

Fluctuating yellow rust profile of Afghan wheat seed chain varieties

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Abstract

Wheat is Afghanistan's main food crop and accounts for about 80% of cereal's acreage and production (NSIA, 2021), however its productivity is one of the lowest in the region (FAO, 2019) and production has never been adequate to meet domestic demands prompting at least one-to-three-million-ton imports annually. Several constraints limiting wheat productivity in Afghanistan include inadequate seed production, over-dependence on rainfed wheat and slow turnover of susceptible varieties. The country has never been able to produce more than 10% of its national seed requirement leading to poor dissemination of improved varieties (Sharma & Nang, 2018). Yellow rust is the major biotic constraint and racial spectrum changes frequently. A National Disease Screening Nursery comprising of all seed chain varieties is planted at several ARIA research stations every year and yellow rust is scored (Peterson et al., 1948) on these varieties. We report here highest yellow rust reaction of wheat seed chain varieties for last four years (Table 1). A score more than 20MS was susceptible (red) whereas R, MR, and MS less than 20MS were considered resistant (green). Varieties Mazar 99, Ghori 96, Pamir 94, Gul 96 and Baghlan 09 were susceptible during all the years. Seven and 12 varieties were susceptible during three and two years, respectively. None of the varieties was resistant in all four years. Only three varieties showed susceptible reaction in just one year. To protect wheat crop, we recommend that any variety showing susceptible reaction for two consecutive years may be removed from seed chain.

Table 1 Yellow rust reaction of Afghan wheat seed chain varieties during four years in Afghanistan.

Varieties	Years	2021	2020	2019	2018
	Parva 02, Durum 02, Shamal 17		Green	Green	Red
Solh-02		Red	Green	Red	Red
Muqawim 09, Chonte 01, Lalmi 04, Balkh Dehdadi 13, Wahdat 15, Elham 15, Lalmi 15, Waafer 15, Bahar 15, Diama 17, Lalmi 17		Green	Red	Red	Green
PBW 154, Darulaman 07, Koshan 09, Kabul 13, Zarin 13		Green	Red	Red	Red
Afghan 15		Red	Red	Red	Green
Durum 01		Green	Green	Red	Red

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