

HOT TOPICS

Weight of evidence' favors 2,4-D

WASHINGTON—If several studies have shown that the herbicide 2,4-D is linked to cancers in both man and dogs, then why is it still on the market?

Simple: *much* more evidence suggests that exposure to the popular herbicide does not cause cancer, says Dr. George Carlo from the Health & Environmental Sciences Group, Washington D.C. The herbicide is the most intensively studied

chemical of its kind.

And it's one of the most widely used herbicides with about 55 million pounds being applied a year in North America, most going to agriculture but almost 7 million pounds on turfgrass.

The 2,4-D/cancer hypothesis first surfaced in 1977 when the Swedish scientist Hardell suggested it *might* be linked to three rare forms of cancer. But the bigger

bomb fell in 1986 with the publication of the Kansas Farm Worker Study.

Yes, that study said, there does appear to be a connection between 2,4-D and a form of cancer known as non-Hodgkins lymphoma. It claimed that farmers who had more than 21 exposures a year to 2,4-D appeared more likely to develop the cancer.

Many researchers now feel, however,

More 2,4-D data is expected this year

MIDLAND, Mich.—As many as 500 concerned dog owners jingled the 2,4-D hotline (1-800-345-5109, U.S., or 1-517-835-2091, Canada) after the media ran the results of a study linking 2,4-D exposure with canine lymphoma last summer.

"There were more calls that I couldn't answer because the line was busy," says Dr. Wendell R. Mullison, who mans the hotline.

Although Mullison, one of the developers of 2,4-D, admires what the researchers tried to do, he—and others—point out serious shortcomings in the study, weaknesses that cast doubts on some of its conclusions (see Nov., 1991 LM, page 44). But of course, the press has already generated what excitement it could from the findings.

And some of the public (landscape pros wonder how many) question the safety of the herbicide.

More data on 2,4-D is on the way.

Several studies that will shed additional light on pesticides, specifically the

herbicide 2,4-D, may be published in the coming months.

The Iowa/Minnesota Study—Dr. Kenneth Cantor of the National Cancer Institute (NCI), Washington D.C., is the principle author. He tells *LANDSCAPE MANAGEMENT* that this case control study of farm workers might be published in the journal *Cancer Research* by late spring or early summer. The study looks at incidences of leukemia and lymphoma in connection with certain farm practices in the two states.

The ChemLawn applicator exposure study—This study is probably more than a year away from being published, says NCI researcher Dr. Sheila Zahn. This is a cohort study investigating the chemical exposures and health histories of about 35,000 ChemLawn applicators. The exposures can be determined through records ChemLawn made available to researchers.

"These two studies will provide more data that will fit into a larger mosaic of data," says Gary Hamlin, representing



Gary Hamlin says each study adds to 40-year data base of herbicide.

DowElanco, a manufacturer of technical grade 2,4-D.

"It's kind of like putting together a jigsaw puzzle. You don't assume the next piece you use is going to show you the whole picture. No single study, and certainly in the area of epidemiology, tells the story," he adds.

Meanwhile, manufacturers, formulators and marketers of 2,4-D continue the multi-million dollar defense of the herbicide, which is in the lengthy process of EPA re-registration.

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2,4-D exposure study encouraging

GUELPH, Ontario, Canada—Green industry professionals should be encouraged by the findings of a Canadian 2,4-D exposure study.

Researchers at the University of Guelph and the Canadian Centre for Toxicology biologically monitored volunteers either exposed to 2,4-D, or in the vicinity of applications of the herbicide.

They failed to find exposures in any subjects above the acceptable daily intake established by the World Health Organization.

A summary of the soon-to-be pub-

lished study appeared in the January issue of *ProSource*, a publication of the Professional Lawn Care Association of America (PLCAA).

In that summary, researchers Shelley A. Harris, Keith R. Solomon and Gerry R. Stephenson said they measured exposures received by home gardeners, professional applicators and bystanders. Also, levels of 2,4-D were monitored in air samples both inside the home and downwind of the application site.

They said the results of their study "indicate exposure to sprayed turf should

present little risk in humans."

Even so, they said people can further reduce exposure, even to the non-detectable level, by staying off treated turf for at least 24 hours, or until after rainfall or irrigation.

The study also reaffirmed the role of protective clothing in reducing application exposure.

The herbicide 2,4-D typically enters the body through the skin—very little through inhalation—and is rapidly excreted in the urine. It is not metabolized in the body and leaves as it entered,

that the methodology used in that particular study, and in the recent work linking canine cancer to 2,4-D, does not tell the whole story.

"The weight of evidence does not support the hypothesis that 2,4-D causes cancer," says Carlo, adding that seven different studies conducted in four countries "did not support the hypothesis."

This evidence, most of it gathered since 1980, has been reviewed by several independent government and academic bodies.

A long history—Indeed, an incredible amount is known about 2,4-D, which was developed in the early 1940s, made commercially available in 1947 and is still widely used today because of its effectiveness and low cost.

The major route of 2,4-D exposure to humans is through their skin, says Carlo. But 2,4-D is not metabolized by humans, nor does it build up in the body. Carlo says it's excreted from the body, usually without a trace, within three days.

Beyond that, exposures experienced by applicators in the work-a-day world—assuming they follow product safety instructions—"are real, real low," says Carlo.

Igniting the press—Even so, a connection, any connection, between 2,4-D and cancer seemingly always ignites an immediate reaction in the press—a reaction invariably directed against professional lawn applicators.

Carlo says the 1986 Kansas Farm Worker Study resulted in "a lynch mob coming after 2,4-D."

The most recent incident, the 1991 study speculating that dogs exposed to 2,4-D (apparently as the result of lawn applications) were more apt to develop cancer,



Dr. George Carlo, left, explained the latest 2, 4-D controversy to applicators gathered at a symposium in Columbus,

received immediate and widespread publicity, even though the study's authors cautioned against drawing too many conclusions from their results.

"Why was the dog study published: because it was the first of its kind," says Carlo. "And the media ran with it."

However, when a 1990 Nebraska farm worker study purported to establish a tenuous link between repeated exposure to 2,4-D and cancer, it didn't create the same controversy as other reports.

"Millions of dollars were spent between 1986 and 1989 to put the issue in perspective and by the time the Nebraska study came out, there was just a thud," Carlo claims.

Carlo, who describes himself as both an epidemiologist and an attorney, says 2,4-D is the most exhaustively tested product of its kind. "We have both an animal and a human data base," he says.

—Ron Hall

Congress extends tax credit rules

WASHINGTON—Small business owners across the country received good news in December: the United States Congress extended five important tax credits before taking its winter recess.

According to a news release from the American Nurserymen's Association, small businesses can benefit from the new credits through June, 1992.

These tax credits apply to:

Health insurance for the self-employed—Tax-payers can deduct 25 percent of health insurance costs for themselves, their spouses and their dependents.

Targeted jobs—If you hire personnel from certain target groups, you are eligible for another type of tax credit.

Energy investment—If you have solar or geothermal heating equipment at your place of business, you can receive a 10 percent credit.

Employer-provided education benefits—You can credit up to \$5,200 of gross income for tuition and related expenses paid by the employer. This does not include graduate-level courses, though.

Research and development—For details, check with your accountant.

The A.A.N. urges small business owners to check with their accountants before filing 1991 taxes (remember the deadline: April 15th!) for further information.