**ABSTRACT**

Wheat is principal staple food in Egypt. Leaf rust casued by *Puccinia triticina* and stripe rust disease caused by *Puccinia striiformis* are the most common diseases of wheat. In all tested governorates, symptoms typical for both diseases were recorded on wheat crop in March and April. Disease severity was moderately severed in lower governorates and severed less in upper Egypt (Fayoum and Ban-Swief governorates). There was little differences between severity of leaf rust and severity of two diseases were the most severed in Ismailia, kafr El-Sheikh, Dakahila, Daimiatt and Bohira governorates.

In eight Egyptian governorates, there was a positive relationship between the environmental factors and development or severity of leaf and stripe rust diseases of wheat, during 2003-2006 growing seasons. Severity of both diseases was increased with increasing temperature and wind velocity. Meantime, wind direction, relative humidity played an important role in development of initial infection. The initial infection of both diseases were early developed in March in Lower Egypt and were developed in lately April in Upper Egypt (especially, Fayoum and Bani-Sweif Governorates). Severity of both diseases was much higher during the growing seasons average of the environmental factors (temperature, relative humidity and wind)

was greatly higher than in growing seasons where average environmental factors was relatively high.

There was a positive relationship between severity of leaf and stripe rusts during growing seasons 1990-1999 and 2000-2006 where severity of the diseases were more severe during growing seasons 1990-1999 than during 2000-2006. This was observed in Ismailia, Kafr-El-Sheikh, Dakahila and Beni-Swief Governorates. Meanwhile, severity of two diseases was more severe during growing seasons 2000-2006 than during 1990-1999 in Bohira, Fayoum, Gharbia and Sharkia Governorates. Our study showed that epidemic leaf and stripe rust diseases were affected more pronouncedly by the environmental factors then did climatic changes.

There was positive relation between development or severity of rust disease and development or severity of stripe rust disease of wheat. Also, there was positive relation between development and severity of diseases and location, date or mean temperatures, at eight governorates, during growing season 2003-2005, under Egyptian conditions. Utilization of actual disease severity, environmental factors and the equation regression program to estimate diseases severity and to evaluate the programs, during growing season 2006. There was little difference between estimated and actual disease severity, but estimated severity of leaf rust disease was more severed than actual disease severity and actual severity of stripe rust disease was

more severe than estimated disease severity. There was not developed for severity of leaf rust disease, during growing season 2050 compared with growing season 2006. Meanwhile, severity of stripe rust disease was predicted to decrease during growing season 2050 compared with that of 2006.

**Key words:** Wheat, Leaf rust, Stripe rust, *Puccinia striiformis*, *Puccinia triticina*, Climate change, Plant diseases.

# CONTENETS