

**Part IV**

# **Annexes**

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## Annex I

# Bibliography

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## Annex II

# Suggested Vector Surveillance Equipment and Supplies

Collecting bag	Collecting forms
Mouth or battery powered aspirators	Tea strainer
Flashlight and spare batteries	Grease pencil
Memo pad	Sweep net
Pencil	Tweezers
White enameled dipper	Keys and other references
Labels	CDC light traps (optional)
Collecting vials	<i>Aedes aegypti</i> ovitraps (optional)
Bulb syringe or medicine dropper	Fly grill
Mirror	

## Suggested Rodent Surveillance Equipment and Supplies

Teaching aids	Transfer bags
Plastic bags	Vials
Plastic cups	Alcohol
Rubber bands	Forceps
Scissors	Insecticide dusting pan
Snap traps	Formaldehyde
Live traps	Acute rodenticides
Gloves	Anticoagulant rodenticides
Flashlights and batteries	



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### Annex III

# Pesticides and Applications for the Chemical Control of Vectors, Rodents and Pests\*

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Type of Application	Pesticide and Application		Remarks
<b>Ants; General</b>			
Residual indoors	propoxur	1.0%	See control recommendation for cockroaches.
	diazinon	0.1%	
	bendiocarb	0.25%	
<b>Bed Bugs <i>cimex</i> sp.</b>			
Rooms, beds or furniture (also chicken nests for source)	malathion	1.0%	Apply lightly to mattress surfaces and more heavily to bed frame. Allow to dry before using. Never apply to children's crib.
	ronnel	1.0% E	
	dichlorvos	0.5% E	
	diazinon	0.5% E	
<b>Cockroaches</b>			
Enclosed spaces as kitchens, pantries or storerooms	1. Residual sprays in oil solutions or emulsion concentrates		Apply to hiding places and runways; use a spray and not a mist. Pay attention to warm humid places. Do not treat where children are likely to contact surfaces.  Pyrethrins have been used as a ULV at 3-5% in unoccupied areas.
	a. propoxur	1.0%	
	b. chlorpyrifos	0.5%	
	c. bendiocarb	0.25-0.5%	
	d. diazinon	0.5%	
	e. dichlorvos	0.5%	
	f. malathion	5.0%	
	g. ronnel	2.0%	
	2. Powders in inert dusts		
	a. boric acid	90-99%	
	b. silica aerogel	100%	
	c. diazinon	2.0-5.0%	
	d. malathion	4.0-5.0%	
	3. Baits		
	a. chlorpyrifos	0.5%	
b. propoxur	2.0%		

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Type of Application	Pesticide and Application	Remarks
<b>Fleas</b>		
1. Rooms	1. Solutions in kerosene, fuel oil or in emulsion concentrates a. bendiocarb           0.25% b. malathion           2.0% c. ronnel               1.0% d. diazinon            1.0% e. lindane             1.0%	Spray floor and baseboards and walls to a height of 10 cm.
	2. Powders in inert dusts a. diazinon            2.0% b. malathion          4.0-5.0% c. carbaryl            5.0% d. lindane             1.0%	Avoid inhalation and contamination of food.
	3. DDT	10.0%
2. Animals	1. Powders of inert dusts a. malathion           4.0% b. rotenone            1.0% c. pyrethrins          0.2% plus 2.0% 6 synergist d. carbaryl            5.0% e. lindane             1.0% f. DDT                 5.0%	Apply dust to domestic animals with small duster. Do not apply DDT, or lindane to cats or puppies.
<b>Filth Flies, adults</b>		
1. Enclosed spaces, e.g. houses and barns	1. Space sprays or aerosols in oil solutions or emulsion concentrates ( <i>Spray into air for 4 sec/10m<sup>3</sup> when using aerosol bombs</i> ): a. synergized pyrethrins   0.1% b. dichlorvos           0.5% c. ronnel                2% d. malathion            5%  2. Residual contact sprays in oil solutions, emulsion concentrates or wettable powders ( <i>Apply 1% solutions at 10-20 l/100m<sup>2</sup> and 5% solutions at 2-4 l/100m<sup>2</sup> to give dosages of 1-2 g/m<sup>2</sup>.</i> ) a. bromophos           1-5% b. ronnel                1-5% c. fenitrothion         1-5% d. iodfenphos          1-5% e. trichlorfon          1-5% f. diazinon             1-2% ( <i>Apply at 4/100m<sup>2</sup> to give dosages of 0.4 or 0.8 g/m<sup>2</sup>.</i> )	Space sprays have no long-lasting effects and must be applied frequently. Avoid contamination of food or food processing equipment. Treat garbage, refuse, manure and other fly breeding sites.  Can be used also in milk-rooms, restaurants and food stores.
		Same as above.





Type of Application	Pesticide and Application	Remarks
<b>Scabies</b>		
Body	1. Lindane 1.0% cream, lotion or shampoo.  2. Benzyl benzoate (25%).	Keep away from eyes and mucous membranes.  Do not apply to head. Do not overtreat.
<b>Mosquito adults</b>		
1. Enclosed spaces in buildings, as barracks, rooms, barns	1. Aerosols: Pyrethrins 0.25% + piperonyl butoxide or sulfoxide 2%. ( <i>Spray into air from aerosol canister for 4 sec/100m<sup>3</sup>.</i> )  2. Space sprays <ol style="list-style-type: none"> <li>naled 1%</li> <li>malathion 2-5%</li> <li>resmethion 1-2%</li> <li>dichlorvos</li> <li>methoxychlor</li> </ol> 3. Residual fumigant: Dichlorvos dispensers, containing 20% of toxicant are suspended in enclosed spaces at one dispenser per 14-28m <sup>3</sup> . ( <i>Spray on interior walls and ceiling of building (1 1/25m<sup>2</sup>).</i> )  4. Residual contact sprays in oil solutions, emulsion concentrates or wettable powders. <ol style="list-style-type: none"> <li>DDT 5%</li> <li>methoxychlor 5%</li> <li>lindane 0.5%</li> <li>malathion 3-5%</li> <li>fenitrothion 1-2%</li> <li>propoxur 0.5-1%</li> <li>chlorphoxim 3-5%</li> <li>pirimiphos-methyl 2-3%</li> <li>permethrin 0.5%</li> </ol>	
2. Aircraft	Aerosols: Resmethrin, Bioresmethrin or D-phenothrin 2%. ( <i>Spray into air from aerosol cannister for 10 sec/100m<sup>3</sup>.</i> )	Approximate cabin volumes of some aircraft are: Boeing 747: 2800m <sup>3</sup> 3800m <sup>3</sup> Boeing 707: 800m <sup>3</sup> DC-9: 345m <sup>3</sup> DC-8: 800m <sup>3</sup>

Type of Application	Pesticide and Application	Remarks
3. Outdoors-exterior space treatment	Applications from aircraft, mistblowers or thermal aerosol machines as oil solutions or emulsion concentrates: <ul style="list-style-type: none"> <li>a. malathion 100-500 g/ha</li> <li>b. fenitrothion 200-400 g/ha</li> <li>c. fenthion 112 g/ha</li> <li>d. naled 56-280 g/ha</li> <li>e. chlorpyrifos 10-40 g/ha</li> <li>f. pyrethroids</li> </ul>	These sprays usually furnish immediate but only temporary relief. High volume thermal fogging may be preferable when vegetation is dense.

**Mosquito larvae**

1. Potable water receptacles around houses ( <i>Aedes aegypti</i> )	Temephos only is currently used. In treating containers with drinking water temephos 1% sand granules are applied by a measured plastic spoon at 1 mg/l (e.g. 1 g of granules for 10 liters of the volume of container—whether full of water or not).	
2. Streams, lakes, swamps, pools, ruts and non-potable water containing receptacles around houses	Applications from aircraft or ground equipment as emulsions, wettable powders, solutions or granules: <ul style="list-style-type: none"> <li>a. chlorphoxim 100 g/ha</li> <li>b. chlorpyrifos 56-100 g/ha</li> <li>c. fenitrothion 100-3000 g/ha</li> <li>d. fenthion 22-112 g/ha</li> <li>e. iodfenphos 50-100 g/ha</li> <li>f. malathion 224-1000 g/ha</li> <li>g. methoprene 100-1000 g/ha</li> <li>h. Paris green 850-1000 g/ha</li> <li>i. phoxim 100 g/ha</li> <li>j. temephos 56-400 g/ha</li> <li>k. fuel oil 142-190 l/ha</li> <li>l. larvicidal oil 19-47 l/ha</li> <li>m. methoprene</li> </ul>	Do not use insecticides on water intended for drinking by humans or animals. Use all materials with care to avoid hazards to fish and wildlife. Granular formulations are more suitable for penetrating heavy vegetative cover than solution or emulsion concentrates. Higher doses are necessary in highly polluted water and by residual and pre-hatch treatment.

**Scorpions and centipedes**

Rooms	Residual sprays as EC, wdp or powders in inert dusts. <ul style="list-style-type: none"> <li>a. diazinon 0.5%</li> <li>b. bendiocarb 0.25%</li> <li>c. malathion 3.0%</li> <li>d. lindane 0.5% liquid 1.0% dust</li> </ul>	Make spot applications such as baseboards, windows, wall cracks, openings around water pipes, underneath sinks, corners. Also can treat ground and outbuildings.
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Type of Application	Pesticide and Application	Remarks
<b>Spiders</b>		
<b>Black widow, Brown, etc.</b>		
Residual indoors, outbuildings, and around houses, stores, etc.	1. Residual sprays as EC or wdp. a. bendiocarb 0.25% b. chlorpyrifos 0.25-0.5% c. diazinon 0.5% d. propoxur 1.0% e. malathion 2.0% f. lindane 0.2-0.5%	Do not use as space spray. Treat as for scorpions and centipedes. Watch out for falling spiders as they sometimes bite.
<b>Ticks (most species)</b>		
1. Animals	1. Washes, sprays or dips as emulsions a. malathion 0.5% b. rotenone 0.05% c. lindane 0.05%	Use indicated concentrations for washes or sprays but reduce to half for dips.
2. Buildings	1. Residuals in oil solutions or E.C.: a. propoxur 1.0% b. diazinon 0.5% c. chlorpyrifos 0.5% d. bendiocarb 0.25% e. malathion 2.0% f. carbaryl 2.0% g. lindane 0.5%	Treat floors and wall cracks, between and under cushions of upholstered furniture. Keep away from children and pets until dry.
3. Outdoors vegetation	1. Residual sprays in E.C., wdp or inert dusts: a. tetrachlorvinphos b. carbaryl c. dieldrin d. chlordane e. lindane	Control where needed. Follow instructions on label.
<b>Triatominae</b>		
House and furniture	1. Residual wdp and E.C.: a. HCH 1.0% b. fenitrothion 2.0% c. malathion 2.0%*	Treat ceiling and walls of houses and furniture when necessary.
*not for <i>R. prolixus</i>		

Type of Application	Pesticide and Application	Remarks												
<b>Repellents for flies, mosquitoes, gnats, mites, black-flies, sand-flies, fleas, and ticks</b>														
Exposed surfaces of body and clothes	<ol style="list-style-type: none"> <li>1. Diethyltoluamide (OFF, DEET) (<i>Application on skin. Shake ½ teaspoonful into palm of hand; rub hands together and then apply in thin layer to face, neck, ears, hands and wrists. Do not get into eyes and mouth. On clothes, spray or apply by hands. Effective for a number of days. Best all-around repellent.</i>)</li> <li>2. Dimethylphthalate (<i>Particularly effective against Anopheles and larval mites (chiggers). Use same as above (1).</i>)</li> <li>3. Indalone (<i>Same as (1) above. Best use against biting flies.</i>)</li> <li>4. 2-ethyl hexanediol—1,3 (repellent 612) (<i>Same as (1) above. Particularly effective against Aedes.</i>)</li> </ol>	<p>Nontoxic. Avoid eyes and mucous membranes.</p> <p>Same as above.</p> <p>Same as above.</p> <p>Same as above.</p>												
<b>Rodents Domestic rats and mice</b>														
Baits	<table border="0"> <tr> <td data-bbox="380 971 489 1014">brodifacoum (Talon)<sup>1</sup></td> <td data-bbox="563 971 674 994">0.005% bait</td> </tr> <tr> <td data-bbox="380 1137 489 1180">diphacinone (Diphacin)<sup>1</sup></td> <td data-bbox="563 1137 674 1159">0.005% bait</td> </tr> <tr> <td data-bbox="380 1234 489 1277">coumafuryl (Fumarin)<sup>1</sup></td> <td data-bbox="563 1234 674 1257">0.025% bait</td> </tr> <tr> <td data-bbox="380 1328 489 1371">pivaldlone (Pival)<sup>1</sup></td> <td data-bbox="563 1328 674 1351">0.025% bait</td> </tr> <tr> <td data-bbox="380 1422 456 1444">warfarin</td> <td data-bbox="563 1422 656 1444">1.0% bait</td> </tr> <tr> <td data-bbox="380 1470 456 1492">warfarin</td> <td data-bbox="563 1470 674 1492">0.025% bait</td> </tr> </table>	brodifacoum (Talon) <sup>1</sup>	0.005% bait	diphacinone (Diphacin) <sup>1</sup>	0.005% bait	coumafuryl (Fumarin) <sup>1</sup>	0.025% bait	pivaldlone (Pival) <sup>1</sup>	0.025% bait	warfarin	1.0% bait	warfarin	0.025% bait	<p>Single dose anticoagulant. Effective against warfarin-resistant Norway rats. Formulated as grain-based pellets.</p> <p>Anticoagulants. Various brands are formulated as ready to use baits, paraffinized blocks and pellets, concentrates, and as tracking powders. Also available as liquid baits. Use both liquid and dry baits where possible. Expose liquid bait in glass or plastic chicken watering devices.</p>
brodifacoum (Talon) <sup>1</sup>	0.005% bait													
diphacinone (Diphacin) <sup>1</sup>	0.005% bait													
coumafuryl (Fumarin) <sup>1</sup>	0.025% bait													
pivaldlone (Pival) <sup>1</sup>	0.025% bait													
warfarin	1.0% bait													
warfarin	0.025% bait													

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Type of Application	Pesticide and Application		Remarks
	chlorophacinone (Rozol Hot shot) <sup>1</sup>	0.025% bait	
	zinc phosphide	1-2% bait	Single dose poison. Mix toxicant with fresh bait materials (corn meal, fish, meat, fruit). Do not use food attractive to children.

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<sup>1</sup>Common or genetic names begin with a small letter; trade or other names are in parentheses. No discrimination against similar products is intended.

\*Information from WHO publications, *Pocket Guide to Pest Management* (US Navy) and *Tropical Medicine* 5th Edition (Hunter, Swartzwelder and Clyde). Mention of specific companies or manufacturers' products does not imply that they are recommended by the Pan American Health Organization.

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## Annex IV

# Guide to Insecticides, Rodenticides and Equipment

### Insecticides

#### *Abate* (temephos)

American Cyanamid Company  
Berdan Avenue  
Wayne, NJ 07470  
Telex: 130400  
Tel: (201) 831-1234

Southern Mill Creek Products  
P.O. Box 1096  
Tampa, FL 33601

#### *Actellic* (pirimiphos - methyl)

ICI Americas Inc.  
Agricultural Chemical Division  
Wilmington, DE 19897

Imperial Chemical Industries  
Plant Protection Division  
Fernhurst  
Haslemere

Surrey, England GU27 3JE  
Telex: 858270 Ic. pp Fernhurst  
Tel: Haslemere (0428) 4061  
Tel: Somerset Court (0428) 4061  
Cable: Plantecton

#### *Altosid* (methoprene)

Zoecon Industries  
975 California Avenue  
Palo Alto, CA 94304  
Telex: 345-550  
Tel: (415) 329-1130

#### *Baygon* (propoxur)

Mobay Chemical or Chemagro Corp.  
P.O. Box 4913  
Howthorn Road  
Kansas City, MO 64120  
Tel: (816) 242-2000  
Cable: KEMAGRO, Kansas City

#### Johnson Wax Company

1525 Howe St.  
Racine, WI 53403  
Telex: 264429  
Tel: (414) 554-2000  
Cable: JON WAX RON, Wisconsin

*Baytex* (fenthion)

Mobay Chemical or Chemagro Corp.  
P.O. Box 4913  
Howthorn Road  
Kansas City, MO 64120  
Tel: (816) 242-2000  
Cable: KEMAGRO, Kansas City

*Baythion* (phoxim)

Bayer AG  
Pflanzenschutz  
509 Levenkusen Bayerwerk  
Federal Republic of Germany  
Telex: 8510881  
Tel: 02172-301  
Cable: BAYER

*Baythion C* (chlorophoxim)

See *Baythion Chlordane*  
Velsicol Chemical Corporation  
341 East Ohio St.  
Chicago, IL 60611  
Tel: 910-221-5738  
Tel: (312) 670-4500

*Cyanophos* (Cyanox)

Sumitomo Chemical America, Inc.  
345 Park Avenue  
New York, NY 10022  
Tel: 640249  
Tel: (212) 935-3813

*Cygon* (dimethoate)

American Cyanamid Company  
See *Abate*

*Cythion* (malathion)

American Cyanamid Company  
See *Abate*

*Diazinon*

Ciba-Geigy Corporation  
P.O. Box 11422  
Greensboro, NC 27409  
Tel: (919) 292-7100

Ciba-Geigy International AG

Postfach 4002  
Basel  
Telex: 62991  
Tel: 061/361111

Markteshim Chem Works Ltd.

Box 60  
Beer Sheva, Israel

Pennwalt Chemical Corporation

1630 East Shaw Ave.  
Fresno, CA 93710

Thompson-Haywood Chemical Co.

5200 Speaker Road  
Kansas City, KS 66110  
Tel: (913) 321-3131

*Dibrom* (naled)

Chevron Chemical Com.  
Ortho Division  
575 Market Street  
P.O. Box 3744  
San Francisco, CA 94105  
Tel: (Orlando, Florida)  
(305) 288-0414  
Tel: (San Francisco, CA)  
(415) 894-7800

*Dimetilan*

Ciba-Geigy Ltd.  
P.O. Box 11422  
Greensboro, NC 27409  
Tel: (919) 292-7100

*Dimilin* (diflubenzuron)

Thompson-Hayward Chemical Co.  
5200 Speaker Road  
Kansas City, KS 66110  
Tel: (913) 321-3131

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*Dursban* (chlorpyrifos)

Dow Chemical Co.  
P.O. Box 1706  
9008 Building  
Midland, MI 48040  
Tel: (517) 636-2231

## Thompson-Hayward Chem Co.

5200 Speaker Road  
Kansas City, KS 66110  
Tel: (913) 321-3131

*Fenitrothion* (Sumithion)

Sumitomo Chemical America, Inc.  
345 Park Avenue  
New York, NY 10154  
Telex: 232 489 (RCA)  
Tel: (212) 935-7000

## Bayer AG

Pflanzenschutz  
509 Levenkusen Bayerwerk  
Federal Republic of Germany  
Telex: 8510881  
Tel: 02172-301  
Cable: BAYER

*Ficam* (bendiocarb)

BFC Chemicals, Inc.  
4311 Lancaster Pike  
P.O. Box 2867  
Wilmington, DE 19805  
Tel: (302) 575-7847

## Fison Inc.

Ag Chemicals Div.  
2 Preston Court  
Bedford, MA 07130  
Telex: 951-253  
Tel: (617) 275-1000

## Fisons Ltd.

Fison House  
9 Grosvenor Street  
London W1X0AH, UK  
Telex: 263184  
Tel: (01) 493-1611

*Flit MLO*

Exxon Company  
P.O. Box 21801  
Houston, TX 77001  
Tel: (713) 656-3636

*Heptachlor*

Velsicol Chemical Corporation  
341 East Ohio St.  
Chicago, Il. 60611  
Telex: 910 221-5738  
Tel: (312) 670-4500

*Iodofenphos*

Rentokil Ltd.  
Export Product Division  
Felcourt East Grinstead  
West Sussex  
England RH 19 104

*Lindane*

Hooker Chemical Co.  
P.O. Box 344  
1042-7 Iroquois Ave.  
Niagara Falls, NY 14302  
Telex: 91-575  
Tel: (716) 278-9000

## All India Medical

185 Princess Street  
Mulji Jetha Bldg.  
Bombay, India 400 002

## Thompson-Hayward Chemical Co.

5200 Speaker Road  
Kansas City, KS 66110  
Tel: (913) 321-3131

*Malathion*

American Cyanamid Company  
Berdan Avenue  
Wayne, NJ 07470  
Telex: 130400  
Tel: (201) 831-1234

All India Medical  
185 Princess Street  
Mulji Jetha Bldg.  
Bombay, India 400 002

Sumitomo Chemical America, Inc.  
345 Park Avenue  
New York, NY 10154  
Telex: 232489 (RCA) SUMISHO  
Tel: (212) 935-7000

Thompson-Hayward Chemical Co.  
5200 Speaker Road  
Kansas City, KS 66110  
Tel. (913) 321-3131

*Mesuro*l (methiocarb)  
Möbay Chemical or Chemagro Corp.  
P.O. Box 4913  
Howthorn Road  
Kansas City, MO 64120  
Tel: (816) 242-2000  
Cable: KEMAGRO, Kansas City

*Methoxychlor*  
E.C. DuPont de Nemours  
Chemical Dyes and Pigment Dept.  
1007 Market Street  
Wilmington, DE 19898

*Nexion* (bromophos)  
Celamerck GmbH and Co.  
P.O. Box 202  
6507 Ingelheim am Rhein  
West Germany

*Permethrin*  
Shell International  
Chemical Co. (*talcord*)  
Agro-Chem. Division  
Shell Center  
London S.E. 17PG England  
Telex: 919651  
Tel: 01-934-1234  
Cable: CHEMISHELL  
London SE 1

Imperial Chemical Industries  
Plan Protection Division  
Fernhurst  
Haslemere  
Surrey, England GU27 3JE  
Telex: 858270 Ic.pp Fernhurst  
Tel: Haslemere (0428) 4061

Fairfield American Corporation  
3932J Salt Road  
Medina, NY 14103  
Tel: (716) 798-2141

McLaughlin Gormley King and Co.  
8810 10th Avenue, North  
Minneapolis, MN 55427  
Telex: 290-544  
Tel: (612) 544-0341

Wellcome Industrial (coopex)  
Ravens Lane  
Berkamsted  
Herts, England HP4 2DY

Cooper Pegler and Co. Ltd.  
Burgess Hill  
Sussex RH159LA, UK  
Tel: Burgess Hill 42526  
Cables: 87354 COOPEG G

*d-phenothrin*  
McLaughlin Gormley King and Co.  
(Multicide)  
8810 10th Avenue, North  
Minneapolis, MN 55427  
Telex: 290-544  
Tel: (612) 544-0341

Sumitomo Chemical America, Inc.  
(Sumithrin)  
345 Park Avenue  
New York, NY 10154  
Telex 232489 (RCA)  
Tel: (212) 935-7000

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*Piperonyl Butoxide*

Fairfield American Corporation  
3932J Salt Road  
Medina, NY 14103  
Tel: (716) 798-2141

McLaughlin Gormley King  
and Company  
8810 10th Avenue, North  
Minneapolis, MN 55427  
Telex: 290-544  
Tel: (612) 544-0341

*Pyrethrins*

McLaughlin Gormley King  
and Company  
8810 10th Avenue, North  
Minneapolis, MN 55427  
Telex: 290-544  
Tel: (612) 544-0341

Fairfield American Corporation  
3932J Salt Road  
Medina, NY 14103  
Tel: (716) 798-2141

S.B. Penick and Company  
1050 Wall St., West  
Lyndhurst, NJ 07071  
Telex: 133525  
Tel: (201) 935-6600  
673-1335

Prentiss Drug and Chemical  
363 Seventh Avenue  
New York, NY 10001

*Pyrethrins* (encapsulated) (sectrol)  
3M Company  
J.F. Piper/Industrial Tape Division  
Building 220 3M Center  
St. Paul, MN 55101

*Resmethrin*

S.B. Penick and Company (SBP-1382)  
1050 Wall Street, West  
Lyndhurst, NJ 07071  
Telex: 133525  
Tel: (201) 935-6600  
673-1335

Fairfield American Corporation  
(Synthrin)  
3932J Salt Road  
Medina, NY 14103  
Tel: (716) 798-2141

Sumitomo Chemical America, Inc.  
345 Park Avenue,  
New York, NY 10154  
Telex: 232489 (RCA)  
Tel: (212) 935-7000

*Rotenone*

S.B. Penick and Company  
1050 Wall Street, West  
Lyndhurst, NJ 07071  
Telex: 133525  
Tel: (201) 935-6600  
673-1335

*Sevin* (carbaryl)

Union Carbide Corporation  
7825 Bay Meadow Way  
Jacksonville, FL 32216  
Telex: 510661 2634  
Tel: (904) 731-4250

*Toxaphene*

BFC Chemicals Inc.  
P.O. Box 2867  
Wilmington, DE 19805  
Tel: (302) 575-7858

Hercules Inc.  
910 Market Street  
Wilmington, DE 19899  
Tel: (302) 575-5000

*Vapona* (DDVP, dichlorvos)  
All India Medical  
185 Princess Street  
Mulji Jetha Bldg.  
Bombay, India 400 002

Markteshim Chemical Warks Ltd.  
Box 60  
Beer Sheva, Israel

Shell Chemical Company  
1 Shell Plaza  
P.O. Box 2463  
Houston, TX 77001

### **Insect Repellents**

*Deet* (diethyl toluamide)  
Cutter Laboratories  
2200 Powell Street  
Emeryville, CA 94608

McLaughlin Gormley King Co.  
8810 10th Avenue, North  
Minneapolis, MN 55427  
Telex: 290-544  
Tel: (612) 544-0341

Hills Pet Chemicals Inc.  
P.O. Box 660656  
Miami Springs, FL 33166

*Dibutyl phthalate*  
Eastman Chemical Products, Inc.  
P.O. Box 431  
Kingsport, TN 37664  
Telex: 55-34-50  
Tel: (615) 246-2111

*Dimelone* (dimethyl carbate)  
Fairfield American Corporation  
3932J Salt Road  
Medina, NY 14103  
Tel: (716) 798-2141

*Dimethyl phthalate*  
Eastman Chemical Products, Inc.  
P.O. Box 431  
Kingsport, TN 37664  
Telex: 55-34-50  
Tel: (615) 240-2111

*MGK 11, 326, 874*  
McLaughlin Gormley King and Co.  
8810 10th Avenue, North  
Minneapolis, MN 55427  
Telex: 240-544  
Tel: (612) 544-0341

*Tabatrex* (dibutyl succinate)  
Glenn Chemical Co. Inc.  
4149 Milwaukee  
Chicago, IL 60641

### **Insecticide Application Equipment**

#### ***Fogger, Thermal***

Burgess Vibrocrafters  
RT 83  
Grays Lake, IL 60030  
TWA 910-651-2531  
Tel: (312) 223-4821  
Cable: VBE Grays Lake

Curtis Dyna-Products Corporation  
(Dyna-Fog)  
P.O. Box 297  
Westfield, IN 46074  
Tel: (317) 896-2561

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J. Hofman Overseas USA,  
(Dynafo)g  
P.O. Box 318  
Carmel, IN 46032

London Fog Co.  
505 Brimhall  
Long Lake, MN 55356  
Tel: (612) 473-5366

Motan GMBH  
(Swingfog)  
P.O. Box 1260  
Max-Eyth-Weg 42  
D-7972 Isny, W. Germany  
Telex: 7321 524  
Tel: 07562-6/6  
Cable: Motan ISNY

Lowndes Engineering Co.  
125 Blanchard St. Box 488  
Valdosta, GA 31601  
Telex: LECO VALD 810-786-5861  
Tel: (912) 242-3361  
Cable: LECO VALD

### ***Ultra-low volume Devices***

AFA Corp. of Florida  
(Fogmaster)  
14201 NW 60th Ave.  
Miami Lakes, FL 33014

Amdreas Stojl Maschinefabrik  
Postfach 1760  
7050 Walblingen - Neustadt  
West Germany

Beemer Products Company  
(Ground ultra-low volume sprayers)  
FT Washington, PA 19034  
Tel: (215) 646-8440

Public Health Equipment  
and Supply Co.  
P.O. Box 10454  
San Antonio, TX 78210  
Tel. (512) 532-6351

Dr. Stahl & Son  
(Pulsfog)  
P.O. Box 1227  
Uberlingen D-777  
West Germany

Tifa (CI) Ltd.  
50 Division Avenue  
Millington, NJ 07946  
Telex: 136340  
Tel: (201) 647-4570 and 647-4573  
Cable: TIFA Stirling

Buffalo Turbine  
(Mity Moe: SONIC ultra-low volume)  
Agricultural Equipment Co., Inc.  
70 Industrial St.  
Gowanda, NY 10470  
TWA 716-532-2210  
Tel: (716) 532-2272

FMC Corp: John Bean Div.  
516 Dearborn St.  
Tipton, TN 46072

Gerbruder Holder, BmbH and Co.  
(Holder)  
P.O. Box 66  
D7418  
Metzingen, West Germany  
Telex: 7245319  
Tel: 07123-2036

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H.D. Hudson MFG Co.  
(Porta-pak<sup>R</sup>, Compression Sprayers  
and Dusters)  
500 North Michigan Avenue  
Chicago, IL 60611  
Tel: (312) 644-2830

Hatsuta Suzuki Industrial  
(Hatsuta Mistblower)  
Av. Monteiro Lobato 2700  
Caixa Postal 9  
Guarulhos 0700, Sao Paulo, Brazil  
Cable: HATSUMEC  
Tel: PABX 209-2133  
Telex: HABR 1125046

Hatsuta Industrial Co. Ltd.  
4-39, I-Chrome Chifune  
Nishiyodogawa-ku  
Osaka, Japan

Kioritz Corporation  
P.O. Box 10  
M. Taka  
Tokyo, Japan

Kioritz Corporation  
350 Wainwright  
North Brook, IL 60062

Maruyama Manufacturing Co. Ltd.  
4-15, Uchi-Kanda, 3-Chome  
Chiyoda-ku  
Tokyo, Japan

London Fog Company  
505 Brimhall  
Long Lake, MN 55356  
Tel: (612) 473-5366

Lowndes Engineering Company  
125 Blanchard St. Box 488  
Valdosta, GA 31601  
Telex: LECO VALD 810-786-5861  
Tel: (912) 242-3361  
Cable: LECO VALD

Micro-Gen Equipment Corporation  
10700 Sentinel Drive  
San Antonio, TX 78217  
Telex: 9108711000  
Tel: (512) 654-8570  
Cable: MCROGEN

Micron West Inc.  
(ULVAFAN<sup>R</sup> portable)  
8582 Katy Freeway  
P.O. Box 19698  
Houston, TX 77024  
Telex: 792911  
Tel: (713) 932-1405  
Cable: MICRONW HOV

Motan GMBH  
(Fontan)  
P.O. Box 1260  
Max-Eyth-Weg 42  
D-7972 Isny, Germany  
Telex: 7321 524  
Tel: 07562 - 6/6  
Cable: Motan ISNY

Public Health Equipment & Supply  
(London Aire)  
P.O. Box 10458  
San Antonio, TX 78210  
Tel: (512) 532-6351

Root-Lowell Corporation  
1000 Foreman Road  
Lowell, MI 49331  
Tel: 1-800-253-4342

San Mar Tool & Equipment Company  
(Root & Lowell)  
50 Broadway  
New York, NY 10004  
Tel: (212) 797-1382

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Solo Incorporated  
5100 Chestnut  
Box 5030  
Newport News, VA 23605  
Telex: (710) 823 644  
Tel: (804) 245-4228

Solo Canada Caribbean  
Deppe Ag-Tec.  
Box 464  
Burlington, Ontario L7R 3Y3  
Canada

Turbair  
(ULV Spraying Systems)  
Britannica House  
Waltham Cross  
Herts, England  
Telex: 23957  
Tel: Lea Valley (0992) 7633008

Vandermolen Corporation  
(KWH-44 Mistblower)  
119 Dorsa Avenue  
Livingston, NJ 07093

Wambo Co. Ltd.  
Postfach 102606  
D-8900 Augsburg 1  
West Germany

Whitmire Research Laboratories, Inc.  
3568 Tree Court Industrial Blvd.  
St. Louis, MO 63122

Yanmar Diesel Engine Co. Ltd.  
(ULV Knapsack)  
1-11-1 Marunouchi, Chiyodo-Ku  
Tokyo, Japan  
Telex: TOK 0220-2310  
Cable: YANMAR TOKTU

### ***Sprayer-Hand Compression***

B & G Equipment Co.  
Applebutter Road  
Plumstead, PA 18949  
Tel: (215) 766-8811

Blue Spruce International  
(Pesticide Equipment  
& Insecticide Supplies)  
1390 Valley Road  
Stirling, NJ 07980  
Telex: 136340  
Tel: (201) 647-4570  
Cable: TREE Stirling

Champion Sprayer Co.  
6581 Heintz Ave.  
Detroit, MI 48211

Clarke Outdoor Spraying Co.  
(Pesticide Equipment Supplies)  
P.O. Box 288  
Roselle, IL 60172  
Tel: (312) 894-2000

Flow Dynamics Inc.  
1333 State College Parkway  
Anaheim, CA 92806

H.D. Hudson Mfg. Co.  
(Knapsack Hydraulic and  
Hand Compression Sprayers)  
500 North Michigan Ave.  
Chicago, IL 60611  
Tel: (312) 644-2830

PARCO  
(Division of Blue Mountain Products)  
P.O. Box 250  
New Hartford, NY 13413  
Tel: (315) 797-3214

Root Lowell Corporation  
1000 Foreman Road  
Lowell, MI 49331  
Tel: 1-800-253-4342

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**Rodenticides**

*Baran* (fluoroacetamide)

Archem  
1514 11th Street  
Box 767  
Portsmouth OH 45662

Tamogan Ltd.  
3 Hakhshmal Street  
P.O. Box 2438  
Tel Aviv, Israel

*Brodifacoum*

ICI Americas Inc. (Talon)  
Agricultural Chemicals Division  
Wilmington, DE 19897

Rodent Control Ltd.  
70/78 Queens Road  
Reading, Berks, England  
Tel: READING 54740

Sorex Ltd.  
St. Michaels Road  
Widnes, Cheshire WA8 8TJ England  
Tel: 051420 7151

*Bromadiolone*

Chempar Chemical  
60 E 42nd St., Ste. 652  
New York, NY 10016

Sanex Chemicals Inc.  
(Bromone) (MAKI)  
1307 South 30th Avenue  
Hollywood, FL 33020  
Tel: (305) 921-5666

*Castrix* (crimidine)

Bayer AG  
Pflanzenschutz  
509 Levenkusen Bayerwerk  
Federal Republic of Germany  
Telex: 8510881  
Tel: 02172-301  
Cable: BAYER

*Calcium Cyanide*

Degesch America Inc.  
P.O. Box 116  
Weyers Case, VA 24486

*Coumatetralyl* (Racoumin)

Bayer AG  
Pflanzenschutz  
509 Levenkusen Bayerwerk  
Federal Republic of Germany  
Telex: 8510881  
Tel: 02172-301  
Cable: BAYER

*Cymag* (Sodium Cyanide)

Imperial Chemical Industries  
Plant Protection Division  
Fernhurst  
Haslemere  
Surrey, England GU27 3JE  
Telex: 858270 Ic.pp Fernhurst  
Tel: Haslemere (0428) 4061

ICI American Inc.  
Agricultural Chemical Div.  
Wilmington, DE 19897  
Tel: Summerset Court (0428) 4061  
Cable: Plantecton

*Difenacoum* (Ratak)

ICI American Inc.  
Agricultural Chemical Div.  
Wilmington, DE 19897  
Tel: Summerset Court (0428) 4061  
Cable: Plantecton

*DPL-/87* (Vacor)

Rohm & Haas Co.  
Agricultural &  
Sanitary Chemicals Dept.  
Independence Mall West  
Philadelphia, PA 19105  
Tel: (215) 592-3032

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*Dipacinone*

Bell Laboratories  
3699 Kinsman Boulevard  
P.O. Box 5133  
Madison, WI 53705  
Tel: (608) 256-2632

Velsicol Chemical Co.  
341 East Ohio St.  
Chicago, IL 60611  
Telex: 910-221-5738  
Tel: (312) 670-4500

*Fumarin*

Union Carbide  
Agricultural Products Co.  
300 Brookside Ave.  
Ambler, PA 19002

*Pival*

Motomco Inc.  
267 Vreeland Ave.  
P.O. Box 300  
Paterson, NY 07513

*Red Squill*

S.B. Penick & Co.  
1050 Wall Street, West  
Lindhurst, NJ 07071  
Telex: 133525  
Tel: (201) 935-6600

Prentiss Drug & Chemical Co.  
363 Seventh Avenue  
New York, NY 10001

*Warfarin*

Bell Laboratories  
3699 Kinsman Boulevard  
P.O. Box 5133  
Madison, WI 53705  
Tel: (608) 256-2632

Hopkins Agricultural Chemical Co.  
Manufacturing Division  
P.O. Box 7532  
Madison, WI 53707

Prentiss Drug and Chemical Co.  
363 Seventh Avenue  
New York, NY 10001

Roberts Laboratories  
4995 N. Main  
Rockford, IL 61101

Velsicol Chemical Corporation  
341 East Ohio St.  
Chicago, IL 60611  
Telex: 910-221-5738  
Tel: (312) 670-4500

*Zinc Phosphate*

ARCHEM  
1514 11th St.  
Box 767  
Portsmouth, OH 45602

Bell Laboratories  
3699 Kinsman Boulevard  
P.O. Box 5133  
Madison, WI 53705  
Tel: (608) 256-2632

Hooker Chemical Co.  
1042-7 Iroquois Ave  
P.O. Box 344  
Niagara Falls, NY 14302  
Telex: 91-575  
Tel: (716) 278-7000

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**Rodenticides (Prepared Baits)**

Bell Laboratories Inc.  
(ZPR<sup>R</sup>, RAZER<sup>R</sup>, PCO and FINAL<sup>R</sup>)  
P.O. Box 5133  
Madison, WI 53705  
Tel: (608) 256-2632

Chempar Chemical Co. (ROZOL<sup>R</sup>)  
60 E. 42nd St.  
New York, NY 10165  
Telex: 710-581-2318  
Tel: (212) 687-3990

J.T. Eaton & Co. Inc.  
1393 East Highland Road  
Twinsburg (Cleveland), OH 44087  
Tel: (216) 425-7801

J.E. Bolt Corporation  
P.O. Box 25103  
Chicago, IL 60625  
Tel: (312) 327-7173

Southern Mill Creek Products, Inc.  
(PARA-BLOX<sup>R</sup>)  
P.O. Box 1096  
5414 56th Street  
Tampa, FL 33601

Velsicol Chemical Corporation  
(Promar<sup>R</sup> and Ramik<sup>R</sup>)  
341 East Ohio St.  
Chicago, IL 60611  
Telex: 910-221-5738  
Tel: (312) 670-4500

**Special Insecticide Products**

Cenol  
(Insecticide Aerosols)  
P.O. Box 177  
Rt. 45th Peterson Road  
Libertyville, IL 60048  
Tel: (312) 362-6600

Cline-Buckner, Inc.  
(Baygon & Diazinon Aerosols)  
16317 Piuma Avenue  
Cerritos, CA 90701  
Tel: (213) 924-6371

Environmental Chemicals, Inc.  
(Temephos formulations)  
703 North Lake Shore Drive  
Barrington, IL 60010  
Tel: (312) 526-7744

Gold Crest Pest Control Supplies  
(Rodenticides & Insecticides)  
1700 Liberty  
P.O. Box 5668  
Kansas City, MO 64102  
Tel: (816) 421-4696

McLaughlin Gormley King Co.  
(Dipterex<sup>R</sup>)  
8810 Tenth Avenue  
Minneapolis, MN 55427

Pet Chemicals Inc.  
(Vapona Aerosols)  
P.O. Box 660656  
Miami Springs, FL 33166

Peterson/Puriton, Inc.  
(Aerosols)  
Hegeler Lane  
Danville, IL 61832  
Tel: (217) 442-1400

Stephenson Chemical Co., Inc.  
(Aerosol Flea Control)  
P.O. Box 87188  
College Park, GA 30337  
Tel: (404) 762-0194

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Time-Mist Inc.  
(Insecticide Aerosols)  
135 South Main Street  
Thomaston, CT 06787  
Tel: (203) 283-8226

Wyco International, Inc.  
(Tossit)  
4811 Carnegie Avenue  
Cleveland, OH 44103  
Tel: (216) 391-5047

## Entomology Equipment

### *Light Traps*

#### *CDC Miniature*

Housherr's Machine Works  
Old Freehold Road  
Toms River, NJ 08753  
Tel: (201) 349-1319

John W. Hock, Co.  
P.O. Box 12852  
Gainesville, FL 32604

BioQuip Products Company  
P.O. Box 61  
Santa Monica, CA 90406  
Tel: (213) 322-6636

### *New Jersey-like*

Concession Supply Company, Inc.  
1016 Summit St.  
P.O. Box 1007  
Toledo, Ohio  
Tel: (419) 241-7711

### *Plastic Larval Dippers*

Clarke Spraying Company  
P.O. Box 288  
Roselle, IL 60172

## *Aerial Applications*

### *Commercial ultra-low volume adulticiding*

Environmental Aviation Services Inc.  
P.O. Box 176  
Belle Glade, FL 33430  
Tel: (305) 996-2369

## *Equipment (ULV)*

BEECO Products Co.  
(Beecomist spray head)  
Industrial Park  
Fort Washington, PA

Bockenstette Agricultural  
Aviation Services  
(CACU-Mist Mark IV)  
P.O. Box 227  
Abilene, KA 67410  
Tel: (913) 263-2033

Ciba-Pilatus and Micron Sprayers Ltd.  
(Electric rotary disc atomizer)  
Three Hills  
Bromyard, Herfordshire HR 7 4HU  
United Kingdom

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Micronair (Aerial) Ltd.  
Bembridge Fort  
Sandown  
Isle of Wight, PO36 8Q3, England  
Tel: Brading 461  
Cable: Micronair Sandown England  
Telex: 86448

Spraying Systems Co.  
P.O. Box 12735  
St. Petersburg, FL 33733  
Tel: (813) 360-3907

### **Specialized Ultra-low Volume Materials**

Marco Chemical Division  
(HAN, heavy aromatic naphtha)  
W.R. Grace & Co.  
800 N.W. 36th Avenue  
Miami, FL

Southern Mill Creek Products  
(Tritons and HAN)  
P.O. Box 420981 Allapettah Station  
2490 N.W. 41st Street  
Miami, FL 33601

Home & Farm Chemicals Co.  
(Oil sensitive dye cards)  
P.O. Box 6055  
Charlotte, NC

Pierce Chemical  
(Dri-film SC-87)  
P.O. Box 6055  
Rockford, IL

Rohm & Haas Co.  
(Tritons)  
Independence Mall West  
Philadelphia, PA 19105

The mention of specific companies or products does not imply that they are endorsed or recommended by the Pan American Health Organization in preference to others of a similar nature that are not mentioned.

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PAN AMERICAN SANITARY BUREAU • REGIONAL OFFICE OF THE  
**WORLD HEALTH ORGANIZATION**

Price: US\$6.00