

# Chemical Factsheet

## Pendimethalin

### General Information

- Fact Sheet: [pendimethalin.pdf](#)
- Product Names:
  - Squadron** (BASF) formulated with Imazaquin
  - Pursuit** (BASF) formulated with [Imazethapyr](#)
  - Prowl** (BASF)
  - Pendulum** (BASF)
  - Pre-M** (BASF)
  - Steel** (BASF) formulated with Imazaquin, formulated with [Imazethapyr](#)
  - Turf Builder** (Scotts)
  - Scotts Halts** (Scotts)
  - Crabgrass Preventer** (Scotts)
  - Freehand** (BASF) formulated with [dimethenamide-P](#)
  - Cando** (BASF) formulated with [dimethenamide-P](#)
  - Aquapen** (Drexel Chemical)
  - Southern Weedgrass control** (Everris)
- Chemical Class: Dinitroaniline herbicide
- Uses: Selective herbicide, controls broadleaf weeds and grassy weed species in agriculture and lawns.
- Alternatives: [Organic agriculture](#), [Organic lawn care](#)
- Beyond Pesticides rating: [Toxic](#)

### Health and Environmental Effects

*See citations at end of document.*

- Cancer: Possible (1)
- Endocrine Disruption: Yes (2)
- Reproductive Effects: Yes (3)
- Neurotoxicity: Not documented
- Kidney/Liver Damage: Yes (4)
- Sensitizer/ Irritant: Yes (5)
- Birth/Developmental: Not documented
- Detected in Groundwater: Yes (3)
- Potential Leacher: Not documented
- Toxic to Birds: Not documented
- Toxic to Fish/Aquatic Organisms: Yes (3, 6)
- Toxic to Bees: Not documented

### Residential Uses as Found in the ManageSafe™ Database

- [Dandelions](#)
- [Crabgrass](#)
- [Knotweed](#)

## Additional Information

- Regulatory Status:
  - [EPA Reregistration Eligibility Decision \(RED\) signed](#) (4/1997)
- Supporting information:
  - [Extoxnet Pendimethalin Factsheet](#) (Extension Toxicology Network)
  - [PAN Pesticides Database: Pendimethalin](#) (Pesticide Action Network)
  - [Scorecard Pendimethalin Factsheet](#) (The Pollution Information Site)
- Studies [compiled from the [Pesticide-Induced Diseases Database](#)]
  - [Agricultural pesticide use and pancreatic cancer risk in the Agricultural Health Study Cohort.](#) Andreotti G, Freeman LE, Hou L, Coble J, Rusiecki J, et al. 2009. *Int J Cancer*. 124(10):2495-500.
  - [Autism: Transient in utero hypothyroxinemia related to maternal flavonoid ingestion during pregnancy and to other environmental antithyroid agents.](#) Román, G, C. 2007. *Journal of the Neurological Sciences*; 262(1-2), pp 15-26
  - [Exacerbation of symptoms in agricultural pesticide applicators with asthma.](#) Henneberger PK, Liang X, London SJ, et al. 2014. *Int Arch Occup Environ Health*. 87(4):423-32.
  - [Human exposure and risk assessment to airborne pesticides in a rural French community.](#) Coscollà C, López A, Yahyaoui A, Colin P, et al. 2017. *Sci Total Environ*. 584-585:856-868
  - [In vitro genotoxicity assessment of dinitroaniline herbicides pendimethalin and trifluralin.](#) Kılıç, Z.S., Aydın, S., Bucurgat, Ü.Ü. and Başaran, N., 2018. *Food and chemical toxicology*, 113, pp.90-98.
  - [Flooding as a Vector for the Transport of Pesticides from Streams to Riparian Plants.](#) Fiolka, F. et al. (2024) Flooding as a Vector for the Transport of Pesticides from Streams to Riparian Plants, *American Chemical Society ES&T Water*. Available at: <https://pubs.acs.org/doi/abs/10.1021/acsestwater.4c00571>.
  - [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>.
  - [Pesticide-Induced Inflammation at a Glance.](#) Lopes-Ferreira, M. et al. (2023) 'Pesticide-induced inflammation at a glance', *Toxics*, 11(11), p. 896. doi:10.3390/toxics11110896.
  - [Pesticide exposure and risk of cardiovascular disease: A systematic review.](#) Zago, A. M., Faria, N. M. X., Fávero, J. L., Meucci, R. D., Woskie, S., & Fassa, A. G. (2022). Pesticide exposure and risk of cardiovascular disease: A systematic review. *Global public health*, 17(12), 3944–3966. <https://doi.org/10.1080/17441692.2020.1808693>
  - [Physiological and oxidative stress biomarkers in the freshwater monosex Nile tilapia, Oreochromis niloticus L., exposed to pendimethalin-based herbicide.](#) El-Sayed, Y.S., Samak, D.H., Abou-Ghanema, I.Y. and Soliman, M.K. (2015), Physiological and oxidative stress biomarkers in the freshwater monosex Nile tilapia, *Oreochromis niloticus L.*, exposed to pendimethalin-based herbicide. *Environ. Toxicol.*, 30: 430-438. <https://doi.org/10.1002/tox.21919>
  - [Association between pesticide exposure and colorectal cancer risk and incidence: A systematic review.](#) Matich, E. K., Laryea, J. A., Seely, K. A., Stahr, S., Su, L. J., & Hsu, P. C. (2021). Association between pesticide exposure and colorectal cancer risk and incidence: A systematic review. *Ecotoxicology and environmental safety*, 219, 112327. <https://doi.org/10.1016/j.ecoenv.2021.112327>
  - [Epilithic biofilms as bioindicators of water contamination by pesticides in Protected Areas from Atlantic Forest.](#) Mollmann, V. et al. (2026) Epilithic biofilms as bioindicators of water contamination by pesticides in Protected Areas from Atlantic Forest, *Science of The Total Environment*. Available at:

<https://www.sciencedirect.com/science/article/pii/S0048969726003177>.

- [Effects of Commonly Used Pesticides in China on the Mitochondria and Ubiquitin-Proteasome System in Parkinson's Disease](#). Chen, T., Tan, J., Wan, Z., Zou, Y., Kessete Afewerky, H., Zhang, Z., & Zhang, T. (2017). Effects of Commonly Used Pesticides in China on the Mitochondria and Ubiquitin-Proteasome System in Parkinson's Disease. *International Journal of Molecular Sciences*, 18(12), 2507. <https://doi.org/10.3390/ijms18122507>
- [Pesticides in ambient air, influenced by surrounding land use and weather, pose a potential threat to biodiversity and humans](#). Zaller, J. G., Kruse-Platz, M., Schleichriemen, U., Gruber, E., Peer, M., Nadeem, I., Formayer, H., Hutter, H. P., & Landler, L. (2022). Pesticides in ambient air, influenced by surrounding land use and weather, pose a potential threat to biodiversity and humans. *The Science of the total environment*, 838(Pt 2), 156012. <https://doi.org/10.1016/j.scitotenv.2022.156012>

## Gateway Health and Environmental Effects Citations

1. 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/>
2. Colborn, T., D. Dumanoski, and J.P. Myers. 1996. *Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival?* New York: Dutton. <http://ourstolenfuture.org/Basics/chemlist.htm>
3. 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>.
4. 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](https://www.epa.gov/sites/production/files/documents/hazard_categories.pdf)
5. National Library of Medicine. PubChem Hazardous Substances Database. [PubChem \(nih.gov\)](https://pubchem.ncbi.nlm.nih.gov/)
6. Herrero-Hernández, E., Simón-Egea, A.B., Sánchez-Martín, M.J., Rodríguez-Cruz, M.S. and Andrades, M.S., 2020. Monitoring and environmental risk assessment of pesticide residues and some of their degradation products in natural waters of the Spanish vineyard region included in the denomination of origin jumilla. *Environmental Pollution*, p.114666. <https://doi.org/10.1016/j.envpol.2020.114666>

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