

Chemical Factsheet

Fludioxonil

General Information

- Product Names:
 - Cannonball** (Syngenta)
 - Graduate** (Syngenta)
 - Hurricane** (Syngenta) formulated with Metalaxyl-M
 - Maixm** (Syngenta)
 - Medallion** (Syngenta)
 - Scholar** (Syngenta)
 - Sporgard** (Lanxess)
 - Tc 281** (Whitmire)
 - EFOG-80** (Pace)
 - Shield-brite** (Pace)
- Chemical Class: Unclassified
- Uses: Fungicide
- Alternatives: [Organic agriculture](#)
- Beyond Pesticides rating: [Toxic](#)

Health and Environmental Effects

See citations at end of document.

- Cancer: Possible (1, 2)
- Endocrine Disruption: Likely (1, 3)
- Reproductive Effects: Possible (3)
- Neurotoxicity: Possible (4, 5)
- Kidney/Liver Damage: Yes (6)
- Sensitizer/ Irritant: Yes (6)
- Birth/Developmental: Possible (7, 8)
- Detected in Groundwater: Possible (9)
- Potential Leacher: Low (6)
- Toxic to Birds: Possible (10)
- Toxic to Fish/Aquatic Organisms: Yes (6)
- Toxic to Bees: Yes (6)

Additional Information

- Supporting information:
 - [PAN Pesticides Database:Fludioxonil](#) (Pesticide Action Network)
- Studies [compiled from the [Pesticide-Induced Diseases Database](#)]
 - [Effect of nonpersistent pesticides on estrogen receptor, androgen receptor, and aryl hydrocarbon receptor](#). Medjakovic S, Zoehling A, Gerster P, et al. 2014. Environ Toxicol. 29(10):1201-16
 - [A Th2-type immune response and low-grade systemic inflammatory reaction as potential immunotoxic effects in intensive agriculture farmers exposed to pesticides](#). Lozano-

Paniagua, D. et al. (2024) 'A th2-type immune response and low-grade systemic inflammatory reaction as potential immunotoxic effects in intensive agriculture farmers exposed to pesticides', *Science of The Total Environment*, 938, p. 173545. doi:10.1016/j.scitotenv.2024.173545.

- [Toxic and Behavioral Effects to Carabidae of Seed Treatments Used on Cry3Bb1- and Cry1Ab/c-Protected Corn](#). Christopher A. Mullin, Michael C. Saunders, Timothy W. Leslie, David J. Biddinger, Shelby J. Fleischer, Toxic and Behavioral Effects to Carabidae of Seed Treatments Used on Cry3Bb1- and Cry1Ab/c-Protected Corn, *Environmental Entomology*, Volume 34, Issue 6, 1 December 2005, Pages 1626–1636, <https://doi.org/10.1603/0046-225X-34.6.1626>
- [A cumulative dietary pesticide exposure score based on produce consumption is associated with urinary pesticide biomarkers in a U.S. biomonitoring cohort](#). Temkin, A. et al. (2025) A cumulative dietary pesticide exposure score based on produce consumption is associated with urinary pesticide biomarkers in a U.S. biomonitoring cohort, *International Journal of Hygiene and Environmental Health*. Available at: <https://www.sciencedirect.com/science/article/pii/S1438463925001361>.

Gateway Health and Environmental Effects Citations

1. Teng, Y., Manavalan, T.T., Hu, C., Medjakovic, S., Jungbauer, A. and Klinge, C.M., 2013. Endocrine disruptors fludioxonil and fenhexamid stimulate miR-21 expression in breast cancer cells. *Toxicological sciences*, 131(1), pp.71-83. <https://doi.org/10.1093/toxsci/kfs290>
2. Go, R.E., Kim, C.W., Jeon, S.Y., Byun, Y.S., Jeung, E.B., Nam, K.H. and Choi, K.C., 2017. Fludioxonil induced the cancer growth and metastasis via altering epithelial-mesenchymal transition via an estrogen receptor-dependent pathway in cellular and xenografted breast cancer models. *Environmental Toxicology*, 32(4), pp.1439-1454. <https://doi.org/10.1002/tox.22337>
3. Orton, F., Rosivatz, E., Scholze, M. and Kortenkamp, A., 2011. Widely used pesticides with previously unknown endocrine activity revealed as in vitro antiandrogens. *Environmental health perspectives*, 119(6), pp.794-800. <https://doi.org/10.1289/ehp.1002895>
4. Brandhorst, T.T. and Klein, B.S., 2019. Uncertainty surrounding the mechanism and safety of the post-harvest fungicide fludioxonil. *Food and Chemical Toxicology*, 123, pp.561-565. <https://doi.org/10.1016/j.fct.2018.11.037>
5. Coleman, M.D., O'Neil, J.D., Woehrling, E.K., Ndunge, O.B.A., Hill, E.J., Menache, A. and Reiss, C.J., 2012. A preliminary investigation into the impact of a pesticide combination on human neuronal and glial cell lines in vitro. *PloS one*, 7(8), p.e42768. <https://doi.org/10.1371/journal.pone.0042768>
6. IUPAC Agrochemical Information. <http://sitem.herts.ac.uk/aeru/iupac/>
7. Ko, E.B., Hwang, K.A. and Choi, K.C., 2019. Effects of fludioxonil on cardiac differentiation of mouse embryonic stem cells. In *21st European Congress of Endocrinology* (Vol. 63). BioScientifica.
8. US EPA, 2015. Fludioxonil; Pesticide Tolerances. Federal Register. <https://www.federalregister.gov/documents/2015/08/14/2015-20019/fludioxonil-pesticide-tolerances>
9. Fenoll, J., Ruiz, E., Hellín, P., Flores, P. and Navarro, S., 2011. Heterogeneous photocatalytic oxidation of cyprodinil and fludioxonil in leaching water under solar irradiation. *Chemosphere*, 85(8), pp.1262-1268. <https://doi.org/10.1016/j.chemosphere.2011.07.022>

10. Lopez-Antia, A., Feliu, J., Camarero, P.R., Ortiz-Santaliestra, M.E. and Mateo, R., 2016. Risk assessment of pesticide seed treatment for farmland birds using refined field data. *Journal of Applied Ecology*, 53(5), pp.1373-1381. <https://doi.org/10.1111/1365-2664.12668>

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