



TOWN OF FAIRFAX

STAFF REPORT

August 5, 2015

TO: Mayor and Town Council

FROM: Michele Gardner, Town Clerk *MG*

SUBJECT: Authorize the Mayor to send a letter to Fairfax Lumber requesting the store stop selling products containing neonicotinoids and glyphosate

RECOMMENDATION

Authorize the Mayor to draft and send the letter.

DISCUSSION

Pursuant to a resident's request, the Mayor added this item to tonight's agenda for Council consideration. For background information regarding the chemicals in question, please see the two attached articles.

ATTACHMENTS

1. New York Times article: Weed Killer, Long Cleared, Is Doubted
2. Beyond Pesticides article: Chemicals Implicated



The New York Times | <http://nyti.ms/1IF01i0>

ENERGY & ENVIRONMENT

Weed Killer, Long Cleared, Is Doubted

By **ANDREW POLLACK** MARCH 27, 2015

Thirty years ago, an Environmental Protection Agency committee determined that the popular weed killer Roundup might cause cancer. Six years later, in 1991, the agency reversed itself after re-evaluating the mouse study that had been the basis for the original conclusion.

Now the issue is back again, in an even bigger way. An agency of the World Health Organization has declared that glyphosate, the active ingredient in Roundup, “probably” causes cancer in people. One piece of evidence the agency cites is that same mouse study.

The declaration drew an angry response from Monsanto, the maker of Roundup, which has accused the agency of having an “agenda” and “cherry picking” the data to support its case.

The conclusion is “starkly at odds with every credible scientific body that has examined glyphosate safety,” Philip Miller, Monsanto’s vice president for global regulatory affairs, told reporters on Tuesday. That includes a recent review by German government regulators on behalf of the European Union.

The new controversy and the reversal by the E.P.A. decades ago demonstrate how the same data can be interpreted differently and how complicated and politically perilous such a decision can be. But the discrepancy between Monsanto and the health organization can be partly

explained by the specific way its agency analyzes the data.

Officials at the agency, the International Agency for Research on Cancer, said they had no agenda other than to inform the World Health Organization. They said the conclusion was based on studies of people, laboratory animals and cells.

“All three lines of evidence sort of said the same thing, which is we ought to be concerned about this,” said Aaron Blair, a retired epidemiologist from the National Cancer Institute who was chairman of the group of 17 reviewers from around the world; agreement on the classification was unanimous.

Glyphosate, introduced in the 1970s, is the most widely used herbicide in the world, sprayed on farms, in forests, on road sides and in gardens, and has a reputation for being benign, as pesticides go. It is now generic and used in many products, not only Roundup.

Use of glyphosate has soared in the last two decades because of Monsanto’s Roundup Ready crops, which account for most corn and soybeans grown in the United States. These crops are genetically engineered to withstand glyphosate, allowing farmers to spray their fields without harming the crops.

Monsanto executives said this week that they did not expect the agency’s action to affect sales. But that could depend on whether regulators around the world impose restrictions on glyphosate use after the W.H.O. pronouncement. A spokesman for the California Office of Environmental Health Hazard Assessment said it was evaluating whether products containing glyphosate might have to be labeled as posing a cancer hazard under the state’s Proposition 65.

Some consumer and environmental groups said on Friday that the findings strengthen the case for the labeling of genetically modified foods. They also called upon the E.P.A. to re-evaluate glyphosate and a newer weed

killer from Dow Chemical that combines glyphosate and another herbicide, 2,4-D.

The E.P.A. said it would consider the W.H.O. agency's finding in its own review of glyphosate. The E.P.A. has maintained its classification of glyphosate as having "evidence of noncarcinogenicity for humans" since 1991, including through a review last year.

The International Agency for Research on Cancer looks at a very narrow question: whether a substance or behavior might cause cancer under some circumstances, even if those circumstances are unlikely to occur. It does not weigh the benefit versus the risks of a chemical, leaving that up to national regulators.

The agency classifies alcoholic beverages as human carcinogens, along with tobacco, arsenic and asbestos. Working the night shift or being a hairdresser are classified as probably cancer-causing, the same as glyphosate, because one job disrupts the body's circadian rhythms and the other involves exposure to dyes. Coffee is a "possible" carcinogen, a lower level.

Over all, the agency has reviewed 983 things like chemicals and occupations. About half could not be classified based on the evidence. Only one compound, caprolactam, which is used to make a type of nylon, had enough evidence in its favor to be judged "probably not" carcinogenic.

There are also differences in interpretation. Monsanto and some regulators say the preponderance of studies shows no cancer risk from glyphosate. But for the W.H.O. agency, a few positive findings can be enough to declare a hazard, even if there are negative studies as well.

Kathryn Z. Guyton, a senior toxicologist at the agency, said the reviews also considered only studies published in journals or government documents that were publicly available. That typically excludes many studies done by chemical companies to get regulatory approval.

She also said the reviewers did not include the German regulatory report because it has not been ratified by the European Food Safety Authority.

It is a bit difficult to judge how the W.H.O. agency reviewers arrived at their conclusion. Eventually, it will publish a detailed monograph. For now, there is only a brief paper published March 20 in *The Lancet Oncology*, a medical journal.

In that paper, the reviewers cited studies from the United States, Canada and Sweden suggesting that people exposed to glyphosate had a higher incidence of non-Hodgkin's lymphoma, even after correcting for exposure to other chemicals.

But a large and long study of pesticide applicators on American farms did not find any problems. Dr. Miller of Monsanto accused the agency of "disregarding" this study, though it is clearly mentioned in the *Lancet* article. Dr. Guyton said because of that study the reviewers concluded that there was only "limited" evidence from human studies that glyphosate could cause cancer.

The *Lancet* article cited several animal studies. As few as two are needed to establish carcinogenicity, Dr. Guyton said.

There are several ways to measure a possible effect. Are there more cancers in animals exposed to the chemical than in a control group? Do higher doses mean more cancers? Are the rates higher than expected based on historical data? In many studies, not all three measures are positive.

Take the mouse study at issue in the E.P.A. review 30 years ago and also cited by the W.H.O. agency. There were three cases of a rare type of kidney cancer in 50 male mice fed the highest dose. That type of tumor is rare, so it strengthens the case, Dr. Blair said. "They literally don't occur, but they occurred when rodents were dosed with this stuff," he said.

While the W.H.O. agency's reviewers focused on the rise in cancer with dose, the E.P.A. reviewers in 1991 said the findings were not meaningful, in part because there was no statistically significant difference over all between the exposed mice and the control group.

Another finding cited by the W.H.O. agency was of an increased rate of hemangiosarcoma, a cancer of the blood vessels, in male mice, as discussed in a document issued by the W.H.O. and the Food and Agriculture Organization in 2004. The authors of that document dismissed the significance of the finding, and said that over all, the study had "produced no signs of carcinogenic potential at any dose."

The 2004 document then discussed four rat studies that it said also showed no evidence of carcinogenicity. One of those studies was also cited by the W.H.O. agency reviewers as evidence of carcinogenicity. Dr. Guyton said the agency reviewers "don't report the authors' conclusion. They report their own conclusions on that data."

Another sign of whether something can cause cancer is whether it causes mutations or chromosomal damage. Bacterial tests do not show that glyphosate causes mutations. But the reviewers said there was evidence of chromosomal damage in studies involving animal and human cells.

The agency assessment began about a year ago with a literature search and culminated this month, when the working group met in Lyon, France. Reviewers had no ties with the pesticide industry, Dr. Guyton said.

A version of this article appears in print on March 28, 2015, on page B1 of the New York edition with the headline: Weed Killer, Long Cleared, Is Doubted.

Search



Chemicals Implicated

While research is underway to determine the cause of Colony Collapse Disorder (CCD), pesticides have emerged as one of the prime suspects. Recent bans in Europe attest to the growing concerns surrounding pesticide use and honeybee decline.



Neonicotinoids

Neonicotinoids are a relatively new class of insecticides that share a common mode of action that affect the central nervous system of insects, resulting in paralysis and death. They include *imidacloprid*, *acetamiprid*, *clothianidin*, *dinotefuran*, *nithiazine*, *thiacloprid* and *thiamethoxam*. According to the EPA, uncertainties have been identified since their initial registration regarding the potential environmental fate and effects of neonicotinoid pesticides, particularly as they relate to pollinators. Studies conducted in the late 1990s suggest that neonicotinoid residues can accumulate in pollen and nectar of treated plants and represent a potential risk to pollinators.

There is major concern that neonicotinoid pesticides may play a role in recent pollinator declines. Neonicotinoids can also be persistent in the environment, and when used as seed treatments, translocate to residues in pollen and nectar of treated plants. The potential for these residues to affect bees and other pollinators remain uncertain. Despite these uncertainties, neonicotinoids are beginning to dominate the market place, putting pollinators at risk.

The case of the neonicotinoids exemplifies two critical problems with current registration procedures and risk assessment methods for pesticides: the reliance on industry-funded science that contradicts peer-reviewed studies and the insufficiency of current risk assessment procedures to account for sublethal effects of pesticides.

• 1. Imidacloprid

Used in agriculture as foliar and seed treatments, for indoor and outdoor insect control, home gardening and pet products, imidacloprid is the most popular neonicotinoid, first registered in 1994 under the trade names Merit®, Admire®, Advantage™. It is moderately toxic and is linked to neurotoxic, reproductive and mutagenic effects. It has been found to be highly toxic to bees and other beneficial insects. It is also toxic to upland game birds, is generally persistent in soils and can leach to groundwater. Studies show that imidacloprid, like other chemicals in its class, produces sublethal effects in honeybees, which include disruptions in mobility, navigation, and feeding behavior. Decreased foraging activity, along with olfactory learning performance and decreased hive activity have also been observed.

Imidacloprid has been scheduled for registration review, to be completed in 2016. According to EPA, the agency does not have adequate data to understand the potential exposure of imidacloprid to terrestrial invertebrates that may be exposed to imidacloprid through reliance on plant flower parts for habitat or diet. The agency is currently requesting field residue test data for imidacloprid residues in leaves, nectar and pollen.

• 2. Clothianidin

Clothianidin is neurotoxic and is highly toxic to bees and other non-target insects. In 2008 a massive bee die-off occurred in Germany which was subsequently associated with clothianidin. Germany moved to ban clothianidin and other neonicotinoids pending further investigation. Clothianidin was given conditional registration in the US in 2003, without sufficient data to support its registration. Current data gaps include a lack of field tests for honeybees. A study, submitted in 2007 to EPA in support of this registration criteria, was recently deemed inadequate.

UPDATES FROM THE DAILY NEWS BLOG

Bee-Killing Pesticides Ubiquitous in Pollen Samples During Honey Bee Forage Season
July 28, 2015

UK Approves Emergency Application for Neonicotinoid Seed Treatment Use Despite Moratorium
July 24, 2015

Neonicotinoids Harm Beneficial Predatory Insects through Secondary Poisoning
July 23, 2015

Study Links Climate Change to Shrinking Bumblebee Habitats
July 13, 2015

Federal Judge Overturns Maui GE Crop Moratorium
July 9, 2015

EPA Solicits Public Input on Protecting Monarchs from Herbicide Impacts
June 30, 2015

Neonicotinoids Hinder Bee's Ability to Smell Flowers
June 29, 2015

Atrazine and Glyphosate To Be Analyzed by EPA for Impacts on 1,500 Endangered Species
June 25, 2015

New Studies Identify Fungicides as a Factor in Declining Bee Health
June 22, 2015

Bee Pollination Important to Biodiversity, Not Just Ecosystem Services
June 18, 2015

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An internal EPA memo, leaked to the beekeeping community from an undisclosed source at the U.S. Environmental Protection Agency (EPA) in December 2010, shines light on a key deficiency in the agency's efforts to protect honeybees. The memo indicated that registration of clothianidin was unsound considering the study findings, and EPA was quietly re-evaluating its use, even as they planned future expansion. Beyond Pesticides and Pesticide Action Network North America (PANNA) wrote a letter to EPA following this leaked memo urging the agency to remove this pesticide from the market. Read EPA's official response to our letter, which rejects immediate action on removing this chemical which is toxic to bees. See also what the agency initially said to the press, and our chronology of events on clothianidin in response. *Take Action:* Tell EPA to protect pollinators and ban bee-killing pesticides. Submit a public comment and make your voice heard! Also, join our petition urging Congress to step up!

- **3. Acetamiprid**

Acetamiprid has population-level effects on honeybees even though it has low acute toxicity. Certain neonicotinoids interfere with honeybee reproduction, ability to navigate, or temperature regulation, any of which can have an effect on long-term survival of honeybee colonies.

- **4. Thiacloprid**

Thiacloprid is targeted to control sucking and biting insects in cotton, rice, vegetables, pome fruit, sugar beet, potatoes and ornamentals. However, low doses are highly toxic to insects like honeybees, it also causes physiological problems in fish and is considered toxic in the aquatic environment.

- **5. Thiamethoxam**

Thiamethoxam is a systemic insecticide that is absorbed and transported to all parts of the plant. Once bees and pollinators eat the pollen, the compound interfere with nerve cell information exchange, paralyzing the insect. It is considered moderately toxic, but toxic to bees, and harmful to aquatic and soil organisms.

Other Pesticides Implicated

- **Fipronil**

Widely used for indoor and turf pest control, fipronil is a new generation of insecticide that is highly toxic to insects. It is moderately toxic and has been linked to hormone disruption, thyroid cancer, neurotoxicity and reproductive effects. Fipronil has been shown to reduce behavioural function and learning performances in honeybees.

Fipronil on the Pesticide Gateway

- **Synthetic Pyrethroids**

This class of chemicals have also been shown to impair bee learning and foraging behaviour. These include, Bifenthrin, Deltamethrin, Fluvinate, and Permethrin.

- Endosulfan
- Spinosad

Studies implicating these pesticides in bee decline and CCD can be found in the Research webpage.