A Snapshot of Occupational Exposure to Pesticides in Kansas

"Environmental public health tracking utilizes different types of data to examine information about the interaction between the environment and health."

Background

Pesticides are chemicals used to prevent, repel, mitigate, or destroy pests (1). The specific pests vary; some of the common types of pests include insects (insecticides), rodents (rodenticides), weeds (herbicides), and fungi (fungicides). Pesticides are commonly used residentially around the home and lawn as well as occupationally in agriculture.

In Kansas, about 17% of the labor force, or just over one in six jobs, is employed by agriculture (2). It is the largest industry and employer in the state (2). In order to apply pesticides for compensation in Kansas, it is required by law that the entity have a Kansas pesticide business license (3). They must also have at least one employee with a Kansas commercial pesticide applicator certification (3). This requirement educates workers on how to safely handle pesticides. However, occupational exposures to pesticides still occur each year.

Because Kansas has a prominent agriculture workforce, it is important to understand the issues surrounding occupational pesticide exposure among agricultural workers. The National Institute for Occupational Safety and Health (NIOSH) publishes the yearly work-related pesticide poisoning incidence rate for each state. However, more detailed information on occupational pesticide exposures for Kansas are not available.

This report provides a snapshot of occupational exposure to pesticides in Kansas based on data received from the University of Kansas Hospital Poison Control Center. Development and data analysis for the report was conducted by the Kansas Environmental Public Health Tracking Program (KS-EPHT), which is part of the Kansas Department of Health and Environment (KDHE). The KS-EPHT program is committed to the advancement of environmental health in the state to support KDHE's goal "*to protect and improve the health and environment of all Kansans*". One way to support that goal is to collect, analyze, and utilize data to share with fellow Kansans.

Methods

Data from 266 occupational exposure calls to the University of Kansas Hospital Poison Control Center for the period between January 1, 2006 and December 31, 2015 were analyzed. Frequencies and percentages were calculated and stratified by route of exposure, types of pesticides, sex, and age group of the exposed person.

Poison Control Centers (PCCs) offer a free 24 hour telephone line for medical advice on poisonings including pesticides. Poison Control Centers maintain a surveillance database of poisoning exposures in the Unites States from phone calls taken by PCCs (4). Pesticide exposures are likely under-reported; this is because of lack of reporting requirements, incomplete reporting, difficulty with diagnosis because symptoms are not recognized as poisoning, and low-dose exposures that occur over a long-term that are not commonly included in poisoning data (4). Analysis of PCC calls help determine the routes of exposure and the specific pesticides workers are exposed to as well as the demographic of the exposed workers.

Results

Results from the analysis are provided in the *interactive charts* located within this report. Hover over the data points for more information about the data.

Chart 1: Number of calls related to occupational exposure to pesticides by pesticide type and sex of the worker, University of Kansas Hospital Poison Control Center 2006-2015

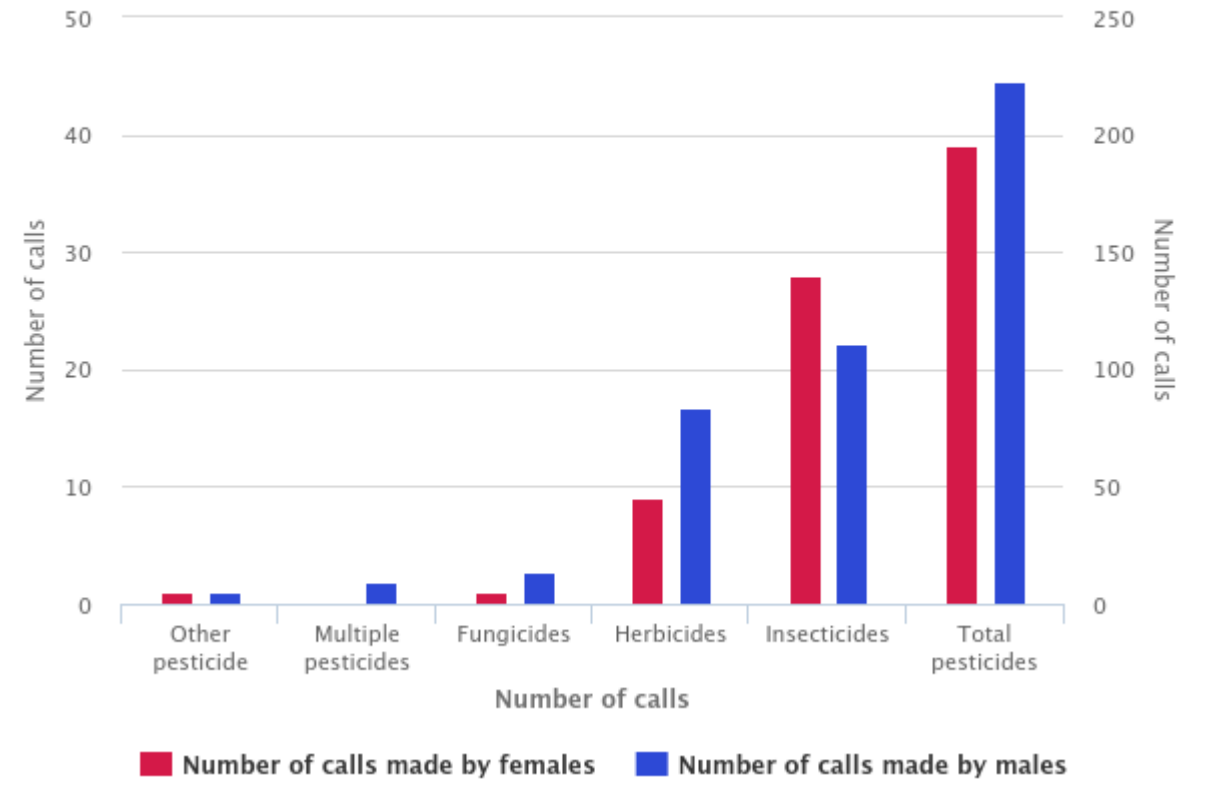


Chart 1 Notes: "Other pesticide" includes rodenticides, unknown types of pesticides, and other uncategorized or unspecified pesticides. "Multiple pesticides" includes any call where two or more different pesticide types were reported. Four records did not have information about sex

Chart 2: Number of calls related to occupational exposure to pesticides by route of exposure and by year, University of Kansas Hospital Poison Control Center 2006-2015

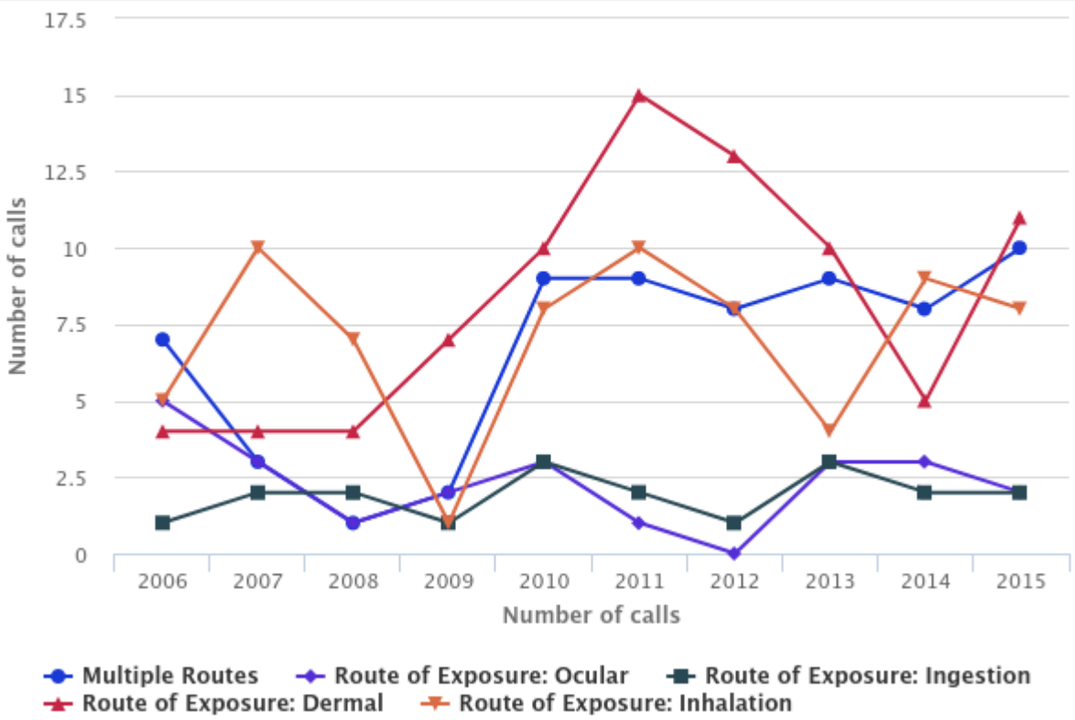


Chart 2 Notes: "Multiple routes" includes any call with two or more different routes of exposure. Five records did not have information about route of exposure.

Chart 3: Number of calls related to occupational exposure to pesticides by pesticide type and by age group of exposed person, University of Kansas Hospital Poison Control Center 2006-2015

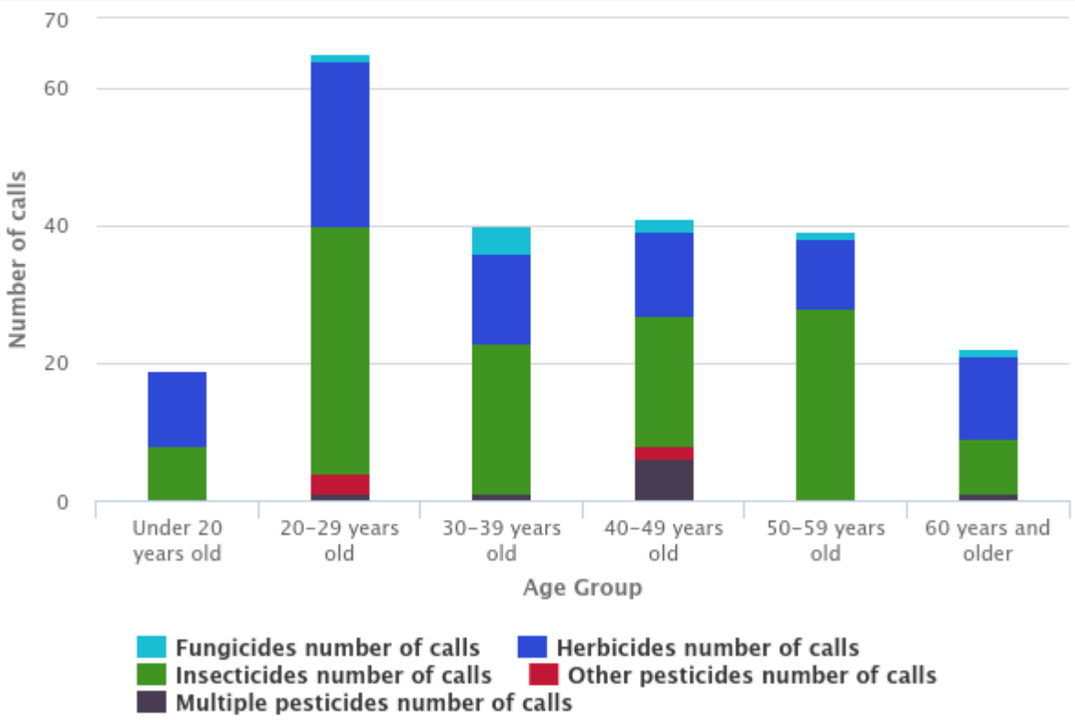


Chart 3 Notes: "Other pesticides" rodenticides, unknown types of pesticides, and other uncategorized or unspecified pesticides. “Multiple pesticides” includes any call where two or more different pesticide types were reported. Forty records did not have information about age.

"Data can be used to inform decisions"

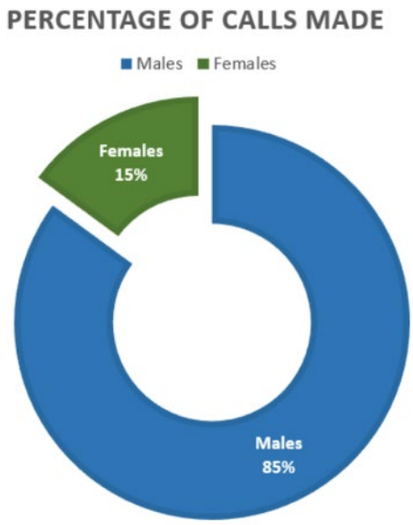
Findings

Among the 266 telephone calls reporting occupational pesticide exposure over the 2006-2015 times period, males represented 85% and females 15% of calls made to the PCC.

Insecticides accounted for 54% of exposures, followed by herbicides at 35%.

The major routes of exposure were dermal (32%), inhalation/nasal (27%), and exposures to two or more different routes of exposure (25%).

Those aged 20-29 years accounted for 29% of exposures, followed by those aged 40-49 years at 18%.



References

1. Alavanja, MCR. Pesticides use and exposure extensive worldwide. Reviews on Environmental Health. 2009;24:303-309.

2. Kansas Farm Facts. Published by Kansas Department of Agriculture. 2014 Available from: https://agriculture.ks.gov/docs/default-source/documents---office-of-the-secretary/kansas-farm-facts-august-2013.pdf?sfvrsn=5. Accessed7/12/17.

3. Kansas Department of Agriculture. Pesticide and Fertilizer Program. Available from: https://agriculture.ks.gov/divisions-programs/pesticide-fertilizer. Accessed 7/12/17.

4. Centers for Disease Control and Prevention (CDC). Pesticide Exposures. Updated 2017. Available from: https://ephtracking.cdc.gov/showPesticideTracking. Accessed 7/14/17.

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This publication was supported by the Grant or Cooperative Agreement Number, 1 NUE1EH001340-01, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.