

Effect on wheat (*Triticum aestivum*) cultivars

Interaction between host density and fungus

Table shows the effect of different host densities on Stripe rust in different cultivars of *Triticum aestivum*.

Crop: Wheat
Stress 1: Five host density treatments namely 62, 125, 250, and 500 seeds per m².
Stress 2: *Puccinia striiformis*
Stage of the plant: All growth stages

| Plants | Treatments | | Plants response to combined stress | |
|--------|--------------------------------------|-----------------------|------------------------------------|-----------------|
| | Host density (Seeds/m ²) | Fungus | % Disease severity ^{a**} | Parameter type* |
| Tres | 62 | <i>P. striiformis</i> | 8.3 | Type B |
| | 125 | <i>P. striiformis</i> | 8 | |
| | 250 | <i>P. striiformis</i> | 7.9 | |
| | 500 | <i>P. striiformis</i> | 6 | |
| Faro | 62 | <i>P. striiformis</i> | 18.5 | |
| | 125 | <i>P. striiformis</i> | 19 | |
| | 250 | <i>P. striiformis</i> | 17.2 | |
| | 500 | <i>P. striiformis</i> | 15 | |
| Tyee | 62 | <i>P. striiformis</i> | 50.3 | |
| | 125 | <i>P. striiformis</i> | 39.2 | |
| | 250 | <i>P. striiformis</i> | 41.8 | |
| | 500 | <i>P. striiformis</i> | 30.9 | |
| Jacmar | 62 | <i>P. striiformis</i> | 59.5 | |
| | 125 | <i>P. striiformis</i> | 51.4 | |
| | 250 | <i>P. striiformis</i> | 47.8 | |
| | 500 | <i>P. striiformis</i> | 37.9 | |

a - disease severity measured as the percentage of leaf area covered by stripe rust lesions on a whole-canopy basis

For raw data – Click here (.xlsx file)

Reference-

Garrett KA and Mundt CC. Effects of planting density and the composition of wheat cultivar mixtures on stripe rust: An analysis taking into account limits to the replication of controls. *Phytopathology* 2000; 90, 1313-1321.

Note:

* - For more information on parameters classification, please refer to 'methodology' tab.

** Values presented as they were in the source articles without subjecting them to the calculation.

The inference from the study: Garrett and Mundt, 2000 reported that the severity of stripe rust in different wheat cultivars decreased with planting density. However, a year before, the disease severity was found to increase with planting density. This reversal of trend was explained to the possible effects of other environmental factors like levels of nutrition and water availability in the two years.