

# PESTICIDES

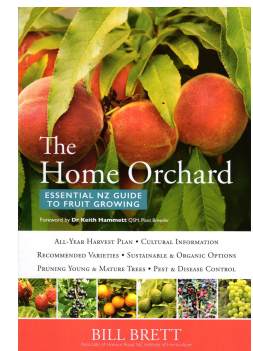
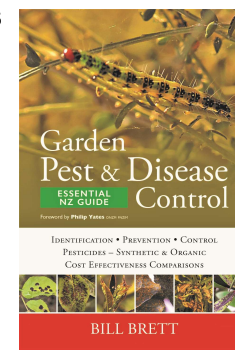
## Product Comparison Chart

Use this chart for a quick reference to compare products for pests or diseases controlled, approved status/crops, safety to people and environment, effectiveness and cost per litre of diluted ready to use spray.

Introductory Notes to this chart:—

1. This quick reference chart includes products commonly available in most garden centres or major hardware stores, but may not include products that are unregistered, unproven, ineffective, not approved for use on food crops, or limited distribution house brands. For more detailed information on -  
 - the pest or disease, cultural practices to minimise the problem, organic practices, details on all widely distributed home garden pesticides, or assistance with identification, refer to the book *Garden Pest & Disease Control – Essential NZ Guide*
2. The product listings in this table are given a rating from 1 to 5 stars, with 5 being the lowest toxicity, eco-friendly, most effective and best value for money.
3. Not all natural organic pesticides are safe or approved for use on food crops. eg. Only three available brands of Neem Oil are registered and approved for use on edible crops, contain a high level of active ingredient, and are free of aflatoxin.  
Always use a pesticide that is registered under the ACVM Act 1997 and approved for use on food crops. (registration exemption may be granted for ornamentals but never for use on food crops).
4. BioGro Certified Organic is a Trade Mark that can be used when a product meets criteria established by organic producers. It has no legal status and is not a substitute for the legally required ACVM registration. BioGro certified organic simply means —product contains no synthetic chemicals. It does not certify safety, non toxic to people and environment, or effective and fit for purpose. Natural organic is not always safe and synthetic not always toxic.  
Several BioGro certified products are not approved for use on edibles.

All products recommended in this chart are approved under the ACVM Act.



## Home Garden Insecticides for Fruit Vegetables & Ornamentals

Products	Insect / Disease controlled	Crops	ACVM Act Approved	BioGro certified Organic	Safety to humans	Safe to bees	Safety to beneficial organisms	Effective-ness	Cost per litre of diluted spray
<b>Grosafe Enspray 99 Spraying Oil</b>	Aphids, mites, thrips, mealy bug, scale, white fly. Also controls powdery mildew disease.	All vegetables, fruit, and ornamentals except succulents	Yes	Yes	★★★★★	★★★★★	★★★★★	★★★★	0.75c
Yates Conqueror Spraying Oil Kiwicare Super Spraying Oil	Aphids, mites, thrips, mealy bug, scale, white fly.	Fruit, and ornamentals except succulents	Yes	Yes	★★★★★	★★★★★	★★★★★	★★★★	0.75c \$1.00
<b>Grosafe BioNeem OCP Eco Neem</b> <b>Naturally Neem</b>	Aphids, mites, thrips, mealy bug, scale, white fly.	All vegetables, fruit, and ornamentals	Yes Yes	Yes Yes	★★★★★	★★★★★	★★★★★	★★★★	0.40c 0.60c 0.32c
Native Neem Oakdale Neem	Aphids, mites, thrips, mealy bug, scale, white fly.	<b>Ornamentals only</b>	<b>Orna-mentals only</b>	Yes	★★★	★★★★★	★★★★★	★★★	\$1.40 \$1.05
<b>OCP Eco Oil</b>	Aphids, mites, thrips, mealy bug, scale, white fly.	Vegetables, citrus and ornamentals	Yes	Yes	★★★★★	★★★★★	★★★★★	★★★	0.28c
<b>Yates Mavrik</b>	Aphids, mites, thrips, white fly, caterpillars, vege shield bug	Vegetables and ornamentals	Yes	No	★★★★★	★★★★★	★★★★	★★★★★	\$1.20
<b>Yates Success Ultra</b>	Caterpillars, vege shield bug, thrips	Vegetables, fruit, and ornamentals	Yes	No	★★★★★	★★★★★	★★★★	★★★★★	0.72c
	Aphids, mites, thrips, mealy bug, scale, white fly, psyllids	Fruit, and ornamentals	Yes	No	★★★★★	★★★	★★★	★★★★★	\$1.80
Yates Natures Way Natrasoap	Aphids, mites, thrips, mealy bug, scale, white fly.	All vegetables, fruit, and ornamentals	Yes	Yes	★★★★★	★★★★★	★★★★★	★★★★	\$2.20
Yates Pyrethrum Beat a Bug Pyrethrum Kiwicare Organic Insect - Pyrethrum	Aphids, mites, thrips, white fly, caterpillars, vege shield bug	All vegetables, fruit, and ornamentals	Yes Yes Yes	No No Yes	★★★★	★★★★	★★	★★★	0.80c \$2.00 \$1.60

## Home Garden Fungicides for Fruit Vegetables & Ornamentals

Products	Insect / Disease controlled	Crops	ACVM Act Approved	BioGro certified Organic	Safe to humans	Safe to bees	Safe to beneficial organisms	Effective-ness	Cost per litre of diluted spray
<b>Grosafe Free Flo Copper</b> (Copper hydroxide)	Blight, downy mildew, leaf spots, leaf curl, verrucossis, citrus brown rot, bacterial spots	All vegetables, fruit, and ornamentals	Yes	Yes	★★★★	★★★★★★	★★★★★★	★★★★★★	0.35c
Copper oxychloride	Blight, downy mildew, leaf spots, leaf curl, verrucossis, citrus brown rot, bacterial spots	All vegetables, fruit, and ornamentals except some copper shy fruit trees	Yes	Yes	★★★★	★★★★★★	★★★★★★	★★★★	0.50
Yates Liquid Copper (Copper ammonium acetate)	Blight, downy mildew, leaf spots, leaf curl, verrucossis, citrus brown rot, bacterial spots	All vegetables, fruit, and ornamentals	Yes	No					0.44c
Kiwicare Copper Fungicide Liquid (Tribasic Copper Sulfate)	Blight, downy mildew, leaf spots, leaf curl, verrucossis, citrus brown rot, bacterial spots	All vegetables, fruit, and ornamentals	Yes	No	★★★★	★★★★★★	★★★★★★	★★★	0.44c
Lime Sulphur	Insects & diseases – winter clean up on deciduous plants	<u>Deciduous</u> fruit & ornamentals	Yes	Yes	★★★★	★★★★★★	★★★★★★	★★★★★★	\$6.50
<b>Enspray 99 Oil</b>	Powdery mildew (Also controls Aphids, mites, thrips, mealy bug, scale, white fly).	Vegetables, fruit, and ornamentals	Yes	Yes	★★★★★★	★★★★★★	★★★★★★	★★★★	0.75c
<b>Yates Fungus Fighter</b>	Black spot, powdery mildew, rust	Fruit & ornamentals	Yes	No	★★★★★★	★★★★★★	★★★★★★	★★★★★★	0.50c
BotryZen (organic)	Botrytis, brown rot of stone fruit, powdery mildew	Vegetables, fruit, and ornamentals	Yes	Yes	★★★★★★	★★★★★★	★★★★★★	★★★★	\$1.50
ArmourZen	Botrytis, Sclerotinia	Berries Tomatoes	Yes	No	★★★★★★	★★★★★★	★★★★★★	★★★	\$1.50
<b>OCP Eco Fungicide</b>	Powdery mildew	Vegetables, fruit, and ornamentals	Yes	Yes	★★★★★★	★★★★★★	★★★★★★	★★★	0.14c
Sulphur	Powdery mildew, rust.	Vege, fruit, and ornamentals	Yes	Yes	★★★★★★	★★★★★★	★★★★★★	★★★	0.80c

## Steps in garden pest & disease control

### 1. Use the following science proven prevention practices

- a. Develop free draining soil by adding lots of compost and in clay soils raising above surrounding soil.
- b. Add lime and 'Tui Novatec Premium' fertiliser or *Tui Organic General Fertiliser* before planting each crop
- c. Avoid overhead watering – weeper soak hoses are best.
- d. Practice crop rotation of vegetables. If possible, fallow each garden area 1 year in 4.
- e. Practice good garden hygiene, in particular remove and destroy diseased leaves immediately they appear.
- f. Remove alternate hosts to vegetable pests and diseases, especially weeds.
- g. Select disease resistant varieties especially for vegetables and fruits.

### 2. When pests or diseases attack

- a. Positively identify the problem, and learn more about the life cycle, temperature/humidity level, method of spread, alternative hosts, best prevention and control tools. Garden Pest & Disease Control book – Copies available from independent garden centres, Paper Plus, or [www.gardenadvice.co.nz](http://www.gardenadvice.co.nz)
- b. Take prompt action. Early intervention provides best control especially if a pesticide is required.
- c. For vegetables/fruit it is important to select a pesticide that is registered under the ACVM Act and approved for use on the crop and purpose. There are a number of BioGro certified organic products available, that are not registered and not approved for use on food crops. Organic does not mean 'safe' or 'free of natural toxins', - BioGro certified organic simply means - free of synthetic chemicals. Natural organic is not always safe, and chemical is not always toxic.
- d. In the charts above Our recommended products are listed in **bold green**. They are the most cost effective, environmentally friendly pesticides registered and approved for use on food crops and in the home garden. Products in **green but not bold** are excellent for specific circumstances and likely to be used less often.

### 3. Home garden pesticides are of very low toxicity, not harmful, and degrade rapidly. (None are scheduled poisons carcinogens, or mutagens)

- a. Most of these products have a 1 day withholding period, (the period between spraying and harvesting). Mavrik & Success Ultra have a 3-7 day withholding period – check the label for details on each crop.
- b. All these products (except Groventive) are safe to bees once the spray has dried. Do not spray when bees are present
- c. Pesticides have different modes of action. Some kill insects on contact, or following ingestion. Others kill by smothering. Some control by repelling or disrupting insect development. Some are absorbed into the plant system and protect from within the plant. Most pesticides are effective against a particular group of insects only. Hence the importance to correctly identify the problem.

### 4. Bill Brett's simple tips—

- I. For sucking insects (aphids, thrips, white fly, mealy bug, scale, mites, passion vine hopper) on vegetables, fruit and ornamentals, – Grosafe *Enspray 99* + *BioNeem* OR *Eco Oil* + *EcoNeem* (This combines several modes of action, controls several stages and improves performance of both products. (8ml Oil + 2ml Neem)
- II. If chewing insects (caterpillars, green shield bug, beetles, weevils) are present, add Yates Mavrik for vegetables, or Yates Success Ultra for fruits, to the above mix.
- III. For fungal diseases on vegetables and citrus use *Grosafe Free Flo Copper* + *Enspray 99*. For fungal diseases on pip, stone and sub-tropical fruit, and ornamentals use Yates Fungus Fighter.

For more information or to order books [www.gardenadvice.co.nz](http://www.gardenadvice.co.nz)

## Herbicides

<b>Total Weedkillers</b>				
<b>Products</b>	<b>Active ingredient</b>	<b>Hazard Classification</b>	<b>Effectiveness</b>	<b>Cost per litre of diluted ready to use spray</b>
Round Up; Knockdown; Zero Super; Weed Out; Weed Weapon Extra; (concentrates)	glyphosate	6.3B; 6.5B; 9.1B Low Hazard. Attaches to soil and degrades within days	Leaf absorbed and translocated. Controls most weeds roots & all.	20 – 50c per litre depending on product and pack size
Zero Tough (Only available in diluted ready to use form)	glyphosate + triclopyr	6.9B; 9.1C; 9.2B Low hazard to humans. Toxic to aquatics, & soil organisms	Controls most weeds roots & all including tough woody weeds	\$11.50 - \$25 per litre of spray
Round Up Tough (concentrate)	glyphosate + triclopyr	6.9B; 9.1C; 9.2B Low hazard to humans. Toxic to aquatics, & soil organisms	Controls most weeds roots & all including tough woody weeds	\$4.15 per litre of spray
Slasher (organic) (concentrate)	pelargonic acid	6.3B; 6.4A; 6.5B; 9.1B. Toxic to Aquatics. Repeated use acidifies soil	Defoliant only. Effective for seedling weeds.	\$3.30 per litre of spray
WeedX; Beat a Weed (organic) (Diluted -Ready to use)	vinegar + citric acid	6.1D; 6.3B; 6.4A; 6.5B; 8.3A; Repeated use acidifies soil.	Defoliant only. Effective for seedling weeds	\$14.00 per litre of spray
Round Up Natural (organic) (Diluted -Ready to use)	vinegar + citric acid	6.1D; 6.3B; 6.4A; 6.5B; 8.3A; Repeated use acidifies soil.	Defoliant only. Effective for seedling weeds	\$23.20 per litre of spray
Weed Weapon Natural Power (organic) (concentrate)	potassium salt of fatty acids of vegetable oil	6.3B; 6.4A Flammable Low hazard to humans	Defoliant only. Effective for seedling weeds	\$3.21 per litre of spray

### Selective Lawn Weedkillers

Products	Active ingredient	Cautions	Weeds Controlled	Effectiveness	Cost per sq.m of lawn
Grosafe Lawnguard Kiwicare LawnPro Turfclean Yates Turfix	24D + dicamba MCPP + MCPA + dicamba MCPP + MPA + dicamba	If composting clippings Turfix has less risk in compost	Controls most broad leaf weeds and clover in grass lawns.	★★★★	\$5 per 100 sq.m \$6 50 per 100 sq.m
Grosafe Prickle Weedkiller Yates Prickle Weedkiller	bentazone	This is a non -hormone product with lower risk of residues	Onehunga weed and chickweeds grass lawns. Timing of spray important	★★★★	\$21 per 100 sq.m
Grosafe Hydrocotyl Killer Yates Hydrocotyl Killer Kiwicare Prickle & Hydrocotyl	triclopyr	If composting clippings there is risk of residues in compost. Read label	Hydrocotyl, creeping oxalis and other broad leaf weeds and clover in grass lawns	★★★★★	\$14 per 100 sq.m

This chart is brought to you by **Garden Advice** the information website that advocates **Sustainable Best Practice** gardening based on science. **Garden Advice** does not supply products and has no connection with suppliers, or retailers of garden products.

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New developments coming at **Garden Advice** are—

- The **Pro-Advice** subscriber section which has a depth of science explanation supporting the advice given in brief in the free access section.
- A **Sustainable Best Practice** training course which is the only course of it's type in NZ. Highly recommended for garden centre staff, gardeners who would like to increase their knowledge to gain employment in the industry, or just to simply know more about the important things and separate out the myths.