Applicators May Be at Risk for Hearing Loss

Agricultural Health Study Reaches a Milestone!

Study Update 2009

Iowa

Women who grew up on farms were less likely to have asthma, according to AHS scientist Dr. Jane Hoppin, “especially the type of asthma that is accompanied by allergies.”

Even so, Dr. Hoppin explained that whether or not they grew up on a farm, women had a higher risk of asthma with allergies if they used these pesticides:

- 2,4-D and glyphosate (herbicides)
- carbaryl, coumaphos, DDT, malathion, parathion, permethrin (on animals), phorate (insecticides) and metalaxyl (fungicide).

She also noted that study results in laboratory animals found that organophosphate insecticides, such as coumaphos and parathion, may contribute to increased airway reactivity.

To learn more, AHS researchers are doing a special study called the Lung Health Study. “If you are invited to join the study,” said Dr. Hoppin, “we hope that you will agree to take part.”

Please stay in touch

No matter whether you are still applying pesticides or what your health status is, we hope you will continue to be part of this important effort.

The information that you give is crucial to help us understand how agricultural exposures may affect health—and to know what can be done to help families enjoy good health.

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Agricultural Health Study Iowa Study Update 2009

Identifying factors that promote good health

Growing Up on a Farm May Benefit Respiratory Health

Agricultural Health Study

Iowa

With your help and participation, the Agricultural Health Study (AHS) has reached the 15-year mark.

You are part of a unique group of over 89,000 people. You have helped us learn more about the health of rural and agricultural communities and families.

The study results are used by many groups, such as your local extension office, to shape education programs to lower harmful exposures and promote good health.

The AHS has brought together many scientists studying a wide range of health topics. This newsletter highlights our recent findings. More detailed summaries of these and other findings can be found at www.aghealth.org.

As study directors, we want to express our deep appreciation for your contributions these past 15 years.

Best wishes to you and your family from the AHS Executive Committee,

Michael C.R. Alavanja, DrPH
Laura Beane Freeman, PhD
Dale R. Sandler, PhD
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Study Reaches a Milestone!

More information on farm noise and hearing loss & protection can be found online at:

Please stay in touch

No matter whether you are still applying pesticides or what your health status is, we hope you will continue to be part of this important effort.

The information that you give is crucial to help us understand how agricultural exposures may affect health—and to know what can be done to help families enjoy good health.

Please let us know of any changes in your address or phone number by calling 800-217-1954.

As always, we will protect the confidentiality of your information.

Thanks from all of us at the Iowa Field Station.

Applicators and hearing loss

Women and lung health

2,4-D and chlorpyrifos exposure

Pesticide use and depression

Understanding cancer findings

Applicators and hearing loss
Pesticide applicators who used a boom sprayer to apply 2,4-D had less exposure to the chemical, on average, than those who sprayed using a hand wand, according to our researchers. This monitoring study measured exposure levels of 84 men who applied either 2,4-D or chlorpyrifos in Iowa and North Carolina. The men provided urine, hand wipe, body patch, and personal air samples. Men who applied 2,4-D using a hand wand sprayer had higher average exposure levels if they:

- Repaired or adjusted the equipment
- Contacted the sprayed vegetation
- Experienced minor spills, splashes, or leaks
- Used additives, such as surfactants.

Men who used chemical-resistant or other rubber gloves had lower levels of 2,4-D, on average, in their urine. This finding reinforces the importance of wearing chemical-resistant gloves while handling pesticides.

“Wearing chemical-resistant gloves is an easy, inexpensive step applicators can take to reduce their exposure to 2,4-D and other pesticides,” said AHS scientist Kent Thomas, who directed the study. Other findings from the study:

- Overall, levels of 2,4-D in urine increased following application. Even so, levels were well below occupational reference levels.
- Men who used boom sprayers on tractors had about the same average exposure to 2,4-D whether or not the tractor had an enclosed cab.
- For chlorpyrifos, men who applied a granular product generally had lower exposure than those who used a liquid spray.
- Levels of 2,4-D and chlorpyrifos in the men’s personal air samples were much lower than the recommended occupational limits.


Pesticide Use May be Linked to Depression

People sometimes feel sad, listless, or discouraged. But when low mood affects daily activities over a period of more than two weeks, a person may have clinical depression. Because signs of depression have been reported after pesticide poisoning, our AHS team decided to study the possible link between lower levels of pesticide exposure and depression. For male applicators, the study found doctor-diagnosed depression linked to:

- Pesticide poisonings
- High exposure events, such as pesticide spills
- Use of insecticides, particularly organophosphates and organochlorines
- Many days of pesticide application over a lifetime.

“Our study found that pesticide applicators with greater pesticide use were more likely to experience depression even when no physician-diagnosed pesticide poisoning had occurred,” said AHS scientist Dr. Freya Kamel.

For farm women, the study found links between depression and pesticide poisoning. Overall levels of exposure were lower among wives than applicators, and no relationship with pesticide use was found in wives without pesticide poisoning. More studies are needed to learn about these and other links between pesticide use and depression.


Although the rate of new cases of bladder cancer and colon cancer among people in the AHS is low, people who applied imazethapyr had a higher rate of these cancers. This finding suggests that exposure to aromatic amine pesticides, such as imazethapyr, may increase risk for bladder and colon cancers.


Pancreatic cancer has been linked with pesticides in other studies. Our study found an association between pancreatic cancer and two important herbicides—EPTC and pendimethalin.


People who applied EPTC also had a higher risk of colon cancer and leukemia, but the results were based on a very small number of people who were exposed and this finding could be due to chance.

van Bemmelen, et al., Environmental Health Perspectives 2008; 116: 1541-1546

Other Cancer Risks

AHS participants with light complexion, red hair, or who easily sunburn are at higher risk for melanoma, a potentially serious form of skin cancer. These findings are the same as results from other studies and are important because farmers and their families spend so much time outdoors.

Our study also observed that people who were overweight or obese were at increased risk of melanoma.


Protect your skin from the sun when outdoors

- Wear the right clothing to protect your skin, such as long sleeves and pants, a wide-brimmed hat, and sunglasses that absorb UV light.
- Apply and reapply sunscreen throughout the day with a Sun Protection Factor (SPF) of at least 15.

For more information, go to www.cancer.gov/cancer-topics/types/skin or call toll-free 1-800-4-CANCER (1-800-422-6237).