

Pesticides, water

| | |
|--------------------|---|
| Human Health Risk | M |
| Ecological Risk | |
| Socioeconomic Risk | |

Pesticides include any compounds employed to destroy, prevent, or control pests. By their very nature, these chemicals present some risk of environmental harm. Approximately 600 substances are registered as pesticides, each having different chemical, physical, and toxicological characteristics. Outdoor herbicides are widely used for lawn care, rights-of-way, and golf courses in New Jersey. Pesticides of every major chemical class may be detected in New Jersey ground and surface waters, a result of widespread use on croplands, lawns, gardens, golf courses, rights-of-way, and parks. Pesticides that have long been banned, such as DDT, are still detected in New Jersey surface water samples. The presence of pesticides in surface and ground water supplies poses risks to human health when these sources are used for drinking water.

What's at risk?

The general population is exposed to pesticides through the ingestion of drinking water coming from public and private supplies. Because private wells are not monitored, households with private wells are at increased risk. Particularly vulnerable to contamination are shallow wells located in areas with high pesticide use. Infants, children and the elderly may be at increased risk from the effects of pesticide contamination. Individuals with compromised immune systems are also at increased risk.

What are the human health impacts in New Jersey?

There are currently no estimates regarding the incidence of pesticide-related illness, nor a means for assessing the severity of health effects. However, hundreds of thousands of pounds of chemicals are applied commercially in New Jersey, with additional use by private citizens going unreported. If only 1-5% of the applications reach surface water via run off, then a large quantity of the pesticide will be available through drinking water. Monitoring both surface and ground water shows a large percentage is vulnerable to pesticide contamination, although exceedances of health based limits are not currently observed. Most pesticides have not been fully evaluated for endocrine disrupting effects at low, chronic levels of exposure (see summary on Endocrine Disruptors). Evaluations for potential health effects have been heavily based on high dose animal studies. Pesticide

use also carries a risk for acute effects from misuse or accidental poisoning. Several thousand calls related to pesticides are placed annually to the New Jersey Poison Information and Education System.

What are the socioeconomic impacts in New Jersey?

The socioeconomic TWG estimated impacts from pesticide exposures from all sources. Using national estimates, at least \$8 million in medical costs may be expected as a result of increased childhood cancers and accidental poisonings related to pesticide exposures. Studies have shown that most people worry about pesticide residues in food. Potential loss of biodiversity may also contribute to an aesthetic impact. Overall, socioeconomic risks from pesticides are considered high, but there are significant uncertainties.

What's being done?

Drinking water is monitored for pesticide contamination. A number of the most persistent pesticides have been banned from use, but continue to be detected wherever samples are taken. Risks from current use pesticides are controlled in part by labeling requirements and EPA registration. The DEP Pesticide Control Program has responsibility for licensing and certification of commercial pesticide applicators. Applications for mosquito control increased in response to the 1999 West Nile virus outbreak (see related summary).