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## FIRST INDICATIONS ON THE EFFECTIVENESS OF THE CEREAL SEED TREATMENT WITH THE DAROSTIM® BOSTAR ARRAY AGAINST PHYTOPATHOGENIC BACTERIA AND FUNGI IN THE SOIL

*В рамках программы Tandem<sup>12/21</sup> проведены измерения динамики флюоресценции хлорофилла. Показано, что наиболее, чем 100 опытных полей из обследованных в первую очередь Германии, на 9-11 календарной неделе активность процесса фотосинтеза (PHS) озимых зерновых с возрастанием доли (0 – 95 %) фитопатогенов снижается почти на 15 %. На полях, где семенной материал не обрабатывался препаратом daRostim® BOSTAR, падение PHS ещё больше – до 18 %; на полях, где обработка проводилась, наблюдалось повышение PHS на 3 %. Концентрация фитопатогенов около 100 млн КОЕ/г ведёт к потере фотосинтетической активности до 15 %, в то время как инкрустация семян даёт её увеличение на 7%.*

*Measurements of the chlorophyll fluorescence dynamics (CFD) on first about more than 100 Tandem<sup>12/21</sup> test areas in Germany in the 9-11 calendar week show that the photosynthesis efficiency (PHS) of winter cereals decrease with increasing proportion (0 to 95 %) of phytopathogenic bacteria and fungi in the soil almost by 15 %. On unprepared areas, the loss of PHS is even greater at -18 %; on areas treated with daRostim® BOSTAR, a 3 % increase of PHS was observed. A concentration of phytopathogens about 100 million CFU/g results in a PHS loss of -15 %, while after treatment with BOSTAR the photosynthesis efficiency increases by +7 %.*

*Ключевые слова:* Tandem<sup>12/21</sup>; почва; фитопатогенные бактерии и грибы; фотосинтез.

*Keywords:* Tandem<sup>12/21</sup>; soil; phytopathogenic bacteria and fungi; photosynthesis.

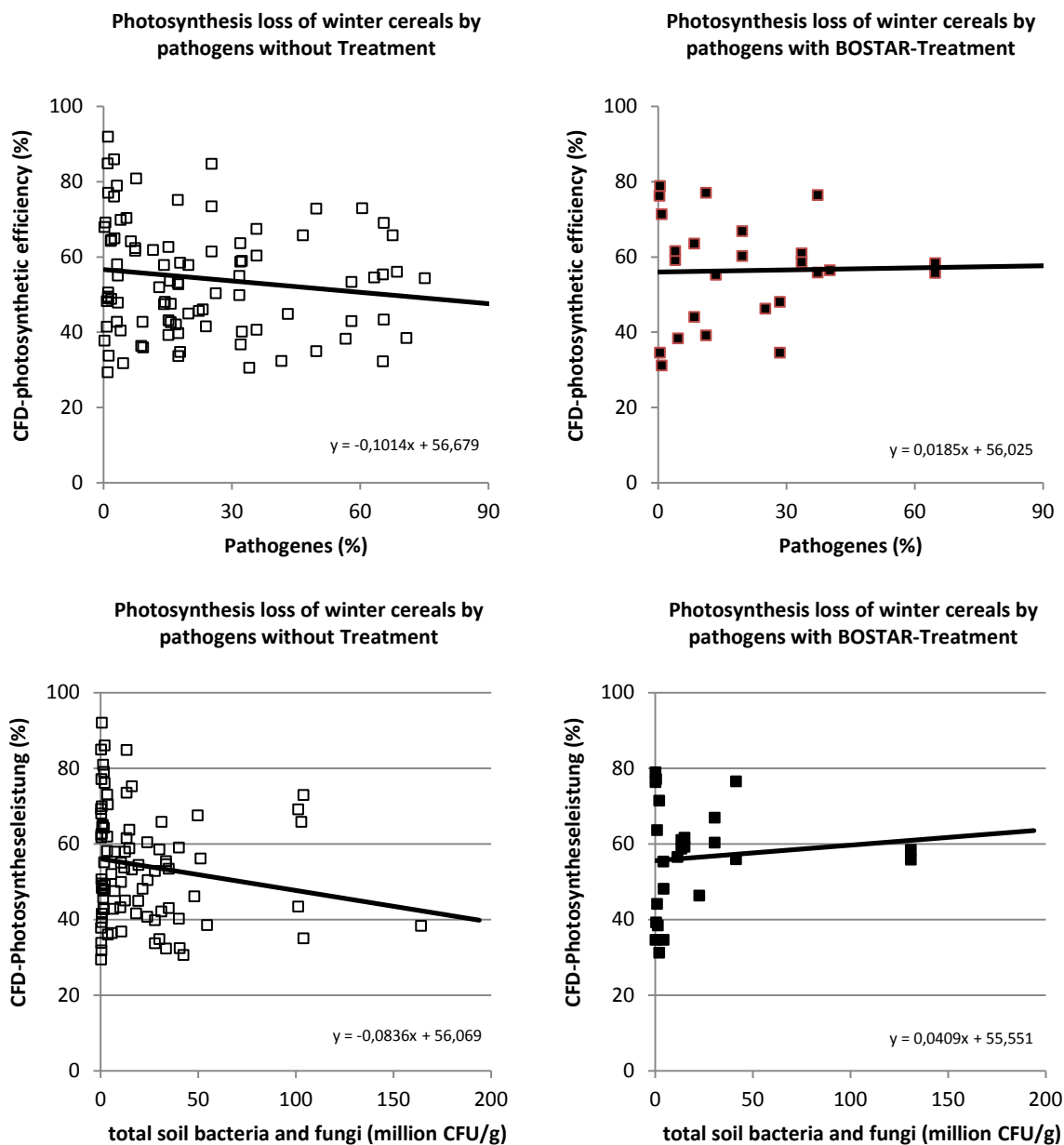
### Introduction

Seed treatment is an effective tool to protect the seed from phytopathogenic bacteria and fungi and to provide stable yields. In recent years, many synthetic fungicides and insecticides have been banned because of their problematic role for the environment. An alternative is the daRostim® BOSTAR Array. It is the result of international TANDEM<sup>12/21</sup> Cooperation and is based on the combinatorial effect of phytohormones and humic acids (PHC), supplemented with biologically active substances (biosurfactants, adhesives, bioinsecticides, biofungicides, bionematicides, micronutrients) [1–3].

### Methodology

In autumn, about 30 % of winter cereals (wheat, barley) were treated with daRostim® BOSTAR Basic or BOSTAR+1 and drilled on the trial areas. The CFD photosynthesis power was determined at the end of the winter of the following year (9–11 calendar week) by a method developed by Nowick [4]. The phytosanitary status of the test areas was determined by a method described by Zheldakova and Myamin [5].

## Results and discussion



Comparison of photosynthesis loss by pathogens without/with BOSTAR seed treatment

In addition to many other factors, the apparent cause a high dispersion of the photosynthesis, the photosynthetic efficiency clearly increase by BOSTAR-Treatment against phytopathogenic in soil.

## References

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