

# WHEAT BLAST EARLY WARNING SYSTEM MANUAL

The image shows the homepage of the Wheat Blast Early Warning System (EWS). The interface includes a dark green header with the title 'Wheat Blast EWS', a hamburger menu icon, and a 'Login' button. A left sidebar contains links for 'Home', 'Wheat blast', and 'Crop and Disease model'. The main content area features a 'Welcome' message, a 'Start guided tour' button, and a 'Don't show me again' checkbox. Below this is a paragraph of text about the system's development and support, followed by a row of four images: an elderly farmer, a person in a field, a close-up of wheat, and two people in a field.

**Wheat Blast EWS**

Home

Wheat blast

Crop and Disease model

Welcome

Click the "Start guided tour" button to view the steps on how to use the EWS tool, or select the desired option from the left menu.

☐ Don't show me again

Start guided tour

International Research Institute for Climate and Society (IRI)

Embrapa

University of Reading

Here you can select the option to permanently disable this message.

Here you can start the Guided Tour.

To close this popup click here.

The disease was developed by the International and national research and development (CSRD) in South Asia for the adaptation of agricultural climate change. The Bangladesh Agricultural Research Council (BARC), Bangladesh Agricultural Research Institute (BARI), International Center for Integrated Mountain Development (ICIMOD), the University of Reading (UoR), International Institute for Climate and Society (IRI). Further support to mitigate wheat blast in Bangladesh has come from several projects that have contributed to this EWS. These include the CIMMYT-led and USAID/Bangladesh supported 'Training, surveillance, and monitoring to mitigate the threat of wheat blast disease in Bangladesh and beyond' project, and also the 'Cereal Systems Initiative for South Asia (CSISA)', supported by USAID and the Bill and Melinda Gates Foundation (BMGF). Lastly, support was provided by the CGIAR Platform on Big Data through the Crop Modeling Community of Practice. The research and recommendations made in this EWS do not necessarily reflect the views of the above-mentioned organizations.

# HOME PAGE

Here you will be redirected to the homepage.

Here you can access the Guided Tour anytime you need.

Here you will find the features of Wheat Blast model.

Here you will find information about crop model.

Here you will find the site map.

Here you will find EWS manual.



# WHEAT BLAST MENU

The image shows a screenshot of the 'Wheat Blast EWS' web application. The interface is divided into a top header, a left sidebar, and a main content area. The top header is green with the text 'Wheat Blast EWS' and navigation links for 'Guided tour', 'Skins', and 'Login'. The left sidebar is grey and contains a 'Home' link and a 'Wheat blast' dropdown menu. The main content area has a dark green header with 'Wheat Blast EWS' and a list of menu items: 'Home', 'Wheat blast', 'About this model', 'Observed risk map', 'Observed risk data', 'Forecast risk map', 'Wheat blast sampling', 'Bangla blast fact sheet', and 'Information resources'. At the bottom, there is a link for 'Crop and Disease model'. Eight callout boxes with arrows point to specific menu items, providing detailed descriptions of each feature.

**Wheat Blast EWS**

Guided tour ↗ Skins ⚙️ Login 🔑

Home

Wheat blast

Home

Welcome

Observed risk map

Observed risk data

Forecast risk map

by USAID and the B

**Wheat Blast EWS**

Home

Wheat blast

About this model

Observed risk map

Observed risk data

Forecast risk map

Wheat blast sampling

Bangla blast fact sheet

Information resources

Crop and Disease model

Click here to open the features of Wheat Blast model

Click here to find technical information about the blast model.

Click here to find the map with the weather forecast and risk data for Wheat blast disease according to the selected country.

Click here to see maps of the location and data on field observations of wheat blast in Bangladesh taken by CIMMYT, BWMRI, BARI and DAE.

Click here to find information resources about Wheat Blast

Click here to find the observed risk map for each weather station, along with your last hour weather information.

Click here to find the weather and risk data observed by weather station, along with their graphs for statistical analysis.

Click here to find Bangla fact sheet about Wheat Blast.

# OBSERVED RISK MAP

**Wheat Blast EWS**

Home | Wheat blast | Crop and Disease model

Inputs

**Country**

Bangladesh

**Climate data source**

BMD

**Weather stations**

All stations

**Day**

01/01/2018

Today's date

Click here to select the country (Bangladesh / Brazil).

Click here to select the climate data source (BMD/ CIMMYT stations ).

Click here to select the weather stations you want to show on the map or leave blank to show all.

Click here to select the date of interest in your exploration of wheat blast - climactic interactions

Click here to return today's date.

Observed risk map

Home > Observed risk map

Map showing outbreak risk factor:

- No risk
- Moderate
- High

# HOW TO GET OBSERVED RISK MAP

## STEP 1

Select the country  
(Bangladesh / Brazil)

Country

Bangladesh

Climate data source

BMD

Weather stations

All stations

Day

01/01/2018

## STEP 2

Click here to select the  
climate data source  
BMD/ CIMMYT stations

Country

Bangladesh

Climate data source

BMD

Weather stations

All stations

Day

01/01/2018

## STEP 3

Select the weather  
stations you want to show

Country

Bangladesh

Climate data source

BMD

Weather stations

All stations

Day

01/01/2018

## STEP 4

Select the date of interest  
in your analysis of  
historical climactic data

Country

Bangladesh

Climate data source

BMD

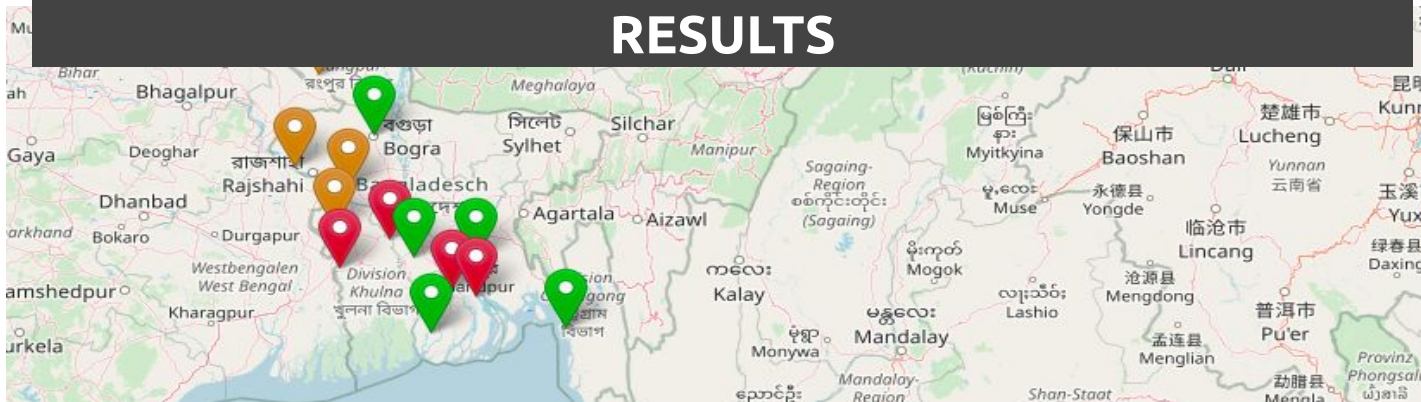
Weather stations

All stations

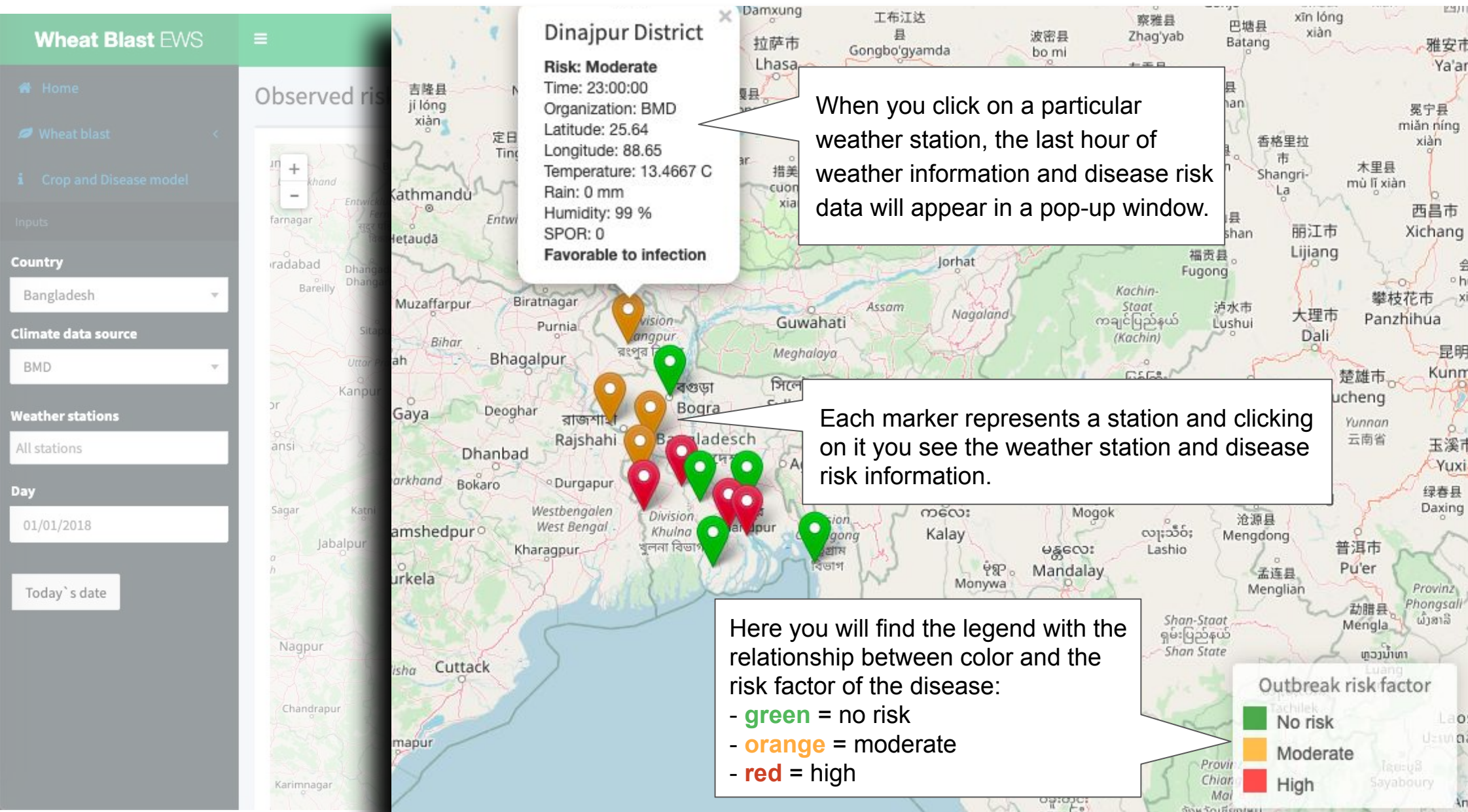
Day

01/01/2018

## RESULTS



# OBSERVED RISK MAP



# OBSERVED RISK MODEL

The image shows a web application interface for the 'Wheat Blast EWS' (Early Warning System). The main section is titled 'Observed Risk Model' and contains a form with several input fields. An orange arrow points from the 'Inputs' section of the sidebar to the main form. The form fields are:

- Country:** A dropdown menu with 'Bangladesh' selected. Callout: 'Click here to select the country (Bangladesh / Brazil).'
- States:** A dropdown menu with 'Bhola District' selected. Callout: 'Click here to select state/district.'
- Weather stations:** A dropdown menu with 'Bhola District' selected. Callout: 'Click here to select which weather station to use data.'
- Select date of interest:** A text input field with '02/01/2019' entered. Callout: 'Click here to select the date of interest in your analysis of historical climactic data.'
- Today's date:** A button labeled 'Today's date'. Callout: 'Click here to return today's date.'

The background of the interface shows a sidebar with navigation links (Home, Wheat blast, Crop and Disease Model) and a main area displaying a line graph of 'Observed risk data' over time, with dates like 'Jan 0', 'Mar 03, 2019', and 'Feb 17, 2019' visible on the x-axis.

# HOW TO RUN RISK MODEL

## STEP 1

Select the country  
(Bangladesh / Brazil)

Country

Bangladesh

States

Bhola District

Weather stations

Bhola District

Select date of interest

02/01/2019

## STEP 2

Select state/district

Country

Bangladesh

States

Bhola District

Weather stations

Bhola District

Select date of interest

02/01/2019

## STEP 3

Select which weather  
station to use data

Country

Bangladesh

States

Bhola District

Weather stations

Bhola District

Select date of interest

02/01/2019

## STEP 4

Select the date of interest  
in your analysis of  
historical climactic data

Country

Bangladesh

States

Bhola District

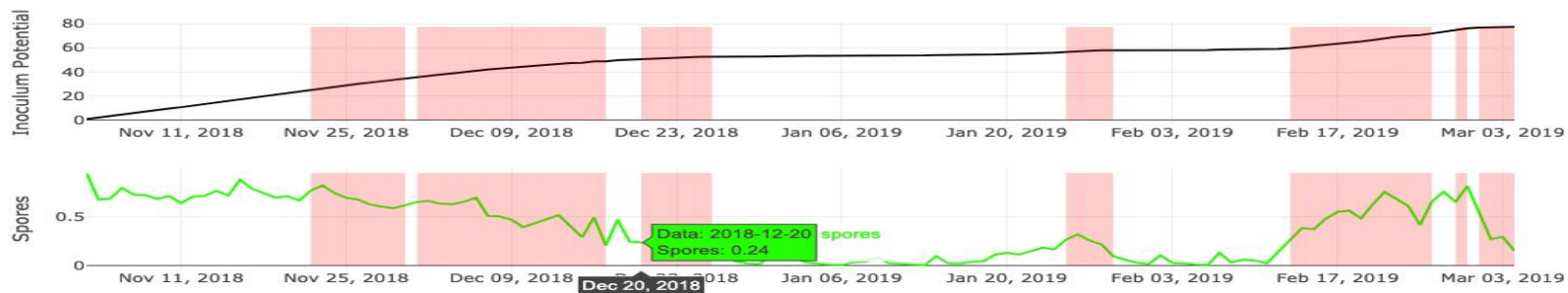
Weather stations

Bhola District

Select date of interest

02/01/2019

## RESULTS



# OBSERVED RISK MODEL

Wheat Blast EWS



Guided tour ↗

Skins ⚙️

Login 👤

Home

Wheat blast

Observed risk data

Home > Observed risk data

Weather data graphs

Weather data explorer

Click here to access wheat blast risk factor graphs.

Click here to access the Weather data explorer.

Risk factor

Weather data graphs

Weather data explorer

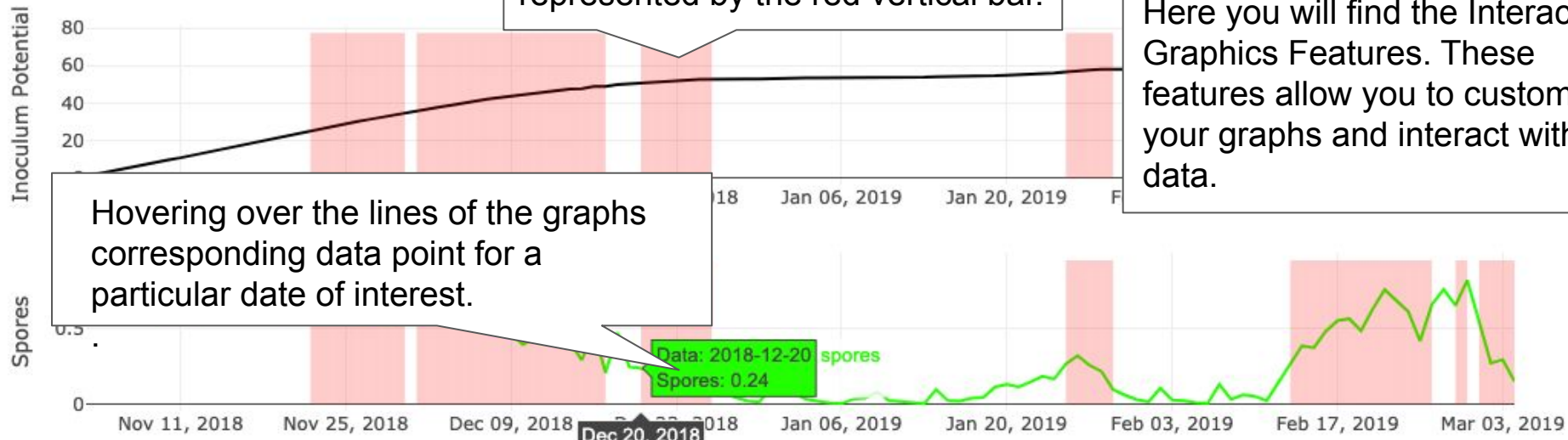
Click here to access the Weather data graphs.

Favorable days for infection are represented by the red vertical bar.



Here you will find the Interactive Graphics Features. These features allow you to customize your graphs and interact with the data.

Hovering over the lines of the graphs corresponding data point for a particular date of interest.



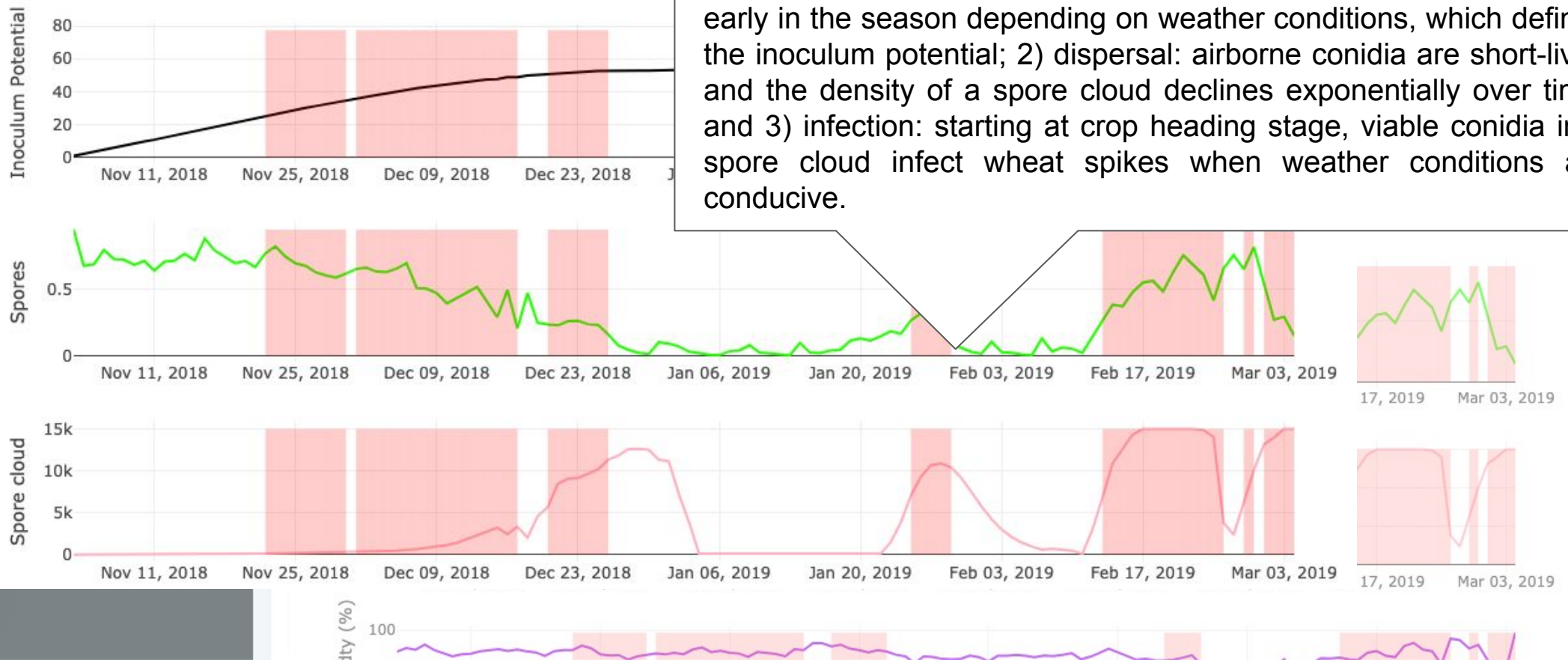
# HOW DO A ASSESS RISK

## Observed risk data

Risk factor

Weather data graphs

Weather



The model was developed in wheat growing regions in Brazil, where wheat blast is endemic and major outbreaks have been reported. The model takes into account three major epidemic processes: 1) survival: it is hypothesized that inoculum surviving on other hosts needs to build-up extensively (massive conidia production) prior or early in the season depending on weather conditions, which defines the inoculum potential; 2) dispersal: airborne conidia are short-lived and the density of a spore cloud declines exponentially over time, and 3) infection: starting at crop heading stage, viable conidia in a spore cloud infect wheat spikes when weather conditions are conducive.

# HOW TO GET WEATHER DATA

## STEP 1

Select the country  
(Bangladesh / Brazil)

Country

Bangladesh

States

Bhola District

Weather stations

Bhola District

Select date of interest

02/01/2019

## STEP 2

Select state/district

Country

Bangladesh

States

Bhola District

Weather stations

Bhola District

Select date of interest

02/01/2019

## STEP 3

Select which weather  
station to use data

Country

Bangladesh

States

Bhola District

Weather stations

Bhola District

Select date of interest

02/01/2019

## STEP 4

Select the date of interest  
in your analysis of  
historical climactic data

Country

Bangladesh

States

Bhola District

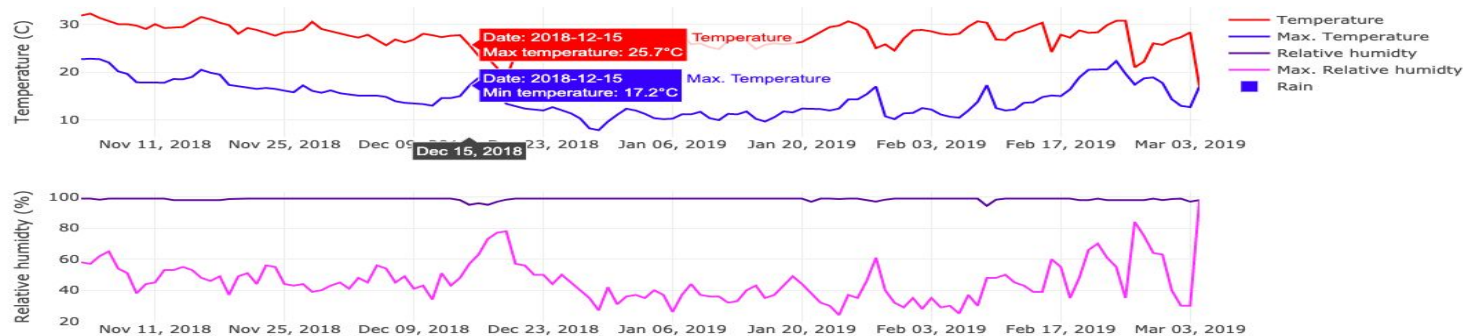
Weather stations

Bhola District

Select date of interest

02/01/2019

## RESULTS



# OBSERVED RISK MODEL



# OBSERVED RISK MODEL

Wheat Blast EWS



Guided tour ↗

Skins ⚙️

Login ↗

Home

Wheat blast

Crop and Disease Model

Inputs

Country

Bangladesh

States

Bhola District

Weather stations

Bhola District

Select date of interest

02/01/2019

Today's date

## Observed risk data

Home > Observed risk data

Click here to select table row number.

Show 10 entries

| Date       | Max. temp. (C) | Min. temp. (C) | Max. RH.(%) | Min. RH.(%) | Temp(C) | Rain(mm) | RH(%) | D. point(C) | Spor | IP    | Spore cloud |
|------------|----------------|----------------|-------------|-------------|---------|----------|-------|-------------|------|-------|-------------|
| 2018-11-03 | 31.8           | 22.7           | 99          | 58          | 26.88   | 0        | 82.62 | 0           | 0.95 | 0.95  | 0           |
| 2018-11-04 | 32.2           | 22.8           | 99          | 57          | 26.52   | 0        | 85.58 | 0           | 0.68 | 2.27  | 0           |
| 2018-11-05 | 31.3           | 22.7           | 98.3333     | 62          | 26.73   | 0        | 84.29 | 0           | 0.69 | 3.35  | 0           |
| 2018-11-06 | 30.7           | 22             | 99          | 65          | 25.74   | 0        | 88.38 | 0           | 0.79 | 4.88  | 0           |
| 2018-11-07 | 30             | 20.17          | 99          | 54          | 24.76   | 0        | 84.12 | 0           | 0.73 | 6.12  | 0           |
| 2018-11-08 | 30             | 19.63          | 99          | 51          | 24.31   | 0        | 81.83 | 0           | 0.72 | 7.34  | 100         |
| 2018-11-09 | 29.7           | 17.87          | 98.6667     | 38          | 22.84   | 0        | 78.92 | 0           | 0.68 | 8.48  | 100         |
| 2018-11-10 | 29             | 17.8           | 99          | 44          | 22.75   | 0        |       |             |      |       |             |
| 2018-11-11 | 30             | 17.8           | 99          | 45          | 22.95   | 0        |       |             |      |       |             |
| 2018-11-12 | 29.2           |                |             |             |         |          | 82.96 | 0           | 0.71 | 12.07 | 100         |

Showing 1 to 10 of 244 entries

Click here to go to the previous page.

Click here to go to the next page.

Previous 1 2 3 4 5 ... 25 Next

# FORECAST RISK MAP

The screenshot displays the 'Wheat Blast EWS' web application. On the left, a sidebar contains navigation links: 'Home', 'Wheat blast', 'Crop and Disease model', and 'Inputs'. The 'Inputs' section is highlighted with an orange arrow pointing to a larger, semi-transparent overlay box. This overlay box, titled 'Inputs', contains three dropdown menus: 'Country' (set to 'Bangladesh'), 'Layer' (set to 'Wheat Blast'), and 'Source' (set to 'BMD'). Three callout boxes provide instructions: the first points to the 'Country' dropdown, the second to the 'Layer' dropdown, and the third to the 'Source' dropdown. The background shows a map of South Asia with a legend for 'Outbreak risk factor' indicating 'No risk' (green) and 'Moderate' (orange). The top navigation bar includes links for 'Guided tour', 'Skins', and 'Login'.

**Wheat Blast EWS** Guided tour Skins Login

Home > Forecast risk map

**Inputs**

**Country**

Bangladesh

**Layer**

Wheat Blast

**Source**

BMD

Click here to select the country (Bangladesh / Brazil).

Click here to select the variable are most interested in and wish to see on an interactive map. Options include gridded forecasts wheat blast risk, temperatures, rainfall or humidity).

Click here to select the data source (Bangladesh Meteorological Department / DarkSky).

Outbreak risk factor

- No risk
- Moderate

# HOW TO RUN FORECAST RISK MAP

## STEP 1

Select the country  
(Bangladesh / Brazil)

Country

Bangladesh

Layer

Wheat Blast

Source

BMD

## STEP 2

Select the variable are  
most interested

Country

Bangladesh

Layer

Wheat Blast

Source

BMD

## STEP 3

Select the data source  
(Bangladesh Meteorological  
Department / DarkSky)

Country

Bangladesh

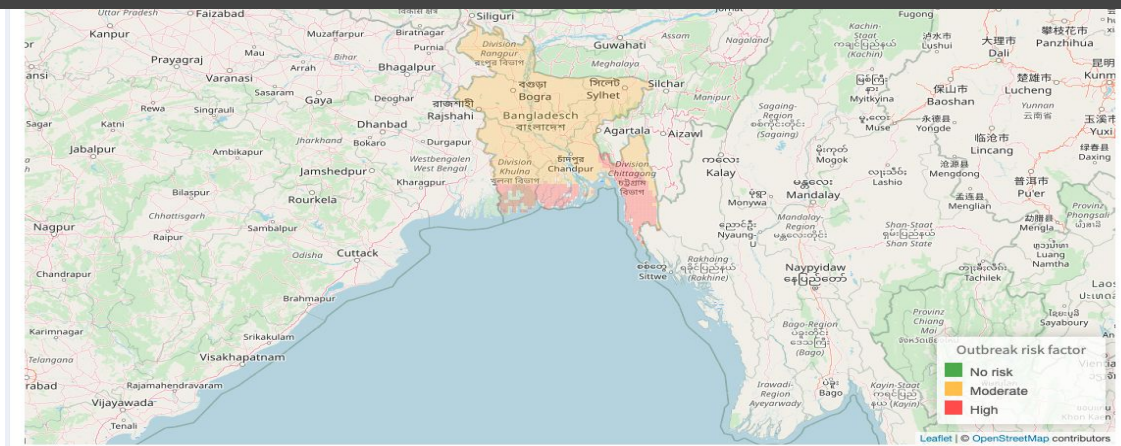
Layer

Wheat Blast

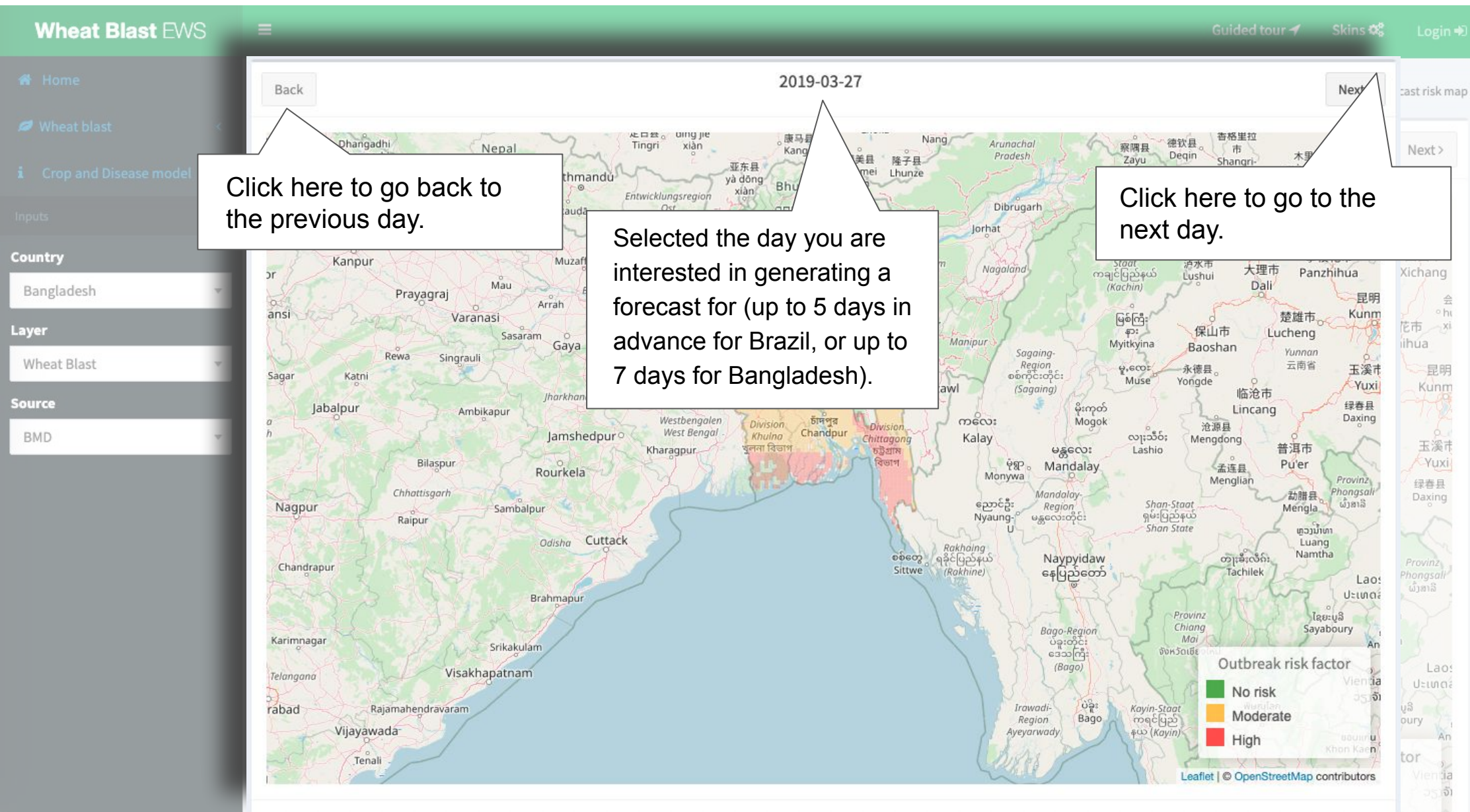
Source

BMD

## RESULTS



# FORECAST RISK MAP



# WHEAT BLAST SAMPLING

The image shows the 'Wheat Blast EWS' application interface. On the left is a sidebar with navigation links: Home, Wheat blast, Crop and Disease model, and Inputs. The main area is titled 'Inputs' and contains four dropdown menus: Years (set to 2018), Stations (set to Bhola), Sampling (set to Third sampling), and Stage (set to Reproductive). An orange arrow points from the 'Inputs' link in the sidebar to the main form. To the right of the form is a map of Bangladesh with several location pins. Four callout boxes provide instructions for each input field.

**Wheat Blast EWS**

Home Wheat blast Crop and Disease model Inputs

**Years**

2018

**Stations**

Bhola

**Sampling**

Third sampling

**Stage**

Reproductive

Click here to select the year of the sampling.

Click here select your weather station location of interest.

Click here select between first, second or third sampling conducted by surveillance teams during the late vegetative and reproductive stage of wheat.

Click here to select phenological stage you are interested in. Options include vegetative (tillering, stem elongation) or reproductive (flowering, heading, ripening, maturity) stages.

# HOW TO GET WHEAT BLAST SAMPLING

## STEP 1

Select the year of the sampling

Years

2018

Stations

Bhola

Sampling

Third sampling

Stage

Reproductive

## STEP 2

Select your weather station location of interest

Years

2018

Stations

Bhola

Sampling

Third sampling

Stage

Reproductive

## STEP 3

Select between first, second or third sampling

Years

2018

Stations

Bhola

Sampling

Third sampling

Stage

Reproductive

## STEP 4

Select phenological stage you are interested in

Years

2018

Stations

Bhola

Sampling

Third sampling

Stage

Reproductive

## RESULTS



# BANGLA FACT SHEET

Wheat Blast EWS



Skins

Login

Home

Wheat blast

About this model

Observed risk map

Observed risk data

Forecast risk map

Wheat blast sampling

Bangla blast fact sheet

Information resources

Crop and Disease model

Fact sheet

Home > Fact sheet

Click here to download.

Click here to print.

You are here.

## গমের ব্লাস্ট রোগ ও তার প্রতিরোধ

গমের ব্লাস্ট একটি ক্ষতিকর ছত্রাকজনিত রোগ। গমের শীষ বের হওয়া থেকে ফুল ফোটার সময়ে তুলনামূলক গরম ও আর্দ্র আবহাওয়া থাকলে এ রোগের আক্রমণ ঘটতে পারে। রোগটি ১৯৮৫ সালে সর্বপ্রথম ব্রাজিলে দেখা যায় এবং পরবর্তী সময়ে ব্রাজিলসহ দক্ষিণ আমেরিকার বলিভিয়া, প্যারাগুয়ে, আর্জেন্টিনা ইত্যাদি দেশে এর বিস্তার হয়। বাংলাদেশে সর্বপ্রথম ২০১৬ সালের ফেব্রুয়ারি মাসের মাঝামাঝি সময়ে যশোর, কুষ্টিয়া, মেহেরপুর, ঝিনাইদহ, চুয়াডাঙ্গা, বরিশাল ও ভোলা জেলায় প্রায় ১৫০০০ হেক্টর জমিতে এ রোগের আক্রমণ পরিলক্ষিত হয়। আক্রান্ত গম ক্ষেতের ফলন শতকরা ২৫-৩০ ভাগ হ্রাস পায় এবং ক্ষেত্র বিশেষে এ রোগের কারণে ক্ষেতের সম্পূর্ণ ফসল বিনষ্ট হতে পারে।

গত ২০১৬-১৭ মৌসুমেও দেশের দক্ষিণ-পশ্চিমাঞ্চলের যশোর, মেহেরপুর, মাগুরা, ঝিনাইদহ, চুয়াডাঙ্গা, কুষ্টিয়া ও ফরিদপুর জেলায় বিচ্ছিন্নভাবে এ রোগের আক্রমণ পরিলক্ষিত হয়, তবে সংক্রমণের মাত্রা ৫-১০% এর মধ্যে নিরূপণ করা হয়। যথাযথ রোগ নিয়ন্ত্রণ ব্যবস্থাপনার উপর সময়োপযোগী কর্মপরিকল্পনা প্রণয়ন ও সমন্বিত কার্যক্রম গ্রহণ করার ফলে এ মৌসুমে গমের ব্লাস্ট রোগ নিয়ন্ত্রণে রাখা সম্ভব হয়েছে।

### গমের ব্লাস্ট রোগ চেনার উপায়



→ গম ক্ষেতে ব্লাস্ট আক্রান্ত স্থানে শীষ সাদা হয়ে যায় এবং অনুকূল

# INFORMATION RESOURCES

**Wheat Blast EWS** ≡ Skins ⚙️ Login ↗️

[Home](#) Home > Information resources

**Information resources**

[Wheat blast](#) ▼

- [About this model](#)
- [Observed risk map](#)
- [Observed risk data](#)
- [Forecast risk map](#)
- [Wheat blast sampling](#)
- [Bangla blast fact sheet](#)
- [Information resources](#) You are here.
- [Crop and Disease model](#)

**Infographic language**

English Infographic ▼ Click here to select the Infographic language.

**Final English WB FLYER\_AI** Click here to download. Click here to print.

## What is wheat blast disease? How can I manage it?



*(Magnaporthe oryzae pathotype triticum)*  
is a devastating fungal disease that can significantly reduce wheat productivity in South Asia

## What does wheat blast look like?

