

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.

INSIDE

**More info on
2,4-D research,
p. 90**

**Water charter
in California,
p. 92**

**Golf course
mower surveys,
p. 94**

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.

N.J. pesticide bill withheld from vote

WAYNE, N.J.—After eight years of debate, argument and compromise, New Jersey Senate Bill #3079 never made it to the floor for a vote in the N.J. Assembly, Jan. 13.

The bill is authored by the New Jersey Environmental Federation and sponsored by Senator Raymond Lesniak.

"The bill was an evolution of eight years of negotiations, public hearings and controversy," said Iona Gray, executive director of the Alliance for Environmental Concerns, based in Wayne, N.J.

"It contained some aspects that would make pesticide application difficult and in some circumstances would have banned them completely," said Gray.

One of the proposed bill's provisions called for a \$100 increase—to \$300—in the registration fee for each of the 10,307 pesticides currently used in New Jersey.

According to Gray, if the bill is reintroduced, it will have a tough time getting passed. Republicans—historically in favor of existing pesticide laws—won both assembly and senate majorities in last

November's elections

Ray Ferrarin, assistant director of The Pesticide Program didn't have a clue why the bill never made it to a vote. "We had most if not all groups, regulatory agencies lined up to support (the bill)," said Ferrarin, who thinks the bill will return.

The Pesticide Control Program is a watchdog group charged with making sure regulations state-wide are consistent and obeyed.

—Terry McIver

Water quality site-specific, study finds

WASHINGTON, D.C.—Results of the Environmental Protection Agency (EPA) Phase II report for its National Water Well Survey adds to evidence that water quality problems are based on numerous site-specific factors, according to the Fertilizer Institute.

The Institute believes local experts should be charged with finding solutions,

rather than instituting a federal cure-all.

"The report concluded that no single set of factors can be used to determine the incidence of water quality problems across the country. Rather, each particular problem site was the result of a combination of different factors," reports the Institute.

Gary D. Myers, president of the Fertilizer Institute, insists that the study

has disproven two widely-held fallacies.

"It is clear there is no national water quality problem, and a simple reduction in fertilizer use will have little if any effect on reducing water pollution," says Myers.

The data should serve as a guide to the EPA as it decides on coastal zone management plans, according to Myers.

California groups pen water charter

SACRAMENTO, Calif.—The California Landscape Contractors Association (CLCA) has joined other interest groups and water suppliers to enact a "historic" statewide urban water conservation plan designed to save an estimated one million acre/feet of water per year.

The Urban Water Conservation Charter, developed by the state water conservation coalition and the California Department of Water Resources, contains a variety of "Best Management Practices," meant to conserve water use at residential, commercial and industrial sites. Landscape water conservation requirements for new and existing commercial, industrial, institutional, governmental and multi-family developments, and new and existing single family homes, will be implemented at the end of 1995. Large landscape water audits will be required at the end of 1994.

Landscape water conservation ordinances are one of many plans called for.

Pat Marion, chairman of CLCA's Water Management Committee, calls the charter

a "pioneering effort" toward better water conservation.

"We have an unusual opportunity to help sustain California's natural resources



Marion: Charter a 'pioneering effort.'

and ensure the wise use of water by supporting the implementation of these conservation practices," says Marion.

Xeriscaping is not referred to in the charter, and Marion says the bill should not be construed as either pro- or anti-xeriscaping.

Representatives from the Metropolitan Water district of Southern California, the San Francisco Water Department, the League of Women Voters of California and the Sierra Club were among 120 organizations which supported the charter.

A.B. 325, a statewide water ordinance, is expected to be made into law in April or May.

Coming next month:

- The cost of insurance
- Hiring seasonal help
- Practical insect control
 - cold-season grasses
 - warm-season grasses
 - ornamentals

\$3.4 billion spent on maintaining golf courses

LAWRENCE, Kan.—Caring for the nation's almost 13,000 golf courses is big, big business—about \$3.4 billion in 1991, says the Center for Golf Course Management (CGCM).

CGCM is the research subsidiary of the Golf Course Superintendents Association of America (GCSAA). The CGCM arrived at the \$3.4 billion figure by studying the maintenance

expenditures—including labor but excluding capital expenses—at 1,164 courses.

Stephen G. Cadenelli, president of the GCSAA, says, "the golf course maintenance industry is a major industry in the United States and has a major impact on the nation's economy."

For more information about the study, contact CGCM at (913) 841-2240.



Cadenelli: Golf impacts economy.

Average company owns six walk-behinds

DES PLAINES, Ill.—A recent survey of the outdoor power equipment market has found that the average grass-cutting service uses 6.6 walk-behind mowers, 1.2 front-mounted deck design riding mowers, 0.3 rear-engine riders and 1.2 tractors.

The survey by Irwin Broh & Associates, Inc., consisted of telephone interviews conducted in September of 1991 with representatives of 900 green industry companies. Questions dealt with

company buying habits relative to gasoline string trimmers, portable yard blowers, walk-behind mowers, riding mower tractors and gasoline hedge trimmers.

Each equipment category study is available from Irwin Broh & Associates, 1011 E. Touhy Ave., Des Plaines, IL 60018; (708) 297-7515.

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HOT STUFF

Duich retires to be consultant

STATE COLLEGE, Pa.—Dr. Joseph M. Duich has retired from Penn State University to become a technical advisor and consultant for the Tee-2-Green Corp., Hubbard, Ore.

Duich was professor of turfgrass science at Penn State for more than 36 years. While there, he assisted Professor H.B. Musser in developing Penncross creeping bentgrass.

Dr. Duich will address golf course superintendents' questions and management practice inquiries concerning the company's bentgrasses. He will continue to reside here.

Green industry market revealed

WASHINGTON—According to one report, the gardening and landscape industries in the U.S. will "virtually re-invent" themselves in the 1990s.

The study, done by Forecasting International, Inc., gives an extensive overview of dominant trends in American lifestyles that will impact the two professions.

"Although the study predicts that the aging baby-boomers will generate a substantial market for landscaping, it also concludes that landscape contractors will find it difficult to prosper as a result of this trend," a press release notes. "In support of this conclusion, it cites several factors: a continuing poor labor pool, under-capitalization and price cutting."

According to the study, future bright spots will be in high-end residential design/build, maintenance (including lawn care) and irrigation.

For more information on the 258-page book "The Gardening of America," contact Dickson Felix Inc., 1441 Que St. NW, Washington, DC 20009; (202) 328-1540.