https://www.nrc.nl/nieuws/2023/10/11/steeds-meer-parkinson-verleen-geen-vergunning-voor-glyfosaat-a4176892; DeepL translation

Increasing parkinsonism: do not license glyphosate

The European pesticide authorization process falls short of providing conclusive information on risks, argue Bas Bloem and Tjitske Boonstra.

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The number of people with progressive brain diseases such as Parkinson's or Alzheimer's has increased dramatically in recent years. Parkinson's is currently the fastest growing neurological disease in the world - there is talk of a Parkinson's pandemic. In the Netherlands, the number of people with Parkinson's has increased by 30 percent over the past decade.

The growth is largely caused by pollutants in our environment, such as pesticides. Farmers have a greatly increased risk of parkinsonism; the same applies to people living near agricultural plots. Research shows that, on average, people get Parkinson's younger when exposed to pesticides. This effect increases the longer people are exposed to higher doses of pesticides. In France, the risk of Parkinson's among vintners exposed to pesticides is more than two and a half times higher; the disease is considered an occupational disease there.

This Friday, a European vote will be held on renewing the marketing authorization for glyphosate, a weed killer. Despite efforts by Minister Piet Adema (Agriculture, CU) for a negative vote, the Netherlands will abstain, the cabinet announced Tuesday. There should be no such extension of the permit.

Serious shortcomings

Glyphosate is a controversial pesticide, associated with loss of biodiversity and bee mortality. In addition, there is growing evidence that the use of glyphosate poses risks to public health, causing cancer, for example. Many of us are exposed to glyphosate daily; European research found that glyphosate residues were present in the feces of 70 percent of participants.

We cannot currently say anything about the safety of glyphosate in relation to Parkinson's. This is because the current authorization policy, organized in the European context by the European Food Safety Authority (EFSA), has serious shortcomings.

For example, current research on harmfulness to the brain is far too crude. Test animals are exposed to pesticides, and the risk of brain damage is assessed primarily by the occurrence of externally observable neurological symptoms in the test animal. However, because the brain has a large reserve capacity, these symptoms occur only with extensive damage, that is, when some 60 to 70 percent of the nerve cells in the brain region involved in Parkinson's disease have been damaged. If, for example, 40 percent of those cells have died, the test animal still looks perfectly healthy, but the pesticide under study is anything but safe.

This shortcoming has been recognized for years by international experts from independent research institutes, but now also by EFSA itself. An EFSA working conference in September 2022 concluded that there was "broad consensus" that current authorisation procedures are likely to give us "insufficient insight" into "the actual neurotoxic effects of certain pesticides on the substantia nigra" - the deep brain nucleus - and therefore give us "inadequate assessment" of the risk of developing Parkinson's when exposed to humans.

So there is a "data gap" when it comes to glyphosate and the risk of Parkinson's and other neurodegenerative diseases, but this knowledge gap is mistakenly not addressed at all in the glyphosate re-evaluation dossier.

High concentrations

A second concern is that the glyphosate doses in the animal experiments used to date were probably far too low, and not representative of everyday life. The experiments assume glyphosate concentrations as they reach humans after dietary exposure. However, glyphosate travels kilometers through the air, and has been found in Germany, for example, in protected natural areas. There are high concentrations of glyphosate and other pesticides in house dust in the homes of farmers, as well as those of local residents, and this leads to exposure through the skin and through breathing. These access routes and these high concentrations must also be explicitly considered when assessing the risk of glyphosate on brain damage.

Finally, there are concerns that much research on glyphosate has been conducted by the industry itself. Journalists have discovered that industry omits relevant findings from the assessment dossier. In the specific case of glyphosate, for example, a relevant study was omitted, described in NRC in August, that linked glyphosate exposure to neurotoxicity in young rats exposed in utero. Again, this study shows that glyphosate can indeed be toxic to the brain, provided it specifically looks at relevant damage in the brain.There is concrete scientific evidence that glyphosate is a possible cause of parkinson's.Animal studies show that brain regions relevant to Parkinson's are damaged after exposure to glyphosate. Four convincing cases have also been described of people in whom exposure to glyphosate was seen to cause them to develop their Parkinson’s. Research from America indicated that people with Parkinson's who were exposed to glyphosate died earlier than people with Parkinson's who were not exposed. A recent study showed that exposure to glyphosate was associated with evidence of brain damage measured by the protein "neurofilament light protein," which is a reliable indicator of brain damage, including in Parkinson's and Alzheimer's.

These effects were seen in the general population, that is, among people who did not even work with glyphosate professionally. Does that make this evidence conclusive? No, but it does constitute sufficient evidence that there is a so-called biologically plausible link between exposure to glyphosate and the risk of Parkinson's. Taken together with the flaws in the review framework and the rapid growth of Parkinson's, this is cause for serious concern.

It is disappointing that the cabinet will not vote Friday against renewing the marketing authorization for glyphosate, although it recognizes the shortcomings in the approval process and is freeing up money for new research. But more is needed. The Netherlands must push in Europe for rapid development of an improved review framework. And ask the European Commission for explicit confirmation that the approval of glyphosate will be withdrawn if Dutch research, or any other scientific research, shows that glyphosate is not safe .In parallel, vigorous work must be done on alternatives to the use of pesticides. In doing so, the Netherlands will protect its own population from Parkinson's and other health risks, and contribute to curbing the Parkinson's pandemic.