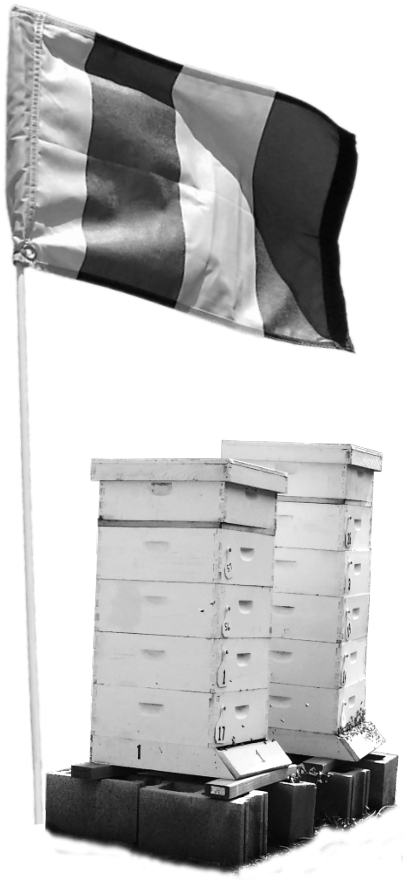
PROTECTING POLLINATORS FROM PESTICIDES

- Apply pesticides only when and where necessary. Use Integrated Pest Management, incorporating cultural, mechanical, and biological control methods wherever possible.
- Read and follow all product label instructions and requirements. Pay particular attention to the label precautions that indicate specific hazards to bees and other pollinators.
- Be aware of any bee hives in the area that could be affected by application. When spraying is necessary, notify beekeepers in advance, so that they can adequately protect bee hives.
- Use ground equipment instead of aircraft, especially near bee hives.
- Avoid application to crops in bloom where possible. If application is necessary, apply when bees are least likely to be actively foraging (after 3 p.m.).
- Reduce drift and avoid spraying onto non-target areas, including adjacent vegetation that may contain flowers attractive to bees.
- Where possible, leave a border of untreated vegetation between treated areas and areas where wildlife may be present.
- Store and dispose of all pesticides properly.
- If more than one pesticide can provide control, choose the least toxic product and formulation available.



Arkansas Pollinator Stewardship Program

This program seeks to minimize economic loss for both farmers and beekeepers by adequately managing row crop pests while minimizing impact of pesticides on honey bee colonies.

Cooperation and communication is encouraged among beekeepers, farmers and pesticide applicators.

The presence of the yellow and black Bee Aware flags will help to clearly identify locations where honey bees are located near crop areas.

For more information about this program or to obtain flags, contact:

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(501) 671-2222, jzawislak@uada.edu

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MORE HAZARDOUS FOR BEES

LESS HAZARDOUS FOR BEES

Insecticidal Dusts
- particles cling to bees with pollen grains, may be carried back to the hive and stored with food

ULV Formulations
- highly concentrated, dangerous to bees

Wettable Powders
- often have longer residual activity than other spray formulations; longer REI for humans typically results in greater hazard for bees

Emulsifiable Concentrates
- usually have shorter residual toxicity for bees than wettable powders, safer for bees

Water Soluble Compounds
- generally safest type of spray, dries quickly leaving little residue to be picked up by bees; fine sprays are less dangerous than coarse droplets

Granules
- safest formulation for bees, not always suitable for all pest control situations

RELATIVE TOXICITY OF PESTICIDES TO HONEYBEES

Group 1 – HIGHLY TOXIC. Severe bee losses should be expected if the following pesticides are used when bees are present, if the product is applied near bee hives or if bees forage in the application area within a day after treatment.

Abamectin (Avermectin, Agri-Mek)
Acephate (Orthene)
Aldicarb (AgLogic)
Alpha-cypermethrin (Fastac)
Azinphos-methly (Guthion)
Beta-cyfluthrin (Baythroid XL, Tempo, Leverage)
Bifenthrin (Brigade, Capture, Discipline)
Carbaryl (Sevin)
Carbofuran (Furadan)
Chlorpyrifos (Dursban, Lorsban, Warhawk)
Clothianidin (Belay, Poncho)
Cyfluthrin (Decathlon, Tombstone, Tempo)
Cypermethrin (Holster, Cymbush)
Deltamethrin (Battalion, Centynal)
Diazinon (Diazinon, Spectracide)
Dicrotophos (Bidrin)
Dimethoate (Dimate)
Dinotefuran (Safari)
Emamectin benzoate (Denim)
Esfenvalerate (Asana XL, Adjourn)
Fenpropathrin (Danitol, Tame)
Fipronil (Regent, Taurus)
Gamma-cyhalothrin (Declare, Proaxis
Imidacloprid (Admire, Advise, Alias, Brigadier, Couraze, Merit, Pasada, Provado, Trimax, Wrangler)
Indoxacarb (Steward, Avaunt)
Lambda-cyhalothrin (Karate, Silencer, Warrior, Voliam)
Malathion (Fyfanon, Malathion, Cythion)
Methidathion (Supracide)
Methiocarb (Mesurol)
Methomyl (Lannate, Nudrin)
Methoprene
Methyl parathion (Penncap-M)
Naled (Dibrom, Trumpet)
Oxamyl (Vydate)
Permethrin (Ambush, Pounce)
Phorate (Thimet)
Phosmet (Imidan)
Pyrethrin
Pyridaben Pyridaben (Nexter, Pyramite, Sanmite)
Resmethrin (Scourge)
Sabadilla (Veratran-D)
Sulfoxaflor (Transform, Closer)
Thiamethoxam (Actara, Adage, Centric, Endigo, Platinum, Voliam)
Zeta-cypermethrin (Mustang Maxx, Hero, Stallion)

Group 2 — MODERATELY TOXIC. These pesticides can be used in the vicinity of bees as long as dosage, timing, method of application and conditions are correct. These products should NEVER be applied directly on bees in the field or near bee colony locations (apiaries). Apply late in evening, at night, or early morning if blooming plants are present.

Acetamiprid (Assail, Intruder, Strafer)
Azadirachtin (Aza-Direct, Azera, Neemix, Ecozin)
Beauvaria bassiana (Mycotrol, Botaniguard)
Bifenazate (Acramite, Floramite)
Chlorfenapyr (Phantom, Pylon)
Copper hydroxide (Kocide)(FUNGICIDE)
Coumphaos (Co-Ral)
Cyromazine (Trigard)
Diatomaceous earth
Disulfoton (Di-Syston)
Endosulfan (Thionex)
Ethoprop (Mocap)
Fluvalinate (Mavrik)
Glyphosate (Roundup)
Horticultural oil (Superior, Dormant, Summer)
Novaluron (Diamond)
Primicarb
Pymetrozine (Fulfill)
Pyrethrum
Spinetoram (Radiant)
Spinosad (Blackhawk, Spintor, Tracer)
Spirotetramat (Movento)
Temephos (Abate)
Terbufos (Counter)
Thiacloprid (Calypso)
Thiodicarb (Larvin)

Group 3 — RELATIVELY NONTOXIC. These pesticides can generally be used around bees with a minimum of injury provided that dosage, timing, and method are correct. NEVER apply pesticides directly to bee hives.

Acaricides, Diseases, IGRs and Insecticides

Aldoxycarb (Standak)
Amitraz (Mitac)
Bacillus thuringiensis (Bt, Agree, Biotrol, Javelin, Thurcide)
Bacillus subtilis (Rhapsody, Serenade, Cease)
Calcium Polysulfide (Lime Sulfur, Sulforix)
Chlorantraniliprole (Altacor, Coragen, Grubex Prevathon)
Clofentezine (Apollo)
Diflubenzuron (Dimlin)
Etoxazole (Zeal)
Fenbutatin-oxide (Vendex)
Fenproximate (Akari, Fujimite)
Flonicamid (Carbine, Beleaf)
Hexythiazox (Onager, Savey)
Kaolin Clay (Surround)
Lime sulfur
Metaldehyde bait *(MOLLUSCIDE)*
Methoxyfenozide (Intrepid)
Nosema locusate fungus (Canning)
Nucleopolyhedrovirus (Heligen)
Progargite (Comite, Omite)
Pyriproxyfen (Esteem, Knack)
Rotenone
Spiromesifen (Oberon)
Tebufenozide (Confirm)

RELATIVE TOXICITY OF PESTICIDES TO HONEYBEES

Group 3 — RELATIVELY NONTOXIC. These pesticides can generally be used around bees with a minimum of injury provided that dosage, timing, and method are correct. NEVER apply pesticides directly to bee hives.

Fungicides

Acibenzolar-S-methly (Actigard)
Aluminum tris O-ethyl phosphonate (Alliette, Fosetyl-Al)
Azoxystrobin (Abound, Quadris)
Benomyl (Benlate)
Bordeaux mixture
Boscalid (Endura, Pristine)
Calcium Polysulfide (Lime Sulfur, Sulforix)
Captan (Captan, Captec, Captevate)
Chlorothalonil (Bravo, Echo)
Copper 8-quinolate
Copper sulfate—monohydrated
Cuprous oxide
Cyflufenamid (Miltrex, Torino)
Cymoxanil (Curzate 60DF, Tanos)
Cyrodinil (Switch, Vangard WP)
Difenoconazole (Inspire, Quadrus, Revus)
Dodine (Syllit)
Fenarimol (Bloc, Rimidin, Rubigan, Vintage)
Fenbuconazole (Indar)
Fenhexamid (Elevate 50 WDG)
Fluazinam (Omega 500F)
Fludioxonil (Switch)
Fluopicolide (Presidio)
Fluopyram (Luna)
Iprodione (Rovral)
Kresoxim methyl (Sovran)
Mancozeb (Dithane, Gavel, Manzate, Penncozeb, Ridomil Gold MZ)
Maneb (Manzate)
Mefenoxam (Maxim, Ridomil)
Metconazole (Quash)
Metrafenone (Vivando)
Myclobutanil (Rally, Sonoma)
Nabam (Parzate)
Penthiopyrad (Fontelis)
Potassium bicarbonate (MilStop, Greencure, Kaligreen)
Propiconazole (Propicure, Quilt, Tilt)
Pyraclostrobin (Cabrio, Pristine)
Pyrimethanil (Luna, Scala)
Quinoxyfen (Quintec)
Streptomyces lydicus (Actinovate)
Tebuconazole (Adament, Luna, Orius)
Sulfur (various)
Tetraconazole (Mettle)
Thiophanate-methyl (Topsin-M)
Thiram (Arasan, Mercuram, Nonersan, Thiramad)
Trifloxystrobin (Flint, Stratego, Compass)
Triflumizole (Procure)
Triphenyltin hydroxide (Super Tin)
Ziram (Vancide)
Zoxamide (Gavel, Zing)

Herbicides, Defoliants, Desiccants and PGRs

2,4-D
2,4-DB (Butyrac)
Acetochlor
Alachlor (Lasso)
Ammonium sulfate
Atrazine (Aatrex)
Bentazon (Basagran)
Bromacil (Hyvar)
Clodinafop-propargyl (Discover)
Cloproxydim (Select)
Cloransulam-methyl (First-Rate)
Cyanazine (Bladex)
Cyhalofop-butyl (Clincher)
Dicamba (Banvel)
Dichlobenil (Casoron)
Diflufenzopyr (Distinct)
EPTC (Eptam)
Ethephon (Prep)
Ethalfluralin (Sonalan)
Flufenacet (Axiom DF)
Fluometuron (Cotoran)
Flumioxazin (Valor)
Fluridone (Brake, Sonar)
Fluroxypyr (Starane EC)
Fluthiacet-methly (Athem, Cadet)
Foramsulfuron (Option)
Imazapyr (Arsenal)
Imazamox (Raptor)
Isoxaflutole (Balance)
Linuron (Lorox)
MCPA (Bonide)
Metribuzin (Sencor, Cloak)
Mesotrione (Callisto)
Paraquat Dichloride (Paraquat)
Picloram (Tordon)
Prohexadone calcium (Apogee PGR, Baseline)
Prometryn (Caparol)
Pronamide (Kerb)
Propanil (Stam F-34)
Quinclorac (Facet)
S-metolachlor (Dual)
Simazine (Princep)
Sodium chlorate (Defol)
Terbacil (Sinbar)
Tribufos (Def, Folex)
Trifluralin (Treflan

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