

Human Health and Pesticides



Outline

- Pesticides are important!
- Health benefits
- Health dangers
- How people are exposed
- Pesticides and the body
- Specific illnesses/injuries due to pesticides
- How to prevent and identify exposure



Pesticides are important!

- Pesticides are a valuable tool in modern agriculture.
- Component of Integrated Pest Management
- Many pesticides can be used safely, but like all tools, care must be taken when using.

Health benefits

- Bacteria killed by chlorine in drinking water
- Bacteria spread in hospitals managed by disinfectants
- Disease carrying insects repelled by insecticides

Health dangers

- There are also dangers associated with pesticides. These include *acute* and *chronic* effects.
- Acute
 - Headache, nausea, skin irritation, rash, etc.
- Chronic
 - Cancer, reproductive and nervous system problems, organ damage

How are people exposed to pesticides?

- During application
- Preparing for application (mixing)
- Drift
- Consuming foods with residue
- Drinking contaminated water
- Residues brought into the home

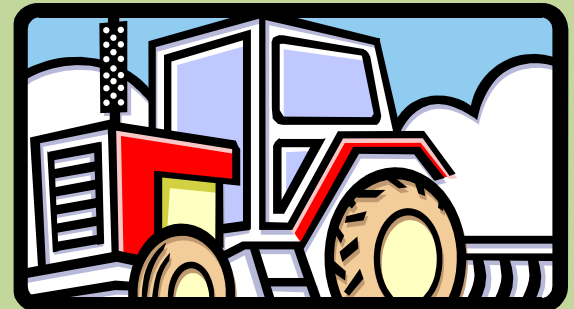


Pesticides and the body

- Three routes of pesticide entrance into body:
 - Skin
 - Absorbed during contact with skin or eyes
 - Body parts absorb at different rates
 - Mouth
 - May be very serious
 - Can occur when pesticides are stored improperly
 - Lungs
 - Can enter bloodstream quickly, damage respiratory tissue
 - Powders and small droplets/mist inhaled

Prostate cancer

- What is prostate cancer?
- Risk factors for prostate cancer include farming.
- Risk increases for pesticide applicators by
 - 41% in commercial applicators
 - 27% in private applicators



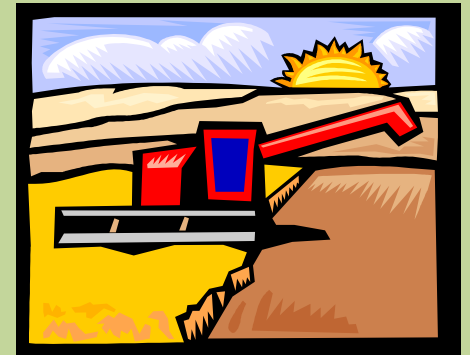
Retinal degeneration

- What is retinal degeneration (RD)?
- RD and fungicide application may be related
- RD and insecticide application may be related



Parkinson's disease

- Risk of Parkinson's disease, when a certain combination of pesticides were applied near homes in California, increased 75%.
- Younger people have higher risk when exposed.



Thyroid disease

- Thyroid disease increased in women married to pesticide applicators.
- Certain pesticides correlated with increased risk.



Data from: Goldner, W. S., Sandler, D. P., Yu, F., Hoppin, J. A., Kamel, F., and LeVan, T. D. Pesticide Use and Thyroid Disease Among Women in the Agricultural Health Study. 2010. American Journal of Epidemiology. Vol. 171, No. 4. DOI: 10.1093/aje/kwp404.

[Http://aje.oxfordjournals.org](http://aje.oxfordjournals.org). Accessed 26 March 2010.

How to prevent exposure

- Follow label directions
- Wear personal protective equipment
- Apply pesticides during the right environmental conditions
- Spray only when you need to



Personal Protective Equipment



Pesticide exposure symptoms

- Dependent upon pesticide, amount, and type of exposure
- Range from skin irritation, headache, and nausea to incontinence, seizures, and death
- Can be confused with other illnesses

What to do in case of emergency

- If serious conditions such as convulsions, difficulty breathing, or unconsciousness occur, call 911.
- The label supplied with the pesticide should have instructions on administering first aid.
- For first aid help, the Poison Control Center can be reached at 1-800-222-1222.

Conclusions

- Pesticides are an important tool in modern agriculture.
- Consider both the *risks* and *benefits*.
- Caution must be taken when using pesticides.
- Follow the label for correct application.
- Wear personal protective equipment.
- Be safe and watch out for the safety of others!