

The Safer Choice

How To Avoid Hazardous Home, Garden,
Community and Food Use Pesticides

Join the Consumer Campaign To Stop Dow Chemical
From Marketing Hazardous Pesticides



BEYOND PESTICIDES

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JOIN THE CONSUMER CAMPAIGN TO STOP DOW FROM MARKETING HAZARDOUS PESTICIDES

Dow Chemical Company (and its pesticide division Dow AgroSciences) produces some of the most hazardous home, garden, and food use pesticides that invade our lives on a daily basis -- toxic chemicals that are dangerous to children, families and the environment. Safer alternative practices and products are now widely available, which make these pesticides unnecessary. As part of a consumer campaign to stop corporations from marketing hazardous pesticides that are not needed, this booklet informs choices in the marketplace and helps consumers avoid harmful low-level toxic exposure. While the primary focus of this brochure is non-food use pesticides (home, garden and community), many of the hazardous pesticides identified also have food and forestry uses, which are noted. However, Dow Chemical markets dozens more pesticides that are strictly food use chemicals, but not detailed in this brochure.

HOW TO USE THIS BOOKLET

This booklet focuses on seven toxic Dow Chemical pesticides, a combination of weedkiller (herbicide) and insecticide products that are widely

used and available in the marketplace. It is intended to summarize the health and environmental concerns associated with each product, identify how it is commonly used in the home and garden, community and food production and then offer suggestions on alternatives to using these toxic chemicals. A detailed companion handbook with citations for the facts in this booklet, details on safer alternatives, and a list of Dow product trade names is available from Beyond Pesticides at www.beyondpesticides.org/dow and in hard copy format.

THE CONSUMER LINK TO DOW CHEMICAL

It is often difficult for consumers to identify the chemicals that they are purchasing either in a product or through a contracted service. This is particularly true with Dow Chemical products because most of the hazardous pesticides that Dow Chemical produces are used in products marketed by other companies, such as the weedkiller 2,4-D, which is the primary herbicide in the Scotts Company's Weed and Feed lawn product. This brochure identifies three categories in which consumers can take steps to stop the use of hazardous Dow Chemical pesticides, protecting families and the environment.

■ **Products that have Dow ingredients.**

It is common for consumer products to contain Dow Chemical-produced ingredients. To avoid these hazardous chemicals, you must read the label ingredient statement and avoid products marketed under other company names – such as the weedkiller 2,4-D, which is in Scotts' Weed and Feed, Miracle-Grow's Weed and Feed, and many other products.

■ **Pest control or lawn care companies that use Dow products.**

When hiring a service company to take care of a pest problem or lawn, the company may use a hazardous Dow Chemical product. In fact, sometimes a company uses restricted chemicals that are not directly available to consumers, such as sulfuryl fluoride, used for drywood termite and household insect control and marketed under the trade name Vikane.

■ **Food commodities grown with Dow products.**

If you eat chemically-produced food, from vegetables to grains to nuts, you are probably ingesting the Dow Chemical products that are listed in this brochure, which have both non-agricultural and agricultural uses. None of these products are acceptable in organic production, so buying organically produced food is a good way to avoid them.

Advocating for change to protect health and the environment

In order to combat the widespread use of the hazardous Dow Chemical products listed in this brochure and curtail their impact on health and the environment, we can make personal choices in the marketplace to avoid these chemicals. In addition, we can influence community decisions as well as urge corporations to stop using or supporting the use of these chemicals. This booklet makes suggestions on advocating changes in community management practices in schools, parks, libraries, and hospitals, and influencing food company decisions to utilize food ingredients that are not grown with these hazardous chemicals.



2,4-D

The Killer Weedkiller

Trade Names: Weed and Feed, Weed B Gon, Spectracide, Weedone

2,4-D is a highly toxic herbicide used to control many types of broadleaf plants. With over 40 million pounds used annually, it is the most commonly used pesticide in the non-agricultural sector and the fifth most commonly used in agriculture. Dow AgroSciences is the sole U.S. producer of 2,4-D, which it sells to other chemical and lawn care companies to formulate into finished products. Over 70 different products contain 2,4-D as their active ingredient, including Scott's Weed and Feed, Miracle-Grow Weed and Feed, Ace Green Turf Weed and Feed, and many more.

HEALTH AND ENVIRONMENTAL CONCERNS

- A 2003 study found 2,4-D in the dust in 63% of sampled homes.
- 2,4-D is an endocrine disruptor, which can interfere with hormone function and contribute to breast and testicular cancer, birth defects, and learning problems.
- Several studies have linked 2,4-D to non-Hodgkin's lymphoma.
- According to EPA, the risk of short-term toddler exposure to treated

lawns is above the agency's level of concern, even without taking into account indoor air exposure.

- Dogs of owners who regularly use 2,4-D on their lawns are twice as likely to get cancer.
- Mixtures of 2,4-D and other commonly used lawn chemicals are capable of inducing abortions in laboratory animals.
- 2,4-D made up a major portion of Agent Orange, linked to long-term disease in Vietnam War veterans.



KEEP 2,4-D OUT OF YOUR...

HOME & GARDEN

Used on: lawns and gardens, especially weed and feed products.

What You Can Do: Effective management techniques that include organic products and cultural practices prevent unwanted plants (commonly called weeds) and eliminate the need for toxic chemicals.

- Hire only service providers that use organic and least-toxic techniques and cultural practices.
- Corn gluten products (Bio-Weed, Concern, GreenSense) are excellent pre-emergents and are sold at most garden stores.
- Fatty-acid soap products (Safer and Sharpshooter) can control unwanted plants that have already sprouted.
- For a homemade spot treatment, try boiling water, vinegar, or a mixture of 1 cup vinegar and ¼ cup lemon juice.
- Of course, don't forget good old fashioned hand-pulling!
- See cultural practices outlined in the Atrazine section on p. 12.

COMMUNITY

Used on: golf courses, school grounds, parks, and invasive plants.

What You Can Do: Contact your local golf courses, schools and parks and ask them not to use 2,4-D. Explain the health effects and recommend an integrated pest management program which uses non-toxic practices and products. If you live in an area that manages invasive plants, contact your local government as well. See alternative invasive plant strategies in the Picloram section on p. 10.

FOOD

Used on: oats, corn, barley, wheat, sorghum, asparagus, apples, citrus, pears, strawberries, and sugarcane.

What You Can Do:

- Buy organic food products whenever possible.
- Tell Tropicana Products Inc., P. O. Box 049003, Chicago, IL 60604, 800-237-7799 to stop buying oranges grown with 2,4-D.

Chlorpyrifos

The Neurotoxic Nightmare

Trade Names: Dursban, Lorsban, MaxAttrax Roach Baits

Chlorpyrifos is a widely used broad-spectrum insecticide used to kill a wide variety of insects in the urban, rural and farm environment. Dow AgroSciences is the primary manufacturer of chlorpyrifos worldwide and the only manufacturer in the U.S. In 2000, EPA and Dow reached an agreement to stop the sale of most home, lawn and garden uses for chlorpyrifos because of its health risks to children. Dow still markets Dursban, which contains chlorpyrifos, for home use in baits, on golf courses and in non-residential buildings, and for public health mosquito control. Dow also produces Lorsban for use on a wide variety of food crops.

HEALTH AND ENVIRONMENTAL CONCERNS

- Chlorpyrifos belongs to the family of organophosphate pesticides, a highly toxic class of pesticides that affects the central nervous, cardiovascular and respiratory systems.
- Chlorpyrifos has been linked to thousands of pesticide poisoning incidents, leading all other pesticides for acute poisoning in 1997.
- A 1996 study of children exposed to chlorpyrifos in utero found extensive and unusual patterns of birth defects, including brain, nervous system, eyes, ears, palate, teeth, heart, feet, and genitalia.
- Even at extremely low doses, chlorpyrifos is found to affect the learning abilities of female rats to a larger extent than males. Similarly,

newborn animals are shown to be more susceptible to chlorpyrifos exposure than adults.

- Other studies show that chlorpyrifos exposure causes structural alterations in developing brains.



KEEP CHLORPYRIFOS OUT OF YOUR...

HOME & GARDEN

Found in: bait stations for roach control, such as Max Attrax baits.

What You Can Do: Effective integrated pest management incorporates mechanical, sanitary and least toxic pesticide products.

- Clean and eliminate any potential food and water sources.
- Caulk and patch cracks and other entry points into your home.
- Use non-volatile boric acid based bait stations and products.

COMMUNITY

Used on: golf courses, office buildings, rights-of-way, and is applied aerially and by ground for public health mosquito control.

What You Can Do:

- Contact local golf courses and let them know that Dursban is dangerous to children.
- Contact your office building management and ask it not to use or hire companies that use chlorpyrifos baits when there are pest problems. Recommend an integrated pest management program, which uses non-toxic practices and products.
- If your community is spraying for a mosquito-borne disease, ask your local mosquito management officials (Dept. of Health, Mosquito Abatement District, etc.) to switch to management techniques that use, if necessary, a Bt-based larvicide as the first line of defense.

FOOD

Used on: grain, cotton, fruit, nut, and vegetable crops.

What You Can Do:

- Buy organic food products whenever possible.
- Mott's is a major producer of apple juice and other apple-based products consumed by children. Contact Mott's, 900 King St., Rye Brook, NY 10573, 800-426-4891 and ask the company to not buy apples sprayed with Lorsban.

Sulfuryl Fluoride

The Fatal Fumigant

Trade Names: Vikane and Profume

Sulfuryl fluoride, a gas fumigant, is used to control termites and other insects in structures, vehicles and wood products. Dow AgroSciences is one of the major manufacturers of sulfuryl fluoride, marketing it under the names Vikane and Profume. Vikane is a restricted use pesticide, for sale to and use only by certified applicators. In 2001, Dow received a permit to sell sulfuryl fluoride for post-harvest fumigation on certain agricultural commodities.

HEALTH AND ENVIRONMENTAL CONCERNS

- Because it is a colorless, odorless gas, Vikane poses an acute inhalation hazard. The product label contains the word “Danger,” EPA’s highest acute toxicity category.
- Repeated or prolonged exposure to sulfuryl fluoride may cause injury to lungs and kidneys, weight loss, anemia, and general ill health.
- EPA does not require any cancer tests for the registration of sulfuryl fluoride and little is known about its carcinogenic potential.
- There have been documented cases of people becoming seriously ill or dying after re-entering houses treated with Vikane.
- According to the Agency for Toxic Substances and Disease Registry, subsets of the population may be susceptible to the effects of fluoride,

including the elderly and people with nutritional deficiencies and cardiovascular and kidney problems.

- Excessive fluoride has also been linked to memory loss, Alzheimer’s, neurological impairment, kidney damage, cancer, genetic damage, and more.



KEEP SULFURYL FLUORIDE OUT OF YOUR...

HOME

Used in: fumigants used by professional pest control providers for drywood termite control.

What You Can Do: Alternatives do exist! Make it clear to your pest control provider that you don’t want them to use Vikane in your home. The following is a list of alternative options:

- Heat treatments and liquid nitrogen are effective in controlling termites and carpenter ants that have minimum and maximum temperature thresholds beyond which they cannot survive.
- Electrical current technology (Electrogun) can be used to kill insects that nest in the walls of a structure.
- Because of its stability, boric acid is a low risk insecticide effective against termites. Ask a professional to use it instead of fumigation.
- Diatomaceous earth and silica aerogels are insecticidal dusts that can be used to prevent termite infestations.

COMMUNITY

Used in: schools, workplaces, public buildings and hospitals.

What You Can Do: Contact your local schools, hospitals, offices and other public buildings, and ask them not to use Vikane when they have termite and other insect problems. Recommend an integrated pest management program that uses pesticides only as a last resort. Refer to the above list for alternative options.

FOOD

Used in: warehouses and transport containers that contain nuts, dried fruits, cereals and grains (corn, oat, rice, wheat, etc.).

What You Can Do:

- Buy organic whenever possible, especially for dried fruit and nuts.
- Ask the Sun-Maid Raisin Company, 13525 So Bethel Ave, Kingburg, CA 93631, 559-896-8000, to make sure its warehouses and shipping companies are not fumigating with Profume.

Clopyralid & Triclopyr

The Deadly Duo

Trade Names: Confront, Transline, Lontrel, Turflon

Clopyralid and triclopyr are two powerful weedkillers used to manage unwanted plants in lawns and turf, pasture, rights-of-way and various crops. Dow AgroSciences formulates these chemicals together for non-agricultural uses in a product called Confront, and alone in Lontrel (clopyralid) and Turflon (triclopyr). For agricultural uses, both chemicals are formulated in various products with other herbicides such as 2,4-D (see p. 3). Transline (clopyralid) is commonly used for invasive plant management.

HEALTH AND ENVIRONMENTAL CONCERNS

- EPA tests show that clopyralid causes “substantial” reproductive problems, including reduced fetal weight, skeletal abnormalities, and hydrocephaly (accumulation of excess fluid around the brain).
- In laboratory tests, triclopyr causes a significant increase in the incidences of breast cancer and genetic damage in rat embryos. Studies also link triclopyr to kidney and reproductive problems.
- In 2002, Dow agreed to delete all residential uses from the label of clopyralid products after numerous studies documented widespread contamination of compost with high levels of clopyralid. This has led to further restrictions in New York, California, Oregon and Washington.
 - Studies have shown both triclopyr and clopyralid to be very stable in soil with the potential to leach into groundwater and contaminate surface water.
 - EPA has not evaluated the carcinogenic potential for either clopyralid or triclopyr.



KEEP CLOPYRALID AND TRICLOPYR OUT OF YOUR...

COMMUNITY

Used on: golf courses, parks, schools, rights-of-way, and for invasive plant control.

What You Can Do: Contact your local schools, parks and golf courses, and ask them to not use Confront or Lontrel on their lawns. Alert them to the dangers of clopyralid and triclopyr, and recommend an integrated pest management program that uses pesticides only as a last resort. Effective management techniques that include organic products and cultural practices prevent unwanted plants and eliminate the need for toxic chemicals.

- Ask golf course managers and park and school superintendents to only use and/or hire service providers that use organic and least-toxic techniques and cultural practices.
- As an alternative for park and schoolyard uses, recommend corn gluten (Bio-Weed, Concern and GreenSense) as a pre-emergent herbicide and Fatty-acid soap (Safer, Sharpshooter).
- For invasive plants, recommend an integrated plant management program that focuses on mechanical methods, grazing, biological controls, soil health and native plant restoration, and adopts an ecological-based holistic approach to land management.

FOOD

Used on: wheat, barley, rice, field corn, sugar beets and oats.

What You Can Do:

- Buy organic food products whenever possible.
- Contact the Pepperidge Farm Company, 595 Westport Avenue, Norwalk, CT 06851, 888-737-7374, and ask the company to stop buying wheat sprayed with clopyralid and/or triclopyr.

Atrazine

The Gender Bender

Trade Names: Keystone LA and Atrazine

Atrazine is the second most commonly used agricultural pesticide in the U.S., and the first most commonly detected in rivers, streams and wells. Dow AgroSciences sells one product containing the weedkiller atrazine, Keystone LA, which is registered for use on corn. Annually, 75% of all corn in the U.S. is treated with atrazine. Other atrazine formulations are registered for use on sorghum, sugarcane and lawns. Syngenta Crop Protection is the largest manufacturer of atrazine.

HEALTH AND ENVIRONMENTAL CONCERNS

- Atrazine is an endocrine disruptor, which can interfere with hormone function and can contribute to breast and testicular cancer, birth defects, and learning problems. Atrazine can affect levels of testosterone, progesterone, estrogen and thyroid hormones.
- Recent studies show that exposure to levels of atrazine found in the environment, even at levels far below EPA's drinking water limits, demasculinizes tadpoles and turns developing frogs into hermaphrodites – with both male and female sexual characteristics.
- Other studies have found that atrazine delays puberty and affects prostate development in rats.
- Several studies have shown that atrazine causes genetic damage, even

at extremely low concentrations.

- Atrazine is an immunotoxic chemical, which means it disrupts the normal functions of the immune system, enhancing the risk of infectious disease and cancer.



KEEP ATRAZINE OUT OF YOUR...

HOME & GARDEN

Used on: lawns and gardens.

What You Can Do: Effective management techniques that include organic products and cultural practices prevent unwanted plants and eliminate the need for toxic chemicals.

- Hire only service providers that use organic and least-toxic techniques and cultural practices.
- See alternatives outlined in the 2,4-D section on p. 4. Also try the following cultural practices:
- Over-seed with well-adapted, pest-resistant grass varieties. Call your cooperative extension to determine preferable grass species.
- Aerate the soil and de-thatch regularly. Soil compaction is one of the largest causes of unwanted plant problems.
- Use organic fertilizer once a year and maintain proper pH.
- Mow with sharp blades set as high as possible.
- Water properly so that the water absorbs down to the root zone. Avoid frequent, shallow waterings.

FOOD

Used on: corn. Atrazine produced by other companies is also used on sugarcane, sorghum, and pineapples.

What You Can Do:

- Buy organic corn and organic corn products whenever possible.
- Kellogg's, the maker of the popular breakfast cereal Corn Flakes, as well as many children's cereals, is one major brand of cereals that are often marketed as healthy. Contact Kellogg's, Consumer Affairs, P.O. Box CAMB, Battle Creek, MI 49016, 800-962-1413, and ask them to stop buying corn products that have been treated with atrazine, especially those that go into breakfast cereals and other food products marketed to children.

Picloram

The Persistent Pesticide

Trade Names: Tordon, Pathway and Grazon

Picloram is a persistent herbicide used to control broadleaf and woody plants, especially on rights-of-way, rangeland and pastures, and in forestry. It is frequently used in invasive plant management programs as well. Dow, picloram's sole manufacturer, markets it under the trade names Tordon, Pathway, and Grazon. EPA designates picloram as a restricted use pesticide, for use by licensed applicators only. Picloram is banned in California. Dow often formulates picloram products with 2,4-D (see p. 3).

HEALTH AND ENVIRONMENTAL CONCERNS

- Picloram products have been associated with a number of reports of human poisoning. Exposure causes skin and eye irritation, headaches, fatigue, and memory loss. Laboratory tests have linked picloram to liver, kidney, and spleen damage.
- Studies of picloram and 2,4-D in combination have demonstrated that this mix causes birth defects and a decrease in the birth weight of mice. Livestock exposed to these two herbicides have increased mortality and frequency of intestinal cancer.
- Because it is persistent and highly mobile in soil, picloram is a commonly detected contaminant in ground and surface water. This is especially worrisome because picloram is highly toxic to fish and has

been linked to fishkills following roadside use.

- In 1995, EPA's Ecological Effects and Ground-water Branches recommended that Picloram be canceled. However, EPA's Office of Pesticide Programs failed to act.



KEEP PICLORAM OUT OF YOUR...

COMMUNITY

Used on: roadsides, rangelands, rights-of-way, forestry projects and in invasive plant management.

What You Can Do: Contact your state department of transportation, utility company and open space managers. and ask them to not use picloram-based products. Alert them to the dangers of picloram and recommend an integrated pest management program that uses non-toxic practices and products. An integrated approach that focuses on ecosystem and soil health eliminates the need for toxic herbicides. Successful alternative strategies for invasive plant management include:

- Mechanical controls, such as hand pulling and weed harvesting machines.
- Biological control agents, such as beneficial insects, can selectively remove one plant species from a pasture, range, and/or natural ecosystem. The use of biological controls is economical and once established, these insect species provide permanent, effective control of the invasive plants or other pests.
- Grazing is a non-toxic solution to invasive plant management that improves soil health through fertilization and aeration. Commercial grazing companies can be hired to manage plants on rights-of-way and rangelands or in city parks.

FOOD

Used on: wheat, barley, and oats grown in areas west of the Mississippi River.

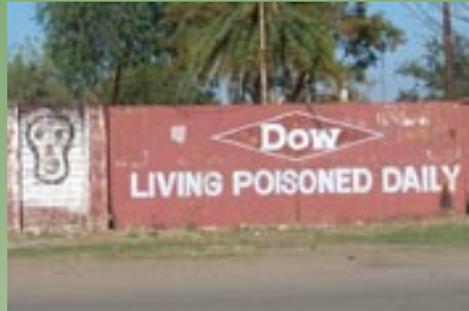
What You Can Do:

- Buy organic grains whenever possible.
- Write to Quaker Oats, P. O. Box 049003, Chicago, IL 60604, 312-821-1000, and ask the company not to buy oats grown using picloram.

WHY DOW CHEMICAL COMPANY?

It's true, there are a lot of companies that are getting rich off of producing poisonous chemicals. So why target the Dow Chemical Company?

- Dow is a leader in producing poisons that contaminate our bodies and the environment. As a major player in the industry, we need to focus on Dow to stop producing these poisons and move to safer alternatives;
- Dow Chemical has been a leader in obscuring the science, weakening the regulation of their and other deadly chemicals, and fighting to deny those harmed by their pesticides the right to compensation - in a case it recently lost before the U.S. Supreme Court in April 2005 (Bates v. Dow); and,
- Dow purchased Union Carbide in 2001, thereby acquiring its assets and liabilities. Union Carbide was responsible for the 1984 gas leak in Bhopal, India, which remains the worst industrial disaster in human history. Dow refuses to clean up the site, provide safe drinking water, compensate the victims, or disclose chemical information to physicians.



Protect your family from toxic hazards and help the families of Bhopal receive justice by boycotting the products in this brochure. Contact Dow's Chief Executive Officer, 2030 Dow Center, Midland, MI 48674, 989-636-1000, and demand that Dow act responsibly.

Beyond Pesticides, working with allies to protect public health and the environment, is leading the transition to a world free of toxic pesticides. The organization is a national, community-based collection of grassroots groups and individuals, bridging environmental and health concerns to: (i) stimulate widespread education on the hazards of toxic pesticides, and the availability of effective alternative pest management; (ii) influence decision makers to use safe methods; and, (iii) encourage the adoption of local, state, and national policies that stringently restrict pesticide use and promote alternative approaches that respect health and the environment.

Beyond Pesticides is a member of the **Dow Accountability Network**, a coalition of groups working together to hold Dow responsible for its continued harm to human health and the environment. For more information, visit www.thetruthaboutdow.org.



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