CENTER FOR METEOROLOGY AND EVIRONMENTAL PREDICTIONS

DEPARTMENT OF PHYSICS, FACULTY OF SCIENCES, UNIVERSITY OF NOVI SAD, SERBIA

Workshop on Modelling and Measuring Aspects of some Environmental Issues in European Union and National Projects

BOOK OF ABSTRACTS

APRIL 27-29 2009, NOVI SAD, SERBIA

CLIMATE CHANGE IMPACT ON SMALL GRAINS DISEASES APPERANCE IN VOJVODINA REGION

R. Jevtić[1*], *S.Jasnić*[1], *B.Lalić*[2] *D.T.Mihailović*[2], *M.Malešević*[1]

[1] Institute of Field and Vegetable Crops
Maksima Gorkog 30, Novi Sad 21000, Serbia
[2] Faculty of Agriculture, University of Novi Sad,
Dositej Obradovic Sq. 8, Novi Sad 21000, Serbia

Abstract

Multi-year data have shown that *Blumeria* (*Erysiphe*) *graminis tritici* reaches a second peak of infection in the last few days of May. After that, the fungus begins to develop cleistothecia as a result of its sexual cycle and the risk of any major damage to crops practically vanishes. By making a rapid transition from the stage of urediniospores to that of teliospores, leaf rust causes less damage than expected. There is a direct link between the occurrence and severity of leaf rust and the causal agent of powdery mildew. The more severe the outbreak of powdery mildew is, the lower the incidence of leaf rust will be, and vice versa.

Oat crops suffer significant damage from crown rust (*Puccinia coronata avenae*) and stem rust (*P.graminis avenae*). Infections by these pathogens appear later in oat than in wheat and barley and are hence more severe in the spring genotypes of the crop. However, the effectiveness of the resistance genes (Pm and Lr, Pc ones) in a population is dependant on temperature fluctuations. The severity of the attacks by the pathogens is reflected in the different number and size of the pustules forming on the leaves, based on which different infection types are distinguished.

The winter barleys were found to be infected with the causal organism of net blotch (*Pyrenophora teres*) and scald (*Rhynchosporium*

* Corresponding author: E-mail address: jevtic@ifvcns.ns.ac.yu

secalis). The occurrence of this pathogen is directly corellated with global warming and the resistance of barley cultivars as well as with the amount of the spontaneous flora inoculum (grass).

Climatic changes have resulted in the dominance of pathogens that require higher temperatures for their development or are better able to adapt to drought conditions. This is the reason why fungi of the genus *Septoria* spp. have assumed the dominant role, causing significant damage. Another aspect is the appearance of new pathogens that have not yet been reported in Serbia or have occurred in the country only sporadically. The causal agent of wheat tan spot (*Pyrenophora tritici-repentis)* was described for the first time in 1997. The causal agents of nonparasitic spots in small grains are most often a result of various abiotic factors, such as climatic changes and increased concentrations of ozone and carbon dioxide (O_3, CO_2), i.e. the greenhouse effect.

Head blight, caused by the fungi of the genus *Fusarium*, was found in large numbers in the varieties having awns, regardless of whether they were winter, facultative, or spring ones. The percentage of diseased spikes was directly correlated with planting date and preceding crop as well as with the coincidence of the ascospore release phase in the parasite and the flowering stage in the plant.