The impact of wheat yellow rust on quantitative and qualitative grain yield losses under Egyptian field conditions

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Abstract: The actual loss values in five tested wheat varieties were ranged from 1.31% to 30.33% of 1000 kernel weight/gm and from 2.55% to 36.44% of the grain yield/plot (kg), while total losses (%) value was more than the actual loss (%) during the two seasons. Technological traits showed that Protein, carbohydrate and gluten content were the least in the highly susceptible wheat varieties. By studying climate changes, it becomes clear that the first season was more appropriate for the emergence of the disease in an epidemic than the second season.

Materials and methods: Quantitative and qualitative grain yield losses of five Egyptian wheat cultivars, *i.e.* Shandweel-1, Gemmeiza-11, Sids-1, Sids-12 and Sakha-94 was estimated under field conditions during 2019/20 and 2020/21 growing

Results:

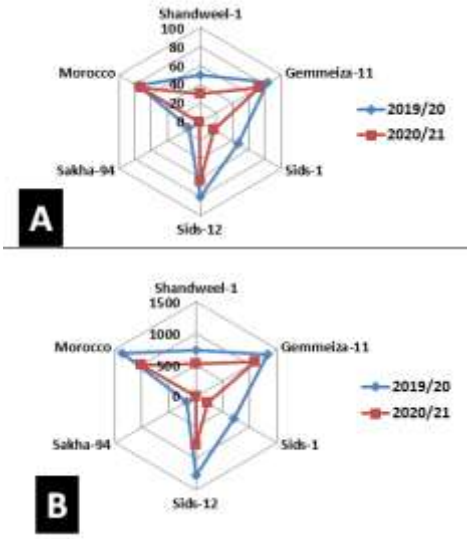

Fig.1 FRS% (A) and AUDPC (B) of five wheat cultivars against stripe rust.

Fig. 2. Total losses (%) and acual losses (%) of five wheat cultivars against stripe rust.

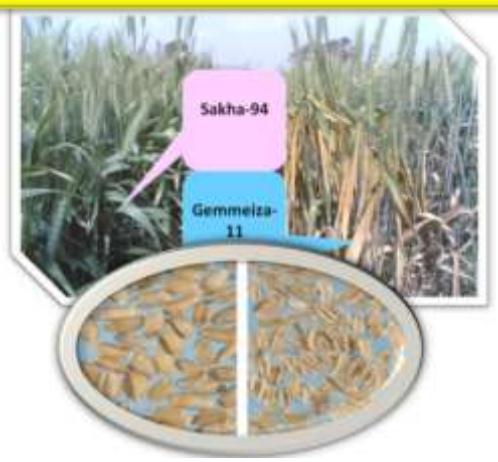

Fig. 3. Symptoms of stripe rust on Sakha-94 (resistant) and Gemmeiza-11 (susceptible) cultivars on field and grains.

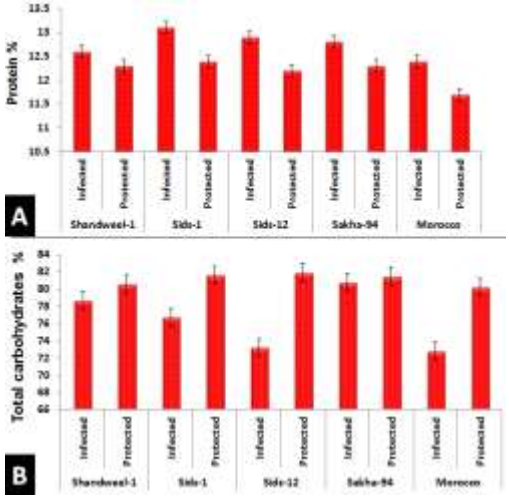

Fig. 4. Effect of wheat stripe rust infection on protein (A) and total carbohydrates (B) of grains for five wheat cultivars.

Fig. (5). Daily maximum, minimum temperature, rainfall (A), relative humidity (%) and wind speed (m/s) (B) in the winter season of 2019/2020.

Conclusion, stripe rust caused, during the last years, a break in resistance in many Egyptian wheat varieties and its effect of quantitative and qualitative of grain yield losses.