



WPRS *International Organisation for Biological and Integrated Control of Noxious
Animals and Plants: West Palaearctic Regional Section*

SROP *Organisation Internationale de Lutte Biologique et Intégrée contre les Animaux et les
Plantes Nuisibles: Section Régionale Ouest Paléarctique*

Working Document on Selectivity of Pesticides (2005)

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Explanations to the IOBC database

This document has been prepared in collaboration between the IOBCwprs “Commission on IP Guidelines” and the IOBCwprs Working group on “Pesticides and Beneficial Organisms”. It is part of the IOBC toolbox to assist IOBC endorsed organisations in the preparation of their green and yellow lists of plant protection measures. The document reflects the judgement of IOBC experts and - where no IOBC data were available – the expert judgement of sources outside IOBC. It intends to provide help when selecting pesticides and does not replace official governmental documents.

Information sources

Most of the information in the table has been compiled by P. Ternes and H. Vogt, Germany, in behalf of the IOBCwprs Working group on “Pesticides and Beneficial Organisms”, mainly using the IOBCwprs database of results from the Joint Pesticide Testing Programmes (JPTP) 2 – 9 referring to the beneficial arthropods code no. 1-13. Further selected publications were included to update the IOBC data as well as to indicate the toxicity to bees, earthworms and fish (s. references).

The entries marked pink are additions made by the Commission based on official and published sources outside IOBC and are considered “expert judgements”. Where certain contradicting data seem to exist, the Commission has added a different classification in **RED** (based on expert judgement) without questioning the validity of the original IOBC data. **Highlighted in blue** for easy reading are the column (1) with general indications for predatory mites, (12) with general indications for parasitoids, and (14) for bees, respectively.

The side-effect results refer to tests with formulated products. As the names of these commercial products often differ between countries, the active ingredients and examples of commercial brand names are listed in the 2 tables shown below. They contain the same pesticides but are arranged in alphabetical order for common names and active ingredients, respectively.

The table with the side-effect results is not complete because data were either not yet available or not sufficiently reliable to be included. The table will be up-dated regularly if new and verified information becomes available.

Toxicity classes

The classification of the side-effect (mortality/reduction in beneficial capacity) of a pesticide given in the table follows established IOBC criteria:

- **Field and semi-field test data:**

N* = harmless or slightly harmful (Reduction 0-50%)	M* = moderately harmful (Reduction 51-75%)	T* = harmful (Reduction > 75%)
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- **Classification of laboratory test results**

Laboratory 1 (<30%)	N
Laboratory 2 (30-79%)	M (up to 79%)
Laboratory 3 (80-99%)	T
Laboratory 4 (>99%)	T

The laboratory classifications 1 to 4 given in the table above have been used in the JPTPs 6-9. As in the older JPTPs (1-5), the classification for laboratory 1 and 2 was slightly different (Laboratory 1: <50%; Laboratory 2: 50-79 %), the original data for the lab 1 classification of these JPTPs were checked, in order to classify them according to the newer JPTPs. Only in few cases this was not possible, and in those cases the classification N refers to the old one (< 50%).

- **WHO (human) toxicity classification** (measures acute toxicity of an active ingredient). For further details (e.g. for allergies, eye irritations etc. of products classified as U) consult www.inchem.org. Where no WHO classifications could be found, estimates based on expert judgement are added in brackets ().

Ia = Extremely hazardous;
Ib = Highly hazardous;
II = Moderately hazardous;
III = Slightly hazardous;
U = Unlikely to present acute hazard in normal use;
O = Obsolete as pesticide, not classified

- **Bee, fish and earthworm** columns show two toxicity classifications: (-) indicating absence or (+) presence of toxicity, without giving the degree of toxicity.

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ANNEX

List of common names (examples) of the evaluated pesticides and their active ingredient

Commercial products **marked yellow** were used in the IOBC Joint Testing Programs

Commercial pesticide / common name (examples)	Active ingredient	Commercial pesticide / common name (examples)	Active ingredient
Dirigol-N	1-Naphthylacetamide	2,4-D	2,4-D Aminosalt
Rhodofix	1-Naphthylacetic acid	Aazomate	Benzoximate
Gesin	2,4-D Aminosalt	Acarac	Amitraz
2,4-D	2,4-D Aminosalt	Acephate	Acephate
Luxan 2,4 D	2,4-D Aminosalt	Actellic 50	Pirimiphos-methyl
Vertimec	Abamectine	Admiral	Pyriproxifen
Remados	Acephate	Afalon	Linuron
Acephate	Acephate	Afugan WP 30	Pyrazophos
Orthene	Acephate	Aliette	Fosetyl-Al
Gazelle	Acetamiprid	Ally	Metsulfuron-methyl
Mospilan	Acetamiprid	Aloxon	Diazinon
Temik	Aldicarb	Alsystin	Triflumuron
Acarac	Amitraz	Alto 100 SL	Cyproconazole
Maitac	Amitraz	Ambush	Permethrin
Ustinex PA	Amitrole 30% + Diuron 56%	Ambush C	Cypermethrin
Dyrene flüssig	Anilazine	Amistar	Azoxystrobine
Gesaprim 50	Atrazine	Antracol	Propineb
Atrazine	Atrazine	Anvil	Hexaconazole
Azit	Atrazine	Apollo SOSC	Clofentezine
NeemAzal T/S	Azadirachtine	Applaud	Buprofezin
Gusathion	Azinphos-methyl	Arabella	Etoxazol
Peropal	Azocyclotin	Arelon vloeibaar	Isoproturon
Amistar	Azoxystrobine	Aresin	Monolinuron
Benomyl	Benomyl	Aretit flüssig	Dinoseb
Benlate	Benomyl	Asepta lindane	Lindane
Basagran	Bentazone	Asepta Nexion	Bromophos
Aazomate	Benzoximate	Astor	Fenpropidin
Brigade	Bifenthrin	Atlanto	Thiacloprid
Talstar	Bifenthrin	Atrazine	Atrazine
Baycor	Bitertanol	Audienz	Spinosad
Hyvar X	Bromacil	Avenge	Difenzoquat
Faneron	Bromofenoxim	Avius	Quinoxifen
Asepta Nexion	Bromophos	Azit	Atrazine
Neoron	Bromopropylat	Aztec	Triazamate
Nanocron	Bromopropylat	Bactec	BT var. kurstaki
Spomil	Bromopropylat	Baktur	BT var. kurstaki
Certrol B	Bromoxynil	Banvel	Dicamba
Bactec	BT var. kurstaki	Baroque	Etoxazol
Dipel	BT var. kurstaki	Basagran	Bentazone
Baktur	BT var. kurstaki	Basta	Glufosinate-ammonium
Delfin WG	BT var. kurstaki	Basudin	Diazinon
Novodor FC	BT var. tenebrionis	Basudine Vloeibaar	Diazinon
Nimrod	Bupirimat	Bavistin	Carbendazim
Nimrod	Bupirimate	Baycor	Bitertanol
Applaud	Buprofezin	Bayfidan	Triadimenol

Orthocid 83	Captan
Malvin	Captan
Captan	Captan
Prosevor	Carbaryl
Bavistin	Carbendazim
Carbendazim	Carbendazim
Derosal	Carbendazim
Curaterr	Carbofuran
Difosol	Carbofuran
Carbofuran	Carbofuran
Morestan	Chinomethionat
Birlane EC 40	Chlorfenvinphos
Pyramin	Chloridazon
Chloridazon	Chloridazon
Cycocel Extra	Chlormequat
Daconil 500	Chlorothalonil
Chlorothalonil	Chlorothalonil
Bravo 500	Chlorothalonil
Reldan	Chlorpirifos-methyl
Chlorpirifos-methyl	Chlorpirifos-methyl
Pyrixex	Chlorpyrifos (diethyl)
Dursban Spritzp.	Chlorpyrifos (diethyl)
Apollo SOS	Clofentezine
Lontrel 100	Clopyralid
Vitigran	Copper oxychloride
Focus	Cycloxydim
Baythroid 50	Cyfluthrin
Remacid	Cyhexatin
Plictran 25	Cyhexatin
Cyhexatin	Cyhexatin
Remacid	Cyhexatin
Plictran	Cyhexatin
Ripcord	Cypermethrin
Cypermethrin	Cypermethrin
Ambush C	Cypermethrin
Alto 100 SL	Cyproconazole
Trigard	Cyromazine
Deltamethrin	Deltamethrin
Decis	Deltamethrin
Metasystox	Demeton-S-methyl
Semeron	Desmetyrn
Pegasus	Diafenthiuron
Polo	Diafenthiuron
Torak E	Dialiphos
Aloxon	Diazinon
Basudin	Diazinon
Diazinon	Diazinon
Basudine Vloeibaar	Diazinon
Banvel	Dicamba
Lunar	Dicamba
Euparen	Dichlofluanid
Illoxan	Diclofop-methyl

Bayleton	Triadimefon
Baythroid 50	Cyfluthrin
Benlate	Benomyl
Benomyl	Benomyl
Betanal	Phenmedipham
BioBlatt Mehltaum.	Lecithin
Birlane EC 40	Chlorfenvinphos
Bravo 500	Chlorothalonil
Brigade	Bifenthrin
Butisan	Metazachlor
Calixin	Tridemorph
Calypso	Thiacloprid
Captan	Captan
Carbendazim	Carbendazim
Carbofuran	Carbofuran
Carpovirusine	Granulosis-virus
Cascade	Flufenoxuron
Certrol B	Bromoxynil
Cesar S.L.	Hexythiazox
Chess	Pymetrozine
Chloridazon	Chloridazon
Chlorothalonil	Chlorothalonil
Chlorpirifos-methyl	Chlorpirifos-methyl
Confidor	Imidacloprid
Consult	Hexaflumuron
Corbel	Fenpropimorph
Croneton	Ethiophencarb
Cropotex	Flubendizimine
Cubero	Rotenone
Curaterr	Carbofuran
Cycocel Extra	Chlormequat
Cyhexatin	Cyhexatin
Cypermethrin	Cypermethrin
Daconil 500	Chlorothalonil
Decis	Deltamethrin
Delan flüssig	Dithianon
Delfin WG	BT var. kurstaki
Deltamethrin	Deltamethrin
Deril	Permethrin
Derosal	Carbendazim
Deserpan	Glyphosate
Diazinon	Diazinon
Dicarzol	Formetanat
Diflubenzuron	Diflubenzuron
Difosol	Carbofuran
Difuse	Diflubenzuron
Dimecron 20	Phosphamidon
Dimethoat	Dimethoate
Dimilin	Diflubenzuron
Dipel	BT var. kurstaki
Dipterex WP 80	Trichlorphon
Dirigol-N	1-Naphthylacetamide

Slick	Difenoconazole
Score Ec 250	Difenoconazole
Avenge	Difenzoquat
Difuse	Diflubenzuron
Diflubenzuron	Diflubenzuron
Dimilin	Diflubenzuron
Perfekthion	Dimethoate
Dimethoat	Dimethoate
Rogor	Dimethoate
Roxion	Dimethoate
Aretit flüssig	Dinoseb
Plondrel	Ditalimfos
Delan flüssig	Dithianon
Endosulfan	Endosulfan
Thiodan 35 Spritzpulver	Endosulfan
Milgo-E	Ethimirol
Croneton	Ethiophencarb
Tramat 500	Ethofumesat
Baroque	Etoxazol
Arabella	Etoxazol
Zoom	Etoxazol
Ekamet	Etrimfos
Rubigan Vloeibaar	Fenarimol
Magister	Fenazaquin
Torque	Fenbutatin-oxid
Teldor	Fenhexamid
Folithion	Fenitrothion
Insegar	Fenoxycarb
Rody	Fenpropathrin
Astor	Fenpropidin
Zenit	Fenpropidin
Corbel	Fenpropimorph
Naja	Fenpyroximate
Kiron	Fenpyroximate
Sumicidin	Fenvalerate
Fusilade	Fluazifop-butyl
Cropotex	Flubendizimine
Cascade	Flufenoxuron
Starane 180	Fluroxypyr
Impact	Flutriafol
Klartan	Fluvalinate
Ortho-Phaltan 50	Folpet
Phaltan 80	Folpet
Folpet	Folpet
Dicarzol	Formetanat
Aliette	Fosetyl-Al
Basta	Glufosinate-ammonium
Roundup	Glyphosate
Touchdown	Glyphosate
Glyphosate	Glyphosate
Deserpan	Glyphosate
Madex	Granulosis-virus

Discus	Kresoxym-methyl
Dithane	Mancozeb
Dithane M 22	Maneb
Dithane M 45	Mancozeb
Dithane Neotec	Mancozeb
Dithane ultra	Mancozeb
Duplosan	Mecoprop-p
Dursban Spritzp.	Chlorpyrifos (diethyl)
Dyrene flüssig	Anilazine
Ekamet	Etrimfos
Endosulfan	Endosulfan
Envidor	Spirodiclofen
Epho	Parathion-ethyl
Euparen	Dichlofluanid
Euparen M	Tolyfluanide
Evisect S	Thiocyclam
Exp. 30004 A	loxynil
Faneron	Bromofenoxim
Fervinal Plus	Sethoxydim
Focus	Cycloxydim
Folicur 250 Ec	Tebuconazole
Folithion	Fenitrothion
Folpet	Folpet
Fortress	Quinoxifen
Funginex	Triforine
Fusilade	Fluazifop-butyl
Gallant Super	Haloxypop
Garlon	Triclopyr
Gazelle	Acetamidrid
Genol Plant	Seed oil (oil seed rape)
Gesagard	Triasulfuron
Gesaprim 50	Atrazine
Gesatop 50	Simazine
Gesin	2,4-D Aminosalt
Glyphosate	Glyphosate
Goltix 70 WG	Metamitron
Gramion IPU	Isoproturon
Granupom	Granulosis-virus
Grasp	Tralkoxydim
Gusathion	Azinphos-methyl
Horizont	Tebuconazole
Hostaquick	Heptenophos
Hostathion	Triazophos
Hyvar X	Bromacil
Illoxan	Diclofop-methyl
Imidan	Phosmet
Impact	Flutriafol
Impulse	Spiroxamine
Insegar	Fenoxycarb
Iprodion	Iprodion
IPU Star	Isoproturon
Isoguard	Isoproturon

Granupom	Granulosis-virus
Carpovirusine	Granulosis-virus
Gallant Super	Haloxyfop
Hostaquick	Heptenophos
Anvil	Hexaconazole
Consult	Hexaflumuron
Cesar S.L.	Hexythiazox
Matacar	Hexythiazox
Confidor	Imidacloprid
Steward	Indoxacarb
Neudosan	Insecticidal soap
Exp. 30004 A	loxynil
Topper	loxynil
Iprodion	Iprodion
Rovral PM	Iprodione
Arelon vloeibaar	Isoproturon
Isoguard	Isoproturon
Gramion IPU	Isoproturon
IPU Star	Isoproturon
Isoproturon	Isoproturon
Discus	Kresoxym-methyl
Stroby	Kresoxym-methyl
Karate	Lambda-cyhalothrin
BioBlatt Mehltaum.	Lecithin
Nevikén	Lime sulphur
Asepta lindane	Lindane
Afalon	Linuron
ML 50	Linuron
Lorox	Linuron
Linuron	Linuron
Match	Lufenuron
Dithane M 45	Mancozeb
Trimanoc	Mancozeb
Policar	Mancozeb
Mancozeb	Mancozeb
Dithane ultra	Mancozeb
Dithane	Mancozeb
Dithane Neotec	Mancozeb
Dithane M 22	Maneb
Maneb	Maneb
Duplosan	Mecoprop-p
Tribunil	Metabenzthiazuron
Goltix 70 WG	Metamitron
Metamitron	Metamitron
Butisan	Metazachlor
Tamaron	Methamidophos
Ultracid	Methidation
Lannate	Methomyl
Methomyl	Methomyl
Prodigy	Methoxyfenozid
Runner	Methoxyfenozid
Polyram-Combi	Metiram

Isoproturon	Isoproturon
Karate	Lambda-cyhalothrin
Kerb 50 W	Propyzamid
Kilval	Vamidothion
Kiron	Fenpyroximate
Klartan	Fluvalinate
Kumulus	Sulphur
Lannate	Methomyl
Legend	Quinoxifen
Linuron	Linuron
Logran	Prometryn
Lontrel 100	Clopyralid
Lorox	Linuron
Lunar	Dicamba
Luxan 2,4 D	2,4-D Aminosalt
Madex	Granulosis-virus
Magister	Fenazaquin
Maitac	Amitraz
Malvin	Captan
Mancozeb	Mancozeb
Maneb	Maneb
Masai	Tebufenpyrad
Matacar	Hexythiazox
Match	Lufenuron
Metamitron	Metamitron
Metasystox	Demeton-S-methyl
Methomyl	Methomyl
Mevinphos	Mevinphos
Micro Germin	Verticillium lecanii
Milgo-E	Ethimirol
Mimic	Tebufenozide
ML 50	Linuron
Morestan	Chinomethionat
Mospilan	Acetamidprid
Naja	Fenpyroximate
Nanocron	Bromopropylat
NeemAzal T/S	Azadirachtine
Neoron	Bromopropylat
Netzschwefel Bayer	Sulphur
Neudosan	Insecticidal soap
Nevikén	Lime sulphur
Nimrod	Bupirimat
Nimrod	Bupirmate
Nomolt	Teflubenzuron
Nomolt	Teflubenzuron
Novodor FC	BT var. tenebrionis
Omnex WP 10	Penconazole
Orthene	Acephate
Orthocid 83	Captan
Ortho-Phaltan 50	Folpet
Parathion	Parathion-ethyl
Pegasus	Diafenthion

Polyram	Metiram
Ally	Metsulfuron-methyl
Phosdrine W 10	Mevinphos
Mevinphos	Mevinphos
Aresin	Monolinuron
Trimidal EC	Nuarimol
Vydate L	Oxamyl
Epho	Parathion-ethyl
Parathion	Parathion-ethyl
Omnex WP 10	Penconazole
Topas	Penconazole
Pendimethalin	Pendimethalin
Terapur	Pendimethalin
Sitradol	Pendimethalin
Stomp	Pendimethalin
Ambush	Permethrin
Permethrin	Permethrin
Deril	Permethrin
Betanal	Phenmedipham
Zolone Flow	Phosalone
Phosalone	Phosalone
Imidan	Phosmet
Dimecron 20	Phosphamidon
Pirimor Granulat	Pirimicarb
Pirimor	Pirimicarb
Actellic 50	Pirimiphos-methyl
Sportak	Prochloraz
Prochloraz	Prochloraz
Sumisclex	Procymidone
Logran	Prometryn
Ramrod	Propachlor
Propachlor	Propachlor
Tilt	Propiconazole
Antracol	Propineb
Propineb	Propineb
Uden	Propoxur
Kerb 50 W	Propyzamid
Chess	Pymetrozine
Plenum	Pymetrozine
Afugan WP 30	Pyrazophos
Pyrethrum H	Pyrethrine
Scala	Pyrimethanil
Admiral	Pyriproxifen
Quassan	Quassia-Extract
Trifolio Quassia-Extrakt	Quassia-Extract, Quassin
Avius	Quinoxifen
Vento	Quinoxifen
Legend	Quinoxifen
Fortress	Quinoxifen
Targa	Quizalofop-ethyl
Cubero	Rotenone
Sicid	Rotenone

Pendimethalin	Pendimethalin
Perfekthion	Dimethoate
Permethrin	Permethrin
Peropal	Azocyclotin
Phaltan 80	Folpet
Phosalone	Phosalone
Phosdrine W 10	Mevinphos
Pirimor	Pirimicarb
Pirimor Granulat	Pirimicarb
Plenum	Pymetrozine
Plictran	Cyhexatin
Plictran 25	Cyhexatin
Plondrel	Ditalimfos
Policar	Mancozeb
Polo	Diafenthion
Polyram	Metiram
Polyram-Combi	Metiram
Pomarsol F	Thiram
Pomarsol forte	Thiram
Prochloraz	Prochloraz
Prodigy	Methoxyfenozid
Propachlor	Propachlor
Propineb	Propineb
Prosevor	Carbaryl
Prosper	Spiroxamine
Pyramin	Chloridazon
Pyrethrum HP	Pyrethrine
Pyrix	Chlorpyrifos (diethyl)
Quassan	Quassia-Extract
Ramrod	Propachlor
Reldan	Chlorpirifos-methyl
Remacid	Cyhexatin
Remacid	Cyhexatin
Remados	Acephate
Rhodofix	1-Naphthylacetic acid
Ripcord	Cypermethrin
Rody	Fenpropathrin
Rogor	Dimethoate
Roundup	Glyphosate
Rovral PM	Iprodione
Roxion	Dimethoate
Rubigan Vloeibaar	Fenarimol
Runner	Methoxyfenozid
Saprol	Triforine
Scala	Pyrimethanil
Score Ec 250	Difenoconazole
Semeron	Desmetryn
Sicid	Rotenone
Simazine	Simazine
Sitradol	Pendimethalin
Slick	Difenoconazole
Spomil	Bromopropylat

Telmion	Seed oil (oil seed rape)
Genol Plant	Seed oil (oil seed rape)
Fervinal Plus	Sethoxydim
Gesatop 50	Simazine
Simazine	Simazine
Tracer 480	Spinosad
Audienz	Spinosad
Envidor	Spirodiclofen
Impulse	Spiroxamine
Prosper	Spiroxamine
Kumulus	Sulphur
Netzschwefel Bayer	Sulphur
Thiovit	Sulphur
Folicur 250 Ec	Tebuconazole
Horizont	Tebuconazole
Mimic	Tebufenozide
Masai	Tebufenpyrad
Zenar	Tebufenpyrad
Nomolt	Teflubenzuron
Nomolt	Teflubenzuron
Tedion V 18	Tetradifon
Calypso	Thiaclopid
Atlanto	Thiaclopid
Evisect S	Thiocyclam
Topsin M	Thiophanate-methyl
Pomarsol F	Thiram
Pomarsol forte	Thiram
Thiram	Thiram
Euparen M	Tolyfluanide
Grasp	Tralkoxydim
Bayleton	Triadimefon
Bayfidan	Triadimenol
Gesagard	Triasulfuron
Aztec	Triazamate
Hostathion	Triazophos
Dipterex WP 80	Trichlorphon
Tribel	Triclopyr
Garlon	Triclopyr
Calixin	Tridemorph
Alsystin	Triflumuron
Saprol	Triforine
Funginex	Triforine
Kilval	Vamidothion
Vamidothion	Vamidothion
Micro Germin	Verticillium lecanii

Sportak	Prochloraz
Starane 180	Fluroxypyr
Steward	Indoxacarb
Stomp	Pendimethalin
Stroby	Kresoxym-methyl
Sumicidin	Fenvalerate
Sumisclex	Procymidone
Talstar	Bifenthrin
Tamaron	Methamidophos
Targa	Quizalofop-ethyl
Tedion V 18	Tetradifon
Teldor	Fenhexamid
Telmion	Seed oil (oil seed rape)
Temik	Aldicarb
Terapur	Pendimethalin
Thiodan 35 Spritzpulver	Endosulfan
Thiovit	Sulphur
Thiram	Thiram
Tilt	Propiconazole
Topas	Penconazole
Topper	loxynil
Topsin M	Thiophanate-methyl
Torak E	Dialiphos
Torque	Fenbutatin-oxid
Touchdown	Glyphosate
Tracer 480	Spinosad
Tramat 500	Ethofumesat
Tribel	Triclopyr
Tribunil	Metabenzthiazuron
Trifolio Quassia-Extrakt	Quassia-Extract, Quassin
Trigard	Cyromazine
Trimanoc	Mancozeb
Trimidal EC	Nuarimol
Ultracid	Methidation
Uden	Propoxur
Ustinex PA	Amitrole 30% + Diuron 56%
Vamidothion	Vamidothion
Vento	Quinoxifen
Vertimec	Abamectine
Vitigran	Copper oxychloride
Vydate L	Oxamyl
Zenar	Tebufenpyrad
Zenit	Fenpropidin
Zolone Flow	Phosalone
Zoom	Etoxazol