FACT SHEET

Pesticides

BACKGROUND

Pesticides are used to eliminate or control unwanted or harmful insects, plants, fungi, animals, or microorganisms. Currently approximately 600 approved, active pesticide ingredients are used in almost 20,000 products. Each year, approximately two billion pounds of licensed pesticides are used in the United States, an amount that is roughly one-fifth of total global pesticide use.

Human exposure to pesticides occurs primarily through dietary residues, outdoor pesticide exposure (gardening and lawn applications), indoor pesticide exposure (including tracking in outdoor pesticides), occupational exposures (pest control applicators and farm workers), and the use of pesticides on domestic animals, including pets. Exposure to pesticides that results from natural disasters or terrorism also poses a threat to public health.

When used properly, pesticides offer many benefits, including preventing illness and death by controlling the insect vectors of diseases such as malaria, and West Nile virus. However, in 2001, the Toxic Exposure Surveillance System (TESS), which tracks cases of poisoning reported to U.S. poison control centers, identified 20,110 cases of acute pesticide poisonings in the general population. The EPA estimates that 10,000-20,000 physician-diagnosed pesticide poisonings occur each year among approximately 3,380,000 U.S. agricultural workers. Short-term exposure to high levels of pesticides may cause respiratory, gastrointestinal, allergic, or neurologic symptoms. Long-term exposure may be associated with neurologic diseases such as Parkinsons and Alzheimers.

CDC ACTIVITIES

Several programs at the Centers for Disease Control and Prevention (CDC) conduct activities related to pesticides and health. The following are activities of the Environmental Hazards and Health Effects Program (EHHE) in CDC's National Center for Environmental Health:

- Conducts activities related to preparing for and responding to chemical emergencies, including those involving pesticides:
  - Supports surveillance of chemical exposures through TESS and conversion of TESS into a real-time system for tracking poisoning
  - Provides training for various audiences, such as physicians and public health officials, as well as educational materials to help identify, respond to, and prevent chemical exposures
- Provides consultation and conducts research regarding the safety of public health pesticides, including the following activities:
  - Provides EPA, as specified by the Food Quality Protection Act, with information on the benefits and use of public health pesticides and has collaborated with EPA to develop a comprehensive list of public health pests, protocols for evaluating specific pesticide effectiveness, and factors to be used in risk/benefit decisions
  - Assesses the exposure to pesticides of at-risk populations. For example, the program has:
    - Conducted a study in Mississippi to determine whether mosquito-control spraying during the West Nile epidemic increased the amount of pesticides to which people were being exposed. The study compared pesticide levels (measured in urine) among people living in areas that sprayed for mosquitoes with levels among people living in areas that did not spray for mosquitoes. The study group exposed to mosquito-control pesticides had the same level of

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pesticides as the study group not exposed to mosquito-control pesticides, indicating that mosquito-control spraying did not significantly increase human exposure to pesticides.

- Conducted an exposure assessment of reproductive-age women who worked on or lived near agricultural fields in the California-Baja border region. The study measured pesticide metabolite levels in the urine of 100 women in Imperial Valley, California, a community where use of organophosphates and carbamates has been documented. Results showed that women in this area are exposed to pesticides but to the same types and levels of pesticides as the general U.S. population. Levels found were lower than levels known to cause health problems.
- Conducted a study to assess pesticide exposure in children in Yuma County, Arizona. The study was performed to determine whether children who lived or attended school close to agricultural fields had higher levels of pesticides in their urine than did children who lived or attended school farther away. Distance from household or school to agricultural fields was not associated with exposure to pesticides. The data in this study suggest that the levels of pesticide metabolites measured in urine were more closely related to household exposures than to distance the child lived or attended school from an agricultural field.

- Supports states and cities, through the National Environmental Public Health Tracking Program, in conducting projects that demonstrate and evaluate methods for linking environmental data and health data on pesticides. These activities are intended to improve existing surveillance and monitoring systems and aid in early identification, intervention, and prevention of harmful pesticide exposures. The following are examples of funded projects:
  - Washington state: developing electronic systems to improve completeness and timeliness of case reporting for pesticide exposure and illness
  - California: linking data on birth outcomes, infant mortality, autism spectrum disorders, and mental retardations with data from the California Pesticide Use Reports
  - Massachusetts: linking data on childhood cancer incidence from the state cancer registry with information from databases on drinking water quality and pesticide use
  - Wisconsin: conducting a pilot project of indicators for pesticide poisonings and linking data from the Childhood Cancer Follow-back Program with data on residential and regional pesticide usage
  - New York City: linking information on pesticide poisonings with environmental data for pesticides

For information on other CDC activities related to pesticides, visit the following program websites:

- National Center for Infectious Diseases: http://www.cdc.gov/ncidod/dvbid/westnile/index.htm
- NCEH/Division of Laboratory Sciences: http://www.cdc.gov/nceh/dls/factsheets/pesticides.htm
- National Institute for Occupational Safety & Health: http://www.cdc.gov/niosh/topics/pesticides/
- CDC Health Topic: Pesticides: http://www.cdc.gov/health/pesticides.htm

For more information on EHHE's pesticide activities, please contact:

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National Center for Environmental Health, MS F52
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Phone: 1-800-CDC-INFO; E-mail: cdcinfo@cdc.gov; Web site: http://www.cdc.gov/nceh/hsb/pesticides/.