Chemical Factsheet

Bifenthrin

General Information

- Fact Sheet: Synthetic Pyrethroids.pdf
- Product Names:
  Dexol Lawn Insecticide (Value Gardens Supply)
  Bifen Nursery Insecticide Granules (Value Gardens Supply)
  Bifen XTS (Control Solutions, Inc.)
  Menace (Nufarm)
  Ortho Home Defense Indoor/Outdoor Insect Killer (The Scotts Co)
  Rosepride Rose & Flower Insect Killer (The Scotts Co.)
  Ortho Fire Ant Killer (The Scotts Co)
  Ortho Home Defense Max Wasp & Hornet Killer (The Scotts Co)
  Ortho Bug B Gon (The Scotts Co)
  Talstar (FMC Corp)
  Capture (FMC Corp)
  Biflex (FMC Corp)
  Double Threat Insecticide (FMC Corp)
  Hero Insecticide (FMC Corp)
  Triple Crown (FMC Corp)
  Brigadier Insecticide (FMC Corp)
  Allectus (Bayer)
  Whitmire Total release Insecticide (BASF)
  Turf Builder with Fire Ant-X (The Scotts Co)
  Southernmax (The Scotts Co)
  Scotts Turf Fertilizer with Ortho Max Pro (The Scotts Co)
  Southern Preen Plus (Lebanon Seaboard Corp)
  MGK (McLaughlin Gormley King Co)
  Tundra (Winfield Solutions)
  Sergeants Bifenthrin Shampoo for Dogs (Sergeant's Pet Care Products)
  Discipline (AMVAC Chemical Corp)
  Wisdom (AMVAC Chemical Corp)
  SmartChoice (AMVAC Chemical Corp)
  Empower Granular Insecticide (Helena Chemical Corp)
  Pro-Mate Bifenthrin plus Fertilizer (Helena Chemical Corp)
  The Andersons Fertilizer Bait Granules (The Andersons Lawn Fertilizer Division)
  Chemsico Fire Ant Killer (Chemsico)
  Crosscheck Insecticide (Lesco Inc)
  Sniper (Loveland Products Inc)
  Bisect (Loveland Products Inc)
  Swagger (Loveland Products Inc)
  Turf Pride Fertilizer (Howard Fertilizer & Chemical Co)
  CRC Fire Ant Killer Granules (CRC Industries Inc)
  Fanfare (Makhteshim Agan)
  Mana (Makhteshim Agan)

Aloft (Arysta LifeScience)
Up-Star (United Phosphorus Inc)
Firebird Pro (United Phosphorus Inc)
Maxxthor (Ensystex II)
Wet & Forget Bug Killer (Wet & Forget USA Ltd)
Reclaim (Inova Chemicals)
Kylix Lawn Care (Syntelus)

- Chemical Class: Pyrethroid insecticide
- Uses: Agricultural and nonagricultural and residential sites including corn, cotton, soybeans, fruit, vegetables, herbs, nuts, ornamentals, Christmas trees, conifers, golf courses, lawns, rights of ways, wood treatment, food habdling sites.
- Alternatives: Organic agriculture, Organic Christmas trees
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

- Cancer: Possible (**1**, **2**)
- Endocrine Disruption: Yes (**3**)
- Reproductive Effects: Not documented
- Neurotoxicity: Yes (**4**)
- Kidney/Liver Damage: Not documented
- Sensitizer/ Irritant: Not documented
- Birth/Developmental: Yes (**5**)
- 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**, **6**)

Residential Uses as Found in the ManageSafe™ Database

- Bagworms
- Carpenter Bees
- Tree-boring Caterpillars
- Termites
- Ants
- Bed Bugs
- Chiggers
- Chinch Bugs
- Fleas
- Grubs
- Gypsy Moths
- Hemlock Woolly Adelgid
- Carpenter Ants
- Carpet Beetle
- Centipedes
- Spiders
- Ticks
- Wasps and Yellowjackets
- Clover

- Thrips
- Fire Ants

Additional Information

- Regulatory Status:
  - EPA Regulatory Documents
  - Beyond Pesticides' Comments December 2024
- Supporting information:
  - Daily News Blog entries (Beyond Pesticides)
  - Asthma, Children and Pesticides (Beyond Pesticides)
  - Extoxnet Bifenthrin Factsheet (Extension Toxicology Network)
  - PAN Pesticides Database: Bifentrin (Pesticide Action Network)
  - Bifenthrin General Factsheet (NPIC)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - Temporal and spatial trends in sediment contaminants associated with toxicity in California watersheds. (Siegler K, Phillips BM, et al. 2015. Environ Pollut 206:1-6.)
  - Predicted transport of pyrethroid insecticides from an urban landscape to surface water. (Jorgenson B, Fleishman E, et al.2013. Environ Toxicol Chem. 32(11):2469-77.)
  - Early Life Exposure to Environmentally Relevant Levels of Endocrine Disruptors Drive Multigenerational and Transgenerational Epigenetic Changes in a Fish Model. Major, K.M., DeCourten, B.M., Li, J., Britton, M., Settles, M.L., Mehinto, A.C., Connon, R.E. and Brander, S.M., 2020. Frontiers in Marine Science, 7, p.471.
  - Bifenthrin-induced neurotoxicity in rats: involvement of oxidative stress.. Syed F, Awasthi KK, Chandravanshi LP, et al 2017. Toxicol Res (Camb). 7(1):48-58.
  - Organic farming reduces pesticide load in a bird of prey. Fuentes, E. et al. (2024) Organic farming reduces pesticide load in a bird of prey, Science of The Total Environment. Available at: https://www.sciencedirect.com/science/article/pii/S0048969724029255.
  - Assessing the ecological impact of pesticides/herbicides on algal communities: A comprehensive review. Narayanan, N. et al. (2024) Assessing the ecological impact of pesticides/herbicides on algal communities: A comprehensive review, Aquatic Toxicology. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0166445X24000225?via%3Dihub.
  - Advances and future prospects of pyrethroids: Toxicity and microbial degradation. Singh, S. et al. (2022) Advances and future prospects of pyrethroids: Toxicity and microbial degradation, Science of The Total Environment. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0048969722016540.
  - Pesticides and prostate cancer incidence and mortality: An environment-wide association study. Soerensen, S. et al. (2024) Pesticides and prostate cancer incidence and mortality: An environment-wide association study, Cancer. Available at: https://acsjournals.onlinelibrary.wiley.com/doi/10.1002/cncr.35572.
  - Effect of subacute poisoning with bifenthrin on locomotor activity, memory retention, haematological, biochemical and histopathological parameters in mice. Nieradko-Iwanicka B, Borzecki A, Jodlowska-Jedrych B. Effect of subacute poisoning with bifenthrin on locomotor activity, memory retention, haematological, biochemical and histopathological parameters in mice. J Physiol Pharmacol. 2015 Feb;66(1):129-37. PMID: 25716972.
  - Impact of Endocrine Disrupting Pesticide Use on Obesity: A Systematic Review. Pérez-Bermejo, M. et al. (2024) Impact of Endocrine Disrupting Pesticide Use on Obesity: A Systematic Review, Biomedicines. Available at: https://www.mdpi.com/2227-9059/12/12/2677.
  - Assessing the Presence of Current-Use Pesticides in Mid-Elevation Sierra Nevada Streams

Using Passive Samplers, California, 2018–19. De Parsia, M.D., Orlando, J.L., and Hladik, M.L., 2023, Assessing the presence of current-use pesticides in mid-elevation Sierra Nevada streams using passive samplers, California, 2018–19: U.S. Geological Survey Scientific Investigations Report 2022–5129, 31 p., https://doi.org/10.3133/sir20225129.
- Lethal and sublethal effects of seven insecticides on three beneficial insects in laboratory assays and field trials. Fernandes, M. et al. (2016) Lethal and sublethal effects of seven insecticides on three beneficial insects in laboratory assays and field trials, Chemosphere. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0045653516306051.
- Adverse Effects of Pesticides on the Ovary: Evidence from Epidemiological and Toxicological Studies. Wang, L., Ma, X. and Liu, J. (2025) Adverse Effects of Pesticides on the Ovary: Evidence from Epidemiological and Toxicological Studies, Environment & Health. Available at: https://pubs.acs.org/doi/full/10.1021/envhealth.4c00243.
- Occurrence of pyrethroids in the atmosphere of urban areas of Southeastern Brazil: Inhalation exposure and health risk assessment. Guida, Y., Pozo, K., Carvalho, G. O., Capella, R., Targino, A. C., Torres, J. P. M., & Meire, R. O. (2021). Occurrence of pyrethroids in the atmosphere of urban areas of Southeastern Brazil: Inhalation exposure and health risk assessment. Environmental pollution (Barking, Essex : 1987), 290, 118020. https://doi.org/10.1016/j.envpol.2021.118020
- Characterizing pyrethroid and fipronil concentrations in biosolids. Wheeler, J., Black, G. P., Hladik, M. L., Sanders, C. J., Teerlink, J., Wong, L., Zhang, X., Budd, R., & Young, T. M. (2025). Characterizing pyrethroid and fipronil concentrations in biosolids. The Science of the total environment, 969, 178954. https://doi.org/10.1016/j.scitotenv.2025.178954
- Enantioselective endocrine-disrupting effects of bifenthrin on hormone synthesis in rat ovarian cells. Liu, J., Yang, Y., Zhuang, S., Yang, Y., Li, F., & Liu, W. (2011). Enantioselective endocrine-disrupting effects of bifenthrin on hormone synthesis in rat ovarian cells. Toxicology, 290(1), 42–49. https://doi.org/10.1016/j.tox.2011.08.016
- Disrupting effects of bifenthrin on ovulatory gene expression and prostaglandin synthesis in rat ovarian granulosa cells. Liu, J., Yang, Y., Yang, Y., Zhang, Y., & Liu, W. (2011). Disrupting effects of bifenthrin on ovulatory gene expression and prostaglandin synthesis in rat ovarian granulosa cells. Toxicology, 282(1-2), 47–55. https://doi.org/10.1016/j.tox.2011.01.007
- 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
- Systematic assessments of ecological and health risks of soil pesticide residues. Tang, T. et al. (2025) Systematic assessments of ecological and health risks of soil pesticide residues, Environmental Pollution. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0269749125007213.
- Pyrethroid insecticides implicated in mass mortality of monarch butterflies at an overwintering site in California. Cibotti, S. et al. (2025) Pyrethroid insecticides implicated in mass mortality of monarch butterflies at an overwintering site in California, Environmental Toxicology and Chemistry. Available at: https://academic.oup.com/etc/advance-article-abstract/doi/10.1093/etojnl/vgaf163/8177160.
- Pyrethroid Exposure Reduces Growth and Development of Monarch Butterfly (Lepidoptera: Nymphalidae) Caterpillars. Annie J Krueger, Kathryn Hanford, Thomas J Weissling, Ana M Vélez, Troy D Anderson, Pyrethroid Exposure Reduces Growth and Development of Monarch Butterfly (Lepidoptera: Nymphalidae) Caterpillars, Journal of Insect Science, Volume 21, Issue 2, March 2021, 2, https://doi.org/10.1093/jisesa/ieaa149

- Global patterns of pesticide residues in seaweeds: A systematic review. Azevedo, G. et al. (2025) Global patterns of pesticide residues in seaweeds: A systematic review, Marine Pollution Bulletin. Available at: https://www.sciencedirect.com/science/article/pii/S0025326X25011841.
- Insecticide Mixtures Could Enhance the Toxicity of Insecticides in a Resistant Dairy Population of Musca domestica L. Khan HAA, Akram W, Shad SA, Lee JJ (2013) Insecticide Mixtures Could Enhance the Toxicity of Insecticides in a Resistant Dairy Population of Musca domestica L. PLOS ONE 8(4): e60929. https://doi.org/10.1371/journal.pone.0060929
- Spatial and Temporal Distribution of Current-Use Pesticides in Atmospheric Particulate Matter in Houston, Texas. Clark, A.E., Yoon, S., Sheesley, R.J. et al. Spatial and Temporal Distribution of Current-Use Pesticides in Atmospheric Particulate Matter in Houston, Texas. Bull Environ Contam Toxicol 97, 786–792 (2016). https://doi.org/10.1007/s00128-016-1914-4

Gateway Health and Environmental Effects Citations

1. US EPA, Office of Prevention, Pesticides and Toxic Substances, Reregistration Eligibility Decisions (REDs), Interim REDS (iREDs) and RED Factsheets. https://archive.epa.gov/pesticides/reregistration/web/html/status.html.

2. EPA weight-of-evidence category, "possible human carcinogen." US EPA, 2004. Office of Pesticide Programs. List of Chemicals Evaluated for Carcinogenic Potential. July 29, 2004. http://www.epa.gov/pesticides/carlist/

3. European Commission. Endocrine Disruptors: Study on Gathering Information on 435 Substances with Insufficient Data. Final Report. EU DG Environment: B4-3040/2001/325850/MAR/C2. BKH Consulting Engineers: M0355037. November 2002. http://ec.europa.eu/environment/chemicals/endocrine/pdf/bkh_report.pdf#page=76.

4. Beyond Pesticides ChemWatch Factsheets. (Cited under factsheets on Beyond Pesticides Gateway; see top of individual chemical page)

5. US EPA, 2000. Table 1: Toxicity Data by Category for Chemicals Listed under EPCRA Section 313. Toxic Release Inventory (TRI) Program. https://www.epa.gov/sites/production/files/documents/hazard_categories.pdf

6. Tew, J.E. 1996. Protecting Honeybees from Pesticides. Ohio State University Cooperative Extension. http://web.archive.org/web/20031123075324/http://beelab.osu.edu/factsheets/sheets/2161.html

Factsheet generated on May 8, 2026