

Understanding pesticide toxicity

The following was taken from an article in *Hunterdon Observer*, written by Jeff Rugg entitled **Nontoxic use of pesticides requires know-how**

All substances, including water are poisonous at some level of dosage. Toxicity refers to a substance's ability to produce injury or death. Toxicity can be acute or chronic. Acute toxicity is poisoning resulting from a single exposure to a large dose of a chemical. Chronic toxicity is poisoning from repeated low doses over a prolonged period of time. Most chemicals have the ability to produce acute and chronic toxicity.

The human body has the ability to filter out, or metabolize, many chemicals before they can build up to a poisonous level through repeated exposure. There is a lethal dose of caffeine in 200 cups

of coffee, a lethal dose of ethanol in a fifth of bourbon and a lethal dose from aspirin in 200 pills. We are not killed by low level doses because the body can destroy the chemicals before they reach the toxic level.

Toxicity alone does not measure the danger of a chemical. Exposure and toxicity together form a chemicals ability to be a hazard. A highly toxic chemical may present little hazard when formulated in a very diluted concentration, or it is formulated to not be inhaled or absorbed through the skin, or it is applied under conditions that prevent contact. The opposite is also true. A normally non-toxic chemical can be hazardous if it is used in a form that concentrates it, or it is used in a way that allows contact with the skin, or inhalation. Repeated doses of chemicals that break down slowly in the body or that are stored in the body may cause a hazard.

Chemicals should be avoided whenever possible, used as safely as possible and disposed of properly. To do this, consider which chemical is least

toxic and least persistent while still being effective. It is more important to know the safety level of a chemical than whether it is of a natural, organic or synthetic origin. The natural insecticide pyrethrum is a little less toxic than the synthetic insecticide Sevin and they are both much less toxic than the natural insecticide rotenone. Sometimes synthetic versions of natural compounds are necessary to make them strong enough to work. Sometimes refining removes some toxicity. Crude citrus oils kill fleas, but they also kill cats. Two refined citrus oil compounds, linalool and D-limonene still kill fleas but have a low toxicity to cats.

Toxic chemicals are not necessarily dangerous in their use, but rather in their misuse. A wide range of items fit this category, from antifreeze to vitamins and from mothballs to air deodorizers.

The preceding article stands to reaffirm the need for education and understanding when using pesticides. Always read the entire label. Know your product. Know your site. Know your target. ♦

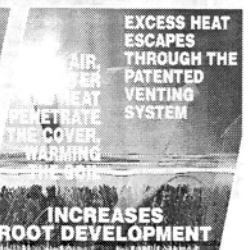
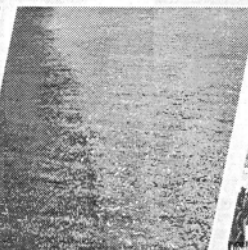
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