



Wheat rust advisory - risk assessment from surveys and forecasts in Bangladesh

Summary period: 27 Mar - 03 Apr 2021

Overall risk level:

Low

Key messages

There have been reports of **leaf rust** in **all 19** surveyed districts, but **the level of infection has been low**.

Major dispersal of leaf rust spores predominantly concentrates around the reported sources of infection, but infection efficiency is low.

Incidence and severity were comparatively higher, respectively, in Nilphamari, Gopalganj, Pabna and Jhenaidah districts.

Crop Growth Stage: Most crops harvested and few at maturity stage.

Stem rust: No report; Potential dispersion is forecasted in north-western region; but, conducive environment for infection is unfavorable.

Stripe rust: No report; Potential dispersion is forecasted in all the northern regions; but, conducive environment for infection is unfavorable.

Recommendations

- No fungicidal control is suggested as the crops are either harvested or at near maturity stage.
- A note of caution – (i) potential risk of leaf rust exists in Bangladesh in the event of conducive environment; this risk was noted in specific districts towards the end of growing season; (ii) significant spores dispersion predicted for both stem and stripe rusts, which did not match with environmental suitability for infection.

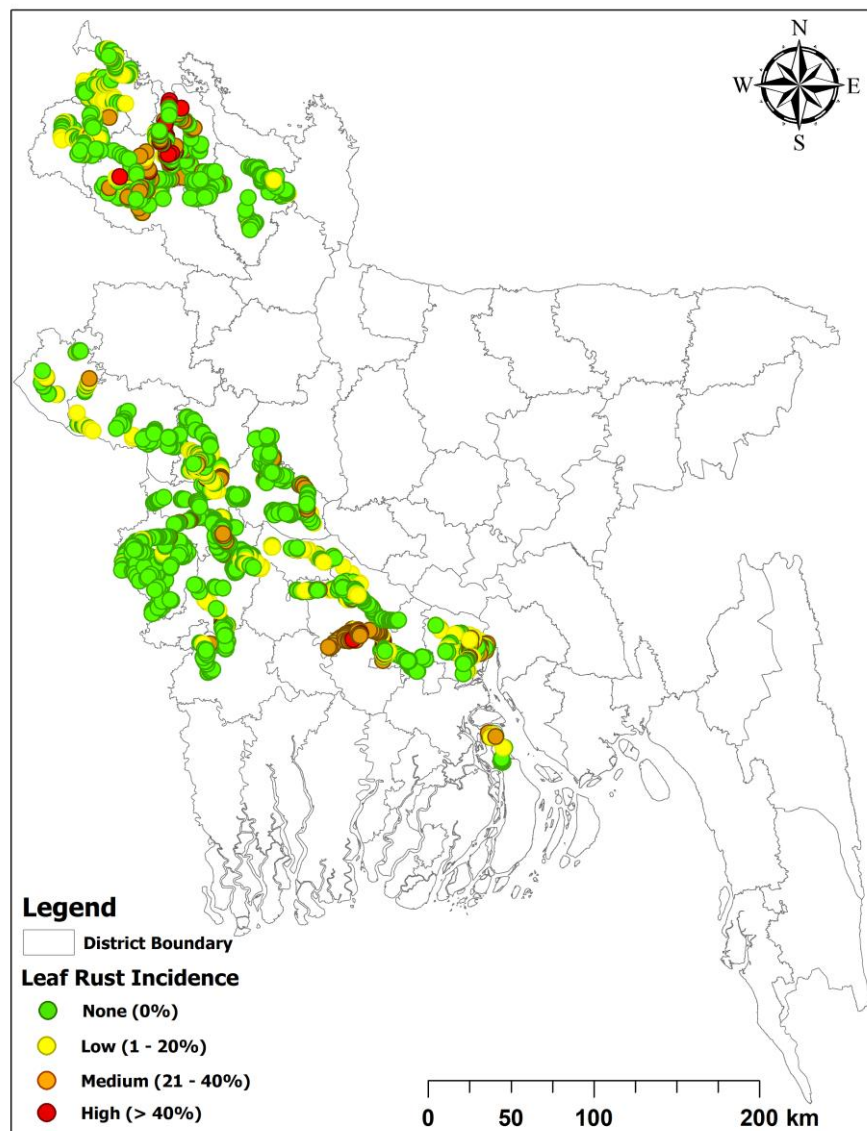
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Field surveys

Altogether 6,218 field-survey data from 19 districts are available and showing leaf rust in 23.9% of the fields (MAP 1). Among the leaf rust infected fields, the level of incidence was predominantly low (~73%), with severity ~12%; about 23% and 4% fields reported medium and high level of incidence, with ~33% and ~65% severity, respectively.

District-wise, 35% of the high infected fields (out of 55) were located in Nilphamari, 24% in Gopalganj, 13% in Pabna and 11% in Jhenaidah.

Field survey did not record any incidence of stem or stripe rust.



Map 1: Leaf rust incidence in Bangladesh based on field survey during 15 February - 21 March 2021

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Spore dispersal forecasts

Dispersal forecasts run by the UK Met Office and Cambridge University are displayed for leaf, stripe & stem rusts for the forecast period 27 Mar - 03 Apr. Surveys in each district, when conducted and incidence reported, are integrated to provide a single source per district for dispersal forecasts (red dots in figure, when incidence is reported).

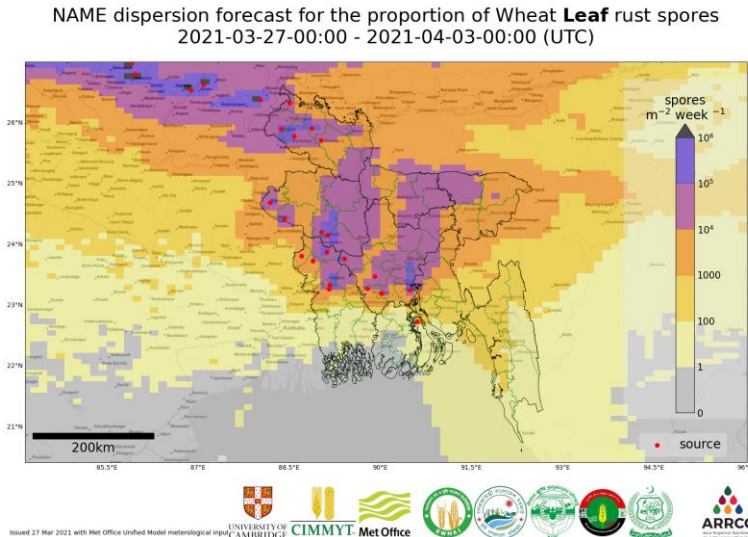
Environmental / Climatic Suitability – Risk of Infection Forecast

These forecasts give the probability of wheat rust infection occurring based on meteorological factors. The maximum infection efficiency that can occur is 100%. This means that 100% of the spores deposited on susceptible wheat plants could complete the infection process. Therefore, a forecast Infection Efficiency of 100% indicates the highest risk of wheat rust infection occurring in susceptible wheat varieties.

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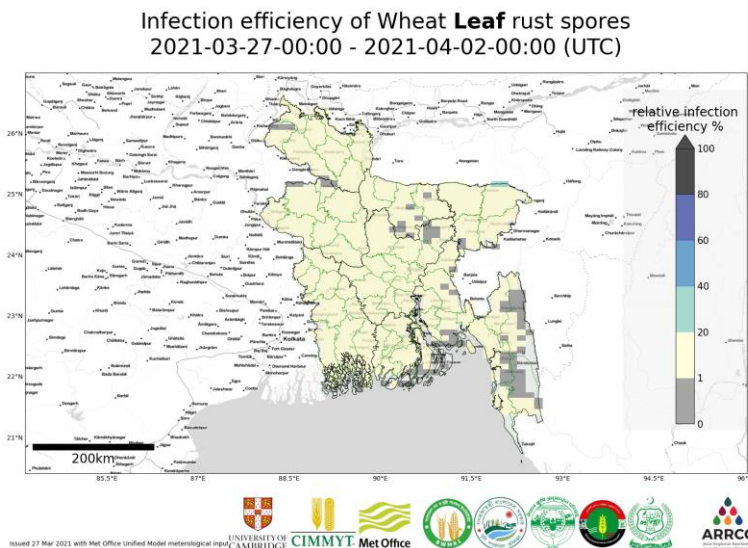
Leaf rust

Current forecast (27 Mar - 03 Apr) indicates that major dispersal of leaf rust spores predominantly concentrates around the reported sources of infection (red dots, Map 2).



Map 2: Leaf rust spore deposition forecast Bangladesh 27 Mar - 03 Apr 2021

Forecast further shows low (1-20%) infection efficiency across most of the country, indicating low suitability for leaf rust infection during the current forecast period (Map 3).

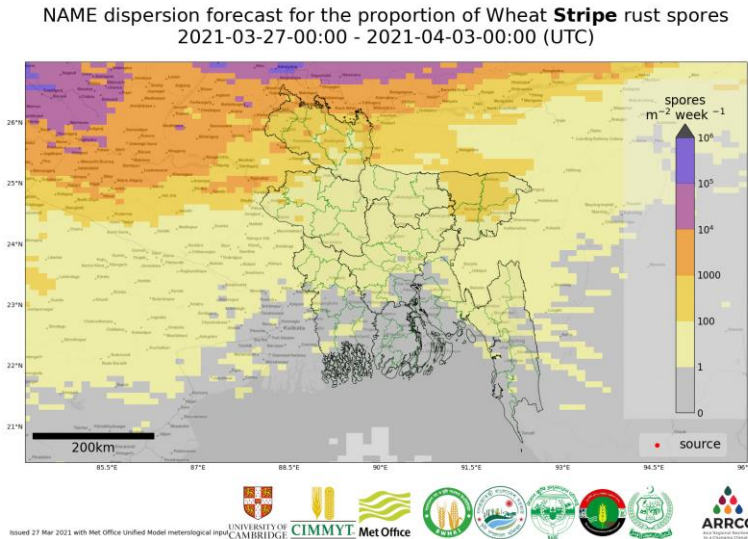


Map 3: Leaf rust risk of infection forecast Bangladesh 27 Mar - 02 Apr 2021

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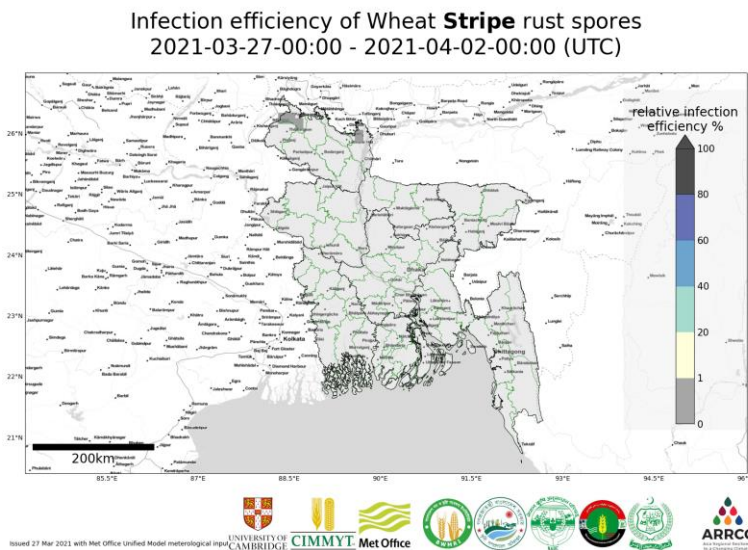
Stripe rust

Current forecast (27 Mar - 03 Apr) indicates moderate dispersal of stripe rust spores in the north-western and north-eastern parts of Bangladesh; it is likely influenced by detected stripe rust in Nepal (Map 4).



Map 4: Stripe rust spore deposition forecast Bangladesh 27 Mar - 03 Apr 2021

Map 5 shows no/extremely low infection efficiency for stripe rust across Bangladesh. This indicates low suitability or no suitability for stripe rust infection in the current forecast period.



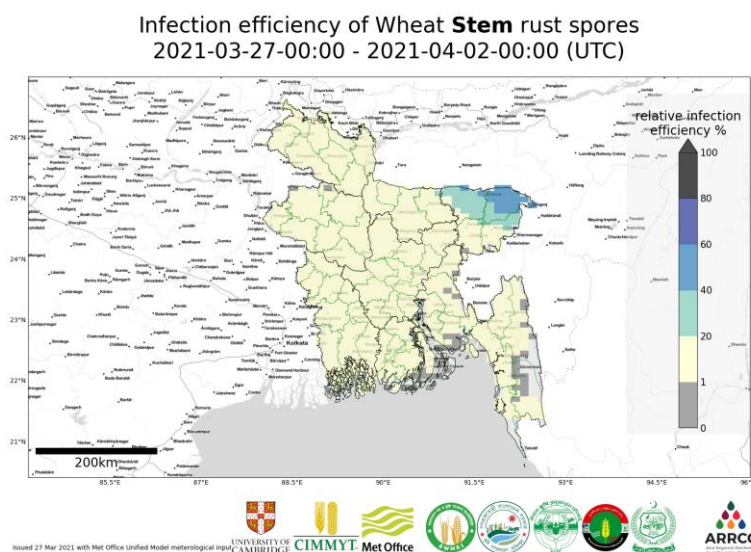
Map 5: Stripe rust risk of infection forecast Bangladesh 27 Mar - 02 Apr 2021

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Stem rust

No stem rust reported in the region.

Map 6 shows extremely low infection efficiency for stem rust across almost entire Bangladesh. This indicates low suitability or no suitability for stem rust infection in the current forecast period. Note, however, in the north-eastern part of the country higher infection efficiency is predicted, where wheat cultivation is limited.



Map 6: Stem rust risk of infection forecast Bangladesh 27 Mar - 02 Apr 2021