



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

Summary period: 19 May - 25 May 2026

Overall risk level:

Caution / Low

Key messages

No new surveys reported. But extensive surveys have been undertaken, with 157 fields surveyed to date. Yellow rust and leaf rust were detected in Punakha and Wangdue. Yellow rust has recently been detected in Haa. Most fields have low incidence / severity, but around 20% of fields are showing moderate/high incidence / severity. Overall, disease pressure is relatively low compared to other seasons. Crops in most areas are likely to be approaching maturity.

Forecasts indicate continuing very high suitability for all rusts across Bhutan. Notably in southern areas, mid hills, central valleys (Punakha/Wangdue) and eastern areas. Current forecasts indicate highest spore deposition in Punakha/Wangdue and a continued northerly dispersal of spores. This dispersal may provide inoculum for early crops in the higher hills (e.g., Gasa).

Given high suitability for disease development, it is likely that disease (both yellow and leaf rust) may still persist on any crops that are still green. Attention should be given to the appearance of any stem rust, as conditions are forecast to remain extremely suitable.

Recommendations

Close monitoring of fields, particularly for susceptible varieties and areas with younger crops, is recommended. Crops that are still green (especially in the west/south/Punakha Valley and parts of the east) should be checked for any disease presence. Younger crops in the higher hills may be at risk from disease.

Particular attention should be paid to any appearance of stem rust, as conditions for infection are forecast to be extremely suitable.

- Awareness should be raised amongst stakeholders at all levels, including farmers, to be vigilant for early appearance of rusts. **Early control to stop increased spread and further build-up of disease is very important.**
- Sampling should be undertaken to determine races of rust present.

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Field surveys

Looking at surveys in the period since Jan 01 2026. Surveys undertaken Feb 16 2026 - May 06 2026. A total of 157 fields surveyed. No stem rust detected. Legend for severity and incidence intensity: Low: less than 20%; moderate: 20-40%; high: more than 40%.

Leaf Rust reported from 35 out of 157 fields surveyed (22%). Moderate to high incidence of leaf rust has been seen in 7 fields (20% of infected fields). Moderate to high severity of leaf rust has been seen in 6 fields (17% of infected fields).

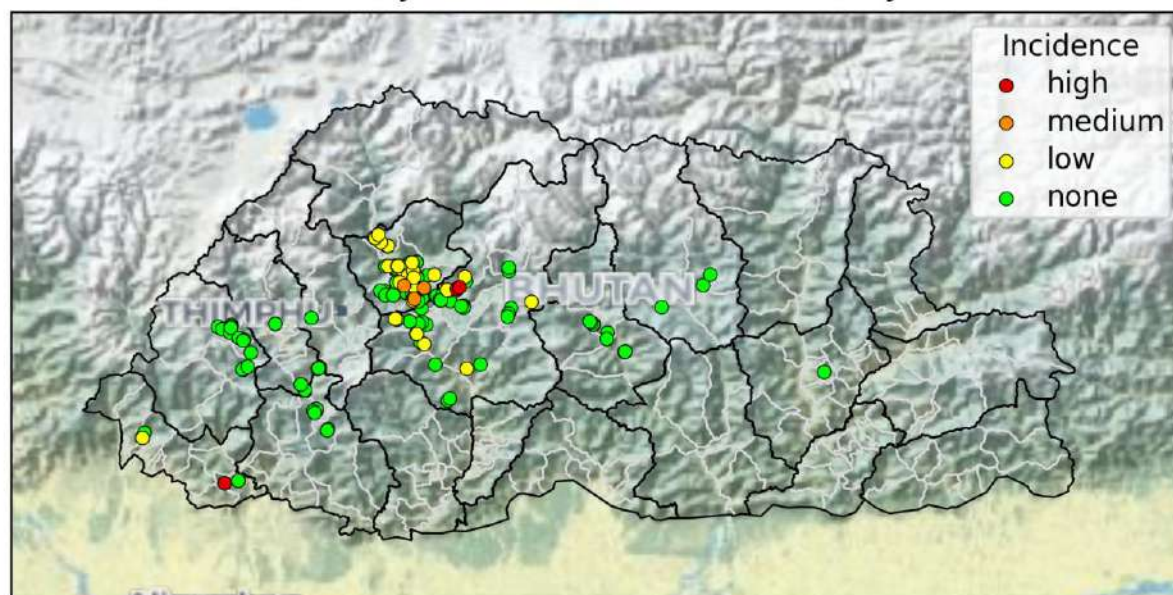
Stripe Rust reported from 44 out of 157 fields surveyed (28%). Moderate to high incidence of stripe rust has been seen in 10 fields (23% of infected fields). Moderate to high severity of stripe rust has been seen in 12 fields (27% of infected fields).

Table 1: Variety analysis of surveys.

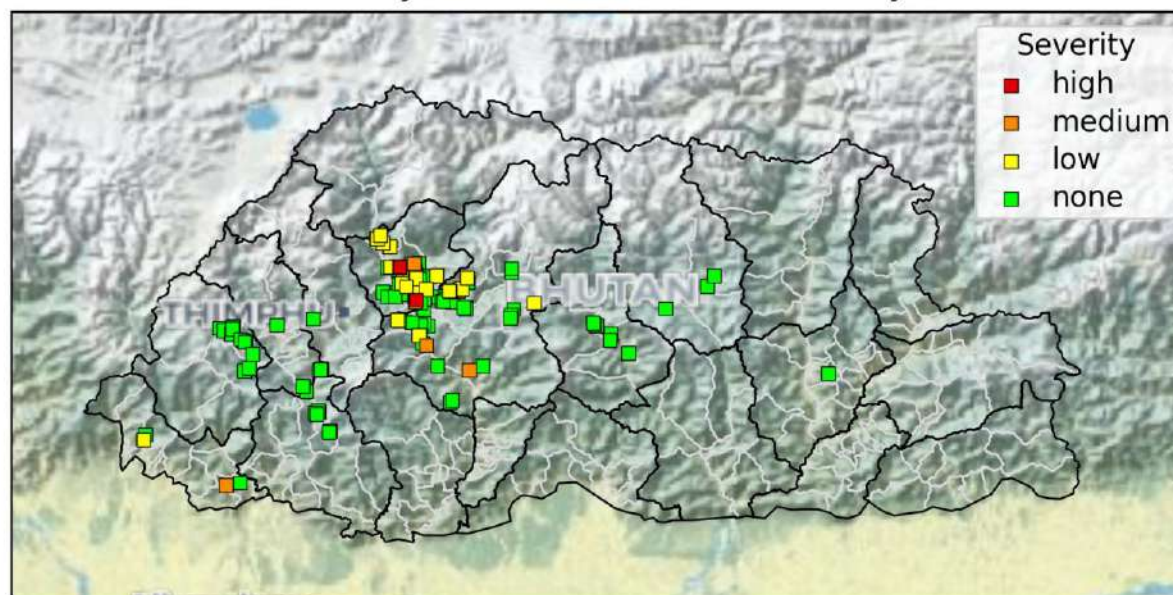
Variety	Number of surveys	Number of surveys reporting infection of		
		stem rust	stripe rust	leaf rust
Bajokaa 3	1	n/a	0	0
Bumthangkaa Drukchu	6	n/a	0	0
Guma Sokha	36	n/a	21	8
Unknown	114	n/a	23	27

Growth stage analysis of surveys unavailable because no surveys available from the last week (since May 12 2026).

Leaf rust surveys Bhutan Feb 16 2026 - May 18 2026

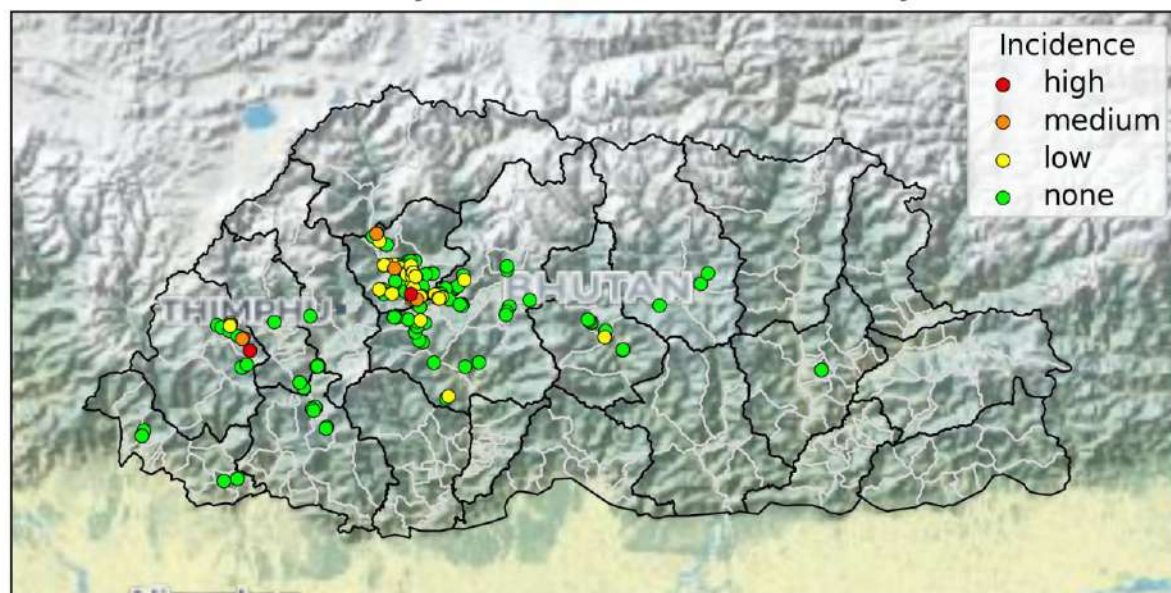


Leaf rust surveys Bhutan Feb 16 2026 - May 18 2026

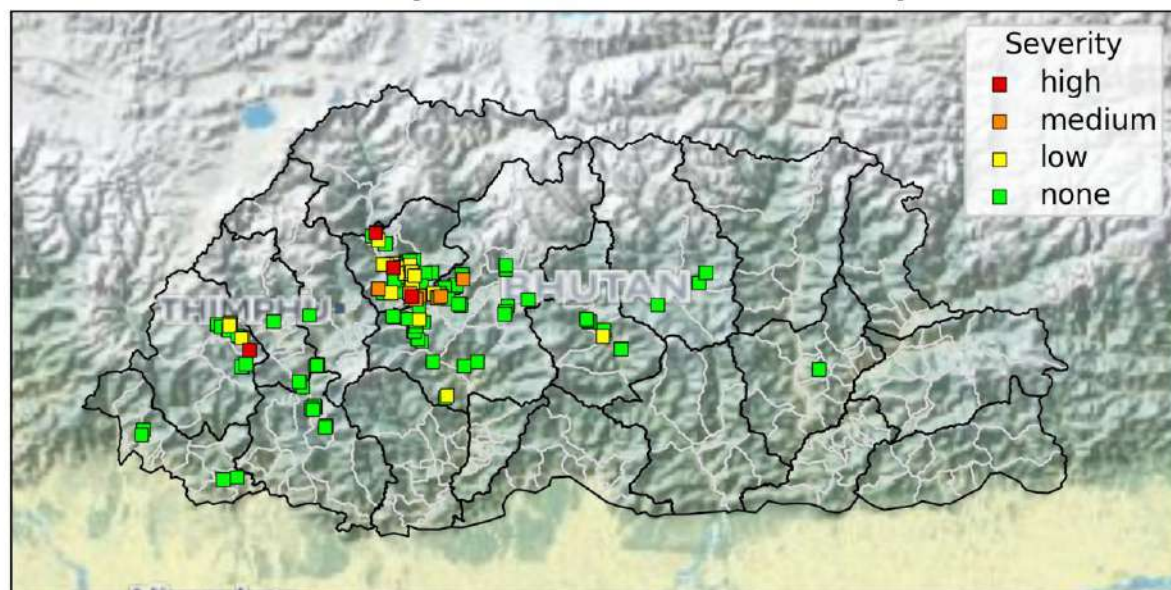


Map 1: Leaf Rust incidence (top) and severity (bottom) in Bhutan field surveys Feb 16 2026 - May 18 2026

Yellow rust surveys Bhutan Feb 16 2026 - May 18 2026

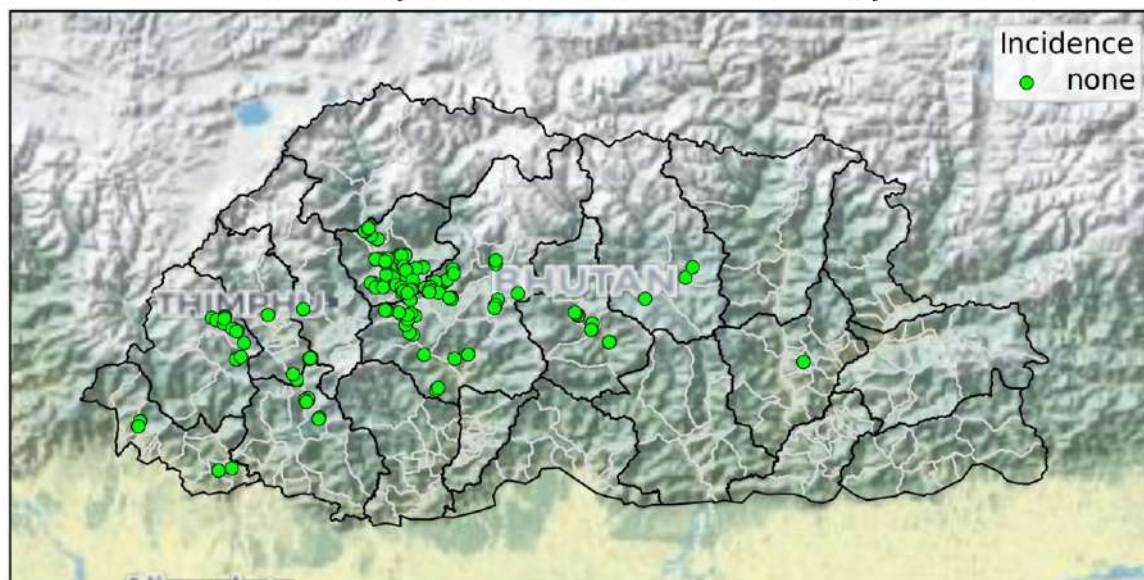


Yellow rust surveys Bhutan Feb 16 2026 - May 18 2026

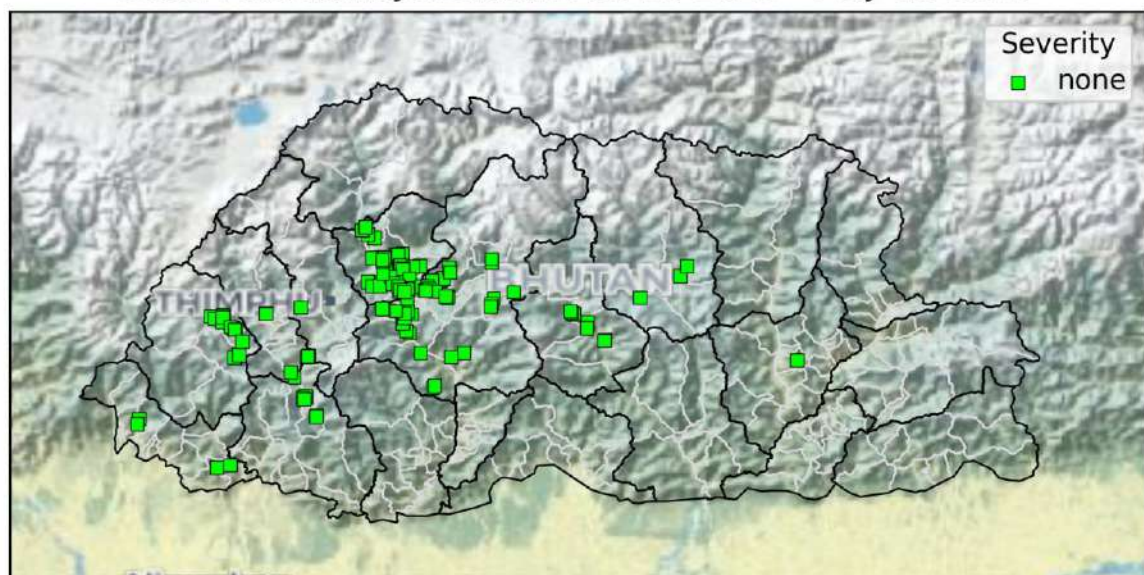


Map 2: Stripe Rust incidence (top) and severity (bottom) in Bhutan field surveys Feb 16 2026 - May 18 2026

Stem rust surveys Bhutan Feb 16 2026 - May 18 2026



Stem rust surveys Bhutan Feb 16 2026 - May 18 2026



Map 3: Stem Rust incidence (top) and severity (bottom) in Bhutan field surveys Feb 16 2026 - May 18 2026

Spore dispersal forecasts

Spore dispersal forecasts run by the UK Met Office and Cambridge University are displayed for stem, stripe and leaf rusts for the forecasted period. Surveys in each district are gathered to provide a single source per administrative area for dispersal forecasts (red dots in figure).

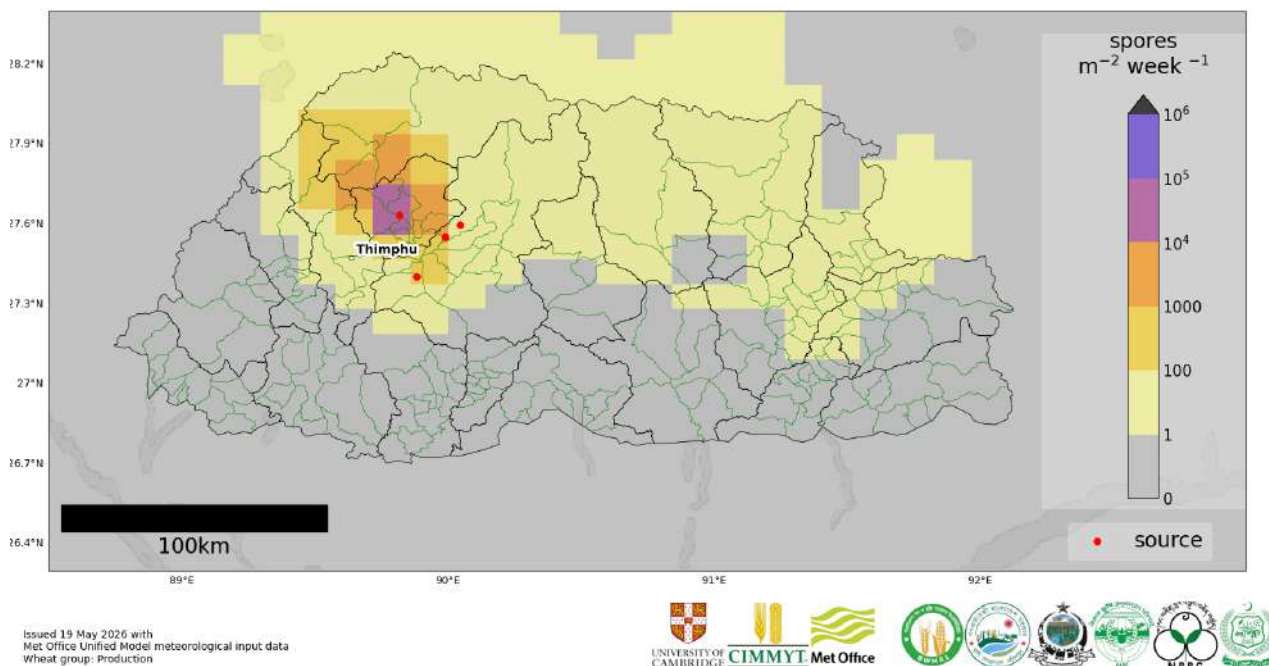
Environmental / climatic suitability for infection forecasts

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.

Leaf rust

Dispersal: Current forecast (19 May - 25 May) indicates dispersal in a northerly direction. Most spore deposition in Punakha, but some deposition forecast in Gasa.

Leaf rust spore deposition forecast 2026-05-19-03:00 - 2026-05-26-00:00 (UTC)



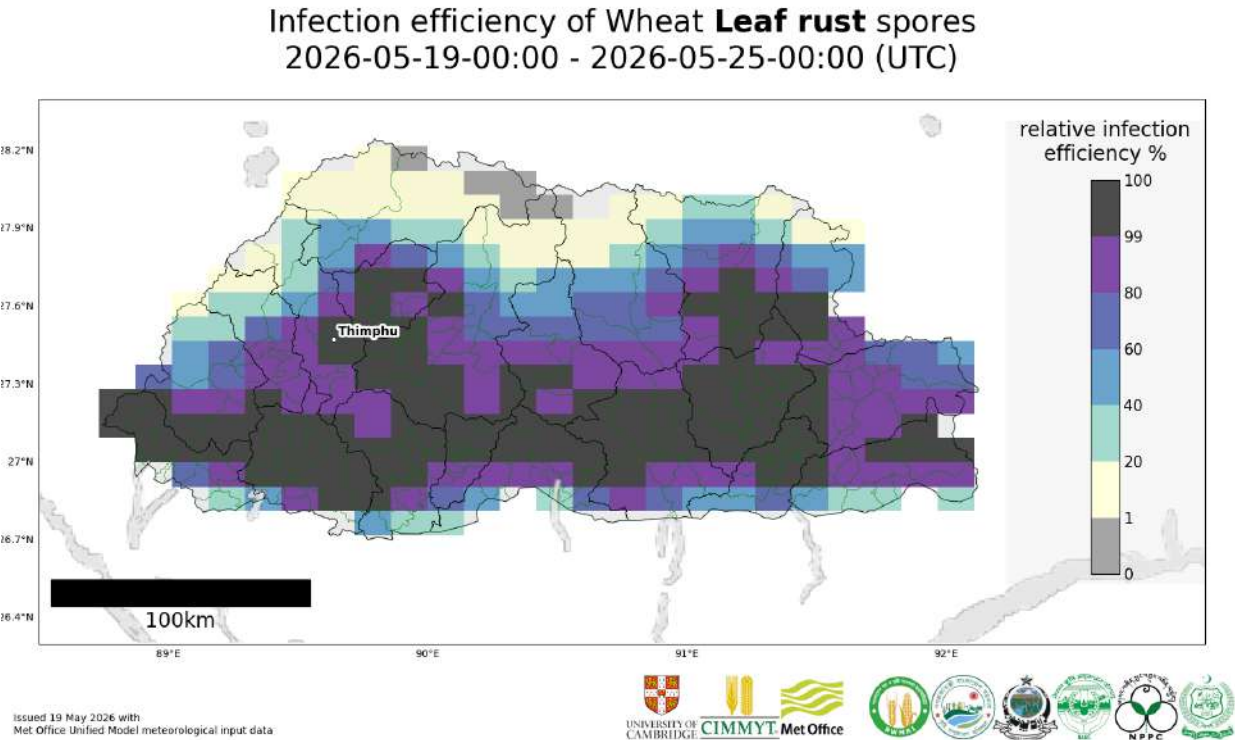
Map 4: Leaf rust spore deposition forecast Bhutan 19 May - 25 May 2026

The 20 most impacted districts per country are presented in the table below.

admin2Name	admin1Name	Leaf rust spores per m^2 per week
Talo	Punakha	8600
Chhubu	Punakha	8200
Goenshari	Punakha	7000
Kabjisa	Punakha	5700
Guma	Punakha	4600
Toepisa	Punakha	4300
Goenkhamé	Gasa	3600
Toewang	Punakha	2300
Goenkhatoe	Gasa	730
Naro	Thimphu	730
Kawang	Thimphu	680
Dzoma	Punakha	630
Phangyuel	Wangduephodrang	630
Lingmukha	Punakha	630
Shengabjimi	Punakha	590
Lunana	Gasa	320
Kazhi	Wangduephodrang	240
Laya	Gasa	200
Bapisa	Punakha	190
Theedtsho	Wangduephodrang	170

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Risk of infection: Current forecast (19 – 24 May) indicates continuing and increased infection efficiency. High infection efficiency across most of Bhutan. Highest in southern areas, central valleys (Punakha) and eastern areas.



Map 5: Leaf rust suitability for infection forecast Bhutan 19 May - 24 May 2026

The 20 most impacted districts (infection efficiency) per country are presented in the table below.

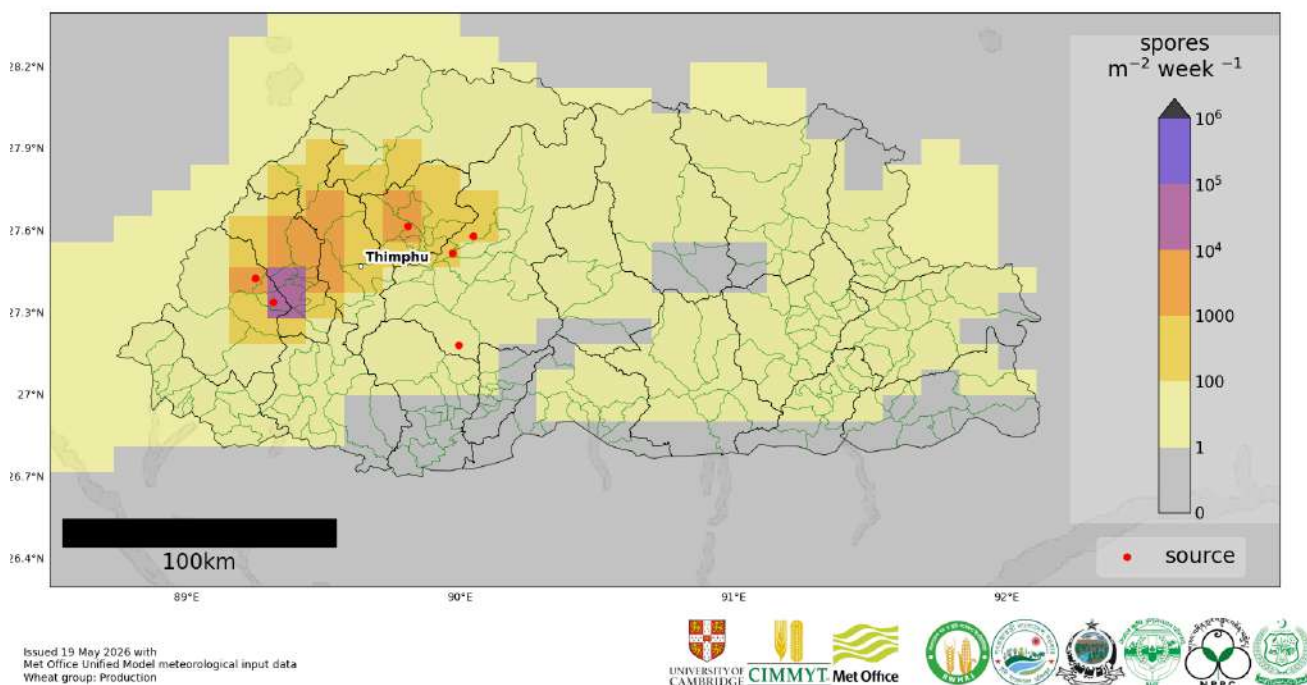
admin2Name	admin1Name	RIE_leaf_rust_%
Zobel	Pemagatshel	100
Gosarling	Tsirang	100
Thedtsho	Wangduephodrang	100
Thangrong	Monggar	100
Tendu	Samtse	100
Talo	Punakha	100
Sipsu	Samtse	100
Silambi	Monggar	100
Shumer	Pemagatshel	100
Drepung	Monggar	100
Logchina	Chhukha	100
Shemjong	Tsirang	100
Gasetsho Gom	Wangduephodrang	100
Phuentenchhu	Tsirang	100
Chongshing	Pemagatshel	100
Patakla	Tsirang	100
Jurmey	Monggar	100
Narang	Monggar	100
Kalidzingkha	Dagana	100
Namgyel Chhoeling	Samtse	100

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Stripe rust

Dispersal: Current forecast (19 May - 25 May) indicates dispersal in a generally northerly direction. Most spore deposition forecast in Paro, Haa and Punakha valleys.

Stripe rust spore deposition forecast 2026-05-19-03:00 - 2026-05-26-00:00 (UTC)



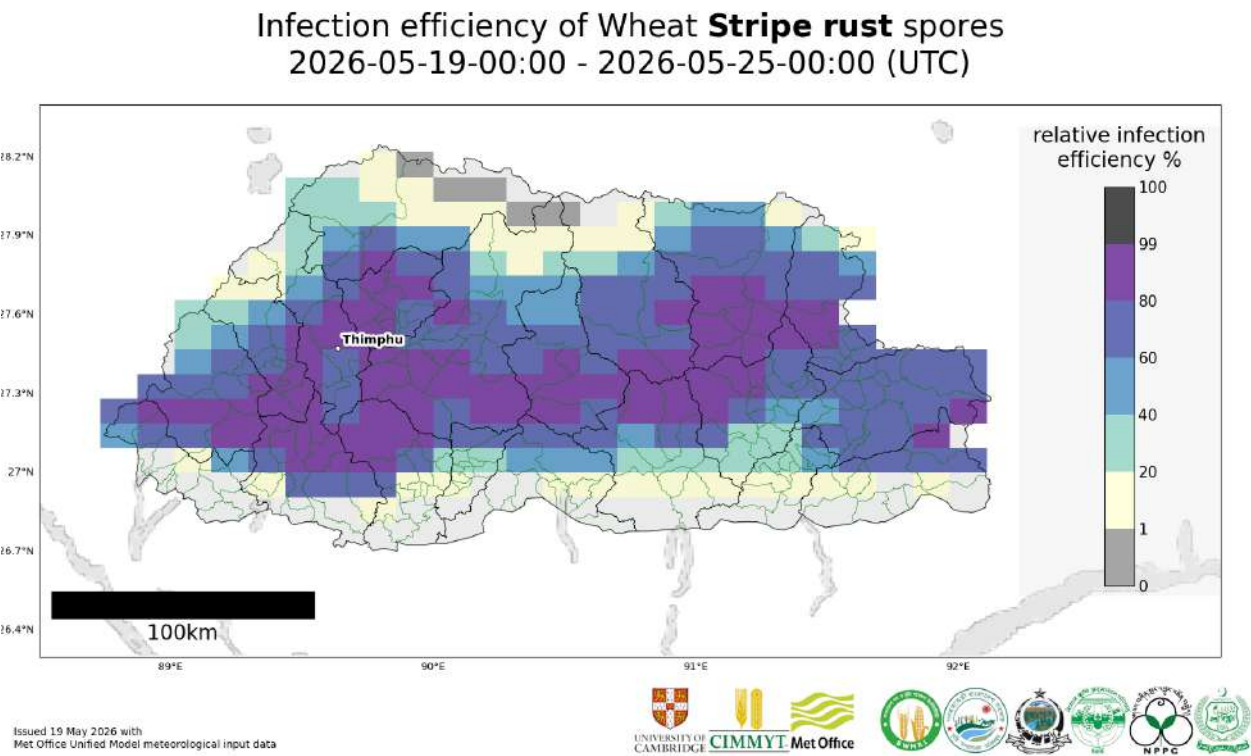
Map 6: Stripe rust spore deposition forecast Bhutan 19 May - 25 May 2026

The 20 most impacted districts (spore deposition) per country are presented in the table below.

admin2Name	admin1Name	Stripe rust spores per m ² per week
Lungnyi	Paro	12000
Uesu	Haa	9700
Katsho	Haa	9700
Shapa	Paro	9500
Lamgong	Paro	9400
Naja	Paro	7800
Hungrel	Paro	7500
Wangchang	Paro	7500
Doga	Paro	5900
Dopshari	Paro	5700
Doteng	Paro	4600
Sama	Haa	4300
Tsento	Paro	2000
Talo	Punakha	1700
Chhubu	Punakha	1400
Kawang	Thimphu	1400
Mewang	Thimphu	1200
Naro	Thimphu	1100
Kabjisa	Punakha	1100
Guma	Punakha	1100

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Risk of infection: Current forecast (19 – 24 May) indicates continued high infection efficiency across all mid hill areas of Bhutan and central valleys (Punakha) and eastern areas.



Map 7: Stripe rust suitability for infection forecast Bhutan 19 May - 24 May 2026

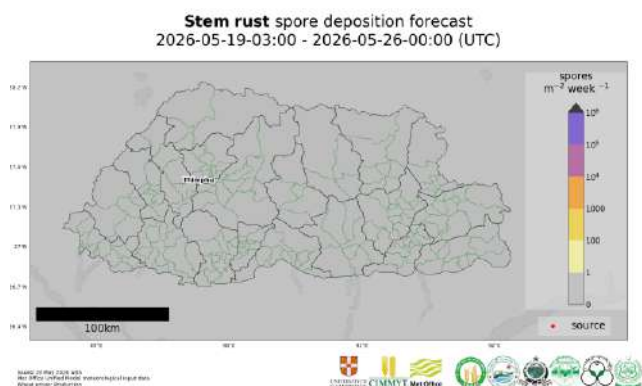
The 20 most impacted districts (infection efficiency) per country are presented in the table below.

admin2Name	admin1Name	RIE_stripe_rust_%
Bjachho	Chhukha	89
Metap	Chhukha	87
Jaray	Lhuentse	87
Tsamang	Monggar	86
Menbi	Lhuentse	86
Naja	Paro	86
Toepisa	Punakha	85
Doga	Paro	85
Minjay	Lhuentse	85
Kabjisa	Punakha	85
Chhubu	Punakha	85
Gasetsho Gom	Wangduephodrang	84
Metsho	Lhuentse	84
Langthil	Trongsa	83
Chapchha	Chhukha	83
Talo	Punakha	83
Ruepisa	Wangduephodrang	83
Tsenkhar	Lhuentse	83
Dagala	Thimphu	83
Goenshari	Punakha	83

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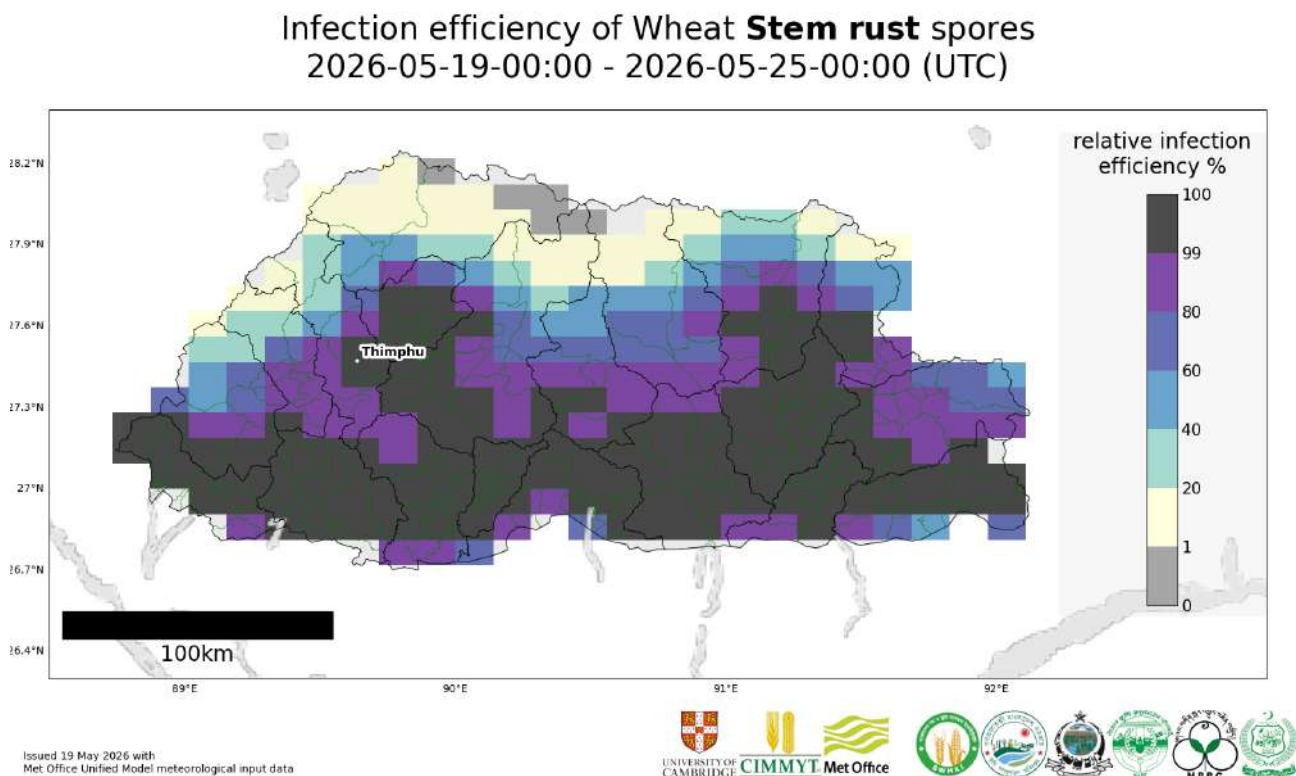
Stem rust

Dispersal: Current forecast (19 May - 25 May) indicates no dispersal, as no reports of stem rust.



Map 8: Stem rust spore deposition forecast Bhutan 19 May - 25 May 2026

Risk of infection: Current forecast (19 – 24 May) indicates increased suitability. High suitability across all southern areas, central valleys (Punakha) and eastern areas.



Map 9: Stem rust suitability for infection forecast Bhutan 19 May - 24 May 2026

The 20 most impacted districts (infection efficiency) per country are presented in the table below.

admin2Name	admin1Name	RIE_stem_rust_%
Zobel	Pemagatshel	100
Shumer	Pemagatshel	100

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Shengabjimi	Punakha	100
Kalidzingkha	Dagana	100
Jurmey	Monggar	100
Guma	Punakha	100
Gozhing	Zhemgang	100
Gozhi	Dagana	100
Gosarling	Tsirang	100
Gongdue	Monggar	100
Gomdar	Samdrupjongkhar	100
Silambi	Monggar	100
Kengkhar	Monggar	100
Sipsu	Samtse	100
Talo	Punakha	100
Tendu	Samtse	100
Gasetsho Gom	Wangduephodrang	100
Thangrong	Monggar	100
Thedtsho	Wangduephodrang	100
Dzoma	Punakha	100