

To Mayor and Council, Lanark Highlands

May 17, 2016

Re: Spraying of Wild Parsnip

Thank you to Mayor and Council and to the moderator of this meeting for allowing me to speak.

I am Linda Harvey, a resident of Elphin Ontario and a retired family physician who practised in rural Ontario for about 20 years. My undergrad training was in field biology for which I received a B.Sc. from Queen's U in 1973. My partner and I currently run an organic homestead near Elphin and I am currently taking a certificate course in Permaculture Design, or the management of ecosystems in the human living space.

My colleague Dr. Coombs has spoken to you about the current body burden of pesticides and its human health implications. I am hoping my presentation will dovetail with his.

Firstly let me point out that Health Canada, who ultimately gives the yes or no on what we are exposed to, does not generally do product testing. They rely on data provided by the manufacturer of the drug or chemical at issue, which they "review". Are you comfortable with this? I am not.

It has been my experience in a number of areas that the regulators in this country seem to be very much aligned with industry; they want to help them get their products to market. Their function in safeguarding the Canadian public seems to be rather secondary. This means the public will have to do its own homework if it wants these safeguards in place that is what we are trying to do here in this room.

You, our Mayor and Council, can't possibly know about or research every single thing that comes up in front of you, you have a very broad-spectrum, comprehensive job to do. Among the public you serve, however, are people with expertise in almost everything, and years of experience, collectively, to go with it. Members of your public are trying to share with you information they have. Please listen.

Let me return to aminopyralid. There have been essentially no human health studies on this material, other than the basic toxicology required for the MSDS. It is too new. The class of herbicides it is in, the picolinic acid family, is also new. In 2012, the Ontario College of Family Physicians published a document on our cumulative knowledge and experience with other classes of pesticide/herbicides which have been in use for decades- the DDT and 2,4-D -like organochlorines, now known to be hormone mimics and possibly implicated in breast cancer and other reproductive cancers, and the organophosphates, connected to developmental disorders and autism. Their adverse effects were not known when these products were released onto the market, and many of them are serious. We don't know what aminopyralid is going to do. Nobody does.

I have one major concern, as a physician and a person trained in neurobiology. It goes like this: Aminopyralid exerts its effect on plants by binding to the plant's receptors for growth hormones, the auxins, and blocking them, disrupting many of the plant's internal processes. The auxin molecule is very similar in structure to serotonin, a neurotransmitter and a major regulator in the

human body, involved in mood regulation (that is depression and the experience of joy), social behaviour, appetite and possibly obesity, digestion, sleep and a whole host of other processes.

A legitimate question to ask before allowing this product on the market is this: Does aminopyralid bind to the serotonin receptor in humans? Does it affect serotonin metabolism in any way? If it does, we are setting up yet another situation such as we see with the organophosphates, which are implicated in developmental delay, ADHD, lowered IQ and other neurological abnormalities in children. They interfere with a different neurotransmitter-acetylcholine. Will there be yet another generation of children with cognitive dysfunction such as autism, depression, behavioural disruption and more? What about early dementia in exposed children?- we won't know about that for 40-50 years.

Also, we need to be aware that besides aminopyralid the herbicide Clearview contains three other substances, metsulfiron-methyl, titanium dioxide and kaolin, each with its own toxicity profile, as well as a 28% portion of "unspecified" material of unknown toxicity. The manufacturer, Dow, specifies that Clearview should be mixed in the tank with an adjuvant Gateway "to improve the spreading and wetting of herbicide." Gateway contains petroleum distillates and naphthalene, among other things, and is far more toxic to aquatic organisms and fish than Clearview. Does Council know this?

Even if Clearview were completely safe for humans, pollinators and aquatic organisms, which it is not, your proposed spraying program for wild parsnip strikes me as a bad idea from a number of other perspectives. I will explain.

Firstly, roadside ditches are by their nature damaged ecosystems, given the stresses they experience. They will always be subject to colonization with opportunistic and invasive species. The more you damage them, the more invasives you will get. Left alone, any ecosystem will tend to balance itself and achieve some sort of equilibrium.

I have watched, over 12 years, the colonization by wild parsnip of some ditches along County Roads 12 and 36 which I travel frequently, and I have watched some of these infestations settle.

Wild parsnip, *Pastinaca sativa*, is a biennial plant. In the first year, it makes a rosette of leaves and a large tap root. In the second year, it sends up a flower/seed stalk, sets seed and dies. Mowing off the maturing flower stalk, before seed set, will pretty well guarantee that the plant dies without leaving offspring. Doing this for several years in a row, even though you won't get them all, will set back the population dramatically, and allow other plants to fill in the empty spaces. They will then make it harder for new parsnip rosettes to establish themselves as they will be facing competition for space and sunlight.

Using a broadleaf herbicide, such as Clearview, will remove large segments of the native flora, and make it much easier for the roadside ecosystem to succumb to further invasion. The parsnips will be back, as perhaps will other undesirable things. You will be on a very expensive treadmill.

Secondly, Clearview is not rated for use on slopes or near water. This rather nicely describes a ditch. Ditches are designed to empty into water courses or bodies of water. The product is known to damage aquatic broadleaf plants and other aquatic organisms. The product is also not

recommended for use on clay or other compacted soils (or perhaps bedrock?) where run off can occur. This pretty nicely describes Lanark Highlands. Using this product in such situations would constitute an "off label" or inappropriate use and would leave you legally unsupported should there be trouble later. Recall from the product literature that Clearview is not readily biodegradable, and travels readily through soil and through water- a recipe for groundwater contamination. If you are found to be negligent in such a situation, the damages could be considerable.

Be aware, also, that Clearview is not considered particularly effective for wild parsnip and members of the parsnip family, so you will likely need to use rather high doses of it to achieve your goal.

Clearview is not in fact completely safe for humans, and it is certainly not safe for number of other organisms with whom we share this planet.

The toxin causing the nasty rash from wild parsnip is only present for a short portion of its lifespan, during flower stalk growth and flowering- in fact when the presence of the plant is at its most obvious. The rest of the time the plant is harmless.

It might interest you to know that the garden parsnip, *Pastinaca sativa*, is the very same species as the wild parsnip. The garden parsnip has been bred for a larger, tastier root. It also contains the toxin during its flowering phase. I can vouch for this, I grow them.

It seems to me that this issue has taken on a life and an energy that it doesn't deserve. Sober thought needs to prevail. This will take time, care and consultation. I would like to strongly recommend that we put a moratorium on the spraying program for this year, and spend next winter taking a serious look at alternatives for managing this plant.

Thank you for your consideration in this difficult matter.

Linda Harvey B.Sc., M.Sc.,M.D.