



PESTICIDES & THE ENVIRONMENT

#4 IN A SERIES OF 6

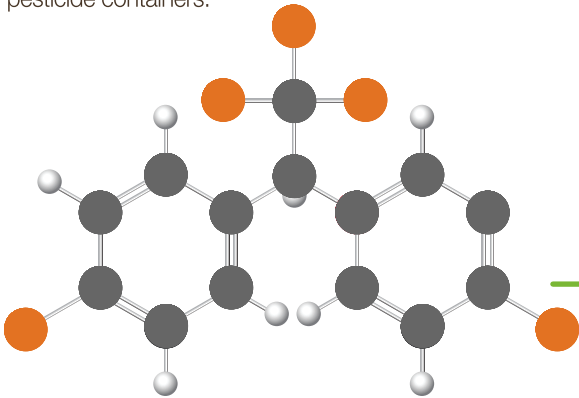
Are pesticides harmful to the environment?

Registered pesticides, whether organic or synthetic, are safe for the environment when used according to label directions.

How do farmers know how to use pesticides?

Each pesticide is packaged with detailed instructions and extensive safety information for the user to properly apply the product. This includes directions for use, potential hazards associated with using the pesticide, special handling instructions and first aid instructions.

In some provinces, farmers must be trained and licensed to ensure that they understand how to properly use pesticides. Farmers must also follow local, regional or provincial laws governing disposal of unused product and empty pesticide containers.



DDT: A lesson learned

In the early days of pesticide use, there were few regulations and regulations weren't as strict as they are today.

DDT, or Dichlorodiphenyltrichloroethane, an inexpensive and effective pesticide for killing mosquitoes and other insects, was widely overused in Canada during the 1940s to 1960s.⁴ Testing determined it was thinning the egg shells of birds, causing embryos to die, and accumulating in the food chain so that it was showing up in predator animals. There was also evidence that it may affect human health. In response to increasing environmental and safety concerns, DDT use was banned in 1985.⁵



In Canada, the label on any pesticide container is considered a legal document that all users **MUST** follow.⁶



Farmer checking barley crop

HOW IS THE ENVIRONMENT PROTECTED?

The Environmental Assessment Division of the Pest Management Regulatory Agency of Health Canada (PMRA)¹ is responsible for reviewing information about the environmental effects of ingredients contained in each pesticide.

An important product characteristic that is considered before a pesticide is approved is its **half-life**, the measurement used to determine how long a pesticide will remain in the environment, or the amount of time it takes for the volume of the pesticide to be reduced by half.² The majority of pesticides have a half-life of several days or, in some cases, hours.

To decrease risks, PMRA also makes recommendations about restrictions for pesticide use. Restrictions are included in label information and relate to timing and frequency of applications, rate of product application, required distances from sensitive areas, etc.³

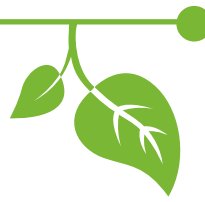


Wetlands and wildlife are part of a farm ecosystem. Farms and the natural environment work together in mutually beneficial ways.



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HOW HAVE FARMERS REDUCED THE NEED TO USE PESTICIDES?



Over the years, farmers have improved the way they farm, which can help reduce pesticide usage. Some examples of improved farming practices include:

- **Global Positioning Systems (GPS)** on tractors and equipment place seeds, fertilizers and pesticides in the right place and eliminates overlap that doubled application in parts of the field. This technology results in using less seed, fertilizer and pesticide.
- Scientists and researchers are continually developing **new crop varieties** that are more productive, more nutritious and more resistant to diseases and insects.
- Some **genetically engineered crops** contain one or more genes transferred from a naturally-occurring soil bacterium (*Bacillus thuringiensis*) that produces proteins that kill specific insects when they feed on the crop. This reduces or eliminates the need to use insecticides.



GPS and auto-steering technology in a modern day tractor



Without pesticides and plant breeding to produce better crops, Canadians would pay about 55% more for food – roughly \$4,400 more per family each year.⁷



AGRICULTURE IS EVOLVING – AND SO ARE PESTICIDES

All pesticides are re-evaluated regularly using the most advanced scientific systems and the most up-to-date knowledge. This monitoring ensures that pesticides can be used without affecting human health or the natural environment, and to ensure that pesticides' chemistry is still relevant in today's agriculture world.

As new chemicals become available, older ones are either no longer used or are deregistered. Researchers are continually working to improve chemicals so they are more effective and safer for farmers and the environment.



Spraying a field with herbicide to get rid of weeds prior to seeding