

RATE-NS: NOTES on FeHEDTA and Nitrates

Aug 2018

Nitrates in fertilizers and iron-based herbicides (unwisely approved for use in HRM) may be encouraging algal blooms in our lakes, as well as other negative risks and outcomes

https://en.wikipedia.org/wiki/Algal_bloom

Much of the following was sourced from a report submitted to HRM Council by Real Alternatives to Toxins to the Environment (RATE) in April of 2011. See water risk topics on pages 3,4 and 5.

Iron-Based Herbicides (Fiesta/FeHEDTA): Not Recommended for HRM

When considering whether or not to add iron-based herbicides (FeHEDTA/Fiesta) to Administrative Order 23, one must look at the original reasons for creating our cosmetic landscape Pesticide Bylaw. The pesticide bylaw was designed and passed in order to prevent toxic chemical products drifting throughout our urban neighbourhoods. Parents were concerned, and residents of all ages, and even mail deliverers reported these exposures were making them ill. The public concluded that simply relying on pesticide product label instructions would not provide the same level of public health protection as a municipal ban on cosmetic landscape pesticides.

Pesticide use is frequently looked at in terms of risk/benefit ratio. According to a letter from Dr. Robert Strang, Chief Public Health Officer of Nova Scotia: "For each specific use of pesticides (e.g. landscape, agriculture, forestry, pest and vector control) the determination of reasonable steps to minimize use should be based on an analysis of the risks and benefits of that specific use." A large benefit coupled with little risk is usually seen as acceptable, but a small benefit coupled with any degree of risk is not. In agriculture the "benefit" is typically equated to the crop value, but in a residential context, no such crop (other than our children) exists. Some of the most damning risk information below is contained explicitly or implicitly in documents from Health Canada's Pest Management Regulatory Agency (PMRA).

<p>Concerns and Risks Regarding FeHEDTA/Fiesta</p>	<p>“Benefits” of FeHEDTA and Fiesta ?</p>
<p>The application of commercial products is “recommended only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools, and recreational areas is minimal; taking into consideration wind speed, wind direction, temperature, application equipment, and sprayer settings.”</p> <p>From the PMRA document reviewing FeHEDTA- PMRA Website: http://www.hc-sc.gc.ca/cps-spc/pest/index-eng.php/, accessed February 22, 2011 and http://www.halifax.ca/council/agendasc/documents/100608ca1115.pdf</p> <p>Clearly, many areas of HRM would not meet these recommended conditions. Did HRM Council choose to ignore this and the risk information contained in this report when Fiesta/FeHEDTA was given approval and added to Administrative Order 23?</p>	<p>Another tool for the landscape industry to use controlling weeds</p>
<p>Soil Persistence Underestimated</p> <p>The PMRA stated that FeHEDTA products were expected to be non-persistent under neutral to alkaline (pH 7-8) aerobic soil conditions ($t_{1/2} < 30$ d) but persistent in acidic soils ($t_{1/2} > 30$ d).</p> <p>Comment: Because FeHEDTA is more persistent in acidic soils, the half-life or persistent build-up of iron and other formulants could be much greater in Nova Scotia soils than in the less acidic Ontario soils where it was recently approved for use. Bacterial breakdown in acidic soils may be slower also. The PMRA failed to assess the sequelae of the anticipated increase in soil persistence in this province. If repeated applications result in further accumulation, overall effects of possible increases in skin absorption and the amounts tracked into homes were almost certainly not documented.</p> <p>Further, since pesticide applications frequently lower the biological activity of soils, it is important to note that FeHEDTA is also more persistent under low oxygen conditions.</p> <p>For information sourced from the PMRA see: Robert Martin, Regulatory Information Officer / Agent d'information sur la réglementation, Pest Management Regulatory Agency/Agence de réglementation de la lutte antiparasitaire, 2720 Riverside Drive, Ottawa, ON, K1A 0K9, 1-800-267-6315 (Within Canada), 613-736-3799 (Elsewhere)36-3799 (Elsewhere)</p>	<p>Partial control of some weeds in turf</p>

Health Canada's Pest Management Regulatory Agency (PMRA) granted waivers (exceptions) for the normally required studies that are supposed to evaluate short-term dermal toxicity, prenatal development toxicity and genotoxicity of any pesticide they approve. So these risks were never assessed. Dangerous and unfounded assumptions were made that application rates would be low, that dermal absorption would be low, and that the toxicity of FeHEDTA would be low (based on toxicological information obtained for only chemically *similar* EDTA compounds, not for FeHEDTA itself).

- based on information posted on the PMRA website (paraphrased)

Our comment: It is unacceptable that FeHEDTA itself was not tested prior to its federal registration approval. Prenatal development toxicity, dermal toxicity and genotoxicity studies, *were all completely unassessed by the PMRA*. This is especially alarming since their own review of FeHEDTA stated “Children may also be exposed to FeHEDTA by direct dermal or hand to mouth contact if they were to play on freshly treated lawn surfaces.”

- [PMRA Website: http://www.hc-sc.gc.ca/cps-spc/pest/index-eng.php](http://www.hc-sc.gc.ca/cps-spc/pest/index-eng.php) accessed Feb. 22, 2011, also <http://www.halifax.ca/council/agendasc/documents/100608ca1115.pdf>
Chelating agents such as EDTA are also known to cause mineral deficiencies that result in toxicological effects.

Cancer / Ground Water and Drinking Water Risks

Sodium Nitrate and Nitrilotriacetic Acid (NTA)

Safety assessments of pesticides must include consideration of “unlisted” ingredients. Fiesta contains at least two other ingredients of concern.

The hazardous materials, according to their respective Material Safety Data Sheets (MSDS) are: Sodium Nitrate - 19 to 21 percent, and Nitrilotriacetic Acid (NTA) .05 to .08 percent, MSDS, Fiesta Lawn Weed Killer P.C.P. Act No. 29535

“CARCINOGENIC EFFECTS: Classified 2B by IARC (possibly carcinogenic for humans). Classified 2 (some evidence.) by NTP.”

The MSDS for [NTA](#) also warns of potential carcinogenic effects, and that “the substance may be toxic to kidneys. Repeated or prolonged exposure to the substance can produce target organ damage.” **These risks**

were *not* elaborated on the MSDS for Fiesta type herbicides, but they should have been. One had to make a separate deliberate search on the MSDS's for Sodium Nitrate and Nitrilotriacetic Acid in order to discover this critical risk information.

These ingredients may pose a real risk to children via drinking water and in other ways. The MSDS for Sodium Nitrate reads: "Sodium nitrate may react with secondary or tertiary amines to form **nitrosamines** (certain nitrosamines are cancer suspect agents)... most cases of **clinical infantile methemoglobinaemia** have occurred at levels exceeding 100 mg nitrate/L."

The ingestion of sodium nitrate is of real concern when the product breaks down or runs off into drinking wells, particularly when baby bottles or cereals are then prepared with this water. A local hydrogeologist estimated there were at least 20,000 drinking water wells in HRM, underlining the potential to impact a significant number of families. Leaf detritus in wells and surface water in combination with chlorine may also increase the formation of nitrosamines.

Cautionary notes for human health listed by the PMRA for Fiesta include "**avoid hand-to-mouth contact**" and users and workers are urged to wash hands thoroughly with soap and water after handling the products and before eating, drinking, and chewing gum or chewing tobacco.

Anyone handling or applying these products should "avoid breathing vapour or spray mist" and "avoid contact with skin or clothing."

<http://www.halifax.ca/council/agendasc/documents/100608ca1115.pdf>

HRM Councillors and staff must certainly be aware that these are all very common behaviours by the entire community on or near their lawns.

"Hereditary Hemochromatosis (HHC) is the most common genetic disorder affecting Canadians. It is a crippling, potentially fatal condition caused by a defect of iron metabolism that leads to **iron overload** in vital organs, joints and tissues." www.toomuchiron.ca

"1 in 9 Canadians carries the mutated gene for Hemochromatosis"
-The Canadian Hemochromatosis Society (CHS)*

<p>Iron-based herbicides, such as FeHEDTA or Fiesta, may pose a real risk to residents in the municipality with Hemochromatosis. HRM's population was 372,679 in 2006. At least 1 in 200 or 300 are affected by Hemochromatosis, so between 1,242 and 1,863 (or more) people can be regarded as having Type 1 HHC in HRM.</p> <p>Any additional skin absorption or ingestion of iron from landscape sources or from residues tracked into the home, may cause problems for those with this metabolic disorder, as well as for children in general. In children, iron is a very common cause of poisoning. Even without a genetic predisposition, the effects of ingesting excessive iron or involuntary skin absorption resulting from playing on the lawn could be additive and could conceivably cause serious health problems in some children.</p> <p><small>*Canadian Hemochromatosis Society, Suite 272 - 7000 Minoru Blvd Richmond, BC Canada V6Y 3Z5, Toll-Free (Canada): 1-877-BAD-IRON (1-877-223-4766 Tel: (604) 279-7135 , E-mail: office@toomuchiron.ca , Web: www.toomuchiron.ca</small></p>	
<p>“The signal words “potential skin sensitizer” and the statement “May cause skin sensitization” appears on labels. Note: skin sensitization may go above and beyond a simple allergy to the product. Anecdotal reports describe pesticide skin sensitizers that have triggered persistent chronic skin conditions, previously not experienced prior to exposure.</p>	
<p>“Do not re-enter or allow re-entry into treated areas until the spray is dried.” - PMRA website</p> <p>Comment: Merely waiting until a spray application has dried is insufficient advice from the PMRA to prevent toxic exposures, for all the reasons listed above and below.</p>	
<p>Protective clothing and eye protection must be worn when using this product – Label instructions</p>	
<p>Four incident reports for FeHEDTA in 2010 are posted at http://pr-rp.hc-sc.gc.ca/pi-ip/actives-eng.php?p_letter=I (item #13) Click on the number four in the far right hand column. Three are pet incident reports with effects ranging from “moderate” to “death.”</p>	
<p>Risks to Waterways and Aquatic Life</p> <p>There are indications that FeHEDTA lawn care products (notably Fiesta) harm the environment, particularly aquatic life. It has been established that iron, the active ingredient, can be toxic to aquatic plants and animals. Any run off from lawns treated with iron-based herbicides can enter the many sensitive waterways of HRM, including the lakes we swim in.</p>	

Iron in the FeHEDTA chelates can interact with the hemocyanin in the bloodstream of mollusks and crustaceans, and is toxic to these organisms. (Hemocyanin is an oxygen transport blood pigment in these animals equivalent in importance to haemoglobin). Lobsters, crabs, mussels, clams, oysters. etc., would therefore all be at risk if they encounter runoff.

<http://www.docstoc.com/docs/46343805/Iron-HEDTA-Technical-Doc> p. 10, see 4. Endangered Species Assessment.

FeHEDTA is likely also to be toxic to amphibians. Lower populations of amphibians result in more mosquitoes and other vector-borne diseases; the opposite of outcomes that need to be encouraged..

It is possible that risks to aquatic systems from this runoff violate the Habitat Protection and Pollution Prevention Provisions of the federal Fisheries Act.(Note: the Fisheries Act takes precedence over provincial and municipal law).

There is no instruction on the label requiring that wetlands and streams be avoided when applying the herbicide, other than relating to cleaning equipment or disposal of chemicals. This is a serious omission.

Physiological Responses of Five Seagrass Species to Trace Metals, [J.A. Prange and W.C. Dennison, Department of Botany, University of Queensland, Brisbane, Australia and National Research Centre for Environmental Toxicology. 2000.](#)

Compared with other herbicides, industry sources report problems with the *staining of clothing*, and a *marked increase in the quantity of this product that is needed to “get results.”* The latter strongly contradicts the PMRA’s assumption that applications rates will be low (an assumption made to support the omission of at least three important risk assessments (short-term dermal toxicity, prenatal development toxicity and genotoxicity). See the second box on page 2 of this report for further details.

Economic Considerations:

As a general rule, whenever the manufacturing head office of a product is located outside of a province (or out of the country), income derived from the sale of such products can be expected to leave the area. However, money spent locally on natural lawn care services that do not include chemicals such as FeHEDTA, tends to stay in the community, circulating and helping the local economy,

Further, in a regional municipality economically dependent, in part, on aquatic life such as fish, lobster, shellfish, scallops, etc., for income and food security, prudence would suggest that, at the very least, further study should be required before granting approval to a material known to be toxic to aquatic life. As noted above, commercial populations of lobsters, crabs, mussels, clams, oysters are all at risk from the toxic runoff that is sure to originate from these products.	

There are many concerns regarding FeHEDTA/Fiesta. One certain fact is that our community has learned to do without this type of herbicide for the last 10 years. The monoculture that would be encouraged by the use of this herbicide is also not compatible with the concept of a biodiverse lawn and landscape plantings that the province and city claims it is trying to encourage.

In short, significant product risks exist. The glaring omissions of evaluations of prenatal development toxicity, dermal toxicity and genotoxicity that the PMRA should have demanded, as well as the limitations of other research evidence regarding FeHEDTA are cause for considerable concern that needs to be taken into consideration by Council.

The Precautionary Principle is relevant: When we use the precautionary principle or precautionary approach we ask if an action or policy has a suspected risk of causing harm to the [public](#) or to the environment. In the absence of scientific consensus that the action or policy is harmful, the [burden of proof](#) that it is *not* harmful falls on those taking the action. This principle allows policy makers to make discretionary decisions in situations where there is the possibility of harm from following a particular course or making a certain decision when extensive scientific knowledge on the matter is lacking. The principle implies that there is a social responsibility to protect the public from exposure to harm, when scientific investigation has found a plausible risk. These protections can be relaxed only if further scientific findings emerge that provide sound evidence that no harm will result.

Precautionary Principle guidelines would therefore strongly suggest at the least waiting until further independent medical and environmental research is in, rather than assuming product manufacturers have met their obligation to prove that FeHEDTA products are safe to release into our communities.

CONCLUSION

The "Interim Policy" that HRM has successfully followed ever since the pesticide bylaw was passed in 2000 is based on the ratings assigned by the Organic Materials Review Institute (OMRI). After the first somewhat rancorous years when various attempts were made by HRM Council to vote materials onto Administrative Order 23, HRM has followed a general policy of adding materials to Administrative Order 23 only if they were approved by OMRI and thus are shown *not* to contain hazardous ingredients, *listed or unlisted*. This is a valuable policy worth preserving and strengthening,

and it sets HRM one important step above the province in the protection of public health. OMRI has not approved Fiesta/FeHEDTA. For HRM to do so now would both expose the community to the risks outlined here, but would also greatly weaken the consistency of the oversight of this aspect of the bylaw, one that has substantially assisted us over the last decade, and in doing so avoided many contentious council discussions. The pending Council discussion over FeHEDTA, need not have taken place at all if the Interim Policy had continued to be consistently applied. It is hoped that Council will nevertheless make the right choices by not allowing the use of Fiesta/FeHEDTA, by preserving Administrative Order 23 as well as our ability to make our own decisions providing stronger protections of public health than is afforded by provincial regulations (as is specifically allowed by the MGA jurisdiction), and by avoiding the introduction of exceptions which inevitably will weaken the general policy that has guided us so well up to now.

Prepared and submitted by Real Alternatives to Toxins in The Environment (RATE)

We hope this is useful in your deliberations.

Contact person for further information and questions,

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<http://www.ratens.ca>

Halifax Regional Council minutes for June 8, 2010 provide important background on PMRA statements of risk, however RATE *does not concur* with the staff recommendation in that report to grant approval to Fiesta/FeHEDTA. (link below)

SUBJECT: Amendment to Administrative Order #23, Respecting Pesticides, Herbicides and Insecticides - Notice of Motion to Add FeHEDTA (for lawn use) to the Permitted Pesticides List (document Item No. 11.1.5)
<http://www.halifax.ca/council/agendasc/documents/100608ca1115.pdf>

The minutes include, in full, the following PMRA Document: **Proposed Registration Decision FeHEDTA PMRA Document Number: 1841244**