

Wheat blast

Magnaporthe oryzae Triticum Brusone' in Portuguese and 'Bisforon' in Bangla language



A typical bleached head with traces of gray from blast sporulation at the neck from the field of Bangladesh (Tofazzal Islam, BSMRAU, Bangladesh)



Oval or eye-shaped necrotic lesions with gray centers on a wheat leaf from the field in Bangladesh (Tofazzal Islam, BSMRAU, Bangladesh)



A severely infected spike with damaged spikelets from the field of Bangladesh (Tofazzal Islam, BSMR Agricultural University, BSMRAU, Bangladesh)

Prevention	Monitoring	Direct Control	Direct Control	Restrictions
<ul style="list-style-type: none"> Use certified/clean seed as the fungus is seed-borne. Do not use seeds from your field as fungus can be present on seed that appears healthy Seed treatment with fungicides (see yellow direct control) Use resistant varieties if available Time sowing of seed so that heading occurs when weather is dry Regularly remove and destroy weeds, particularly grasses such as <i>Eleusine indica</i>, <i>Leersia</i>, <i>Echinochloa</i>, <i>Brachiaria</i>, <i>Digitaria</i>, <i>Lolium</i>, <i>Cenchrus</i>, and <i>Chloris</i> in and around the wheat field. Many weeds act as secondary hosts and spread the disease Deep plough or burn crop residues as the fungus can survive on these and spread Rotations are not effective. The fungus appears sporadically on wheat and grows well on numerous grasses and crops such as barley 	<ul style="list-style-type: none"> Check crop regularly, particularly when temperature (18-30°C) and humidity is high for several days followed by heavy rain/dew. Also check for symptoms in fields where barriers (e.g. trees) shade the field and also on fertilized fields rich in nitrogen Symptoms: <ul style="list-style-type: none"> Seeds: Small, shrivelled, light weight, discolored, or no formation Rachis/Spikelets: Brown/black area on rachis which later becomes light/dark grey (indicating blast sporulation), above which all spikelets are destroyed and become bleached Awns: Brown/white discoloration Glumes/Culm/Neck/Sheath: Bleached heads with traces of grey from blast sporulation. Spots on glumes with white/light-brown centres, often becoming gray later on, and with reddish-brown/dark-grey margins. These spots vary in shape (oval to elongated) on the culm, neck and sheath Leaves: Oval-shaped water-soaked lesion which turns into eye/oval-shaped necrotic lesion with grey center, ranging in size and shape. Older leaves are more susceptible than young expanding leaves Leaf spots vary in size, colour and shape Symptoms closely resemble infection by <i>Fusarium</i> spp. which can cause more widespread bleaching of the plant than wheat blast, and produces pink/orange colouration, particularly on the outside of the glumes <ul style="list-style-type: none"> If uncertain, send samples of affected crop to a lab for disease identification 	<ul style="list-style-type: none"> There are no direct controls for this disease 	<ul style="list-style-type: none"> Fungicides application are unreliable and only partially effective when applied before symptoms appear. Don't use chemicals with the same mode of action each year as this can lead to resistance. When using a fungicide, always wear protective clothing. Follow the instructions on the product label 	<ul style="list-style-type: none"> WHO toxicity class II (moderately acute hazardous); toxic to some natural enemies and fish; do not make more than 3 applications per season, follow-up application is not allowed Restricted re-entry interval r.e.i. ½ day. Pre-harvest interval p.h.i. 30 days Carbendazim is WHO toxicity class U (unlikely acute hazardous). Please check the product label for others Follow FRAC guidelines, especially for strobilurins (QoI)-based formulations, as only up to 50% of the programme may be made up of these. Tebuconazole is WHO toxicity class II (moderately acute hazardous) Benlate is WHO toxicity class U (unlikely acute hazardous).
			<ul style="list-style-type: none"> Apply any systemic fungicides such as isopyrazam, fenpropimorph or propiconazole. Apply at recommended rate written on the product label Alternate with contact fungicides (such as carbendazim) Apply trifloxystrobin 25% w/w + tebuconazole 50% w/w (Nativo 75 WG) at the rate of 0.3-0.4 kg/ha before rain or dew at flowering stage Seed treatment with benlate 50 wp @ 2.0 oz/cwt. 	



Bangladesh

CREATED/UPDATED: September 2016

AUTHOR(S): M. Tofazzal Islam, Department of Biotechnology, BSMRAU, Bangladesh

EDITED BY: Plantwise