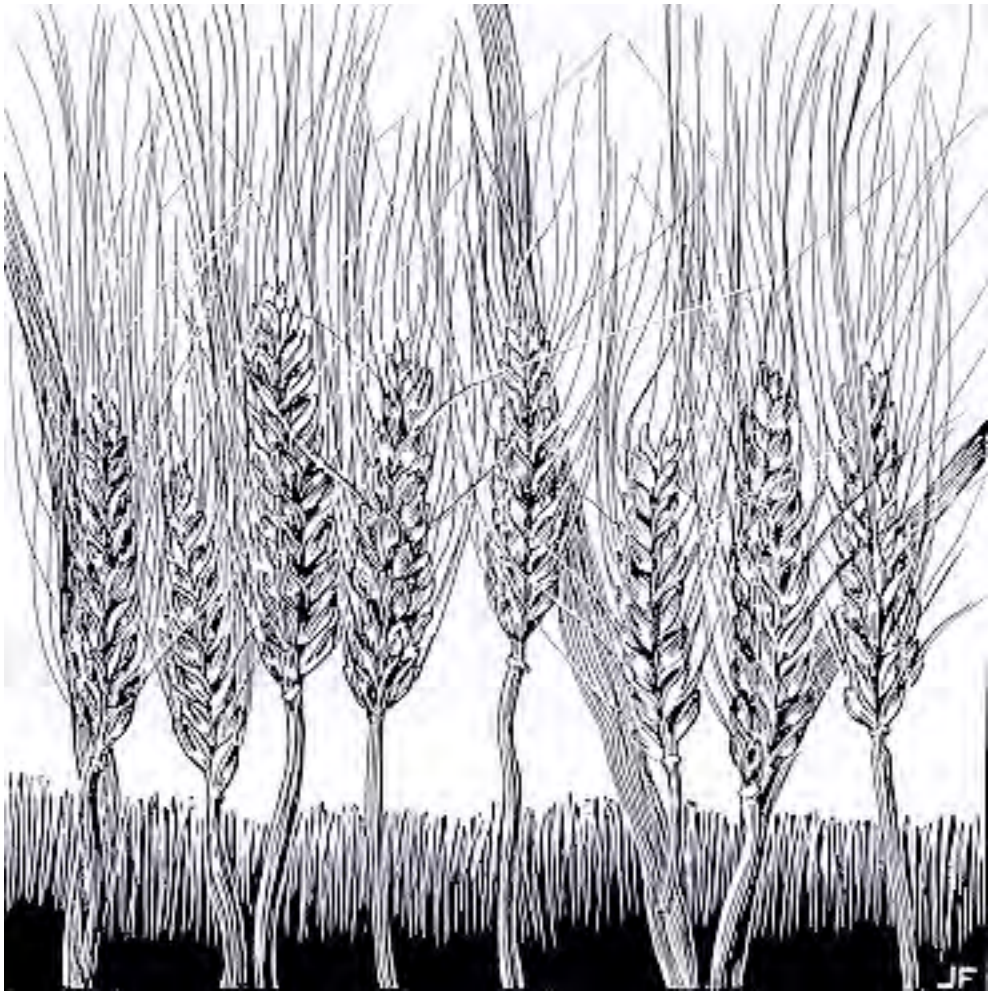
Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Karnal Bunt Manual



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When using pesticides, read and follow all label instructions.

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General Information

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Purpose

The information contained in this document is intended for use only for Karnal bunt programs. Use this manual for guidance in the current National Survey Program and in implementing regulatory procedures and in preventing the spread of Karnal bunt to other locations. This manual provides technical and general information needed to implement any phase of a Karnal bunt regulatory program. Specific program action is to be based on information available at that time and in accordance with local methods and procedures.

Goals and Objectives

The goal of the Karnal bunt program is to retain U.S. wheat export markets while:

- Protecting U. S. wheat production areas free of Karnal bunt
- Providing the best possible options for those who are affected
- Facilitating the movement of wheat into domestic and international markets
- Promoting the flow of pertinent disease information to reassure our trading partners about the safety of exported U.S. wheat

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2

Survey Procedures

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Protocol for Sampling Grain

Sampling

Every wheat field within the regulated area, and individually regulated fields, will be sampled. Karnal bunt program personnel will obtain four pound samples at the field. Samples will then be examined for bunted kernels at the nearest lab/bunted kernel machine location. The sample will be a time sensitive sample and results will be known prior to the grain leaving the field or before grain is off loaded at a facility.

The Karnal bunt project will supply to the facility handlers maps and/or lists identifying known field numbers of all fields within the regulated areas. This information will help industry insure that regulated area grain will not be off loaded without appropriate test results.

Protocol

Draw a four pound sample prior to or at time of harvest. A sample cut by a combine will contain approximately 1,000 pounds of wheat randomly harvested from the field being tested. Obtain the sample as safely and efficiently as possible. To avoid getting grain from a previous field that was left within the combine, let the grain discharge awhile before drawing the sample.

Step 1: Collect the sample.

Use a length of PVC pipe to obtain grain as the combine discharges into a truck. A probe may be used to draw the sample from the combine or truck. The sample may also be drawn from the inspection compartment, if available, or hopper of the combine.

Step 2: Bag the sample.

Place the sample grain into a collection bag (double bagged), labeled with one of the following conventions:

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Regulatory Procedures

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Orientation/Instruction to Officers

Regulatory actions will be initiated based on production, handling, and transportation practices, or when the program is modified by the agency to meet changing conditions. Officers must follow instructions for regulatory procedures when authorizing the movement of regulated articles. Understanding the instructions and procedures will serve as a basis for explaining procedures to persons interested in moving articles affected by the quarantine and regulations. Only authorized treatments may be used (see Decision Tables for Principal Activities on page 3-10). Specific working protocols may be tailored by individual states within these guidelines.

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Public Information

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Introduction

As an agency concerned about pest and disease situations that can occur or change rapidly, the Animal and Plant Health Inspection Service (APHIS) has a vital need to effectively communicate program activities to its target audiences using a wide variety of informational materials. During outbreak situations, effective and timely communication becomes even more crucial. APHIS provides onsite support when appropriate, serving along with state officials as primary liaisons with the news media to provide accurate information to stakeholders, industry, and the public.

Audiences

- Media
- State, city and county governments
- Industry/stakeholders
- Environmental groups
- General public
- Special interest groups
- Trading partners
- Congress
- Other Federal government counterparts
- Agency headquarters personnel

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5

Data Management

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Introduction

Data, mapping, and graphics will be accomplished by local, state, or federal TDY personnel with the specialized skills to perform these functions. Sources of personnel could be the Rapid Response Team (RRT), Regional TDY rosters, or State Departments of Agriculture. For assistance, contact APHIS Business Services and/or Pest Detection and Management Programs (PDMP). Basic duties include but are not limited to the following:

1. Prepares maps, overlays, charts, signs, placards, and Power Points.
2. Maintains computer equipment and other technical needs of program (fax machine, digital camera, GPS units).
3. Prepares graphics.
4. Manages data acquisition, manipulation, and retrieval.

Karnal Bunt Information System (KBIS)

The Karnal Bunt Information System (KBIS) was developed beginning in April, 2002, in a combined effort with a contractor, REI Systems; representatives of the USDA–Karnal Bunt Program offices in Arizona, California, New Mexico, and Texas; the Western Regional office in Ft. Collins, CO; and PPQ Headquarters in Riverdale, MD. The initiative was mounted in order to preserve relevant program historical data and to create a unified information collection system for the individual existing regulatory programs and record data for National Karnal Bunt Grain Survey samples analyzed by PPQ. Also included is the ability to create a new program office KBIS system in the event karnal bunt is discovered in a new area. The KBIS Lotus Notes-based system is an interim step in the creation of a larger, comprehensive Oracle-based emergency programs database in the future.

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Contacts

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Introduction

At the outset of a Karnal bunt program the following list of various groups must be informed and continually updated in all operational phases of emergency programs. Bear in mind the success of a program is heavily dependent on voluntary cooperation, assistance, and understanding from other interrelated groups. Following is a partial list of various groups which must be kept informed of and/or involved in all operational phases of an emergency program.

- Other Federal, State, County, and municipal agricultural officials
- Grower groups
- Universities and Agricultural Research Stations
- Foreign agricultural interests
- National, State, and local news media
- State and local law enforcement officials
- General public
- Public health
- Private agricultural consultants
- Public and private plant breeders
- State grain organizations
- Bureau of Indian Affairs (BIA)

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Safety

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General Information

Personnel and public safety must be a prime consideration at all times. Stress safety practices in pre-program planning. Supervisors must enforce on the job safety procedures.

Pesticides authorized for use vary in toxicity. When used in accordance with label instructions, materials do not constitute a threat to people, wildlife, bees, etc. Specific safety precautions for each pesticide are listed on the label. In addition, any special precautions listed in this or specific manuals shall be observed.

Keep pesticides in closed, properly labeled containers in a dry place. Store them where they will not contaminate food or feed and where children and animals cannot reach them. When handling a pesticide, follow all precautionary labeling.

Should there be contact through spillage or otherwise, wash immediately with soap and water. Should clothing become contaminated, launder before wearing again. Refer to PPQ Treatment Manual, Section X, for additional information.

Dispose of empty pesticide containers in an approved sanitary landfill, by incineration, or by other methods approved by the Federal Environmental Protection Agency whereby they will not present a hazard or problem. Arrangements for disposal of such containers should be completed and thoroughly understood by all parties directly involved with a program before the actual start of operations. Consult PPQ Regional offices and the Pest Detection and Management Programs (PDMP) staff for pertinent information in States where operations are conducted.

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Technical Application Data and Chemicals

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Methyl Bromide

When fumigating contaminated elevators, storage buildings, bins, rail cars, equipment, and infected or contaminated grain, use methyl bromide at the rate of 5 pounds per 1,000 ft^3 for a duration of 48 hours. Do not attempt fumigation when the temperature is below 70°F (21°C). Under normal conditions, maintain the recommended concentration of methyl bromide for 48 hours. Monitor the concentration of methyl bromide at regular intervals to ensure adequate treatment. Additional measures such as fumigant recirculation may be required in some cases.

Chlorine Bleach

Use chlorine bleach to decontaminate tools, equipment, etc., that may have come in contact with infected or contaminated grain or soil. Dilute one part Ultra Clorox brand regular bleach (6 percent sodium hypochlorite; EPA Reg. No. 5813-50) in 3 parts water; or one part CPPC Ultra Bleach 2 (6.15 percent sodium hypochlorite; EPA Reg. No. 67619-8) in 3.1 parts water. Since the working solution rapidly breaks down, prepare fresh solutions each time they are to be used. Use the chlorine bleach solution to thoroughly wet down all equipment and implements to be decontaminated. Allow the bleach solution to remain in contact with the equipment for at least 15 minutes.

Use one of the following formulations:

- Ultra Clorox brand regular bleach (EPA Reg. No. 5813-50); 6% sodium hypochlorite
- CPPC Ultra Bleach 2 (EPA Reg. No. 67619-8); 6.15% sodium hypochlorite

PCNB (Pentachloronitrobenzene)

Use PCNB with or without carboxin-thiram as a seed treatment. Treat all seed prior to use with one of the following:

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Laboratory Procedures

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Introduction and Background

The purpose of the laboratory section is to describe procedures for examining wheat grain samples for the presence of *Tilletia indica* infected grain (i.e., bunted kernels) and seed samples for the presence of *T. indica* teliospores. Grain analysis laboratories normally process grain samples from fields, bins, or national surveys for the presence of bunted kernels. Seed laboratories process seed samples and perform extraction procedures to determine the presence of *T. indica* teliospores.

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Compliance Agreements

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Examples

The following examples serve as guides. Stipulations may be altered to meet local needs and/or farming practices.

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Contributors

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National Survey Protocol

The National Survey for Karnal bunt is conducted in each state with technical support provided to SPHDs/SPROs from the National Survey Coordinator of Pest Detection and Management Programs (PDMT). Numbers of samples taken vary depending on the amount of wheat produced within a state. The Karnal bunt protocol is available from the National Survey Coordinator for Karnal bunt on the PDMP Staff in Riverdale Headquarters. You can also download the survey plan found at National Karnal Bunt Survey Procedures.

Glossary

Best Management Practices (BMP). Procedures and techniques designed to negate or minimize the spread of Karnal bunt.

Certificate. PPQ Form 540 or local equivalent.

Cleaning. Removing all soil and plant debris.

Compliance Agreement (CA). A written agreement between APHIS and a person engaged in growing, handling, or moving regulated articles, in which the person agrees to comply with the provisions of 7 CFR 301.89 and any conditions imposed under that subpart.

Confirmed Detection. Positive laboratory identification of a submitted sample (specimen) of Karnal bunt disease (a bunted kernel of wheat).

Contaminated Seed. Seed from sources in which the Karnal bunt pathogen (*Tilletia indica* (Mitra) Mundkur) has been determined to exist by the presence of bunted kernels or teliospores.

Contamination. Exposure that occurs when wheat, triticale, or durum wheat grain or any building, equipment, or tools, come into contact with bunted wheat kernels.

Conveyance. Any container used to move wheat, durum wheat, triticale, or their products, including trucks, trailers, railroad cars, bins, and hoppers.

Cultivated Crop. Any crop where the soil is prepared annually to a friable state at the time of planting. No till rotation does not constitute cultivation.

Decontamination. Treatment by the application of an approved decontaminating solution or by methyl bromide fumigation of contaminated implements, material, or equipment.

Delimiting Survey. A survey conducted in the area where a confirmed detection of Karnal bunt has occurred to determine the extent of the outbreak.

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