

EVALUATION OF A BIOTIC STRESSOR'S IMPACTS ON A HUNGARIAN SUPERSWEET CORN VARIETY

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Hungary is the second largest contributor to the global sweet corn market. The climatic conditions, soil parameters, and topography allow to manufacture high quality sweet corn resulting in the biggest sweet corn growing area in Europe. It is very important to conduct more research about the reactions of this crop to different biotic and abiotic stresses because of its significant value. Corn smut is one of sweet corn production's limiting factors. The canning industry does not accept corn smut infected sweet corn cobs and grains which causes serious economic problems for farmers.

The goal of this experiment was to study the impacts of the corn smut infection on a supersweet corn variety. The experiment was conducted in a small-scale field trial. Two inoculation times were investigated, during vegetative (V4) and reproductive (VT-R1) stages. Measurements were taken seven and eleven days after the inoculation (DAI) at V4 stage, and 21 DAI at the reproductive stage.

The relative chlorophyll content, plant height and stem diameter were lower when plants were infected with corn smut compared to the control, i.e. non-infected plants, seven and eleven DAI. The dry matter-, fat-, and protein contents of grains were significantly lower in infected plants compared to the control. In addition, cob length, cob weight, kernel weight and cob diameter were also reduced compared to non-infected plants.

The results show that sweet corn is susceptible to the corn smut infection at the vegetative and generative stages, and causes decline in measured physiological characteristics of the host plant.