

An early glimpse of the results of a Swiss government [study on glyphosate levels](#) in food, due to be published in coming weeks, shows around 40% of 230 samples across 19 categories of Swiss farm produce were found to have measurable traces of glyphosate. It is worth noting that the Swiss study looks at Swiss farm produce and doesn't cover imported products.

The highest levels were found in grains and pulses, with one sample showing a level of 2.9 milligrams per kilogram. According to the [Swiss Federal Office of Food Security and Veterinary Affairs](#), none of the levels exceed the maximum allowed levels.

So what are these maximum allowed levels?

Well, it depends. [Swiss rules](#) on maximum allowable glyphosate levels follow [EU regulations](#), but these vary depending on the produce. An apple is allowed to have 0.1 milligrams (mg), or 100 micrograms (μg) of the substance per kilogram. But wheat can have 10 mg, one hundred times the level. Levels for oats and barley are an even higher 20 mg.

In fact all of the produce with higher levels in the Swiss study also have higher allowable maximums. This raises an interesting question: why might glyphosate residue on wheat, and some other grains, be safer than glyphosate residue on apples?

Celiac disease

In addition to IARC's cancer research, a separate [study](#) done in 2013 shows a close correlation between rising glyphosate use, since its introduction in 1974, and a rise in the number with celiac disease, a serious reaction to gluten. [This chart](#) shows the correlation with celiac disease. The paper looks at other disease associations too. [This chart](#) shows a correlation with thyroid cancer.

In addition to the correlated trend over time, celiac disease rates were found to be higher in parts of the world using the more glyphosate.

The study suggests that glyphosate interferes with gut bacteria, which goes on to trigger an autoimmune response and celiac disease in some people.

Other research, referred to in this study, shows glyphosate exposure in carnivorous fish had adverse effects throughout the digestive system.

Avoiding glyphosate

For those wishing to reduce their exposure to glyphosate, maximum allowable residue levels could be used as a rough and ready guide. Produce with high allowable maximums would rise to the top of the organic shopping list.

Some items for the organic basket would include: flour and anything containing it, oats, barley, rye, sorghum, sunflower seeds and oil, rape and canola seeds and oil, soybeans, mustard seeds, cotton seeds and oil, lentils, peas, beans and sugar. [Click here](#) for more information – opens a PDF with a full list of maximum residue levels for glyphosate by product¹.

Avoiding GMO produce is another rough guide to avoiding heavy pesticide residue. Some who promote the advantages of GMO foods forget that many have been modified to make them pesticide resistant.

GMO and pesticides fans like to argue that these things are essential to feeding the world. But, if we reduced one of the largest inefficiencies in the current food system we might not need these yield gains. If humans ate the crops fed to grain-fed animals there would be a lot more food.

By one [calculation](#), producing plant protein requires 1/6-1/17 of the land required to produce meat protein.

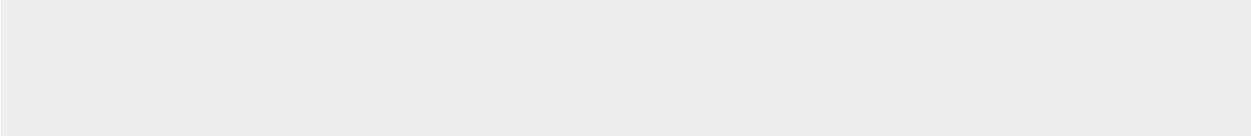
And, if we decided to go further and tackle climate change, we could plant CO₂-hungry trees on any unused pasture.

NEONICOTINOID THREAT

Swiss bee expert laments exaggerated focus on insecticides

By [Simon Bradley](#)

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A honey bee emerges from a honeycomb

The amount of time researchers dedicate to insecticides known as neonicotinoids is disproportionate, compared to the efforts invested in combating the honey bee's greatest enemy, the varroa mite, argues Swiss bee specialist Jean-Daniel Charrière.

Charrière oversees [bee research](#) external link at the Swiss government's agriculture institute, Agroscope. Bees and other pollinators are vital to three-quarters of the world's food crops but have been in serious decline in recent decades.

swissinfo.ch: Since 2003, [annual bee colony losses](#) external link in Switzerland have averaged -16%, with a peak of -25%. Earlier this month, however, the Swiss bee association [Apisuisse](#) external link announced an excellent honey harvest nationwide. Should we be worried about the decline of bees in Switzerland?

Jean-Daniel Charrière: The situation varies from year to year. But in general, the existence of the Swiss honey bee is not in danger. Owing to beekeepers' major efforts in replacing collapsed colonies, we still have around 165,000 bee colonies and a good density of bees in Switzerland. We recently published a report showing just 2-3 places - along Lake Geneva and in cantons Valais and Thurgau - where there could have a deficit of pollination, as there are lots of fruit trees and maybe a lack of pollinators.



Jean-Daniel Charrière is responsible for [bee research](#) at the Swiss government's agriculture institute, Agroscope

There are lots of beekeepers in Switzerland, some of whom get discouraged and stop if they lose colonies over a period of several years. But we also see lots of new people wanting to start beekeeping. The quantity of honey bees in Switzerland is directly linked to the number of beekeepers, as there are few wild colonies, and the bee colonies are mostly looked after by beekeepers.

swissinfo.ch: Currently, there is a big focus among scientists, activists and politicians on the link between neonicotinoids and the decline of the bee

(see infobox below). Are they the main cause?

J-D. C.: I think it's important to be worried about neonicotinoids. But I think the amount of space given to them is disproportionate. We talk a great deal about pesticides as one of the causes of the winter losses, but there is no proof that they are one of the main causes.

For the honey bee, the primary cause of death is the [varroa mite](#) and viruses transported by it. Lots of studies confirm this. Systematically, they show that the presence of varroa is critical to determining whether they survive winter.

This doesn't mean that pesticides have no impact. I can imagine that bees' exposition to pesticides weakens their immune system, making them more susceptible to viruses, for example. But it's a complex issue where several causes are involved, and they differ, depending of the location and the year.

swissinfo.ch: Neuchatel University researchers recently reported that [75% of honey from around the world contain traces of neonicotinoids](#).

While the levels are below the legal threshold for European food, they say the results for bees were alarming, as a tiny concentration of pesticide of 0.1 ng/gram can have a significant effect. What is your view on this research?

J-D. C.: In the researchers' paper in [Science](#), the results are interesting and give a good overview about the exposure of the bees but the interpretation of the results goes too far. Personally, I wasn't surprised that they found residues in honey. Afterwards the question is: 'Is there a real risk for bees?'

I know quite a few studies that show that for honey bees colonies the risks are not that great. This is because honey bees are very resilient and able to react and compensate.

I rather fear for the other pollinators: the bumble bees and the 600 species of wild bees in Switzerland that don't have similar compensation measures. The honey bee lives in a society. If some bees die, the colony has the capacity to react, and the queen

bee can lay more eggs or the lifespan of bees can extend. But if a wild bee has only five descendants instead of 20, and this continues the following year, the impact is huge and the population can quickly diminish.

I think it's very important to carry out studies into neonicotinoids but the quantity of studies being published is exaggerated right now. I don't think this situation corresponds to the reality on the ground. We know that varroa is the main cause of bee deaths and the solution to treat the parasite is not optimal. We need to invest lots of money in finding a solution.

Right now, it's easier to find funds for projects on neonicotinoids rather than varroa, which might take 6-7 years and are not guaranteed success.

swissinfo.ch: Since 2013, [the EU](#) external link and Switzerland have imposed restrictions on the use of some neonicotinoids, as they have doubts about their harmful effects on Europe's honeybees. This moratorium will be reviewed at the beginning of 2018. Can we expect stricter rules, as some people predict?

J-D. C.: I can imagine that some use of neonicotinoids may disappear. But in my opinion, it's wrong to impose a strict ban on all insecticides of the neonicotinoids group. I think you need to look on a case-by-case basis. In any case, the EU decision will influence the Swiss position.

swissinfo.ch: You say the problem with the discussion on neonicotinoids is that it's black or white – you are either for or against them. The middle ground, which you assume, is not always understood in the beekeeper community.

J-D. C.: In general, beekeeper associations are against pesticides. This movement started in France where the debate is more virulent. It's quite calm here in Switzerland. I've participated in sessions in France where the researcher has been

booed if they present trial results objectively and don't conclude that pesticides are toxic or dangerous for bees. It is considered bad research.

If you say you're in favour of a reasonable use of pesticides, you are quickly accused of being someone who works for Syngenta or Monsanto.

Neonicotinoids

Neonicotinoids, or neonics, are a relatively new insecticide that are widely used around the world. They work by attacking an insect's central nervous system.

Environmental campaigners say the evidence of neonicotinoids' harm to pollinators has grown stronger in recent years. [Studies external link](#) include a field trial published in July that showed [neonicotinoids damage bee population external link](#), not just individual insects, and a [global study of honey revealing worldwide contamination external link](#) by the insecticides. In 2014 research in the Netherlands suggested that concentrations of common neonicotinoid were responsible for a decline in certain species of [bird external link](#). A study in Germany also showed that [75% of all flying insects had disappeared external link](#) since 1989 in Germany and probably much further afield. It suggests that pesticide use is one possible cause of this decrease of insects.

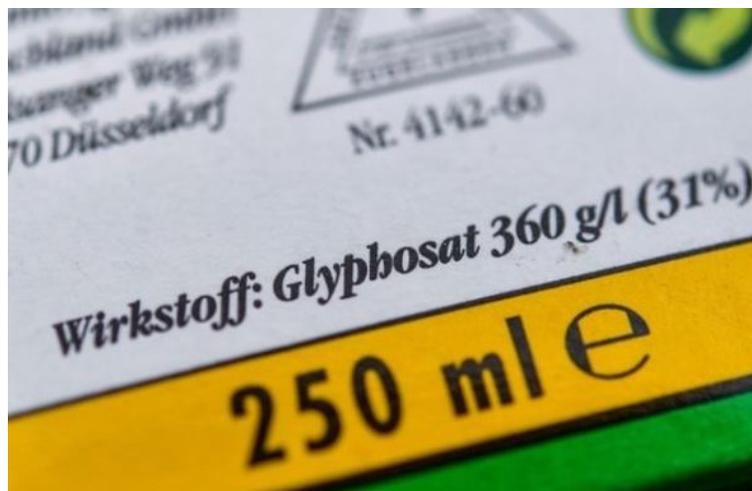
Agricultural groups such as Syngenta and Bayer, which produce neonicotinoids, challenge these studies and the recent negative coverage of neonicotinoid pesticides. [Erik Fyrwald, chief executive of Syngenta](#), insists: "There's plenty of data suggesting that neonicotinoids are not having any significant impact on bee health."

Since 2013, the European Union and Switzerland have imposed a moratorium on the use of neonicotinoids on flowering crops. The European Commission now wants a total ban on their use outside of greenhouses, with a decision expected in January. The British government this month [announced external link](#) it was in favour of tougher restrictions on neonicotinoids due to the 'growing weight of scientific evidence'.



Interdire le glyphosate serait compliqué, dit le CF

Le Conseil fédéral estime que le pesticide ne représente pas un danger en Suisse. Le bannir serait problématique, ajoute-t-il.



L'interdiction du glyphosate fait aussi débat dans l'Union européenne.

Les résidus de glyphosate mesurés en Suisse sont très faibles et donc inoffensifs pour la santé. Le Conseil fédéral ne voit donc aucune raison d'interdire l'utilisation du pesticide. Il rejette une motion du groupe des Verts l'exigeant jusqu'à 2022 au moins.

Dans sa réponse publiée jeudi, le gouvernement rappelle les nombreuses évaluations de risques menées depuis 2015 par des organismes internationaux reconnus. Toutes sont arrivées à la conclusion que le glyphosate ne présente pas de risque pour la santé humaine lorsqu'il est utilisé conformément aux prescriptions.

Mais le gouvernement révèle aussi les premiers résultats d'une étude demandée par le National sur la situation en Suisse. Il se dit déjà en mesure d'annoncer que les résidus mesurés sont très faibles et donc inoffensifs pour la santé. Il faudrait une consommation irréaliste de 71 kg par jour du produit testé le plus contaminé (pâtes) pour qu'on puisse s'attendre à des effets secondaires nocifs pour la santé.

Interdiction problématique

Selon le Conseil fédéral, une interdiction serait de toute façon problématique à plusieurs titres. Pour de nombreuses utilisations y compris en dehors de l'agriculture, la seule alternative est la destruction mécanique ou thermique, ce qui nécessite plus de travail, souvent manuel, et d'énergie.

Dans d'autres cas, le désherbage devrait être effectué avec un mélange de différentes substances pour obtenir la même efficacité que celle du glyphosate. A noter que le glyphosate est faiblement toxique pour les organismes aquatiques et qu'à ce jour, on n'a pas détecté cette substance dans les eaux souterraines utilisées pour la production d'eau de boisson.

Controversé dans l'UE

Pour le Conseil fédéral, tous ces éléments doivent être pondérés avant de prendre une «décision aussi radicale que l'interdiction de cette substance». Le sujet divise aussi au sein de l'UE. Il y a une semaine, les Etats membres ne sont pas parvenus à s'accorder sur la prolongation de cinq ans de la licence de cet herbicide controversé. Un nouveau vote pourrait avoir lieu en décembre à Bruxelles.

Cet herbicide est classé «cancérogène probable» par le Centre international de recherche sur le cancer, un organe de l'OMS. Pour les adversaires du glyphosate, le principe de précaution devrait prévaloir, mais les pesticides concernés représentent un marché d'environ un milliard d'euros et la substance active est plébiscitée par les agriculteurs pour son efficacité et son faible coût.