

Phytohumic complexes (PHCs) – A technology of the daRostim Institute for the solution of some economic and ecological roles in the modern plant production

The times, when high, stabile, and good quality agricultural yields could be achieved by fertilizing and chemical plant protection are over. The use of Plant Growth Regulators of a new generation, consisting a combination of a small fraction of synthetic or natural phytohormones (P) and synthetic or natural humic acid (H) preparations (PHCs) is a perspective complement to the reduction of inputs of chemical fertilizers and pesticides. In the new long term program Tandem^{12/21} - Tandem means “double”. Five PHCs of different combinations are applied. Sophisticated combination of basic compounds during the spring treatment stimulates soil biology. The fall treatment then stabilizes the soil biology during the winter. In the Period 2006/11 we analyzed the PHCs “PhytoHumin 5050R” and “Future“ which are produced from the basic preparations Emistim C, Agrostimulin N, Biolan, Humisol, Lignohumat and RadoPin.

These compounds are applied in the spring, usually with the first plant protection measures on the field. /1/ Periodical treatment of the plants increases atmospheric nitrogen fixing and phosphor mobilizing bacteria (N bacteria and P bacteria) in the soil within 3 to 5 years (see Fig.1, Fig.2). Since 2011 we introduced on about 160 practice areas an additional fall treatment with PHCs.

The evolution of the concentration of N-bacteria and P-bacteria became more faster. Within 7 years the N-bacteria-concentration increase in average by 20,5%/a, the P-bacteria-concentration by 12,3%/a. In the same time the humus degrades by 5,4%/a. (Fig.3) /2/. According the YEN-model, the application of mineral fertilizer can be reduced up to 50-60% /3/. Thus, the tandem program guarantees **+ 20,5%/a** al and economic impact at minimal cost. **+ 12,3%/a**

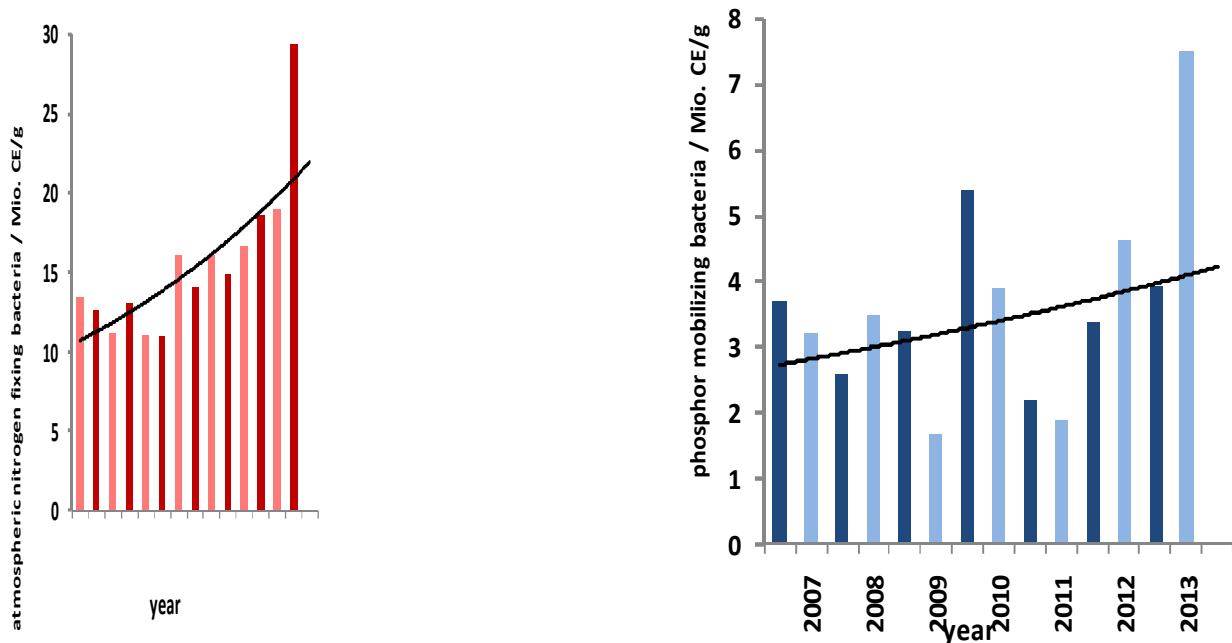


Fig.1: Dynamics of nitrogen fixing bacteria Fig.2: Dynamics of phosphor mobilizing bacteria

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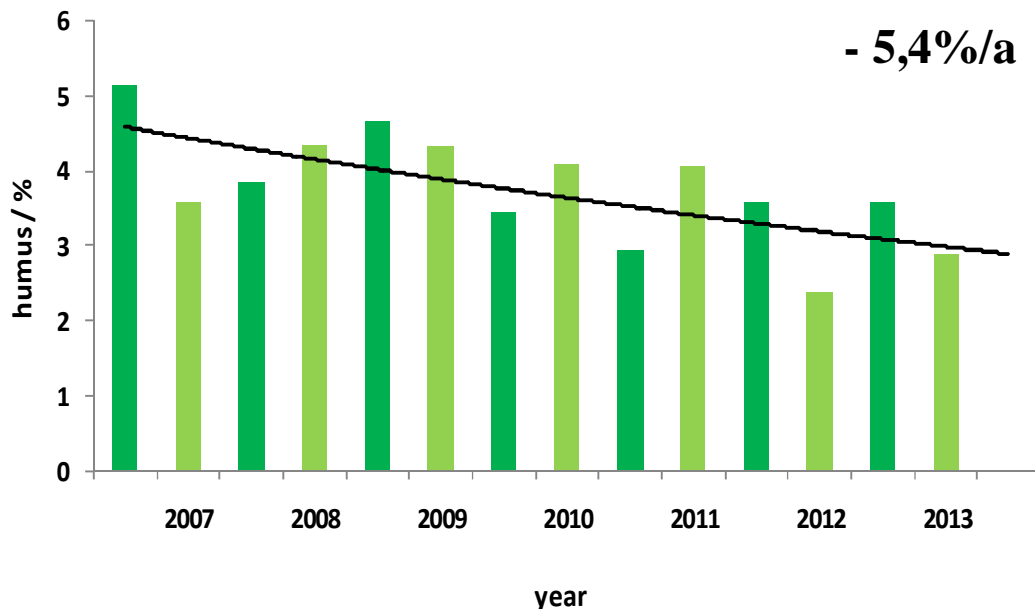


Fig.3: Dynamics of humus

We invite further international scientific partners and practice partners for long-term cooperation under the program Tandem ^{12/21}

(www.darostim.de).

Literature

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