

3.0 ADVANTAGE OF BIO-FERTILIZERS

Bio-fertilizers from biogas plant are much more better by many characteristics than other organic fertilizers (mould, manure, peat). There are some of them:



- ◆ The absence of weed seeds. In pig and cattle manure and peat usually is present a big amount of weed seeds. In 1 ton of fresh manure is up to 10 thousands of different weed seeds, which going through animals' stomach don't lose the ability to sprout. It results in loss of crop from 5 to 7 metric centners of grain crops from one hectare.
- ◆ Absence of pathogenic microflora. Many agents of plant diseases spread through organic fertilizers. For example mould may contain more than 100 dangerous for animals and men diseases: anthrax, tuberculosis, brucellosis, paratyphoid, paratuberculosis, foot and mouth disease, salmonellosis, ascaridiasis, enteric infections. These are only some of them. Pig mould has total microbial impurity from $4,1$ to $3,6 \cdot 10^{-9}$, content cryptogamic anaerobes from 10^{-2} to 10^{-4} , coli titer is from 10^{-5} to 10^{-7} . Bio-fertilizers are completely decontaminated from pathogenic microflora due to special technology of processing in biogas plant.
- ◆ Presence of active microflora contributing to the intensive plant growth. Organic waste which are used as fertilizers don't have or contain small amount of microflora. Mould contain 10^9 colonies/gr. of different microfloras including pathogenic. Bio-fertilizers contain 10^{12} - 10^{14} colonies/gr. of microfloras, but pathogenic microflora is entirely absent.

- ◆ Absence of adaptation period. Mould and other organics require continuous preparation (6-12 months) before application in ground. Useful matters containing in them partially are lost and others have an effect in soil only in 2-4 years after their application. Bio-fertilizers begin to effect immediately after application due to their form.
- ◆ Resistance to nutrients wash-out from soil. During the season nearly 80% of organic fertilizers are washed out from soil, that's why it is necessary to add them yearly in big amount. For the same time up to 15% of bio-fertilizes are washed out from soil. Hereby the small amount bio-fertilizes applied to your fields will effect for 3-5 years longer than usual fertilizes.
- ◆ Maximum nitrogen preservation and accretion. Insufficient amount of nitrogen in soil results in decrease of crop capacity of many crop species. But the effective growth of plants is retarded, their resistance to different deseases is reduced. Continuous nitrogen starvation leads to albuminolysis and chlorophyll breakdown. Up to 50% of nitrogen is lost after prolonged storage (composting) of organic waste. Amount of total nitrogen N in bio-fertilizers will entirely remain due to anaerobic fermentation of organic waste in biogas plant, in addition the contents of soluble nitrogen Nh_4-n will increase for 10 ... 15%.
- ◆ Ecological influence on soil. Unprocessed organic fertilizes cause a big damage to soil by contaminating it and groundwater. But bio-fertilizers are absolutely ecologically clean fertilizer
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