

OUTLINE OF THE DISEASES OF WHEAT

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The diseases of wheat fall into the following categories: fungus diseases, bacterial diseases, virus diseases, diseases caused by nematodes and non-parasitic diseases. By far the most important group of wheat diseases are those caused by the fungi.

FUNGUS DISEASES IN WHEAT

A. BASIDIOMYCETES

1. Protobasidiomycetes (rusts)

- Black stem rust - *Puccinia graminis tritici*
Distribution - Universal
Control - Resistant varieties
- Stripe rust - *Puccinia glumarum*
Distribution - Universal
Control - Resistant varieties
- Leaf rust - *Puccinia rubigo-vera*

2. Hemibasidiomycetes

- Loose smut - *Ustilago tritici*
Distribution - Universal
Control - Hot water treatment of seed and resistant varieties.
- Stinking smut - *Tilletia caries* and *T. foetida*
Distribution - Universal
Control - Seed treatment and resistant varieties

B. ASCOMYCETES

- Powdery mildew - *Erysiphe graminis tritici*
Distribution - Universal
Control - Sulphur dust and resistant varieties

Ergot

- *Claviceps purpurea*
- Distribution - Universal
- Control - Crop rotation, sanitation

Blight and scab

- *Gibberella* and *Fusarium*
- Distribution - Universal
- Control - Crop rotation, sanitation, soil management and seed treatment.

Snow mold, Foot rot and Head Blight

- *Calonectria graminicola* and *Fusarium* spp.
- Distribution - Northern Wheat Belt
- Control - Rotation and seed and soil treatments

Take-all

- *Ophiobolus graminis*
- Distribution - Universal
- Control - Crop rotation

Foot Rot

- *Leptosphaeria herpotrichoides* and *Cercospora herpotrichoides*
- Distribution - Northern Europe, Northwestern United States and Canada
- Control - Crop rotation and delayed planting

C. PHYCOMYCETES

Root Rot

- *Phythium* spp.
- Distribution - Universal
- Control - Crop rotation

Downy mildew

- *Sclerospora macrospora*
- Distribution - Universal
- Control - Crop rotation

D. FUNGI IMPERFECTI

Root Rot

- *Helminthosporium* spp.
- Distribution - Universal
- Control - Sanitation, crop rotation and seed treatment

Anthrachnose - Colletotrichum graminicolun
Distribution - Universal
Control - Crop rotation and improved soil fertility

Leaf & Glume Blotch - Septoria tritici and S. nodorum
Distribution - Universal
Control - Rotation and sanitation

Blight - Rhizoctonia solani
Distribution - Universal
Control - Crop rotation

E. BACTERIAL DISEASES

Black Chaff - Xanthomonas translucens, variety undulosa
Distribution - Universal
Control - Crop rotation, seed treatment and resistant varieties

Basal Glume Rot - Phytonomas atrofaciens
Distribution - Universal
Control - Crop rotation, seed treatment and resistant varieties

F. VIRUS DISEASES

Wheat mosaic - Distribution - United States, Japan, Egypt, Russia
Control - Resistant varieties

G. NEMATODE DISEASES

Wheat Nematode - Anguillulina tritici
Distribution - United States
Control - Clean seed and crop rotation

H. NON-PARASITIC DISEASES

Frost injury

Winter killing

Mineral deficiencies