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International Environment Day on 5th June 2022

Stop pesticides in organic fertilizers

A cry of protest – A petition against pesticides in organic fertilizers

By Ulf Nilsson and Ulrica Otterling

Healthy tomato plant by Ulf Nilsson

Organic fertilizers mixed with pesticides seems like a very strange combo. Yet, for the past two years thousands of Swedish gardeners advocated to sustainable gardening have had their crops of tomatoes, beans and potatoes damaged and ruined by residues of pesticides included in the fertilizers and manure they have used in their gardens.

Aiming to put a stop to this, the Swedish Allotment Federation has launched a petition against pyralids, the herbicides in question. The result of the campaign will be handed over to the Minister of the Environment on June 5th, The International Environment Day.

The pesticides that contaminate fertilizers and manure have to be stopped. Everyone who wants to garden organically, without pesticides, must be able to safely do so. The government needs to recognize this as a threat to the circular bioeconomy and take action, says Ulrica Otterling, Secretary General of the Swedish Allotment Federation.

In 2020, after numerous reports from allotment holders and other leisure gardeners about ruined tomato and chili plants, the Swedish Leisure Garden Association, FOR, started investigating the problem. Analysis of several liquid organic fertilizers based on vinasse, a residual product from sugar production, showed that the majority of the tested products were contaminated with the pesticide clopyralid (Nilsson 2021). A substance that, even at very low concentrations, parts per billion, can damage sensitive plants and cause malformed stems, leaves and fruits.

Pyralid damaged tomato plant by Ulf Nilsson

Clopyralid, and the closely related substances aminopyralid and picloram (here called pyralids as a group), are herbicides which are used to kill herbaceous broad-leaved weeds in cereals, grasslands, oilseeds and sugar beet fields. They are significantly more persistent than most other plant protection products that are approved in Sweden. For example, the half-life in soil may be over 500 days for aminopyralid and picloram, and 250 days for clopyralid.

The problem with the contaminated plant fertilisers in 2020 was traced back to weed control, using clopyralid, in sugar beet fields in France, Germany and Poland. It was also found in Denmark, Norway and Finland that vinasse-based organic fertilisers intended for private consumers could contain residues of clopyralid (Haveselskabet 2021; McKinnon et al. 2021).

When the cause of the problems became known, several of the large Swedish retailers stopped selling fertilisers based on vinasse and manufacturers withdrew products from the market. Unfortunately, this was not the end of the matter.

In the spring of 2021, reports continued to come in to FOR from gardeners who suspected that their plants had been damaged by herbicides. In one allotment site in Stockholm, Pungpinan, where they had bought horse manure from a private stable nearby, 50 allotment holders reported damages to a number of vegetable plants. In another allotment area damages were caused by sheep manure.

As a consequence, 32 analyses were performed on organically based plant nutrition products and potting soils available on the Swedish consumer market. Horse manure and sheep manure used in three different allotment sites in Stockholm that had caused severe plant damage were also analysed along with other samples of chicken and horse manure, silage and straw.

The results of the analyses showed that pyralids were found in almost all tested organic raw materials, originating in agriculture, used by gardeners as plant fertilisers. Residues of clopyralid have been found in cow-, horse-, sheep- and chicken manure as well as in sugar beet extracts, aminopyralid in maize starch and cow manure, and picloram in horse manure.

It can affect gardeners who buy organic plant fertilisers at garden centres as well as those who pick up manure, straw or silage from horse stables or local farms. Not even gardeners who use chicken manure from their own chickens, fed with purchased feed, can with certainty avoid getting plant damaged. Furthermore, the extremely low amount of pyridine required to cause damage to sensitive plants make it very difficult for organic fertiliser manufacturers to handle.

The extent of the problem shows that it is a matter of system error, which allow these herbicides to be used in agriculture without at the same time ensuring that they do not cause damage at a later stage of cultivation in recreational gardens.

In addition to the herbicides destroying tens of thousands of plants of great economic value, it has also led to anxiety and reduced joy of cultivation for those affected. Many people are worried about how long the soil will be contaminated, a question nobody can give an exact answer to today.

Even more serious is that the gardeners trust in organic fertilisers has been severely damaged which is a threat to increased circular bioeconomy in gardening. A prerequisite for a functioning circular economy is that the cycles are not contaminated by harmful chemicals (Swedish Government Offices 2020).

According to EU- regulation 1107/2009, article 4 and paragraph 3C "a plant protection product shall not have any unacceptable effects on plants or plant products". We believe that the content of this report shows that herbicides based on picloram, amino- and clopyralid do not fulfil this statement.

We started the petition to give everyone who thinks this is unacceptable a voice for their protest. We think it is highly appropriate that we will be presenting it to the responsible ministers on June 5, the International Environment Day, says Ulrica Otterling.

The petition demands that the government stop the use of pyralids. The Swedish Government can stop the sale of products containing these substances in Sweden and work for a ban of the substances in the EU.

This example underlines that we all garden, grow vegetables and farm on the same planet, regardless if we are leisure gardeners or professional farmers. It's all connected. As this case shows, when the circular bioeconomy is contaminated it effects everyone in the end. That's why it is so important to put a stop to pyralids. So, gardeners in Sweden, throughout Europe and elsewhere, be cautious and take action if necessary, so that pesticides will not destroy your enthusiasm to garden in a natural way, do not affect our health, plant health and finally, the health of our whole planet.....

Jerusalem artichoke, damaged by pyralids, by Annika Ekberg

damaged broad bean by Linda Wahl

About pyralids

- ✓ The substances clopyralid, aminopyralid and picloram (here called pyralids as a group) are herbicides within the group of pyridine carboxylic acids. These herbicides are used in conventional farming. A few parts per billion (ug/kg) is sufficient to cause damage on plants.

- ✓ Most sensitive to pyralids are plants within the following plant families: Solanaceae (tomatoes, chili, peppers, potatoes), Fabaceae (peas and beans) and Asteraceae (dahlias, Jerusalem artichokes, asters)

- ✓ Pyralids are very persistent and can remain in the soil for several years.

- ✓ When pyralids are used on the fields, they do not only kill the weeds. They are also absorbed by the cultivated crops, such as cereals and rape. The crops become fodder for animals and the pyralids end up in their manure, which is spread on fields and in various forms in gardens and allotments. This way the whole the circular economy is contaminated.

A short version in English about the analyzes in 2021:
Pesticides-in-organic-fertilisers_FOR_23-jan-2022.pdf

Pictures of pyralid-damaged plants (report in Swedish):
https://for.se/wp-content/uploads/2022/03/Symptomrapport-pyralid-2022_UN-1.pdf