



Government of Nepal
Department of Hydrology
and Meteorology



Wheat rust advisory in Bangladesh Pre-season 2020-21 September 2020

Keynote

Considering wide-spread infection of leaf rust in wheat crops in 2020, Bangladesh farmers should prepare themselves for coming 2020-21 growing season in adopting appropriate pre- and in-season disease management options.

Key message

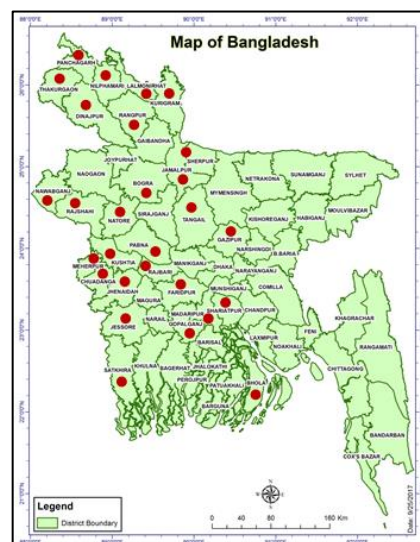
As wheat varieties exhibit levels of tolerance / resistance to leaf rust, choosing the right variety for right place should be the best option for pre-season disease management.

Action

In the high risk districts, picking BARI Gom 32 and BARI Gom 33 as preferred varieties for 2020-21 wheat growing season.

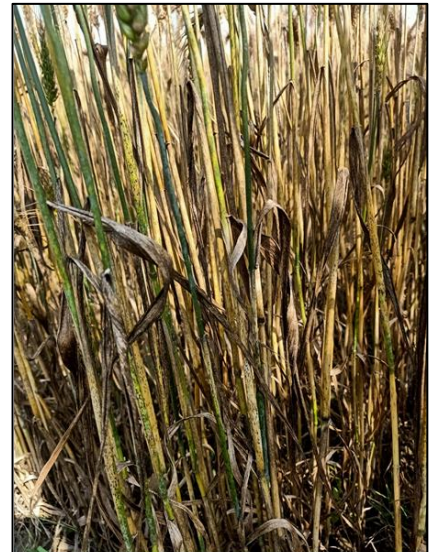
Key observations based on the status of wheat rusts in 2019-20

- There was no occurrence of stem or yellow (stripe) rusts in Bangladesh.
- By the end of the season, the leaf rust had infected wheat crops along, at least, two-third of East-West across North-South of the country (Figure on the right)¹.
- The disease was identified in 28 out of 64 administrative districts.
- The symptom was visualized in 72% of the 2876 surveyed fields.
- On the symptom showing fields, 58% had low (<20% plants the field), 28% had medium (20-40% plants in the field) and 14% had high (>40% in the field) level of infection.



¹ Based on 2737 field surveillance data from CIMMYT (International Maize and Wheat Improvement Center) participated ARRCC (Asia Regional Resilience to a Changing Climate) program (managed by the UK Met Office and supported by the World Bank and the UK's Department for International Development (DFID); 139 field surveillance data from BWMRI (Bangladesh Wheat and Maize Research Institute), and DAE (Department of Agricultural Extension) report.

- The level of infection was high in the Agricultural regions, alphabetically, Jashore, Faridpur and Rajshahi (largely central-west of Bangladesh), upper part of Bogura and middle of Barishal, whereas medium or low in, alphabetically, Dhaka, Dinajpur, Khulna, Mymensingh and Rangpur.
- The severity of infection was low (<20% affected leaf area), medium (20-40% affected leaf area), and high (>40% affected leaf area, Figure on the right - top) in 64%, 22% and 14% of the infected fields, respectively.
- Fourteen (14) BARI-released varieties were identified in 1991 fields in the surveillances, of which 68% was infected.
- Comparatively, fields with newly released varieties, BARI Gom 32 and BARI Gom 33, showed better level of tolerance (infection ~30% of the fields occupied by the varieties) than the older varieties (infection ~74% of the fields occupied by the varieties) (Figure on the right - bottom).

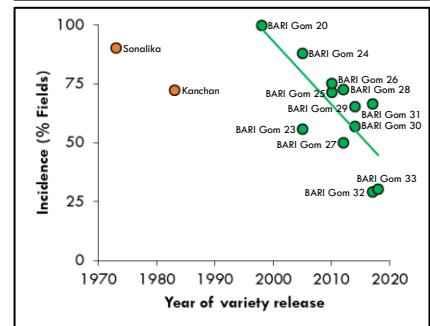


A wheat leaf rust infected field in Meherpur district of Bangladesh. Photo: Moin Us Salam, 11 March 2020

Recommendations

Right variety should be the key option for pre-season management of wheat leaf rust (WLR)

- Farmers to follow the 'WLR Risk Wheat Variety Sowing Guide 2020-21 for Bangladesh' (Table 1), where BARI Gom 32 and BARI Gom 33 should be the target varieties for high WLR risk regions.
- In case not sufficient quality of seeds of the suggested varieties are available, farmers should use the smaller quantity of seeds for bulking purpose (to be used in the following 2021-22 season).
- DAE should undertake a strong campaign on 'right variety selection for wheat in 2020-21 season'.
- DAE should strongly liaise with BADC (Bangladesh Agricultural Development Corporation) so that preferred varieties are made available and non-preferred varieties are not made available to the farmers.
- In case the seeds of BARI Gom 32 and BARI Gom 33 are not sufficiently available, the distribution of the those seeds should be limited to the farmers of high WLR risk regions – DAE and BADC with guidance of the Ministry of Agriculture should work on this.



Crop monitoring together with 7-day forecasts in 'advisories' from the ARRCC-supported wheat rust early warning system should be the key options for in-season management of wheat leaf rust (WLR)

Wheat crops could be at risk if suggested varieties are not planted and/or environment-induced WLR risk becomes high. In those scenarios, in-season management options for WLR should be in hand.

- Frequent crop monitoring, informed by the WLR forecasts, is essential to detect rust in the early crop growth stage and should not be limited to known high WLR risk regions.
- Any such incidence, identified in the field monitoring, should be reported to the local SAO (Sub-Assistant Agricultural Officer) of DAE.
- Chemical option, if warranted, will be communicated to the farmers via ARRCC-delivered 'advisory' and/or SAOs.

**Table 1: Wheat Leaf Rust (WLR) Risk Wheat Variety Sowing Guide 2020-21
for Bangladesh**

Agricultural region [District]	Suggested variety	Comments
The variety BARI Gom 24 and 'BARI Gom 26' is not recommended for any regions		
High WLR risk region		
Barishal (6 district) [Barguna, Barishal, Bhola, Jhalokathi, Patuakhali & Pirojpur]	BARI Gom 30; BARI Gom 32; BARI Gom 33	Keep option in hand for in-season fungicide application ¹
Bogura (4 districts) [Bogura, Joypurhat, Pabna & Sirajganj]	BARI Gom 30; BARI Gom 32; BARI Gom 33	Keep option in hand for in-season fungicide application ¹
Jashore (6 districts) [Chuadanga, Jashore, Jhenaidah, Kushtia, Magura & Meherpur]	BARI Gom 29; BARI Gom 30; BARI Gom 32; BARI Gom 33	Keep option in hand for in-season fungicide application ¹
Faridpur (5 districts) [Faridpur, Gopalganj, Madaripur, Rajbari & Shariatpur]	BARI Gom 29; BARI Gom 30; BARI Gom 32; BARI Gom 33	Keep option in hand for in-season fungicide application ¹
Rajshahi (4 districts) [Rajshahi, Natore, Noagaon & Chapai Nawabganj]	BARI Gom 29; BARI Gom 30; BARI Gom 32; BARI Gom 33	Keep option in hand for in-season fungicide application ¹
Moderate WLR risk region		
Dhaka (7 districts) [Dhaka, Gazipur, Manikganj, Munshiganj, Narayanganj, Narsingdi & Tangail]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	In-season fungicide application may be required ²
Dinajpur (3 districts) [Dinajpur, Panchagarh & Thakurgaon]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	In-season fungicide application may be required ²
Mymensingh (5 districts) [Jamalpur, Kishoreganj, Mymensingh, Netrokona & Sherpur]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	In-season fungicide application may be required ²
Rangpur (5 districts) [Gaibandha, Kurigram, Lalmonirhat, Nilphamari & Rangpur]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	In-season fungicide application may be required ²
Low WLR risk region		
Khulna (4 districts) [Bagerhat, Khulna, Narail & Satkhira]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	Monitor your crop for any changed circumstances
WLR free region		
Chattogram (5 districts) Chattogram, Cox's Bazar, Feni, Lakshmipur & Noakhali,	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	Infrequently monitor your crop for any changed circumstances
Cumilla (3 districts) [Brahmanbaria, Chandpur & Cumilla]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	Infrequently monitor your crop for any changed circumstances
Rangamati (3 districts) [Bandarban, Khagrachhri & Rangamati]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	Infrequently monitor your crop for any changed circumstances
Sylhet (4 districts) [Habiganj, Moulvibazar, Sunamganj & Sylhet]	No restriction on variety choice; but BARI Gom 32 / BARI Gom 33 preferred	Infrequently monitor your crop for any changed circumstances

1: if suggested varieties not used and/or environment-induced wheat leaf rust risk becomes high

2: if environment-induced wheat leaf rust risk becomes high

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