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Protecting Honey Bees from Pesticides

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LEAFLET NO. 544

U.S. DEPARTMENT OF AGRICULTURE

PROTECTING HONEY BEES FROM PESTICIDES



PROTECTING HONEY BEES FROM PESTICIDES

*Information for this publication was furnished by
Entomology Research Division, Agricultural Research Service*

Honey bees frequently are in danger of being killed when crops are treated with pesticides.

Honey bees produce honey and beeswax valued at \$55 million annually; but even more significant, the annual value of crops that require bee pollination exceeds \$1

billion. For this reason, farmers and beekeepers should cooperate in protecting the bees from pesticides.

Observance of precautions recommended in this publication can significantly reduce bee losses from pesticide poisoning.

PRECAUTIONS FOR FARMERS

Use pesticides only when needed.—Do not apply a pesticide unless the benefit from its use will outweigh the harm it does to bees. Consider the value of the pollinators to your crops, and the effect the pesticide will have on them. Also consider the effect the pesticide will have on the pollinators of other crops in your area. A pesticide that aids production of one crop could seriously reduce production of other crops in adjoining fields.

Select the right pesticide.—All pesticides are not equally hazardous to bees. Some pesticides will kill an entire colony; some will seriously weaken it; others are relatively safe. Do not use the more hazardous pesticides on flowering plants that attract bees. Commonly used pesticides are grouped in the chart according to their relative hazards to bees.

Apply granules or sprays rather than dusts.—Sprays do not drift

COMMONLY USED PESTICIDES GROUPED ACCORDING TO THEIR RELATIVE HAZARDS TO HONEY BEES ¹

Group 1.—Hazardous

Aldrin
 Arsenicals
 Azinphosethyl (Ethyl Guthion*)
 Azinphosmethyl (Guthion*)
 Azodrin*
 Banol*
 Bay 39007 (Baygon*)
 Bay 41831 (Sumithion*)
 Benzene hexachloride (BHC)
 Bidrin*
 Bomyl*
 Carbaryl (Sevin*)
 Chlordane
 Chlorthion*
 Ciodrin*
 Diazinon
 Dicapthon
 Dichlorvos (DDVP)
 Dieldrin
 Dimethoate
 Dinitrobutylphenol (DNOSBP)
 EPN
 Famphur (Famophos*)
 Fenthion
 Heptachlor
 Imidan*
 Isobenzan (Telodrin*)
 Isodrin
 Lindane
 Malathion
 Matacil*
 Methyl parathion
 Methyl Trithion*
 Mevinphos (Phosdrin*)²
 Naled (Dibrom*)²
 Parathion
 Phosphamidon

Pyramat*
 Sabadilla ³
 Tepp ²
 Zectran*
 Zinophos*

Group 2.—Moderately hazardous

Carbophenothion (Trithion*)
 Chipman RP-11974 (phosalone)
 Chlorobenzilate
 Coumaphos (Co-Ral*)
 DDT
 Dimetilan
 Disulfoton (Di-Syston*)
 Endosulfan (Thiodan*)
 Endothion
 Endrin
 Methyl demeton
 Mirex
 Perthane*
 Phorate (Thimet*)
 Ronnel
 Tartar emetic

Group 3.—Relatively non-hazardous

Allethrin
 Amitrole
 Aramite*
Bacillus thuringensis
 Binapacryl (Morocide*)
 Bordeaux mixture
 Captan
 CDAA (Randox*)
 CDEC (Vege-dex*)
 Chlorbenzide (Mitox*)
 Copper oxychloride sulphate

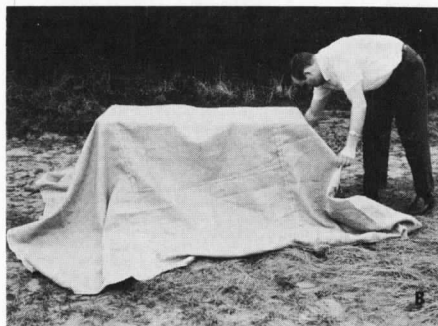
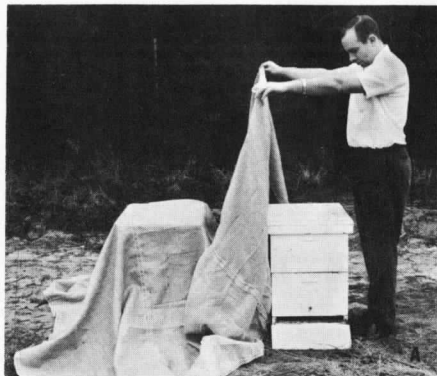
Copper 8-quinolinolate
 Copper sulfate (monohydrated)
 Cryolite
 Cuprous oxide
 Dalapon
 Demeton (Systox*)
 Dexon*
 Dicamba (Banvel D*)
 Dichlone (Phygon*)
 Dicolfol (Kelthane*)
 Dilan*
 Dimite* (DMC)
 Dinitrocyclohexylphenol (DNOCHP)
 Dinocap (Karathane*)
 Dioxathion (Delnav*)
 Diquat
 Dodine (Cyprex*)
 Dyrene*
 EPDC (Eptam*)
 Eradex*
 Ethion
 EXD (Herbisan*)
 Fenson
 Ferbam
 Folcid (Difolatan*)
 Folpet (Phaltan*)
 Genite 923*
 Glyodin (Glyoxide*)
 IPC*
 Kepone*
 Maneb
 MCPA
 Menazon
 Methoxychlor
 Monuron
 Morestan*
 Mylone*
 Nabam (Parzate*)
 Nemagon*
 Neotran*

Nicotine sulfate
 NPA
 Olancha clay
 Ovex (Ovatran*)
 Paraquat
 Phostex*
 Pyrethrin
 Pyrolite
 Rotenone
 Ryania
 Schradan (OMPA)
 Sesamin
 Sesone
 Sillica gel (SG-78)
 Simazine
 Strobane*
 Sulfur
 Sulphenone*
 TDE (Rothane*)
 Tetradifon (Tedion*)
 Tetram*
 Thiram (Arasan*)
 Toxaphene
 Trichlorfon (Dylox*, Dipterex*)
 Zineb
 Ziram
 2, 3, 6-TBA (Trybsen*)
 2, 4-D
 2, 4, 5-T

¹ Terms followed by an asterisk (*) are trade names of proprietary products.

² Mevinphos (Phosdrin*), naled (Dibrom*), and tepp have short residual activity and kill only the bees contacted at time of treatment or shortly thereafter. They are usually safe to use when bees are not in flight; they are not safe to use around colonies.

³ Usually, losses to sabadilla are low enough to be no problem. Sabadilla should not be applied to open flowers that are freely visited by bees.



Confine bees to hives when hazardous pesticides are to be applied: A and B, Covering hives with burlap; C, soaking the burlap with water.

as much as dusts and, consequently, are less likely to harm bees. Granules are usually harmless to bees.

Use ground equipment.—Aircraft discharge pesticide at higher altitudes and with greater turbulence than ground machines; this increases the likelihood that flying bees will come in contact with the pesticide and that it will drift onto adjacent crops where bees may be foraging.

Time pesticide application.—The safest time to apply pesticide is when bees are not working plants being treated. Treat plants before or after flowering, at night,

or at a time of day when bees are not visiting them.

Bees may cluster outside the entrance of their hives on hot nights. If this happens in colonies that may be exposed to drifting pesticides, do not apply pesticides until the bees move inside their hives and until danger of drift is minimized. Hive bees can be killed by fumes of some pesticides, such as parathion, Guthion, malathion, and benzene hexachloride.

Notify beekeepers.—Notify beekeepers in your area several days before you apply a pesticide. This will give them an opportunity to protect their colonies. However, notification is not a release of responsibility for damage.

PRECAUTIONS FOR BEEKEEPERS

Select safe locations.—When practicable, place colonies where they will not be subjected to drifts of sprays, and away from fields that are routinely treated with pesticides.

Identify your colonies.—Post your name, address, and phone number in a conspicuous place in your apiary. Let farmers in your area know where your bees are located so they will not unknowingly poison your bees.

Know the pesticides.—Acquaint yourself with pesticides commonly used in your area. Be prepared to protect your bees if you are notified that a hazardous pesticide is to be applied. Pesticides are grouped according to their relative hazards to bees on pages 3 and 4.

Confine your bees.—When hazardous pesticides are to be applied, bee hives may be covered with plastic sheeting that will confine the bees and exclude pesticide spray, dust, or fumes. Heat builds up rapidly under plastic exposed to the sun. Therefore the confinement should be limited to a few hours after dawn. This may be long enough to protect the bees from some pesticides that do not have a long residual effect.

Hives may be covered with wet burlap for a day or more, even during the hottest weather, and the bees will not suffer from lack

of air or water. They should be covered at night when all the bees are in the hives. During the day, soak the burlap with water at least once every hour.

Relocate colonies.—If your colonies are located where they are repeatedly in danger of exposure to pesticides listed in group 1 on page 3, the safest way to protect them is by moving them to a new site. Since colonies often must be moved to a less satisfactory location where they may still be in danger of pesticide poisoning, moving is recommended only as an emergency measure. If you must move colonies, move them at night when the bees are in their hives.

Try to convince farmers of the value of bee pollination and the importance of using pesticides that do not kill bees.

Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture or an endorsement by the Department over other products not mentioned.



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FOLLOW THE LABEL

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