

# Detection of wheat stem rust race “Ug99” (TTKSK) in Iran

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In 2007, significant levels of stem rust were observed in experimental plots and occasionally in farmers' fields in the Lorestan and Hamadan Provinces of Iran. Race analysis of four stem rust samples collected from Borujerd, Hamedan, Poldokhtar and Kelardasht in 2007 and a race collected from Borujerd in 1997 was conducted using differentials carrying the stem rust (SR) resistance genes *Sr5*, *6*, *7b*, *8a*, *9a*, *9b*, *9d*, *9e*, *9g*, *10*, *11*, *17*, *21*, *24*, *30*, *31*, *36*, *38*, *Tmp*, and *McN*, plus several additional wheat genotypes. Two isolates from samples collected from Borujerd and Hamedan in 2007 produced high infection types (ITs 33<sup>+</sup> - 4) on differential lines carrying SR genes *Sr5*, *6*, *7b*, *8a*, *9a*, *9b*, *9d*, *9e*, *9g*, *10*, *11*, *17*, *21*, *30*, *31*, *38*, and *McN*, and low ITs of ;C1<sup>-</sup> to 2<sup>-</sup>, ;C to ;N1<sup>-</sup>, and 2<sup>+</sup> on lines carrying *Sr24*, *Sr36* and *SrTmp*. Based on the high/low ITs on the 20 differentials in the modified North American SR differential set, the two isolates from Borujerd and Hamedan in 2007 were identified as race TTKSK (“Ug99”). The two isolates from samples collected from Poldokhtar and Kelardasht in 2007 and the isolate collected from Borujerd in 1997 were identified as races TRFSC, TTJQC, and RRHSC, respectively. Race TTKSK produced high ITs of 3<sup>+</sup>4 on several wheat genotypes carrying the 1BL.1RS translocation, further confirming the virulence of this race for *Sr31*. Results to date implicate the progressive migration of “Ug99” from Africa to Iran. Field evaluations of the responses of Iranian wheat germplasm to “Ug99” in Kenya in 2006 and 2007 showed that 98% of the entries were fully susceptible. Seedling evaluation of Iranian wheat cultivars and advanced lines to isolates of TTKSK from Iran confirmed full susceptibility. These results reinforce the serious threat of race TTKSK to wheat production in Iran.