Toxicological Profiles and Use of Pesticides Whose EPA's Registration Safety Reviews Have Not Been Completed as Required

Approximately 80% of toxic pesticides on the market with a September 2026 deadline for EPA review (approximately 580 pesticides) do not have final registration (safety) determinations. Given the toxic profiles of these chemicals and their wide use, this compliance failure represents a serious public health and environmental threat. The list includes pesticides that cause cancer, neurological and immunological harm, endocrine disruption, reproductive effects, and respiratory illnesses, among other adverse effects. To exemplify the critical effect of this problem, below is a summary of the regulatory status, toxic effects, and allowed uses for three pesticides, including a herbicide, fungicide, and insecticide. The Farm Bill simply extends the final registration deadline to 2031 without any assurance that EPA will complete these reviews. The Farm Bill should reflect the seriousness of the problem by establishing a sunset clause for pesticide registration deadlines so that a failure to meet the deadline results in an automatic removal of the pesticide from the market. **The failure of EPA to conduct complete registration reviews since the statutory mandate in the 1996 *Food Quality Protection Act* over 30 years ago has created a true public health and environmental crisis.** See EPA schedule. For more information on the adverse effects of pesticides, see the Pesticide-Induced Diseases Database.

Herbicide: **Glyphosate**

Chemical family: Phosphanoglycine (organophosphate)

Regulatory Review Status: The registration review for glyphosate has been in contention due to years-long litigation contesting the human health assessment, with a federal court in 2022 vacating EPA's 2020 Interim Decision on the grounds that the human health portion ignored key scientific evidence and disregarded EPA's own cancer-risk guidelines. An open literature review is currently under way in Federal Register; however, the court mandated a new Interim Decision by late 2026.

Adverse environmental and public health outcomes: endocrine disruption, cancer, DNA damage/genotoxicity, reproductive dysfunction, birth/developmental effects, neurotoxicity, kidney/liver damage, metabolic disorders, and toxicity to birds, fish/aquatic organisms, and bees.

Recent Coverage of Scientific Literature:

- More Data Links Endocrine-Disrupting Pesticides to Increase in U.S. Breast Cancer
- Case Studies of Cancer Diagnoses Link Pesticides to Cancer Crisis
- Glyphosate Weed Killer Contaminates Stem Cells, Is Linked to Blood Cancers and DNA Damage, Study Finds
- Weed Killer Glyphosate Linked to Multigenerational Developmental Effects in Novel Study
- Findings Show Endocrine-Disrupting Glyphosate Weed Killer Threatens Women's Reproductive Health

- Presence of Weed Killer Glyphosate in Human Sperm Elevates Debate on Pesticide Threats to Human Survival
- Pesticide Exposure Again Linked to Neurotoxic Effects in Humans and Wildlife in Comprehensive Review
- Study Reveals Mechanisms of Kidney Injury and Cancer from Exposure to Weed Killer Glyphosate
- Pesticide Exposure Linked to Thyroid Dysfunction and Thyroid Cancer, Literature Review Finds
- Review of Science on Glyphosate Weed Killer in Poultry Production Highlights Extraordinary Health Threats
- Pesticide-Contaminated Algae Found to Jeopardize Ecosystems and Human Well-Being [Study]
- Sublethal Effects of Weed Killer Glyphosate Associated with Colony Decline, According to Study

See additional studies at the bottom of the Gateway page and coverage in the *Daily News* archive.

Estimated annual use/volume use: According to figures published by the Environmental Protection Agency in 2019, "About **280 million pounds** of glyphosate are applied to an average of **298 million acres** of crop land annually" as of **2016**. For non-agricultural use, "Approximately **24 million pounds** of glyphosate were reported as being used in **2011** on a variety of non-agricultural sites." The 24 million can be broken down by use site category in the table below.

Table 2. Annual Glyphosate Usage for Non-Crop Sites, 2011

Use Site	Pounds Applied (Lbs. a.e.)	Acre Treatments
Aquatic	128,900	40,000
Consumer Market [1]	5,000,000	-
Electric Utilities and Pipelines (Rights of Way)	2,070,200	654,000
Forestry	3,646,900	757,000
Nursery Greenhouse	2,800,000	-
Railroads (Rights of Way)	528,000	293,000
Range and Pasture	1,479,000	1,498,000
Roadways	3,271,000	1,833,000
Turf [2]	4,920,000	-
Total	**23,844,000**	-

Kline 2012a and Kline 2012b
[1] This site includes use by homeowners.
[2] This site "turf" includes institutional turf (e.g. cemeteries and parks) (59%), lawn care operators (20%), landscape professionals (12%), golf courses (7%), and turf (2%).

Crop use(s): Animal feed, nongrass, group 18 · Berry and small fruit, group 13-07 · Fruit, citrus, group 10-10 · Fruit, pome, group 11-10 · Fruit, stone, group 12 · Grain, cereal, forage, fodder

and straw, group 16 (except field corn forage and stover) · Grain, cereal, group 15 (except field corn, popcorn, rice, sweet corn, wild rice) · Grass, forage, fodder and hay, group 17 · Herbs subgroup 19A · Nut, tree, group 14 · Oilseeds, group 20 (except canola) · Spice subgroup 19B · Vegetable, bulb, group 3-07 · Vegetable, cucurbit, group 9 · Vegetable, foliage of legume, subgroup 7A (except soybean) · Vegetable, fruiting, group 8-10 (except okra) · Vegetable, leafy, brassica, group 5 · Vegetable, leafy, except brassica, group 4 · Vegetable, leaves of root and tuber, group 2 (except sugar beet tops) · Vegetable, legume, group 6 (except soybean and dry pea) · Vegetables, root and tuber, group 1 (except carrot, sweet potato, sugar beet); Acerola · Alfalfa, seed · Almond, hulls · Aloe vera · Ambarella · Artichoke, globe · Asparagus · Atemoya · Avocado · Bamboo, shoots · Banana · Barley, bran · Beet, sugar (dried pulp; roots; tops) · Betelnut · Biriba · Blimbe · Breadfruit · Cacao bean · Cactus, fruit · Cactus, pads · Canistel · Carrot · Chaya · Cherimoya · Citrus, dried pulp · Coconut · Coffee, bean, green · Corn, pop, grain · Corn, sweet (kernel plus cob) · Cotton, gin byproducts · Custard apple · Date, dried fruit · Dokudami · Durian · Epazote · Feijoa · Fig · Fish · Galangal, roots · Ginger, white, flower · Gourd, buffalo, seed · Governor's plum · Gow kee, leaves · Guava · Hop, dried cones · Ilama · Imbe · Imbu · Jaboticaba · Jackfruit · Kava, roots · Kenaf, forage · Leucaena, forage · Longan · Lychee · Mamey apple · Mango · Mangosteen · Marmaladebox · Mioga, flower · Noni · Nut, pine · Okra · Olive · Oregano, Mexican, leaves · Palm heart · Palm heart, leaves · Palm, oil · Papaya · Papaya, mountain · Passionfruit · Pawpaw · Pea, dry · Peanut · Peanut, hay · Pepper leaf, fresh leaves · Peppermint, tops · Perilla, tops · Persimmon · Pineapple · Pistachio · Pomegranate · Pulasan · Quinoa, grain · Rambutan · Rice, grain · Rice, wild, grain · Rose apple · Sapodilla · Sapote (black; mamey; white) · Shellfish · Soursop · Spanish lime · Spearmint, tops · Star apple · Starfruit · Stevia, dried leaves · Sugar apple · Sugarcane (cane; molasses) · Surinam cherry · Sweet potato · Tamarind · Tea (dried; instant) · Teff (forage; grain; hay) · Ti (leaves; roots) · Ugli fruit · Wasabi, roots · Water spinach, tops · Watercress, upland · Wax jambu · Yacon, tuber ; Canola, seed · Corn, field (forage; grain; stover) · Soybean (forage; hay; hulls; seed) · Grain aspirated fractions · Cattle, meat byproducts · Goat, meat byproducts · Hog, meat byproducts · Horse, meat byproducts · Sheep, meat byproducts · Poultry, meat · Poultry, meat byproducts · Egg · Milk is *not* listed ; Pasture and rangeland (also covered by group 17/18 feed tolerances) · Fallow ground and pre-plant burndown · Pre-harvest desiccation on small grains, pulses, and oilseeds · Silviculture — forestry site preparation and conifer release · Christmas tree plantations · Nursery and greenhouse stock, non-bearing fruit and nut trees · Sod production · Farm roads, fencelines, ditchbanks, and farmstead non-crop areas

Non-agricultural use(s): Glyphosate is used for weed control in pasture and rangeland management, rights-of-way (including roadside, electrical lines, pipelines, and railroads), forestry, aquatic systems, residential use, and turf (including grass grown for seed or sod, golf courses, athletic fields, and grounds in residential areas.

Herbicide: **Atrazine**

Chemical family: Chlorotriazine (triazine)

Regulatory Review Status: An Interim Review Decision was published in 2020, and subsequently updated in 2024 following public pushback and litigation on some of EPA's risk mitigation measures for non-target and endangered species as well as updates for aquatic ecosystem and water quality concerns. As of November 9, 2026, no further updates or actions have taken place.

Adverse environmental and public health outcomes: cancer, endocrine disruption, reproductive effects, neurotoxicity, kidney/liver damage, birth/developmental effects, and toxicity to fish/aquatic organisms.

Recent Coverage of Scientific Literature:

- Industrial Floriculture Affects Ecosystem Stability and Health in Ecuador, Major U.S. Flower Supplier
- With Co-exposure to Microplastics, Adverse Ecological Effects of Pesticides Intensify, Studies Find
- Review Finds Disproportionate Risks of Skin Cancer with Occupational Pesticide Exposure
- Atrazine Weed Killer and Neonicotinoid Insecticide Top the List of Pesticides Found in National Waterways Study
- Aquatic Ecosystems at Risk; Study Finds Declines in Macroinvertebrate Diversity with Pesticide Exposure
- As Rates Rise in Younger People, Early-Onset Colon and Rectal Cancer Linked to Pesticides' Altering Gene Expression
- Pesticide User's "Take-Home," Other Nonoccupational Residues Raise Household Exposure Alarm
- Women in Agriculture at Elevated Risk of More Aggressive Breast Cancer from Pesticides, Study Finds
- Atrazine Designated Probable Carcinogen by International Agency for Research on Cancer; EPA Defends It

See additional studies at the bottom of the Gateway page and coverage in the Daily News archive.

Estimated annual use/volume use: According to figures published by the Environmental Protection Agency in 2020, approximately **72 million pounds** annually have been sprayed for agricultural use between 2013 and 2017. In reported non-agricultural sites, approximately **693,000 pounds** are applied annually.

Crop use(s): Field corn · sorghum · sweet corn · sugarcane · macadamia nuts · guava · Miscanthus and other non-food perennial bioenergy crops · Fallow cropland · Conservation Reserve Program (CRP) areas · Christmas tree farms.

Non-agricultural use(s): Turf (residential lawns; school grounds; parks and playgrounds; golf courses; athletic fields); Nursery and ornamental production (ornamental plants); Sod production (sod farms); Forestry (conifers); Rights-of-way (roadsides and highway rights-of-way).

Fungicide: **Chlorothalonil**

Chemical family: Organochlorine

Adverse environmental and public health outcomes: cancer, reproductive dysfunction, neurotoxicity, kidney/liver damage, and toxicity to fish/aquatic organisms and bees

Regulatory Review Status: An Interim Review Decision was published in December 2024, which corresponds with EPA's Upcoming Registration Review webpage. As of August 19, 2026, no further updates or actions have taken place.

Recent Coverage of Scientific Literature:

- Eighty Pesticides Detected in the Air of Rural Agricultural Area
- Fungicide's Nontarget Harm to Insect Confirms Deficiency in EPA's Ecological Risk Assessment, Study Finds
- France's Drinking Water Contaminated with Toxic Fungicide Chlorothalonil, Banned in EU but Widely Used in U.S.
- Honey Bee Queens' Exposure to Pesticides Weaken Reproductive Success and Colony Development
- European Regulators Ban Carcinogenic, Frog-Killing Fungicide
- Honey Bees Attracted to Glyphosate and a Common Fungicide
- New Studies Identify Fungicides as a Factor in Declining Bee Health

See additional studies at the bottom of the Gateway page and coverage in the *Daily News* archive.

Estimated annual use/volume use: According to figures cited in EPA's Proposed Interim Registration Review Decision September 2023, "average annual application of approximately **8.7 million lbs** [of] a.i. applied to approximately **7.9 million total acres treated (TAT)** between **2016 and 2020**." For nonagricultural use/volume estimates, " Usage of chlorothalonil is particularly high in golf course turf, with about **5.8 million pounds** of active ingredient (lbs a.i.) applied, and over $47 million in product sales, in 2021 for disease management in this market segment. Chlorothalonil pounds applied represent nearly 75% of the total market for fungicides applied to golf courses, and chlorothalonil is the top active ingredient in sales, comprising nearly 29% of the market. In addition, nearly **1.1 million and 1.5 million lbs** a.i. of chlorothalonil were applied to residential ornamentals in **2016** and **2019**, respectively."

Crop use(s): Almond · Almond, hulls · Apricot · Asparagus · Banana · Bean, dry, seed · Bean, snap, succulent · Blueberry · Brassica, head and stem, subgroup 5A · Carrot, roots · Celery · Cherry, sweet · Cherry, tart · Cocoa bean, dried bean · Coffee, bean, green · Corn, sweet (kernel plus cob, husks removed) · Cranberry · Ginseng · Horseradish · Lentil · Lychee · Mango · Mushroom · Nectarine · Okra · Onion, bulb · Onion, green · Papaya · Parsnip, roots · Passionfruit · Pea, edible podded · Peach · Peanut · Pistachio · Plum · Plum, prune · Potato · Rhubarb · Soybean · Starfruit · Tomato · Vegetable, cucurbit, group 9 · Vegetable, fruiting, group 8 (except tomato) · Yam ; Hazelnut · Peppermint, tops · Persimmon · Spearmint, tops ; Cattle, goat, hog, horse and sheep (fat, kidney, meat, meat byproducts) and milk — metabolite SDS-3701 only ; Crops grown for seed.

Non-agricultural use(s): Nursery and greenhouse grown ornamentals; Christmas trees; Grasses grown for seed; Residential and non-residential grass and turf, including sod farms, athletic fields, and golf courses, wood preservation, mold control and material preservation.

Insecticide: **Clothianidin**

Chemical family: Nitroguanidine (subgroup of neonicotinoids)

Regulatory Status: A proposed Interim Registration Review Decision was finalized in January 2020. According to EPA's Upcoming Registration Review webpage, as of August 19, 2026, an interim registration review decision is the upcoming action scheduled for 2025. No further official actions on review decisions have been taken, although there was an open call for comments to facilitate the drafting of human health and ecological risk assessments that closed in 2024.

Adverse environmental and public health outcomes: endocrine disruption, reproductive dysfunction, neurotoxicity, immunotoxicity, kidney/liver damage, and toxicity to birds, fish/aquatic organisms, and bees

Recent Coverage of Scientific Literature:

- More Data Links Endocrine-Disrupting Pesticides to Increase in U.S. Breast Cancer
- Review Finds Reproductive Toxicity from Neonicotinoid Insecticides, Highlighting Widespread Hazard
- Study Cites Ban of Bee-Killing Pesticides in EU, Inaction in U.S. and Canada
- Study Adds to Findings of Neonic Insecticides' Threat to Soil Communities; Ground Beetles at Risk
- Male Fertility and Reproduction in Bee Species Threatened with Systemic Insecticide Exposure, Study Finds
- Study Links Numerous Chemical Families of Pesticides to Endocrine Disrupting Effects, Including Obesity
- Review Cites Memory and Learning Impairments; Children, Workers, and Nontarget Organisms at Risk
- Evaluation of EPA Safety Data on Neonicotinoid Insecticides Identifies Scientific Failures

- Developmental Neurotoxic Effects of Widely Used Neonicotinoid Insecticide Underestimated by EPA
- Study Connects Neonicotinoids to Liver Damage Ignored by EPA

See additional studies at the bottom of the Gateway page and coverage in the *Daily News* archive.

Estimated annual use/volume use: According to figures cited by EPA as of the Proposed Interim Decision of Clothianidin in January 2020, "over **1,400,000 lbs a.i./year (2005–2014 avg)".**
For **agricultural pesticide use**, "From 2007-2016, soil and foliar usage (together) averaged about **300,000 lbs. a.i**., applied to approximately **400 million acres annually**. Agricultural sites with the highest usage of clothianidin in average pounds applied per year are **cotton** (10,000), **rice** (6,000), and **soybean** (5,000). The highest percent crop treated (PCT) values are reported for **table grapes** (20%), **broccoli** (15%), and **figs** (10%)."

For **non-ag pesticide use**, "In 2016, approximately **9,000 lbs. a.i**. of clothianidin was used by pest management professionals for outdoor pest control (i.e., turf and ornamental plants, including in residential areas) and over **4,000 lbs. a.i.** for indoor pest control."
Crop use(s) (if applicable): corn, cotton, soybean, wheat, canola, sorghum, sugar beet, rice; Vegetable crops (including bulb vegetables, the use EPA proposed to cancel in 2020); Tree fruits and tree nuts; Berries, grapes, legumes, cereal grains, oilseeds, herbs; Poultry/livestock housing: applications can also be made to poultry litter manure in chicken houses for darkling beetles and other poultry house pests and later utilized as outdoor fertilizer.
Non-agricultural use(s) (if applicable): Turf; Ornamental plants; Indoor and outdoor residential, commercial, and industrial sites (structural and perimeter pest control)

Solution
Adopt a sunset provision (with sunset clearly defined, meaning a drop-dead date with no more extensions) in the *Federal insecticide Fungicide and Rodenticide Act* (FIFRA) under which active ingredients that do not meet the deadline of the full registration review process are automatically dropped from EPA approval. The sunset should be instituted for 2028 for all pesticides that were scheduled to be reviewed by 2026 and applied to the 15-year review cycle going forward.