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Beneficial microorganisms improving yield quality of horticultural crops and soil fertility

The Research Institute of Horticulture in Skierniewice is the birthplace of Poland's first bank of symbiotic mycorrhizal fungi and beneficial bacteria isolated from the rhizosphere of horticultural plants growing in different soil and climatic conditions of Poland. The most effective strains and species of microorganisms are used as components of the newly developed biological preparations: Bio-stimulants, composts and bacterial and mycorrhizal inocula. The aim of the study was to evaluate the effects of the applied microbial bioproducts on the growth and yield of selected species of horticultural plants. Studies have shown high effectiveness of the beneficial microorganisms collected in SYMBIO BANK in the stimulation of vegetative growth and yielding of horticultural plant plant species. Some bacterial strains have a protective effect against *Botrytis cinerea*, *Fusarium oxysporum* and *Verticillium dahliae*. The use of synthetic NPK fertilizers has been shown to have a negative effect on the occurrence and activity of beneficial soil microorganisms. The results of the field experiments demonstrated a positive influence of the organic method of cultivating vegetable and fruit crops with the use of beneficial microorganisms on the occurrence of beneficial groups of microorganisms in the rhizosphere of those plants, including increase in the population of diazotrophs and in the population of spore-forming bacteria. As a result, the application of beneficial microorganisms in organic cultivation significantly higher yields of the tested vegetable and fruit species were achieved, with better storage and processing qualities compared to conventional production. Widespread use of the innovative bio-products in organic cultivation of horticultural crops will improve the quality of yield and soil fertility.

Biography

Lidia Sas Paszt is a Professor at the Department of Soil and Orchard Management, Rhizosphere Laboratory (IO). She is a Coordinator and Executor of tasks of the research and development project EkoTechProdukt co-financed by the European Commission from the European Regional Development Fund, (2009-2015). Her research interests is in the area of rhizosphere and nutrient management strategies in fruit crops, development of microbial inocula for horticultural production and development of bioproducts for fruit crops.

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