true that clay minerals bring good condition for the activity of micro-organisms but for a quick effect and to avoid negative fermentation these specific liquid manurial micro-organisms and substances must be added.

This process can be specified as compost manuring. Only AGRIBEN® contains all these necessary components.

The success of compost manuring with AGRIBEN®

This process of composting in the liquid manure reservoir alters liquid manure decisively:



- It loses its bad qualities as a fertilizer because mucilage is reduced and roots are protected
- The strong odour disappears
- Liquid manure becomes more homogeneous and also its flowability is generally increased
- Flowing limit and sediment are reduced.

These facts extend considerably the use of fertilizing with liquid manure.

Now liquid manure can be considered comprehensively in the fertilization plan of any farm e.g. for pasture land and green forage areas but also for top fertilization in crop areas. The "pressure of liquid manure" for the individual areas diminishes and a fertilization which meets the demand - as always recommended - is now possible.

Instead of "shock of liquid manure", AGRIBEN® liquid manure effects a rapid growth. The mineral levelling fertilization can be now adapted to the real nutritive substance need of the culture. The exploitation of nutritive substance will be finally improved by a strong development of the roots in all cultures.

Pasture land and green forage areas can be fertilized in case of need with liquid manure and show a strong tillering with valuable bottom grasses and leguminosae. The fodder will be accepted with pleasure; this improves evidentially the efficiency of basic ration.

Why manipulating liquid manure?

The liquid manure consists of many valuable plant nutrients which reduce the production costs by appropriate use on fields and meadows and help to increase the profits.

Two reasons are often responsible for problems:

1. Storage of liquid manure
2. Fertilizing with liquid manure.



On the one hand liquid manure has also bad qualities as a fertilizer - excepting its nutrient value on the other hand by working with liquid manure often difficulties arise which are hardly to evade.

The bad qualities of liquid manure as a fertilizer

Liquid manure contains a great quantity of non-decomposed mucilage. It pastes over the plants and prevents the infiltration of liquid manure into the soil. Therefore the odour of liquid manure adheres a long time to the soil and green forage. That is why the productive livestock often refuses pasture lands and green forage, thus the efficiency of basic fodder being diminished. In the dung pit liquid manure changes into fecal rot and does not decompose itself within a suitable time like e.g. compost or droppings.

Stored liquid manure consists of many substances which are bad for the roots. These aggravate the growth of bottom grasses with lateral root systems, leguminosae and resowings, but also of maize and corn, that means they cause the so-called "shock of liquid manure" after fertilization. The sediment and flowing layer which result from the separation during storage aggravate the use of fertilization.

The liquid manure smells foul and causes pollution.

The right application, preparation and the stage of maturity are necessary conditions for the success.

Application rate

- **Cowshed manure:**

1 - 2 kg/m³ according to the dry matter content of liquid manure
(about 50 - 100 g per LU and day)

2 - 3 kg/m³ for starting during the first 3 months
(about 100 - 150 g per LU and day).



- **Pig manure:**

2 - 3 kg/m³

(about 100 - 150 g per LU and day)

3 - 4 kg/m³ for starting during the first 3 months

(about 150 - 200 g per LU and day).

The calculated quantity for one week should be littered in two doses.

Application

The application of AGRIBEN® is easy. However, six important points have to be considered so that AGRIBEN® can start and intensify the decomposition in the liquid manure.

- AGRIBEN® should be used in the stable because of the reduction of odour. AGRIBEN® is strewn over the dung grid into the hydraulic manure removal system, over the slatted floors of the cubicle houses, over the solid dung on the dunging gutter. If the application in the stable is not possible, AGRIBEN® can also be strewn over a perforated plate directly into outdoor pit.
- AGRIBEN® must be diffused proportionally into the liquid manure so that the large surface of montmorillonite can work.
- A certain initial period is necessary till the process of transformation caused by AGRIBEN® can start working. Flowing problems and odour problems cannot be stopped immediately. However, you will notice the first effect after about 3 weeks.
- It is necessary to clear the dung pit before the first use. There should be only 1/3 of old, untreated liquid manure in the pit.
- The necessary stage of maturity in case of the first use is about 3 - 4 months and



should be observed. The discussed good results regarding plant cultivation can be only realized with sufficiently matured liquid manure.

- When cleaning the liquid manure reservoir there should always remain a rest of about 1/4 old-matured liquid manure in the reservoir.

Mode of operation

AGRIBEN® consists of high swelling clay minerals concentrated with micro-organisms which advance the process of fermentation. AGRIBEN® reduces the substances causing growth retardation and improves the flowing capacity of the liquid manure substantially.

The concentration of damaging substances in the stable and also on the fields will be reduced considerably.

The treatment of liquid manure with AGRIBEN® is an important contribution to reduce the bad influences of liquid manure on the environment.

All information in this publication is in accordance with our present experience and knowledge. As we have no influence over the processing and application of our products the user is solely responsible for examining their suitability. Current patents, laws and regulations are to be observed.