

5. GVEROSKA B.; MICESKA G.; DIMITRIESKI M.; KORUBIN-ALEKSOSKA A.

CORESTA Meeting, Agronomy/Phytopathology Groups, Izmir, 2015, abstr. APPOST 27

APPOST 27

Application of probiotics in tobacco production - possibility for protection against damping-off disease on tobacco seedlings

A long-term usage of chemicals in crop protection causes various negative effects such as resistance to

pathogens, residues, expensive and not always effective protection, etc. The consumer demand for pesticide-free food imposed the need to substitute these products in agricultural production. Effective Microorganisms (EM) technology develops the concept of probiotics and their use in farming. Its basic principle is to apply and increase the population of effective and useful microorganisms in soil, which will displace degenerative microorganisms, especially soil pathogens. The aim of this study was to determine the impact of probiotics on damping-off disease and the possibility for their application in protection of tobacco seedlings. Investigations were made with the enhanced probiotic - the biofungicide Ema 5 (300 ml/100 m<sup>2</sup>) and the preparation EmFarma Plus (1000 ml/100 m<sup>2</sup>) in different variants - as a stand-alone application of biofungicides or in combination. In both assessments of the percentage infected area, the highest intensity of attack was noted in the variant where both agents were applied 15 days after sowing. The lowest intensity was recorded with combined application of the biofungicide Ema 5 with preparation EmFarma Plus in the soil before sowing. These results were obtained in both cases: without the use of herbicides or with their application after sowing. A minimum of two treatments are needed to achieve the full effect. The tested preparations reduced the

intensity of attack and can be used in the control of damping-off disease on tobacco seedlings.

Accordingly, probiotics have a good perspective in sustainable tobacco production.

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