

Karnal bunt



Tilletia indica

Synonyms

- Partial bunt

Plant hosts

Triticum (wheat) and *Triticale* (a hybrid of wheat and rye) are hosts of Karnal bunt.

Symptoms

Karnal bunt is difficult to detect in the field because normally only a few seeds are attacked per head. The grain must be removed from the head and examined to see the infected kernels. Kernels are partially darkened, often limited to the embryo end only, but may extend over the entire kernel. Symptoms often resemble those of other more common diseases such as black point, common bunt, and dwarf bunt. To confirm the diagnosis of Karnal bunt, suspect kernels should be sent to a state or federal lab for testing.

When 3% of harvested kernels are infected, flour quality is reduced to the point considered unfit for human consumption. The disease does not present a risk to human health. Flour quality is reduced because of flour discoloration and the presence of a foul, decaying fish odor. A chemical, trimethylamine, produced by the fungus, is responsible for the quality reduction.



Seeds infected with karnal bunt.

Transmission

Karnal bunt spreads primarily through contaminated seed. Once introduced into an area, spores can survive in the soil for several years. Spores of the pathogen can also move with contaminated soil, farm equipment, tools, and possibly with contaminated straw or farm manure. Windborne spores can also initiate disease in neighboring fields.

Geographic distribution

Distribution of Karnal bunt in the United States is limited to Arizona, New Mexico, California, and Texas. Other countries with reports of Karnal bunt include Afghanistan, India, Iraq, Pakistan, South Africa, Mexico, and Brazil.

Applicable regulations

The USDA Animal and Plant Health Inspection Service (APHIS) has a [quarantine](#) against Karnal bunt to prevent the interstate spread of the disease and to protect US foreign wheat markets. Many countries have a quarantine against the introduction of Karnal bunt.