

**Field trials, Gut Heinrichshof, 01900 Kleinröhrsdorf**

Trial period: April – September 2016

Gut Heinrichshof is an equestrian business located near Dresden. Approximately 80 horses are housed here in an open stable arrangement.

Three years ago, the stable decided against the use of chemical fertilizers and insecticides. The objective is to sustain ecological management of the horse pastures.

The use of BioAktiv Hobby Horse Pasture promotes the formation of humus while stabilising the growth of grass cover to produce a high quality forage.

A total of 4 test fields were available for carrying out the trials.



Soil samples were taken from all four fields prior to treatment with BioAktiv Hobby Horse Pasture.

The soil samples were analysed in the BioChem agrar laboratories in Gerichshain for the following parameters:

- **pH:** On light, sandy soils, pH values should not be below 5.2 and average soils should have a pH of at least 5.5, while heavy soils should not be below 5.7-5.8.

The pH has a significant impact on the availability of nutrients and on the activity of organisms living in the soil and hence soil fertility

- **Phosphorous:** The availability of phosphates in soil is strongly correlated with the pH value. Phosphorous is a key nutrient for plant health and development, in particular for root growth and development as well as for the formation of substances vital for plant defence
- **Potassium:** Potassium is involved in many metabolic processes and is therefore essential for plant health
- **Magnesium:** Magnesium is a core element in plant chlorophyll and therefore plays an essential role. Hence, the supply of magnesium has a direct effect on yields.

The availability of magnesium depends on soil pH

- **Humus:** Humus contains all the essential nutrients needed by plants and comprises the habitat for soil organisms. Humus promotes the formation of pores in the soil and thus has a positive influence on air and water contents in the soil; this in turn support microbial activity in the soil
- **Biomass:** Biomass is the total of all intact microbial cells in a given quantity of soil. The goal in determining microbial biomass is to estimate the sustainable protection of soil fertility.



After soil sampling was complete, the pastures were treated with BioAktiv Hobby Horse Pasture; the application rate was 2kg/ha.

**Soil sample analysis report, April 2016, prior to treatment with BioAktiv Hobby Horse Pasture**

Sample no.	Lab no.	pH (CaCl <sub>2</sub> )	P (CAL) mg / 100g ADM	K (CAL) mg / 100g ADM	Mg (CaCl <sub>2</sub> ) mg / 100g ADM	Humus %	Biomass mg C/100g DM
F1	10350	6.1	4.0	14.3	11.9	3.1	76.92
F2	10351	6.0	3.1	5.6	13.0	2.6	61.80
F3	10352	5.4	2.7	3.8	9.0	3.0	52.97
F4	10353	5.1	3.4	7.1	8.7	3.1	61.80

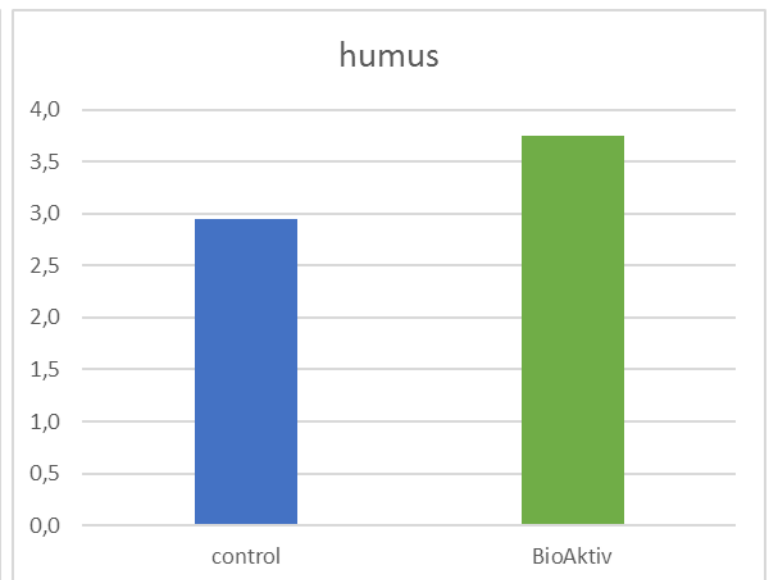
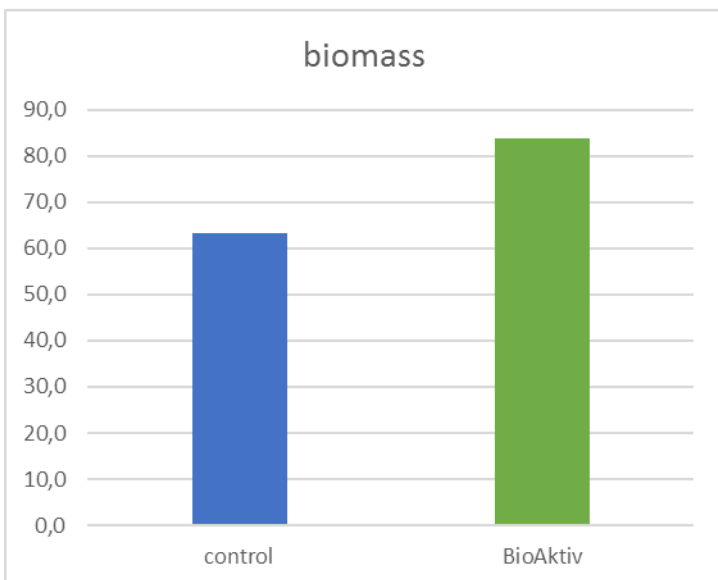
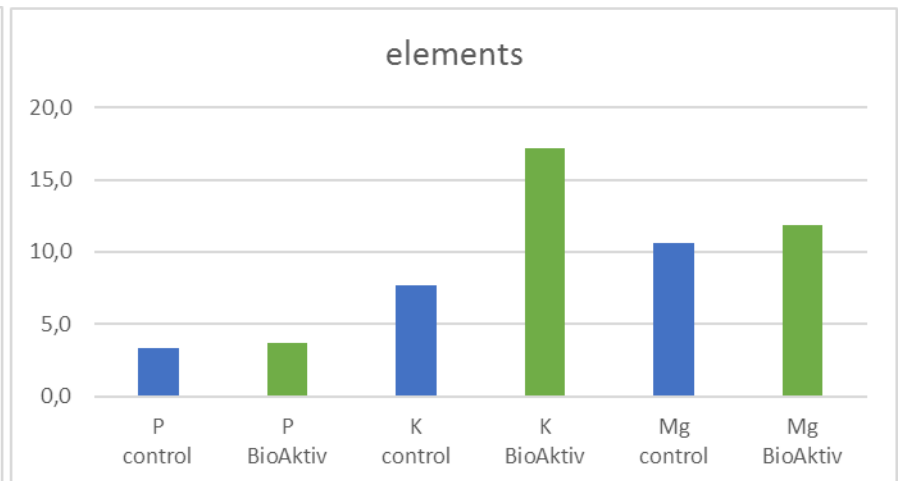
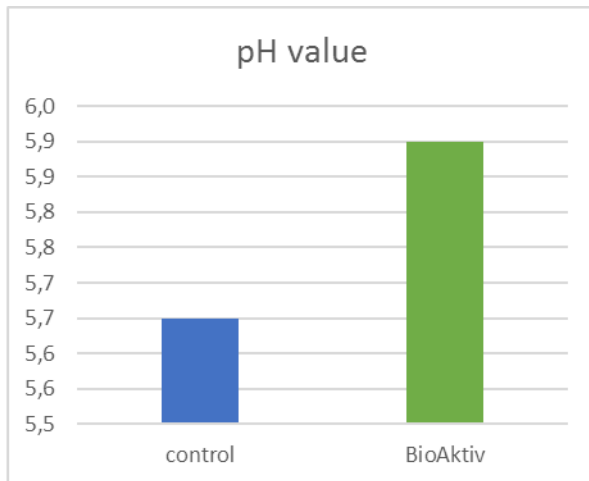
Another application took place in June 2016, also at 2kg/ha.



In the beginning of September 2016, soil samples were again taken in the treated pastures and the same parameters were measured and compared with the results from samples taken in April 2016.

**Analysis Report for soil samples taken in September 2016, after two applications of BioAktiv Hobby Horse Pasture**

Sample no.	Lab no.	pH (CaCl <sub>2</sub> )	P (CAL) mg / 100g ADM	K (CAL) mg / 100g ADM	Mg (CaCl <sub>2</sub> ) mg / 100g ADM	Humus %	Biomass mg C/100g DM
F1	15437	6.3	4.2	17.3	14.0	3.8	91.21
F2	15437	6.5	4.4	19.0	15.8	3.5	87.85
F3	15437	5.4	2.5	16.4	8.2	3.7	77.76
F4	15437	5.4	3.5	16.0	9.6	4.0	78.18



Application of BioAktiv Hobby Horse Pasture increase soil pH, which in turn improves the availability of macronutrients such as phosphorous, potassium and magnesium.

The humus content and microbial biomass increased significantly. Microbial biomass is significantly correlated with humus content and serves as a measure of biological activity of the soil.

The efficiency of nutrient cycling in the soil was boosted.

The activity of organisms living in the soil was accelerated, which promoted processes that help build up the soil.

These tests will be continued in 2017.

In addition to application of BioAktiv Hobby Horse Pasture, the soils will also be treated with local horse manure composted on site. This was spread for the first time in the fall of 2016.