



# Screening of Indian wheat Germplasm for stripe rust resistance across varying altitudes of North-western Himalayan region of India

, Sandeep Kumar<sup>1</sup>, Sofora Jan<sup>1</sup>, Farkhnada Jan<sup>1</sup>, Reyazul Rouf Mir<sup>1\*</sup>, M. Anwar Khan<sup>1</sup>

1.Division of Genetics and Plant Breeding, Faculty of Agriculture (FOA), SKUAST- Kashmir, Wadura-193201, Sopore.

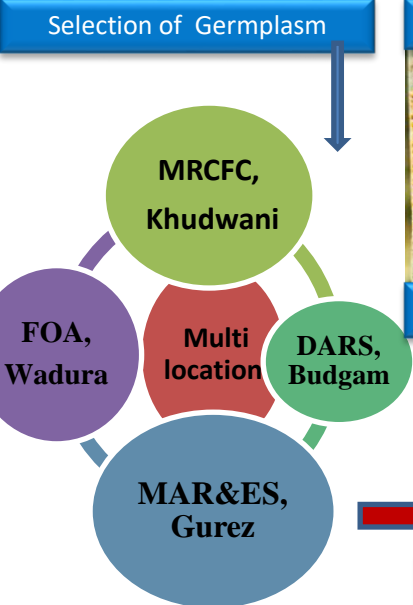
\* corresponding author: rrmir@skuastkashmir.ac.in

The rust diseases of wheat pose a constant threat to sustainable wheat production and food security in Asia. Wheat production in the North-western Himalayan region of India is drastically affected by evolution of new virulent races of rust. Of the three rusts, yellow or stripe rust, caused by *Puccinia striiformis* f. sp. *tritici*, is the most common and serious threat to wheat production in this area. If unattended, stripe rust alone can cause yield losses of up to 70% in susceptible cultivars under favorable weather conditions. The extent of damage mainly depends on crop stage, disease severity and cultivar susceptibility. The present study is being conducted to screen 262 Indian wheat varieties released in India over the last 100 Years (1906-2006) for adult plant stripe rust resistance across varying altitudes of the North-west Himalayan region of India. The material was screened under field conditions at the adult plant stage following the modified Cobb scale (Peterson *et al.*, 1948). Several wheat lines were screened as resistant types over four locations DARS, Budgam; MRCFC; Khudwani; FOA, Wadura and currently being identified out in MAR&ES, Gurez based on their low disease scores across environment.



| Scale used for scoring |       |               |
|------------------------|-------|---------------|
| Severity               | Score | Reaction type |
| 0-5%                   | 1     | 5R            |
| 5-10%                  | 2     | 10MR          |
| 10-20%                 | 3     | 20MR          |
| 20-30%                 | 4     | 30MS          |
| 30-50%                 | 5     | 50MS          |
| 50-70%                 | 6     | 70S           |
| 70-100%                | 7     | 100S          |

**Conclusion and Future Prospectus**  
 Three genotypes **NP-824**, **HD-2278**, **KRL-19** identified in the current study showed stable resistance across all the locations. These sources of yellow rust resistance identified in this study could be used for wheat breeding programmes in deployment of diverse genes across space and time to build a long term defense against stripe rust in North-west Himalayan region of India.



## Development of Epiphytic Conditions in Field



## Symptom development



## Evaluation of Germplasm in the Field

## Results

