

BioAktiv technology in liquid manure production:

Over the past several decades, the proportion of food derived from animal protein has dramatically increased in industrialised nations. For some time now, the demand for meat has no longer been able to be met in the traditional manner and factory farming is now an essential part of our society. Animals are reared, slaughtered and marketed using the latest technologies. The exclusive goal of this type of livestock operation is the production of high quality meat.

Liquid manure has become more and more a focus of interest in the intensive factory farming industry.

New formulas for feed that contain more crude fibre content, animal welfare within the pens, as well as stricter laws such as the "new fertiliser ordinance" all pose major challenges to agriculture.



The faeces from the animals lies in deep basins within channels and tanks for months with no oxygen. Aerobic bacterial strains waste away due to the lack of oxygen and consequently anaerobic, decay-forming bacterial strains increase and the liquid manure loses its value as a natural fertiliser. This may result in increased nitrate pollution of the fields.



Unlike aerobic decay, in which living cells are preserved, during anaerobic decomposition all organic matter is broken down into its individual chemical components. This process generates foul smelling and toxic gases that pollute the environment and are wasted as high quality fertiliser. In addition to posing a potential threat for humans and animals, this also represents a significant cost factor.

When the liquid manure is spread on a farmer's fields, there are strong odours affecting the environment. Within the barns, where hundreds of animals are living, the pollution of the breathable air is great for the animals that vast ventilation systems must be installed to prevent the air in the barn from becoming a health risk for the animals and for the people who work there.

The BioAktiv technology is an ideal and cost-effective solution for this sector of livestock farming.

A prescribed quantity of BioAktiv is mixed into the animals' feed or drinking water and thus taken in by the animals.

It may also be dissolved into clean water and mixed directly into the liquid manure.

1 to 1.5 kg is sufficient for 100 m³ of liquid manure. Stimulated by the oxygen, the aerobic bacteria reproduce and are activated; this in turn suppresses the rot-forming bacteria which then die off. Facultatively anaerobic bacteria are converted back to aerobic bacteria. The aerobic bacteria obtain the required oxygen initially from the fresh water in which the BioAktiv was mixed or directly from the surface of the slatted floors or slurry channels as the dung is passed from the animals.

The bacteria obtain their energy from digestion of organic matter. As with all living organisms, this process "burns" carbon (C), producing carbon dioxide (CO₂) that the bacteria expire, so to speak. This carbon dioxide (CO₂) now has several functions:

1. It enters the solution of the liquid manure (like the carbon dioxide in a sparkling drink).
2. It is taken up by vegetable microorganisms, also known as microflora. These include algae, mosses etc. which can then reproduce and increase. These single-celled organisms are capable of assimilation even in the dark, thereby breaking down the carbon dioxide into carbon and oxygen atoms because they require only the carbon atoms. The microflora release the oxygen into their environment – the slurry. This release of oxygen allows the oxygen-loving aerobic bacteria to increase. The decay process in turn is slowed, the liquid manure maintains its value as an organic fertiliser and ammonia (NH₃), methane (CH₄) and other gases are reduced. This process continues to reinforce itself and the over time the liquid manure takes on a greenish hue.
3. The effect of the carbon dioxide (CO₂) is its impact as a carbonic acid. The pH of liquid manure is typically slightly basic at somewhere between 7.8 to 8. This is the basis for several negative effects:

In a basic environment with pH above 7, the nitrogen compound ammonium nitrogen (NH₄) is converted to the harmful gas ammonia (NH₃). When the pH is at or below 7, this does not happen. The development of ammonia (NH₃) stops or is reduced to a minimum.

The valuable nitrogen that is available to plants remains in the liquid manure and does not need to be replaced with synthetic nitrogen during fertilising. In addition, the barn atmosphere and surrounding air is not polluted. This results in substantial benefits for animal health. One side effect that is extremely important in terms of the logistics of agriculture is the fluidity or viscosity of the slurry. The use of BioAktiv technology produces a liquid manure that flows easily and drains via the channels better. This means the manure can be pumped and is therefore more easily processed and drained off.

Moreover, the treated liquid manure pollutes the environment much less with unpleasant odours during spreading compared to untreated manure. Liquid manure treated with BioAktiv has a neutral pH and does not cause chemical burns on the crops (top dressing).

