

## **Studying the role of field crops on preserving soil fertility under ecological production conditions**

Leader of the project Ene Ilumäe

The studied problems:

1. The influence of different field crops to preserve soil fertility (inc. humus content)
2. To study the possibilities for guaranteeing the normal yield level of field crops
3. To study the possibilities for ecologically pure and qualitative production
4. Complementary results about using agrotechnical methods under ecological production conditions

The content of active substances in soil is not changed essentially. The average organic substance content in soil was at the beginning of the trial 5.9% and 7.5% in the autumn of 2006.

The average yield of spring wheat was 1110 kg ha<sup>-1</sup>. The barley yield after spring wheat was 1233 and after pea 1746 kg ha<sup>-1</sup>. The oat yield was 1630 kg ha<sup>-1</sup>. The pea yield was 1884 kg ha<sup>-1</sup> and turnip rape 500 kg ha<sup>-1</sup> – its yield was influenced by drought. Potato yield was 36,5 t ha<sup>-1</sup>.

The average protein content of spring wheat was 13,0% and gluten content 26,4% which is a good indicator in case of ecological production. Protein content of barley was good, after wheat it was 12,3% and after pea 13,5%. Protein content of oat was very good – 14,2%. Protein contents of pea and turnip rape were medium, the average on pea 23,9% and on turnip rape 39,7% (nonfat DM). The oil content of spring turnip rape was 37,3%.

The weed control of crops during growth is vital. The cereals survive harrowing satisfactory in the stage of 3-4 leaves, pea at 3-4 cm of height. When weather and soil conditions allow it, the cereals in ecologic cultivation should be harrowed three times with the interval of 7-10 days.

There is a need to increase the seed rate about 10% (as minimum, depending of culture) for making the crops ready to fight with weeds.