

Monitoring and Evaluating Pesticide Impacts

Inspections, Enforcement and
Environmental Monitoring

Types of Monitoring

- Inspections of pesticide manufacturers, distributors and users.
- Local monitoring programs and studies.
- Adverse impact reporting
- Data from other government agencies and universities.
- EPA data summaries and evaluations.

Inspections of Manufacturers and Dealers

- Find out if pesticides that are made are reported.
- Find out if pesticides are labeled with approved labeling and packaging.
- Find out if pesticides are distributed to qualified users.
- Find out if dealers are keeping records or reporting pesticide distribution.

Inspections of Pesticide Distributors and Dealers

- To find out if all pesticides sold are registered;
- To find out if the pesticides were labeled with as approved by EPA;
- To find out if records of sales are available for inspection;
- To find out if hazardous pesticides are being sold to qualified users.

Inspections of Pesticide Users

- Find out if records of use are kept.
- Find out when workers are allowed to enter treated areas.
- Investigate complaints concerning harm or injury.
- Find out if label directions were followed.

Local Monitoring Information

- State and Local Agencies are important sources of monitoring information.
- EPA and in many cases pesticide manufacturers work with States to gather information.
- Other Federal Agencies also work to gather information on pesticides residues in food and the environment

Hawaii Data

- Hawaii has a unique geology and setting.
- It is volcanic and semitropical.
- Some areas get excess rainfall and the natural environment tropical rainforest.
- There are also dry areas where there is little or now rain.

Hawaii Ground Water Studies

- Hawaii's first agricultural export crops were sugarcane and pineapples.
- Sugarcane needs lots of water.
- Pineapple does not need as much water.
- Sugarcane has many weeds and herbicides are important tools.
- Pineapple has nematode pests and chemicals that kill nematodes are important tools.

Hawaii Ground Water Studies

- Hawaii is also an area that has ground termites.
- Old methods of control included ground drenching around structures with chlordane or heptachlor.
- Ground drenching with chlordane and heptachlor presented a barrier to prevent termites from infesting the structure.

Hawaii Ground Water

- One herbicide to control weeds in sugarcane is atrazine.
- It is applied close to when the seed pieces are planted.
- It is applied directly to the soil.

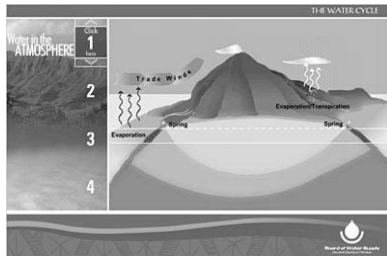
Hawaii Ground Water

- Pineapple is grown at higher elevations than sugarcane.
- There is usually more rainfall at higher elevations.
- Pineapple requires the use of a fumigant to control nematodes.
- Fumigants such as DBCP, 1,3-Dichloropropene, and Ethylene Dibromide used.

Hawaii Ground Water Risk

- Hawaii's drinking water comes from a fresh water lens which is higher than the sea water
- Wells must be drilled to the lens – wells are often 200 to 260 meters deep.
- Drilling is through rock.
- This water was thought to be protected by the rock.
- Hawaii sought exemptions from DBCP ban

Hawaii's Ground Water



Hawaii's Ground Water

- Basal or deep aquifer was thought to be protected.
- Shallow ground water thought to be easily contaminated.
- Ethylene Dibromide spill contaminated shallow water.
- Later tests showed that the deep aquifer was also vulnerable to contamination.

Hawaii Ground Water

- Ground water contamination linked to pesticide application techniques
 - Pesticide applied directly to soil
 - Termite Drenches
 - Herbicide use on soil
 - Fumigant use on soil
- Program to prevent ground water contamination developed.

Hawaii Ground Water

- EDB spill was listed as a Superfund site.
- Hawaii's ground water was not protected from contamination (it takes longer for chemicals to go from the surface to the ground water).
- Comprehensive monitoring and prevention programs developed.
- Pesticides with long half-life, high solubility and low ability to bind to soil present risk.

Unreasonable Adverse Effects

The term "unreasonable adverse effects on the environment" means

- Any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or
- A human dietary risk from residues that result from a use of a pesticide in or on any food.

More Information on Risk Reporting

- Information which the registrant possesses or receives and
- Information is relevant to the assessment of the risks or benefits of one or more specific pesticide registrations currently or formerly held by the registrant must be reported to EPA.
- EPA published guidance to manufacturers on reporting risks.

Summary

- Many ways to monitor pesticides.
- Inspections of pesticide manufacturers and dealers.
- Inspections of pesticide users.
- Studies and monitoring programs by EPA, State, and Local Agencies.
- Reporting of adverse effects (harm from pesticides).

References, Acknowledgements and Web Addresses

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- <http://www.epa.gov/compliance/resources/publications/monitoring/fifra/manuals/fiframanual.pdf>
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- Blocked due to government shutdown
- Pesticides Footprint – University of Hertfordshire
- <http://sitem.herts.ac.uk/aeru/ppdb/en/index.htm>
- EPA Pesticides PR Notice on Unreasonable Adverse Effects Reporting
- http://www.epa.gov/PR_Notices/pr98-3.pdf
- EPA Rules on Reporting
- <http://www.gpo.gov/fdsys/pkg/FR-1997-09-19/pdf/97-24937.pdf>