Wheat rust advisory - risk assessment from surveys and forecasts in Bhutan
Summary period: 19 Apr - 25 Apr 2026

Overall risk level:

Caution

Key messages

Extensive Surveys have been undertaken, with 135 fields surveyed. Yellow rust and leaf rust are being detected in Punakha and Wangdue. Most fields have low incidence / severity, but around 20% of fields are showing moderate/high incidence / severity. Crops are at a range of growth stages, from tillering to maturity.

Forecasts indicate high suitability for all rusts, notably in southern areas, central valleys (Punakha/Wangdue) and eastern areas. Current forecasts indicate highest spore deposition in Punakha/Wangdue and an easterly dispersal of spores (especially yellow rust) into Bhutan.

Given high suitability for disease development, it is likely that disease (both yellow and leaf rust) may increase.

Recommendations

Very close monitoring of fields, particularly for susceptible varieties, is recommended. Emerging crops (especially in the west/south/Punakha Valley and parts of the east) should be checked for any disease presence.

Scouting should be undertaken and farmers informed to be vigilant for the emergence of rust (especially stripe rust). In addition, particular attention should be paid to any appearance of stem rust, as conditions for infection are forecast to be highly 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.

Wheat rust advisory #4 2026

Field surveys

Looking at surveys in the period since Jan 01 2026. Surveys undertaken Feb 16 2026 - Apr 18 2026. A total of 135 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 34 out of 135 fields surveyed (25%). Moderate to high incidence of leaf rust has been seen in 7 fields (21% of infected fields). Moderate to high severity of leaf rust has been seen in 6 fields (18% of infected fields).

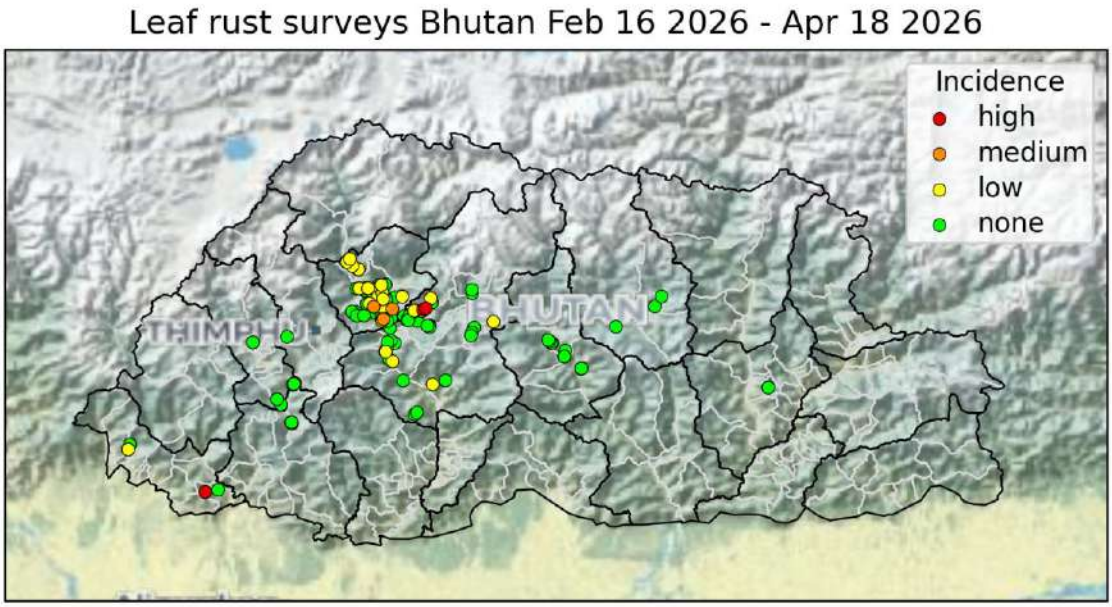
Stripe Rust reported from 38 out of 135 fields surveyed (28%). Moderate to high incidence of stripe rust has been seen in 7 fields (18% of infected fields). Moderate to high severity of stripe rust has been seen in 11 fields (29% of infected fields).

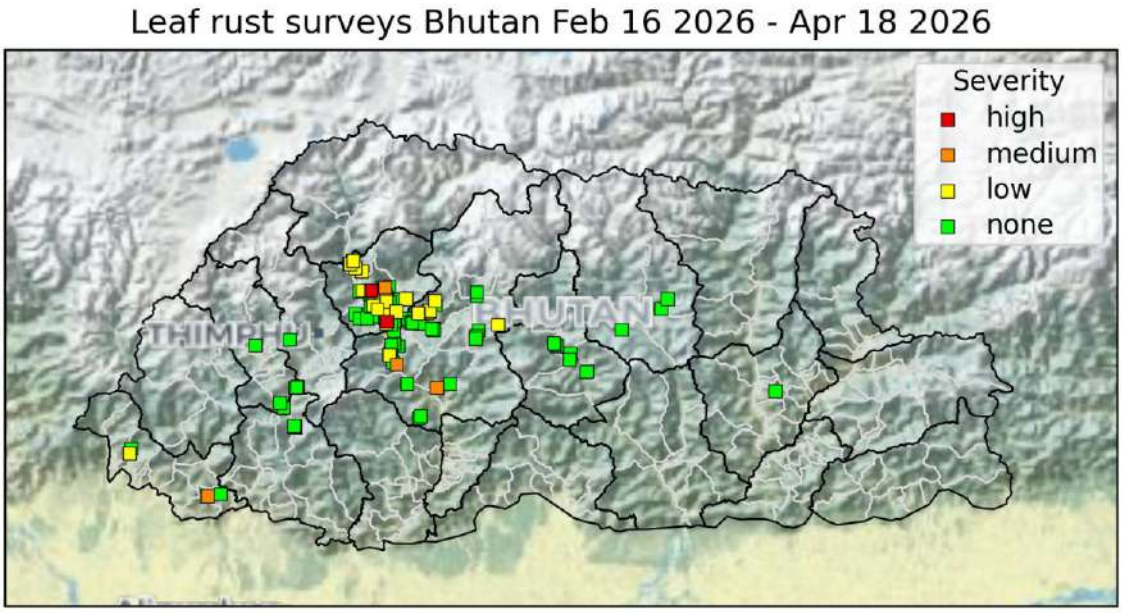
Table 1: Variety analysis of surveys.

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	34	n/a	21	8
Unknown	94	n/a	17	26

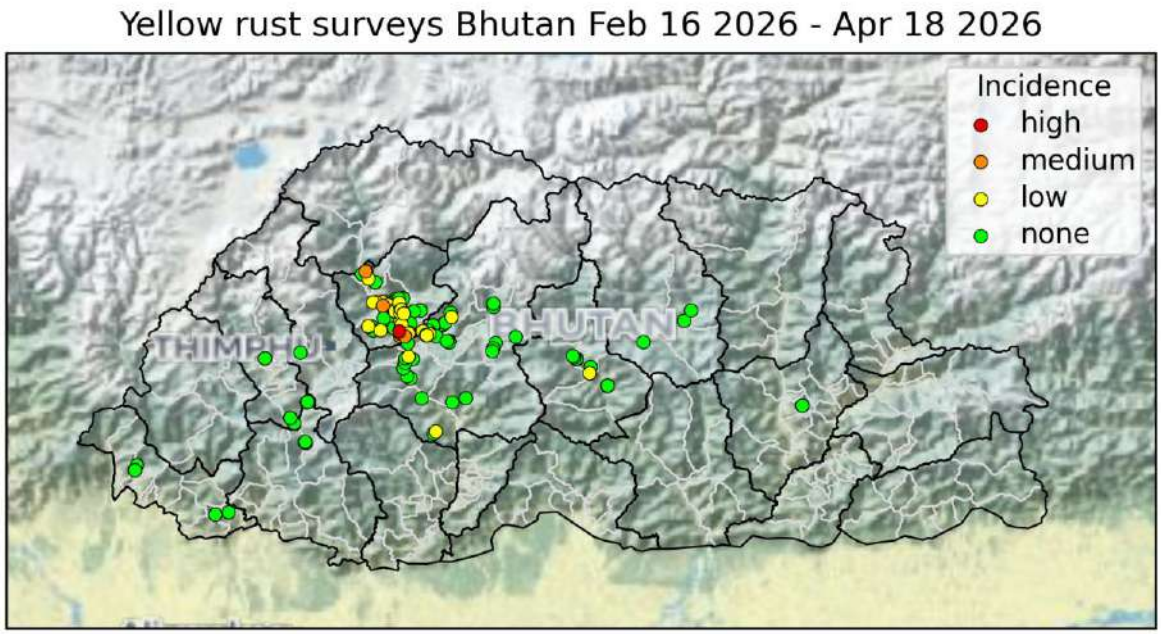
Table 2: Growth stage analysis of surveys conducted in the last week (since Apr 12 2026).

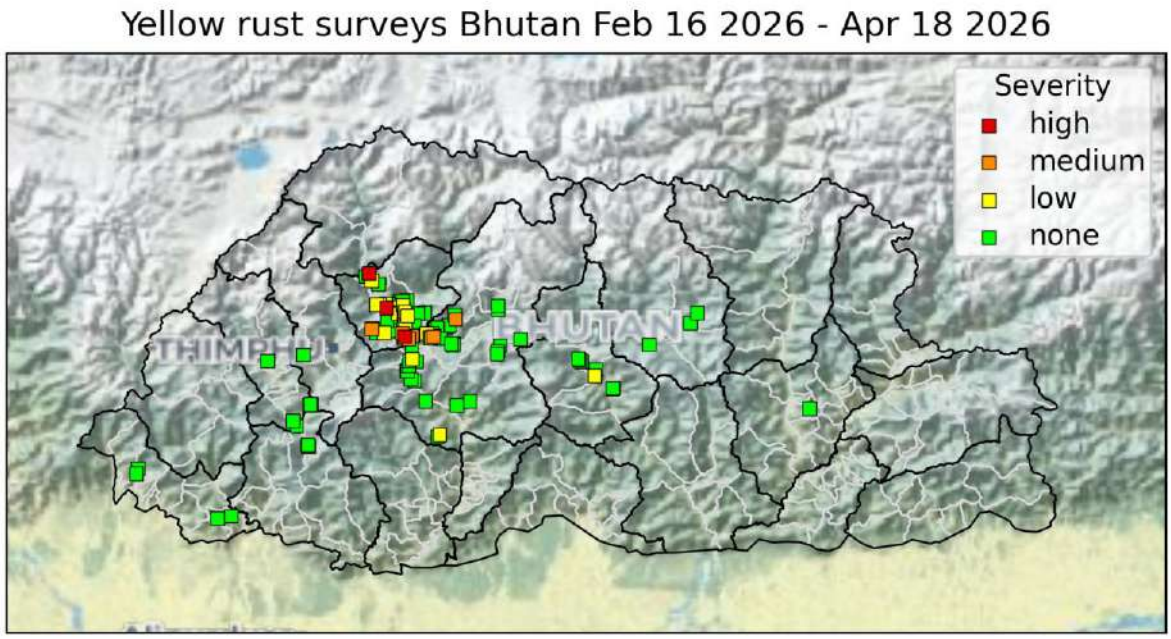
Country	Number of surveys in the last week that observed wheat growth stage:									
	tillering	boot	heading	flowering	milk	dough	maturity	NA	na	n/a
Bhutan	3	2	5	9	3	5	2	0	0	0



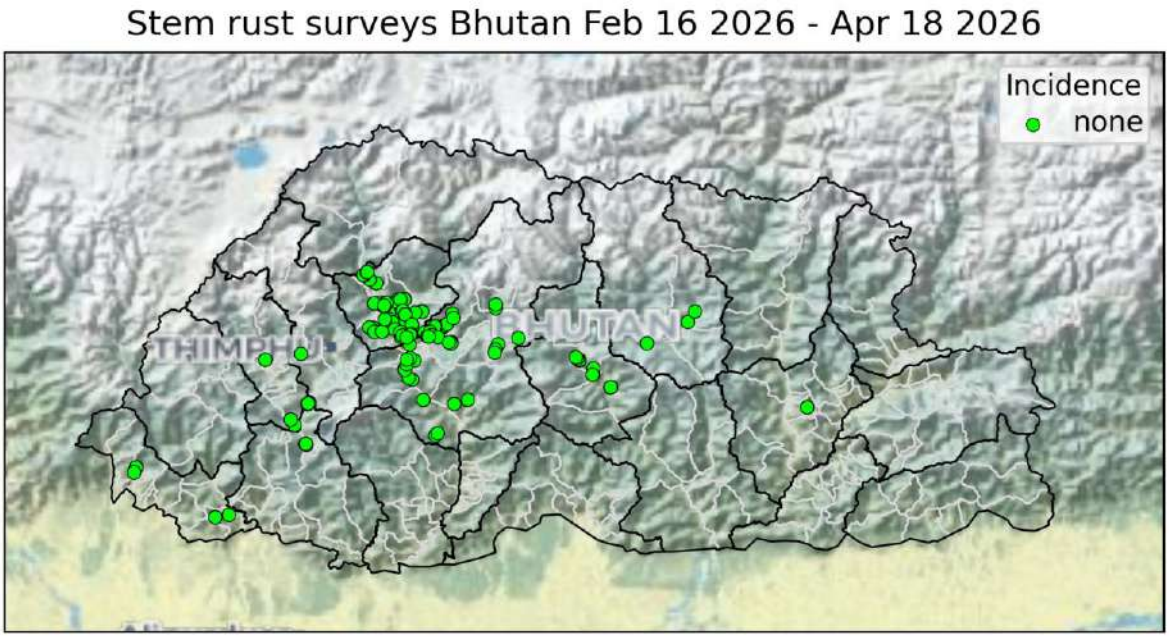


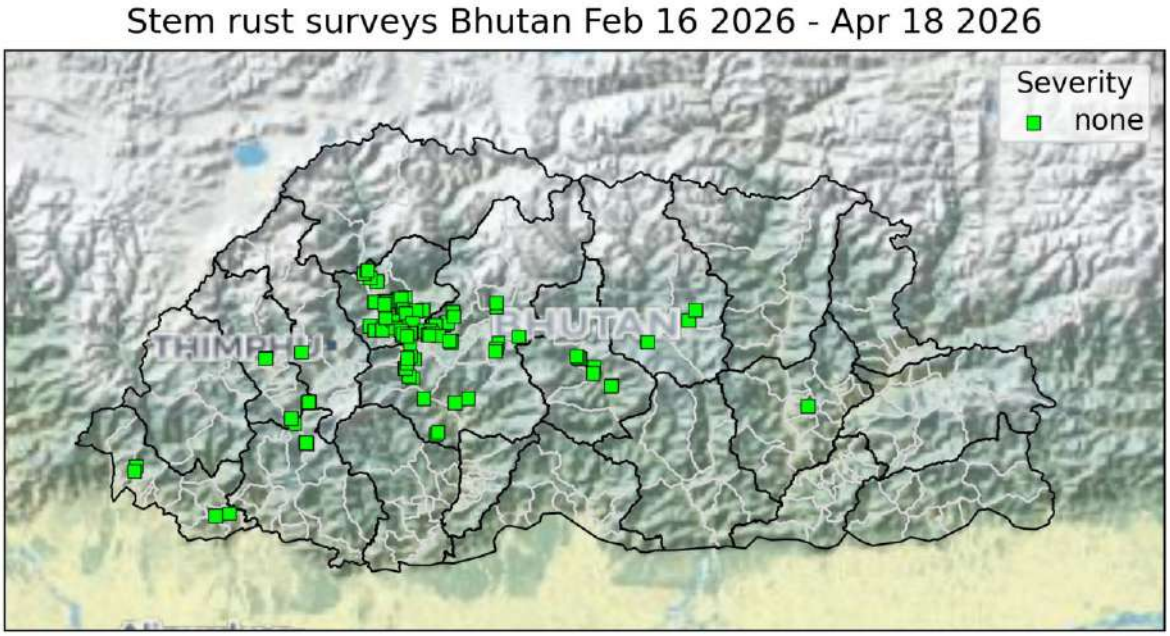
Map 1: Leaf Rust incidence (top) and severity (bottom) in Bhutan field surveys Feb 16 2026 - Apr 18 2026





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





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

Wheat rust advisory #4 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).

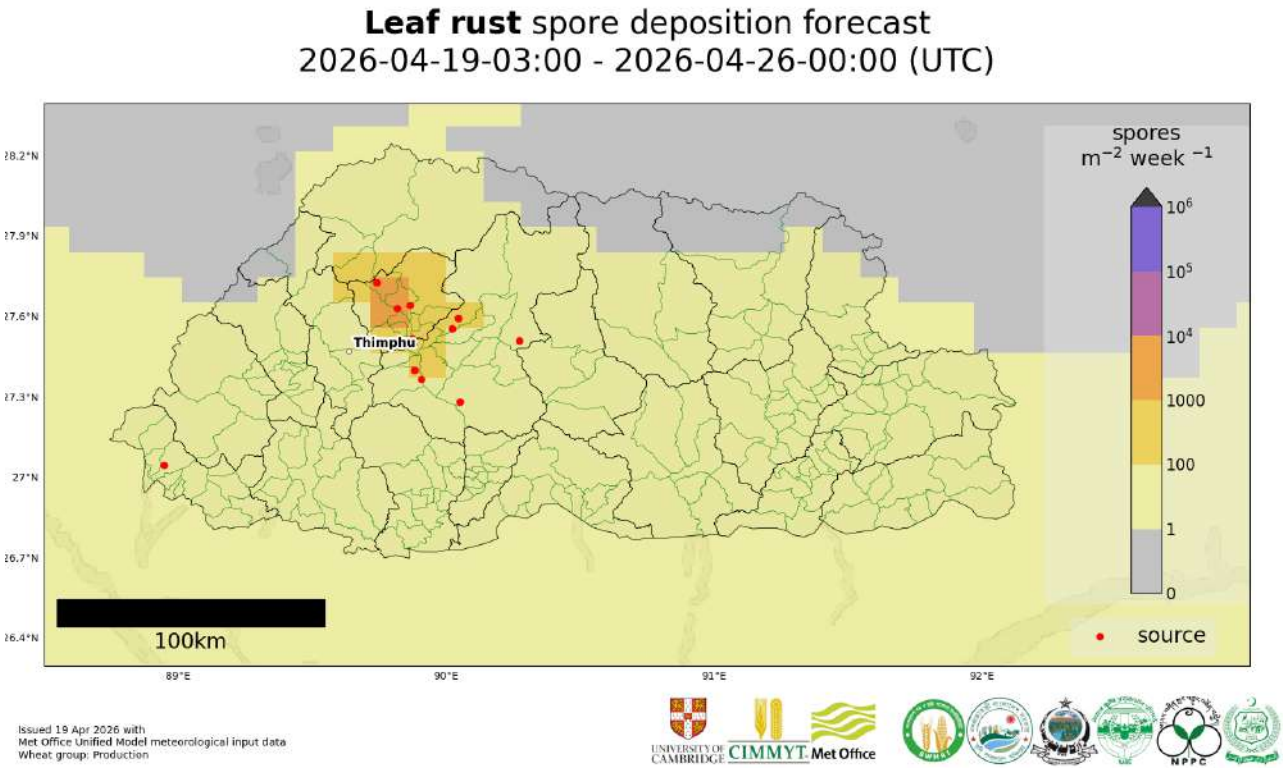
Environmental / climatic suitability for infection forecasts

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.

Wheat rust advisory #4 2026

Leaf rust

Dispersal: Current forecast (19 Apr - 25 Apr) indicates dispersal in a generally easterly direction. Most spore deposition forecast in Punakha.



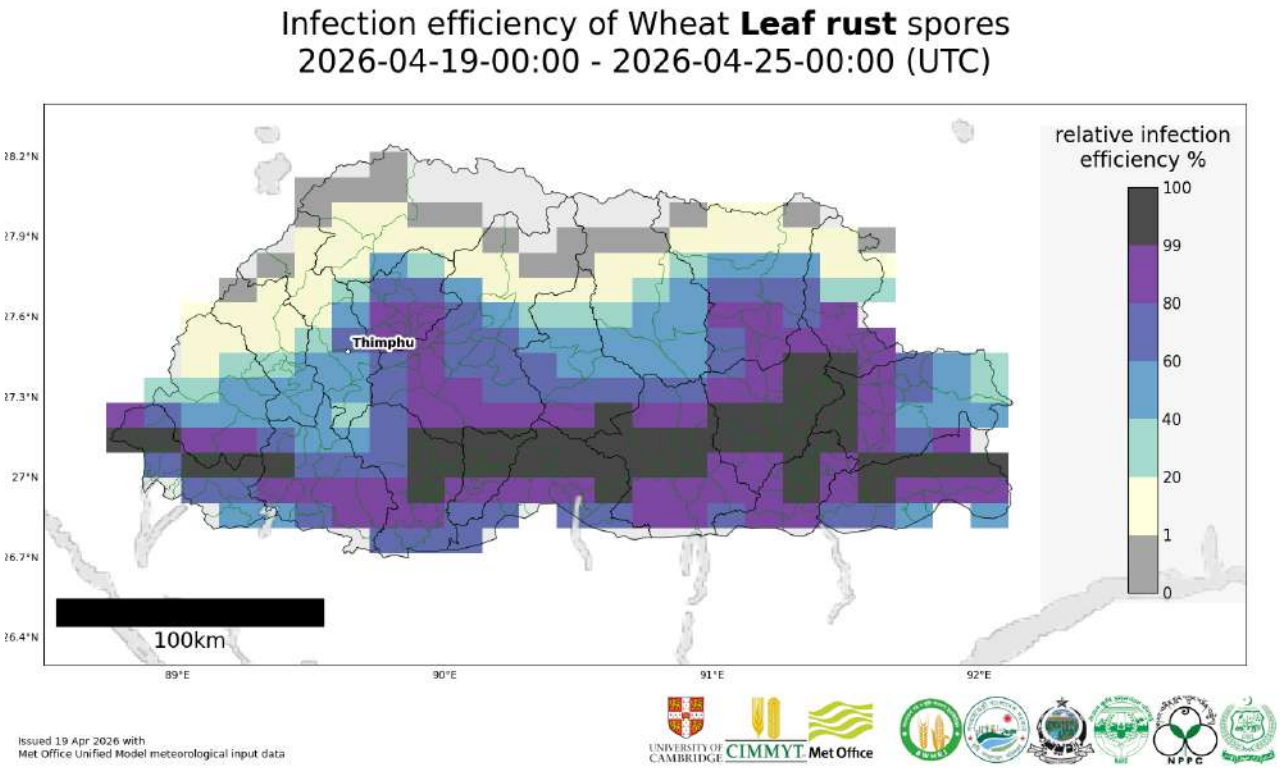
Map 4: Leaf rust spore deposition forecast Bhutan 19 Apr - 25 Apr 2026

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

admin2Name	admin1Name	Leaf rust spores per m^2 per week
Talo	Punakha	1800
Chhubu	Punakha	1400
Guma	Punakha	1100
Toepisa	Punakha	920
Kabjisa	Punakha	910
Goenshari	Punakha	740
Dzoma	Punakha	430
Lingmukha	Punakha	430
Phangyuel	Wangduephodrang	430
Bapisa	Punakha	380
Goenkhame	Gasa	360
Toewang	Punakha	310
Thedtsho	Wangduephodrang	290
Shengabjimi	Punakha	240
Nahi	Wangduephodrang	230
Bjena	Wangduephodrang	160
Ruepisa	Wangduephodrang	150
Nyisho	Wangduephodrang	130
Kazhi	Wangduephodrang	110
Gasetsho Gom	Wangduephodrang	75

Wheat rust advisory #4 2026

Risk of infection: Current forecast (19 – 24 Apr) indicates high infection efficiency across southern areas, central valleys (Punakha) and eastern areas.



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

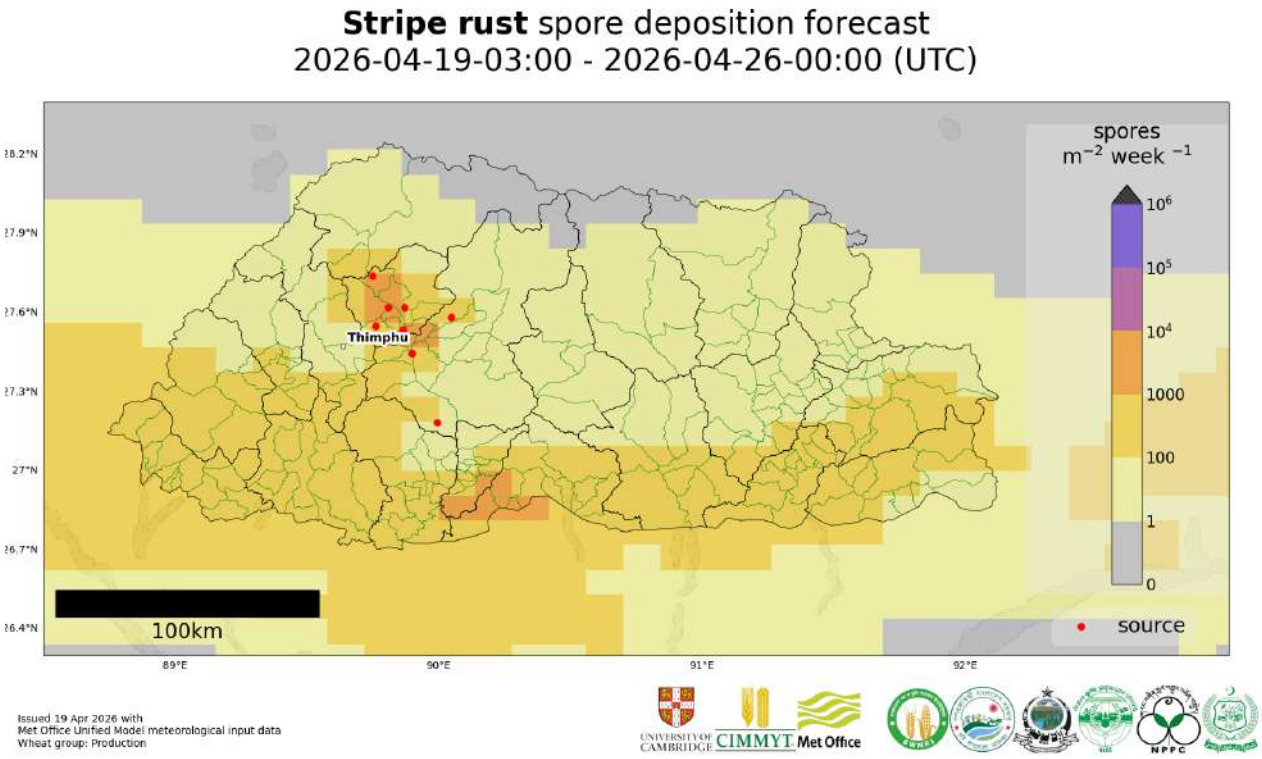
The 20 most impacted districts (infection efficiency) per country are presented in the table below.

admin2Name	admin1Name	RIE_leaf_rust_%
Kengkhar	Monggar	100
Balam	Monggar	100
Tsirangtoe	Tsirang	100
Udzorong	Trashigang	100
Lajab	Dagana	100
Phuentenchhu	Tsirang	100
Narang	Monggar	100
Nanong	Pemagatshel	100
Chongshing	Pemagatshel	100
Yurung	Pemagatshel	100
Chaskhar	Monggar	100
Gosarling	Tsirang	100
Drametse	Monggar	100
Drepung	Monggar	100
Shemjong	Tsirang	100
Thangrong	Monggar	100
Dungtoe	Samtse	100
Thrimshing	Trashigang	99
Chhali	Monggar	99
Zobel	Pemagatshel	99

Wheat rust advisory #4 2026

Stripe rust

Dispersal: Current forecast (19 Apr - 25 Apr) indicates dispersal in an easterly direction. Highest spore deposition forecast in Punakha valley (local sources) and southern regions (from infected sites outside of Bhutan).



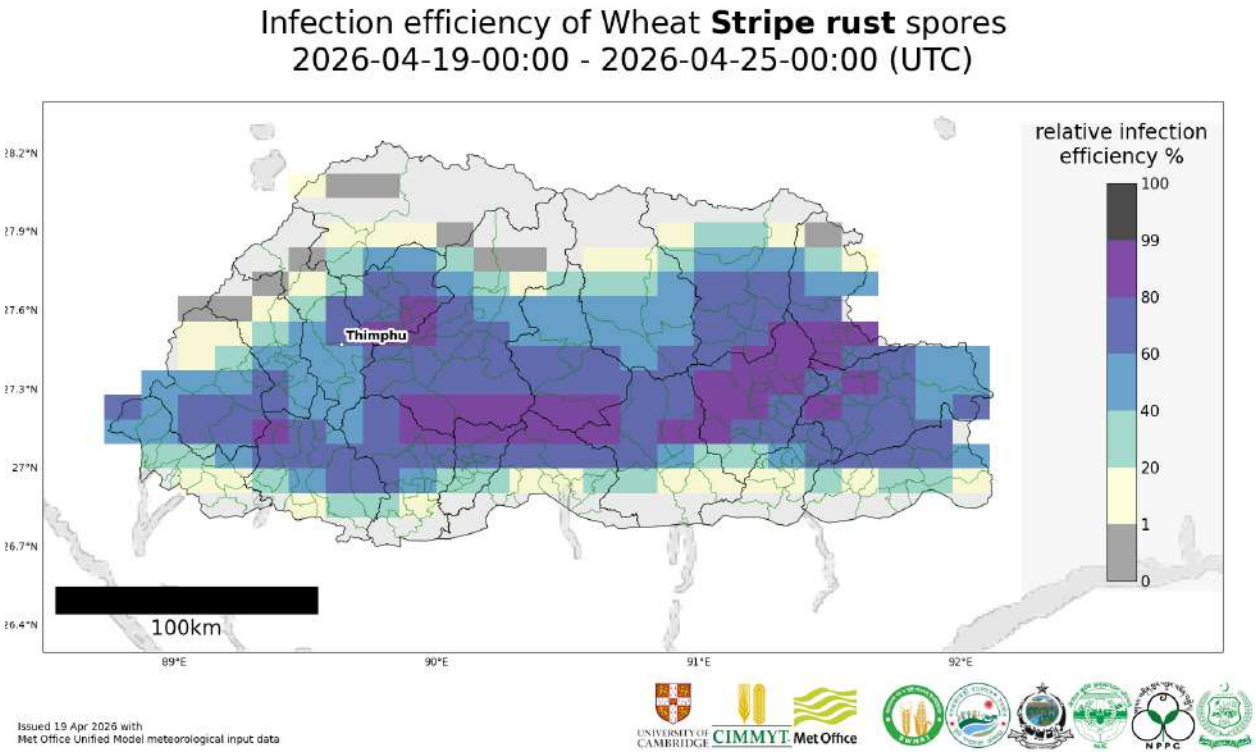
Map 6: Stripe rust spore deposition forecast Bhutan 19 Apr - 25 Apr 2026

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
Talo	Punakha	2200
Chhubu	Punakha	1500
Guma	Punakha	1500
Shompangkha	Sarpang	1400
Toepisa	Punakha	1200
Beteni	Tsirang	1200
Kabjisa	Punakha	1100
Senge	Sarpang	1100
Hiley	Sarpang	950
Bapisa	Punakha	940
Bhur	Sarpang	940
Dekiling	Sarpang	800
Dzoma	Punakha	800
Lingmukha	Punakha	800
Phangyuel	Wangduephodrang	800
Mendrelgang	Tsirang	790
Thedtsho	Wangduephodrang	730
Gelephu	Sarpang	720
Chhuzagang	Sarpang	720
Goenshari	Punakha	710

Wheat rust advisory #4 2026

Risk of infection: Current forecast (19 – 24 Apr) indicates high infection efficiency across most hill areas of Bhutan.



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

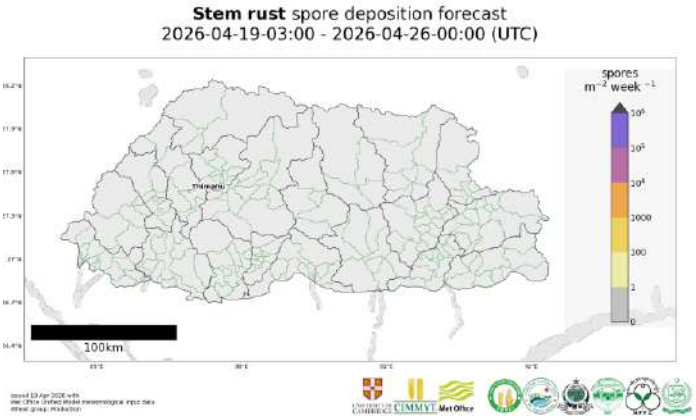
The 20 most impacted districts (infection efficiency) per country are presented in the table below.

admin2Name	admin1Name	RIE_stripe_rust_%
Tsakaling	Monggar	86
Tsenkhar	Lhuentse	85
Tsamang	Monggar	84
Chhali	Monggar	84
Lingmukha	Punakha	83
Phangyuel	Wangduephodrang	83
Shermung	Monggar	83
Korphu	Trongsa	83
Jamkhar	Yangtse	83
Dzoma	Punakha	83
Bartsham	Trashigang	82
Balam	Monggar	82
Yangnyer	Trashigang	82
Tomzhangtshen	Yangtse	82
Ngatshang	Monggar	82
Drametse	Monggar	81
Khamdang	Yangtse	81
Bapisa	Punakha	81
Trashiyangtse	Yangtse	81
Toetsho	Yangtse	81

Wheat rust advisory #4 2026

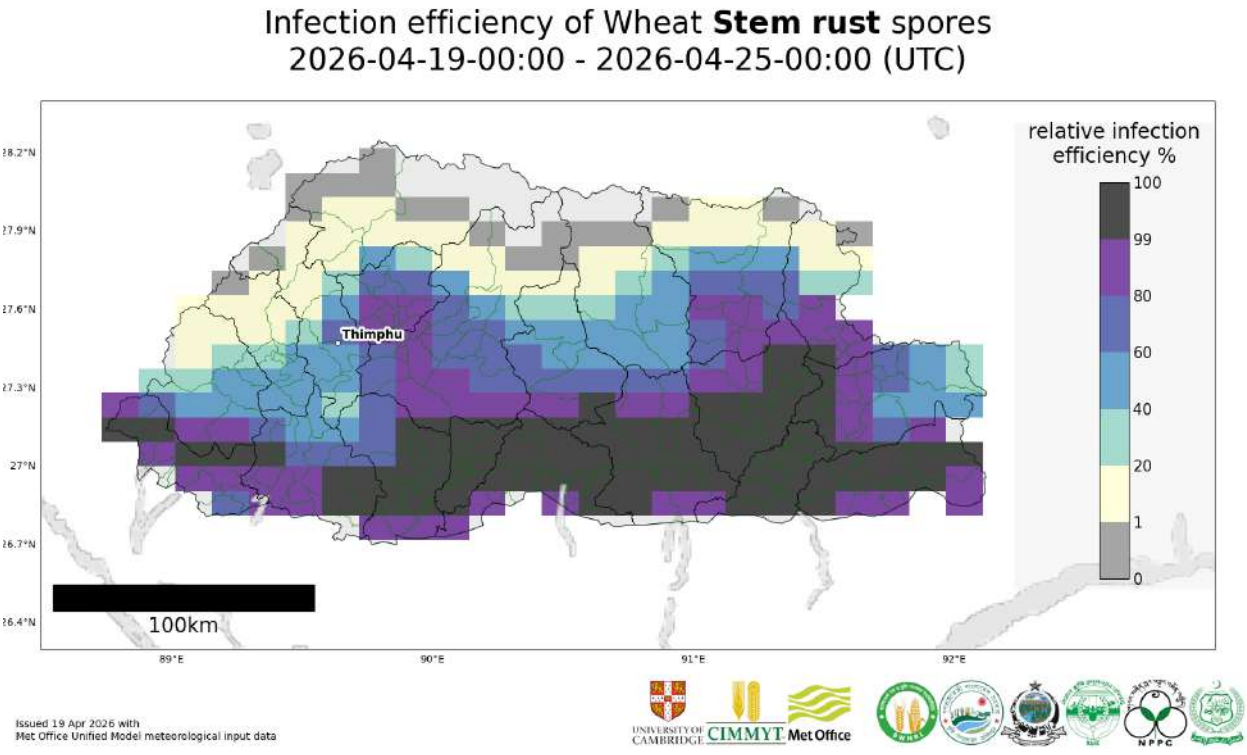
Stem rust

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



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

Risk of infection: Current forecast (19 – 24 Apr) indicates high suitability across southern areas, central valleys (Punakha) and eastern areas.



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

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

admin2Name	admin1Name	RIE_stem_rust_%
Zobel	Pemagatshel	100
Nanong	Pemagatshel	100

Dechhenling	Pemagatshel	100
Shemjong	Tsirang	100
Doban	Sarpang	100
Kengkhar	Monggar	100
Phuentenchhu	Tsirang	100
Drametse	Monggar	100
Drepung	Monggar	100
Drugyelgang	Dagana	100
Dunglegang	Tsirang	100
Dungmin	Pemagatshel	100
Dungtoe	Samtse	100
Narang	Monggar	100
Gesarling	Dagana	100
Silambi	Monggar	100
Mendrelgang	Tsirang	100
Gomdar	Samdrupjongkhar	100
Gongdue	Monggar	100
Gosarling	Tsirang	100