



# Karnal Bunt: A Fungal Disease of Wheat



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Go directly to [links](#) to other Karnal bunt web pages.

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## Background

Karnal bunt, or partial bunt, is a fungal disease of wheat, durum wheat, and triticale (a hybrid of wheat and rye). The disease is caused by the smut fungus *Tilletia indica* Mitra (also known as *Neovossia indica*) and is spread by spores. Typically, only a portion of the kernel is affected; this is why the disease is sometimes called partial bunt.



A bunted (or "smutted") kernel of wheat.

Damage from Karnal bunt is twofold: (1) infected plants produce less grain, and (2) the quality of the grain itself is lessened, with flour made from bunted kernels discolored with an unpleasant, though harmless, odor and taste. Generally, as a quality matter, wheat with more than 3 percent bunted kernels is considered unsatisfactory for human consumption.

Karnal bunt was first reported in 1931 in the Indian State of Haryana in wheat-growing areas near the city of Karnal, from which the disease gets its name. Since then, it has been found in all major wheat-growing areas of India, as well as in Pakistan, Iraq, and Afghanistan. Karnal bunt may have been present in Mexico since 1970 and has been well established in some areas in northwestern Mexico since 1982. Until recently, the disease was not known to exist in the United States.

## Current Situation

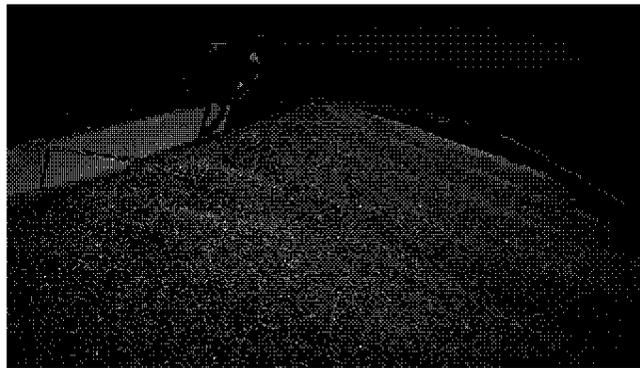
On March 8, 1996, scientists with USDA's Agricultural Research Service (ARS) confirmed the presence of Karnal bunt in Arizona in certified durum wheat seed, the first occurrence of this disease in the United States. Suspect seed samples had been detected at a seed dealership a few days earlier during routine testing by the Arizona Department of Agriculture.

Emergency action notices have been instituted on infected properties, seed, farm equipment, planted wheat, and soil associated with the infected wheat. State and Federal quarantines have been put into place to augment this emergency action, and USDA has established a wheat export certification team to develop options for dealing with potential trade issues.

Although the overall crop losses caused by Karnal bunt might not be severe, the disease has quarantine significance and thus could affect U.S. grain exports. The United States is the world's leading wheat exporter, accounting for one-third of world wheat exports with U.S. exports in calendar year 1995 valued at \$5.5 billion.

APHIS' PPQ officials, in cooperation with State counterparts, have conducted survey operations of harvested wheat in a number of States over the past few years to determine if Karnal bunt was present. All surveys have been negative. These survey efforts will be continued and intensified.

A scientific panel comprised of State, federal and industry technical experts and scientists has been convened to help determine further actions.



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Visitors since April 3, 1996.



Questions or comments? [E-mail us](#).

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To find out more information about Karnal bunt and the current outbreak, check these links to:

 [NEW: NEW: Grower information about Karnal bunt.](#)

 [NEW: NEW: Q&A's on the Karnal bunt regulations for the 1996-97 crop year. Full text of these regulations is also available.](#)

 [NEW: Aug. 8 APHIS news feature on the Karnal bunt program.](#)

 [NEW: Notice of the July-August 1996 USDA public forums on the Karnal bunt program.](#)

 [NEW: Transcripts of the public forums, along with comments submitted on the latest proposed rule \(Aug. 2, 1996\) on Karnal bunt.](#)

 **NEW** Updated basic information about Karnal bunt eradication, including details on compensation and quarantines. Check these maps of the original quarantine (March 25 and April 19, 1996) and the revised quarantine (June 27 and July 9, 1996).

 **NEW** Link to the American Phytopathological Society's Karnal bunt symposium. Also check the APA Home Page.

 **NEW** Questions and answers about the national survey on Karnal bunt.

 **NEW** Information from the National Agricultural Pest Information System (NAPIS) with results from the Karnal bunt national survey.

 Additional protocol on millfeed disposal.

 National Karnal bunt situation report update.

 Karnal bunt press releases.

 Karnal bunt Federal quarantine. The quarantine regulations also are available in PDF format here, exactly as they appeared in the Federal Register. Look at a map of the original quarantine area. This map also is available in PDF format. Also check a map of the revised quarantine as of June 27, 1996.

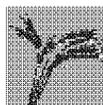
 State-by-State breakdown of wheat production and Karnal bunt activities.

 Karnal bunt fact sheet.

 More details about the biology of Karnal bunt.

 Phytosanitary information -- trade requirements of other nations.

 Agricultural export-import information from USDA's Foreign Agricultural Service.



Charts and maps of U.S. wheat production.



Durum wheat, harvested acres.



Durum wheat, yield per acre.



All wheat, harvested acres.



All wheat, yield per acre.

 Information about the Karnal bunt outbreak specific to New Mexico.

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Statistical information is available from the National Agricultural Statistics Service (NASS); economic reports are available from the Economic Research Service (ERS); trade data are available from the Foreign Agricultural Service (FAS); and information about grain inspection is available from the Grain Inspection, Packers and Stockyards Administration (GIPSA).

 [APHIS Home Page](#)  [PPQ Home Page](#)  [NASS Home Page](#)  [ERS Home Page](#)  [FAS Home Page](#)  
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