

Phenotypic Analysis of Raj 3765 x Syn27 F₂ Population of Wheat (*Triticum aestivum* L. em. Thell)

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Abstract—Stripe rust of wheat, caused by *Puccinia striiformis* f. sp. *tritici*, is one of the most important diseases of wheat worldwide. Stripe rust reduces the yield and quality of grain and forage. Stripe rust can cause 100% yield losses if infection occurs very early and the disease continues developing during the growing season. Therefore, to reduce the loss, there is an urgent need to develop varieties with durable resistance. The present investigation was carried out by crossing two parental wheat genotypes, Raj3765 (resistant to yellow rust) and Syn 27 (susceptible to yellow rust), that differ significantly for plant height (94.0-120.5 cm), grain yield per plant (6.8-15.2g) and biological yield per plant (29-38 g). This study was conducted to screen F₂ population derived from Raj3765 x Syn27 for traits contributing to yield. Grain yield per plant in Raj3765 x Syn27 F₂ plants ranged from 2.68-21.1 g. The statistical analysis for the F₂ population revealed a positive correlation between morphological traits, such as grain yield per plant showed a significant positive correlation with tillers per plant (0.591), biological yield (0.799), grains per ear (0.725) and ear wt (0.615).

Keywords: Correlation, F₂ population, *Puccinia*, resistance, yellow rust.