Chemical Factsheet

Flupyradifurone

General Information

- Product Names:
  Fpf Plus Fertilizer Granule Insecticide (Sbm Life Science Corp.)
  Altus (Environmental Science U.S., Llc)
  Sivanto 200 Sl (Bayer Crop Science Lp)
  Sivanto 400 Sl (Bayer Crop Science Lp)
  Fdf 50 Sl Concentrate (Sbm Life Science Corp.)
  Byi 02960 480 Fs (Bayer Crop Science Lp)
  Flupyradifurone Tc (Bayer Crop Science Lp)
- Chemical Class: Butenolide insecticide
- Uses: Used as a systemic insecticide to control piercing and sucking insect pests, such as aphids and whiteflies, on a wide range of crops including fruits, vegetables, and cotton.
- Alternatives: Organic Agriculture
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

- Cancer: Not documented
- Endocrine Disruption: Not documented
- Reproductive Effects: Not documented
- Neurotoxicity: Not documented
- Kidney/Liver Damage: Yes (**1**)
- Sensitizer/ Irritant: Yes (**1**)
- Birth/Developmental: Not documented
- Detected in Groundwater: Not documented
- Potential Leacher: Not documented
- Toxic to Birds: Not documented
- Toxic to Fish/Aquatic Organisms: Yes (**1**)
- Toxic to Bees: Yes (**1**)

Additional Information

- Regulatory Status:
  - EPA 2018 Flupyradifurone Review
- Supporting information:
  - NIH PubChem Database (National Library of Medicine)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - Bees under interactive stressors: the novel insecticides flupyradifurone and sulfoxaflor along with the fungicide azoxystrobin disrupt the gut microbiota of honey bees and increase opportunistic bacterial pathogens. Al Naggar, Y., Singavarapu, B., Paxton, R.J. and Wubet, T., 2022. Science of The Total Environment, 849, p.157941.
  - Field rates of Sivanto™ (flupyradifurone) and Transform® (sulfoxaflor) increase oxidative

stress and induce apoptosis in honey bees (Apis mellifera L.). Chakrabarti P, Carlson EA, Lucas HM, Melathopoulos AP, Sagili RR (2020) Field rates of Sivanto™ (flupyradifurone) and Transform® (sulfoxaflor) increase oxidative stress and induce apoptosis in honey bees (Apis mellifera L.). PLOS ONE 15(5): e0233033. https://doi.org/10.1371/journal.pone.0233033
- Exposure to the novel insecticide flupyradifurone impairs bumblebee feeding motivation, learning, and memory retention. Siviter, Harry, and Felicity Muth. “Exposure to the novel insecticide flupyradifurone impairs bumblebee feeding motivation, learning, and memory retention.” Environmental pollution (Barking, Essex : 1987) vol. 307 (2022): 119575. doi:10.1016/j.envpol.2022.119575
- Lethal and sublethal synergistic effects of a new systemic pesticide, flupyradifurone (Sivanto®), on honeybees. Tosi S. and Nieh J. C. 2019 Lethal and sublethal synergistic effects of a new systemic pesticide, flupyradifurone (Sivanto®), on honeybees Proc. R. Soc. B.28620190433 http://doi.org/10.1098/rspb.2019.0433
- Currently used and legacy pesticides in the marine atmosphere from Patagonia to Europe. Debler, F., Gandrass, J., Paul Ramacher, M. O., Koenig, A. M., Zimmermann, S., & Joerss, H. (2025). Currently used and legacy pesticides in the marine atmosphere from Patagonia to Europe. Environmental pollution (Barking, Essex : 1987), 373, 126175. Advance online publication. https://doi.org/10.1016/j.envpol.2025.126175
- Single and combined exposure to ‘bee safe’ pesticides alter behaviour and offspring production in a ground-nesting solitary bee (Xenoglossa pruinosa). Rondeau, S. and Raine, N. (2024) Single and combined exposure to ‘bee safe’ pesticides alter behaviour and offspring production in a ground-nesting solitary bee (Xenoglossa pruinosa), Proceedings of the Royal Society Biological Sciences. Available at: https://royalsocietypublishing.org/doi/10.1098/rspb.2023.2939.
- Do novel insecticides pose a threat to beneficial insects?. Siviter Harry and Muth Felicity 2020 Do novel insecticides pose a threat to beneficial insects?Proc. R. Soc. B.28720201265 http://doi.org/10.1098/rspb.2020.1265
- Urinary pesticide biomarkers from adolescence to young adulthood in an agricultural setting in Ecuador: Study of secondary exposure to pesticides among children, adolescents, and adults (ESPINA) 2016 and 2022 examination data. Parajuli, R. et al. (2025) Urinary pesticide biomarkers from adolescence to young adulthood in an agricultural setting in Ecuador: Study of secondary exposure to pesticides among children, adolescents, and adults (ESPINA) 2016 and 2022 examination data, Data in Brief. Available at: https://www.sciencedirect.com/science/article/pii/S2352340925006067.
- Acute oral toxicity, apoptosis, and immune response in nurse bees (Apis mellifera) induced by flupyradifurone. Gao J, Guo Y, Chen J, Diao Q-Y, Wang Q, Dai P-L, Zhang L, Li W-M and Wu Y-Y (2023) Acute oral toxicity, apoptosis, and immune response in nurse bees (Apis mellifera) induced by flupyradifurone. Front. Physiol. 14:1150340. doi: 10.3389/fphys.2023.1150340

Gateway Health and Environmental Effects Citations

1. National Library of Medicine. PubChem Hazardous Substances Database. PubChem (nih.gov)

Factsheet generated on June 23, 2026