Parkinson’s disease and exposure to paraquat

- **The safety of Syngenta’s products for people and the environment is our primary concern. We have invested hundreds of millions of dollars over the product lifetime of paraquat to ensure its safety.**
- **Paraquat has been the subject of more than 1,200 safety studies, submitted to, and reviewed by, regulatory authorities around the world.**
- **Scientific evidence does not support a causal link between paraquat and Parkinson’s disease. Syngenta rejects claims made in litigation to the contrary.**
- **This view is supported by recent thorough reviews performed by the science-based regulatory authorities in Australia and the United States (US).**

Background

It is generally agreed among medical experts that a substantial majority of Parkinson’s disease cases have no established cause. In some cases, there are genetic factors associated with the development of Parkinson’s disease. It has also been proposed that a combination of both environmental and genetic factors may contribute to the development of Parkinson’s disease.

Syngenta position

Syngenta rejects the claims of a causal link between paraquat and Parkinson’s disease made in pending litigation because it is not supported by scientific evidence; this is endorsed in science-based reviews by regulatory authorities. Two major authorities have thoroughly reviewed the experimental and human evidence. Both the Australian Pesticides and Veterinary Medicines Authority (APVMA), (2016) and the US Environmental Protection Agency (EPA), (2019) concluded that the evidence does not support a causal relationship between farmers’ use of paraquat and Parkinson’s disease.[1]

The largest, longest-term epidemiological study of agricultural workers and Parkinson’s disease in the US, the Agricultural Health Study (AHS), found no association between exposure to paraquat and Parkinson’s disease (Shrestha, 2020).[2]

[1] APVMA conclusions were published on the APVMA website on October 26, 2016 http://apvma.gov.au/node/12666
US Environmental Protection Agency (US EPA) Office of Chemical Safety and Pollution Prevention. Paraquat Dichloride Draft Human Health Risk Assessment in Support of Registration Review, 26th June 2019

[2] Shrestha S, Parks CG, Umbach DM, Richards-Barber M, Hofmann JN, Chen H, Blair A, Beane Freeman LE, Sandler DP. Pesticide use and incident Parkinson's disease in a cohort of farmers and their spouses. Environ Res. 2020 Dec;191:110186. doi: 10.1016/j.envres.2020.110186

Syngenta has also investigated its own production workers in the UK who were known to have been exposed to paraquat at a manufacturing site and found no increased risk of Parkinson's disease (Tomenson & Campbell, 2011[3] and 2021).[4]

Similarly, humans exposed to high doses of paraquat, for example through deliberate or accidental ingestion, did not display any Parkinson's-like symptoms during follow-up.[5]

Review of reviews

To examine the extent to which a consensus exists in the scientific community regarding the relationship between exposure to paraquat and Parkinson's disease, an independent critical review of reviews was undertaken focusing on publications between 2006 and the present (Weed, 2021).[6] The conclusion was that no such consensus exists in the scientific community and that the available evidence does not warrant a claim that paraquat causes Parkinson's disease.

For more information, please contact **media.relations@syngenta.com**.

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[3] Tomenson, J.A., Campbell, C., 2011. Mortality from Parkinson's disease and other causes among a workforce manufacturing paraquat: a retrospective cohort study. BMJ Open 1 (2), e00283 https://doi.org/10.1136/bmjopen-2011-000283
[4] Tomenson, J.A., Campbell, C., 2021. Mortality from Parkinson's disease and other causes among a workforce manufacturing paraquat: an updated retrospective cohort study. J. Occup. Med. Toxicol. 16, 20 https://doi.org/10.1186/s12995-021-00309-z
[5] Brent J., Schaeffer T.H. (2011). Systematic Review of Parkinsonian Syndromes in Short- and Long-Term Survivors of Paraquat Poisoning. Journal of Occupational and Environmental Medicine. 53 (11): 1332-1336 http://www.ncbi.nlm.nih.gov/pubmed/21988794
[6] Weed DL. Does paraquat cause Parkinson's disease? A review of reviews. Neurotoxicology. 2021 86:180-184. https://doi.org/10.1016/j.neuro.2021.08.006