

# Citrus information kit

Reprint – information current in 1997



## REPRINT INFORMATION – PLEASE READ!

For updated information please call 13 25 23 or visit the website [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au)

This publication has been reprinted as a digital book without any changes to the content published in 1997. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest [www.infopest.qld.gov.au](http://www.infopest.qld.gov.au)
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

**This publication was last revised in 1997. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.**

This information has been made available to assist users to identify issues involved in the production of citrus. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this publication.

# Problem Solver HANDY GUIDE

for citrus pests and diseases

Handy Guide 1

Active ingredient: Trade names

Active ingredient: Trade names	Aphytis lingnanensis wasps	Chilocorus beetle	benomyl: Benlate	carbendazim: Bavistin, Spin	fenamiphos: NemaCur 400	guazatine: Panocline	imazillil: Magnate, Imazagard, Fungallor	mancozeb: Mancozeb, Dithane, Penncozeb, Bryzeb	phosphorous acid: Phozacid, Agrifos, Posacid, Phospot, Fossic, Fosject, Foll-R-Fos	sodium ortho-phenylphenate: Preventol On Extra	thiabendazole: Tecto 90	wettable sulphur: Kumulus, Microsul, Microthiol, Cosaver, Thiovit	copper oxychloride: Cuprox, Copper, Brycop, Copper Oxychloride, Coppurite, Coppox, Oxydul	copper hydroxide: Blue Barrier, Coppit-Oh, Kocide, Copper Hydroxide	petroleum oil: D-C-Tron, Pestoil, Summer Spray Oil, White Oil, Lovis, Albarol	methomyl: Electra, Lannate, Methomex, Nudrin	primicarb: Pirimor	carbaryl: Carbyl, Bugmaster	copper oxychloride + zinc: Coppereb	dflocol: Kelthane, Milt-fol	dimethoate: Perfekthion, Rogor, Saboteur, Danadim,	fenbutatin oxide: Torque	fenthion: Lebaycid	propineb: Antracol	zineb: Zineb, Gyneb	azinhos-methyl: Benthion, Azinhos	chlorpyrifos: Chlorpyrifos, Strike-Out, Pirtoz, Pyrinex, Chlorfos, Lorsban	chlorpyrifos bait spray: yeast autolytate + either Pyrinex or Lorsban	diazinon: Diazinon, Gesapon	endosulfan: Endosulfan	methidathion: Supracide, Suprathion	182	aldicarb: Touche	aldicarb: Touche, Temik	iprodione: Rovral										
Withholding period (days)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	3	7	7	7	7	7	7	7	7	14	14	14	14	14	14	21	21	182	Non-fruiting plants only									
Aphids	✓		✗																	✓							✓								✓										
Black spot			✗																																										
Blue and green mould			✗												✓																														
Broad mite																																													
Brown spot																																													
Bud mite																																													
Collar rot/root rot																																													
Gall wasp																																													
Leafminer																																													
Mealybug																																													
Melanose																																													
Citrus nematode					✓																																								
Orange fruit borer																																													
Queensland fruit fly																																													
Red scale	✓																																												
Rust mites																																													
Scab																																													
Spined citrus bug																																													
Sour rot																																													
Stem end rot																																													
Thrips																																													
White louse scale		✓																																											
Scutes-wax types																																													
Katydid, flatids																																													



## SAFETY FIRST

Read the label  
Follow the directions  
Wear protective clothing

### Note:

This information is a guide only. The product label is the official authority. Read it carefully and follow all directions.

✓ Indicates that at least one of the trade products is registered for that use. Check the label before use.

✓ Indicates the preferred choice of the authors considering effectiveness, compatibility with IPM and environmental impacts.

### oil

Indicates that the product is normally applied with petroleum oil. However, do not use oil outside the September to December period, particularly for early varieties.

### plus

Indicates that spray consists of mixture of copper oxychloride, zinc sulphate, caustic soda and petroleum oil.

### \*

Only effective in stopping egg laying and then only when applied at weekly intervals while flushes are just emerging (new leaves 10 to 20 mm long).

### +

Optional eradicant spray for February/March application to late maturing export varieties (Valencia and Murcott) only. Tank mix with a non-copper chemical from the same row.

### x

may cause a skin burn on some mandarins.

# Chemical application rates

NOTE: Rates listed are a guide only. Individual products may vary within the range given. The product label is the official authority. Check it carefully before use.

Active ingredient: trade names	Product rate	
	per 100 L water	per ha
<b>aldicarb:</b> Temik 150G, Touche 150G		14 – 77 kg (nematode) 7 g/m <sup>2</sup> (leaf miner)
<b>Aphytis lingnanensis wasps</b>		25 000 – 50 000 wasps
<b>azinphos-methyl:</b> Benthion, Azinphos	50 – 100 g plus 1L oil	
<b>benomyl:</b> Benlate	50 g	1.25 – 1.5 kg
<b>carbaryl:</b> Carbaryl 800 WP	90 g + 1L oil (scales) 130 g (other pests)	
Bugmaster Flowable	140 mL + 1 L oil (scales) 160 – 200 mL (other pests)	
<b>carbendazim:</b> Bavistin FL, Spin Flo Bavistin, Spin	100 mL 100 g	
<b>Chilocorus beetle</b>		20 – 50 punnets
<b>chlorpyrifos:</b> Chlorpyrifos, Strike-Out, Pirifoz, Pyrinex, Chlorfos, Lorsban	50 mL + 1 L oil (scales) 100 mL (other pests)	
<b>chlorpyrifos bait spray:</b> Lorsban 500 WP Pyrinex, Chlorfos	400 g + 2 L yeast autolysate 400 mL + 2 L yeast autolysate	
<b>copper oxychloride:</b> Cuprox, Copper, Brycop, Copper Oxychloride, Coppurrite, Coppox, Oxydul	400 g + 600 mL oil	
<b>copper hydroxide:</b> Blue Shield, Blue Barrier, Coppit-Oh, Kocide, Copper Hydroxide	200 – 300 g + 600 mL oil 100 g/1L water or water based paint for collar rot	
<b>copper oxychloride + zineb:</b> Copperneb	350 g	
<b>diazinon:</b> Diazinon, Gesapon	65 mL	
<b>difocol:</b> Kelthane, Miti-fo	200 mL	
<b>dimethoate:</b> Perfekthion, Rogor, Saboteur, Danadim, Dimethoate	75 mL	
<b>endosulfan:</b> Endosulfan	57 mL (spined citrus bug) 200 mL (other pests)	1L (spined citrus bug) 2.1 L (other pests)



**Agrilink**  
your growing guide  
to better farming

May 1997

Handy Guide 1

Active ingredient: trade names	Product rate	
	per 100 L water	per ha
<b>fenamiphos:</b> Nemaacur 400		37.5 – 75 L
<b>fenbutatin oxide:</b> Torque	20 – 45 mL	
<b>fenthion:</b> Lebaycid	75 mL	
<b>guazatine:</b> Panocline	130 mL	
<b>imazilil:</b> Magnate 750, Imazagard 750, Fungaflo 750	68 g	
Magnate 800, Fungaflo 800	65 mL	
<b>iprodione:</b> Rovral Aquaflo Rovral Liquid Rovral WG	100 mL 200 mL 100 g	2 L
<b>mancozeb:</b> Mancozeb, Dithane, Penncozeb, Bryzeb	200 g (+ 600 mL oil for black spot)	8 – 16 kg (+ oil for black spot)
<b>methidathion:</b> Supracide, Suprathion	125 mL (+ 1 L oil for scales)	
<b>methomyl:</b> Electra, Lannate, Methomex, Nudrin	200 mL	2 L
<b>petroleum oil:</b> D-C-Tron, Pestoil, Summer Spray Oil, White Oil, Lovis, Albarol	600 mL (black spot, melanose) up to 1.7 L (for pests) Check the label	
<b>phosphorous acid:</b> Phozacid, Agri-fos, Phosacid, Phospot, Fossic, Fosject, Foli-R-Fos	250 mL – 1 L Check the label	12.5– 40 L Check the label
<b>pirimicarb:</b> Pirimor	2.5 g	
<b>propineb:</b> Antracol	200 g + 600 mL oil	
<b>sodium ortho-phenylphenate:</b> Preventol On Extra	2 kg	
<b>thiabendazole:</b> Tecto 90	110 g	
<b>wettable sulphur:</b> Kumulus, Microsul, Microthiol, Cosavet, Thiovit	375 – 500 g Check the label	
<b>zineb:</b> Zineb, Cyneb	160 – 175 g + oil	



# Crop Production HANDY GUIDE

for citrus

Handy Guide 2



May 1997

	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
<b>Crop cycle</b>												
<b>Fertilising</b>	<p><b>Flowering and fruit set</b></p> <p>Do not apply nitrogen at other times except for Murcott mandarins which may need foliar potassium nitrate between December and March as a tonic for heavy cropping.</p> <p>Best time to apply potassium</p> <p>Best time to apply zinc and boron</p> <p>Best time for leaf and soil analysis</p> <p>Apply all nitrogen here to feed the main spring leaf flush</p> <p>Adjust all nutrients according to leaf and soil analysis results. Can apply fertiliser other than nitrogen at any suitable time.</p>											
<b>Pests</b>	<p>See pest and disease management handy guide on the back of this sheet</p>											
<b>Watering</b>	<p>Water critical here because of combination of spring flush and fruit set.</p> <p>Monitor soil moisture using tensiometers, neutron probes or Environscans.</p> <p>Water critical here going into harvest.</p>											
<b>Harvesting</b>	<p>Valencia</p> <p>Ellendale</p> <p>Murcott</p> <p>Main Meyer crop</p> <p>Washington Navel</p> <p>Imperial</p> <p>Hickson</p> <p>Ellendale</p> <p><b>Approximate harvest times</b> from earliest to latest harvest for Queensland. Main varieties only shown. Harvest times for other varieties are listed in Section 4.</p>											
<b>Other</b>	<p>Apply organic mulch under trees after leaf drop to improve black spot control.</p> <p>Thin mandarins</p> <p>Prune trees between harvest and main spring flush</p>											

# Pest & Disease Management

## HANDY GUIDE

for citrus



May 1997



For details of registered chemicals, see the *Problem Solver Handy Guide*

### Handy Guide 2

		AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	
<b>DISEASES</b>	<b>Essential sprays</b>	Black spot, melanose, scab, anthracnose	First spray at 1/2 to 3/4 petal fall	Second spray 4 to 6 weeks after first spray	Third spray 4 to 6 weeks after second spray	Optional additional sprays for export Valencia and Murcott								
		Brown spot (Murcott, Nova and Emperor mandarins only)	Spray spring flush as it emerges	Spray summer flush as it emerges	Spray autumn flush as it emerges									
	Phytophthora root rot and collar rot	Foliar spray of a registered phosphorus acid product before flowering					Foliar spray of a registered phosphorus acid product							
<b>INSECT PESTS</b>	<b>Pest monitoring</b>		Main pests to look out for are: katydid, thrips, mites, caterpillars, aphids and mealybugs		Main pests to look out for are: scales, mites, mealybugs and gall wasp		Main pests to look out for are: scales, mites, spined citrus bug, flatids, jassids, fruit borer, fruit piercing moth and fruit fly							
	<b>Essential sprays</b>	Fruit fly			Meyer lemons — bait spray weekly and twice weekly during wet weather and if flies are active			All varieties — bait spray weekly and twice weekly during wet weather and if flies are active						Continue bait spraying in late varieties to harvest
		Mites			Two broad mite sprays 1 month apart, particularly for lemons, limes and Hickson mandarins in coastal areas	Rust mite — if mancozeb is used for black spot, no action. Otherwise, spray.		Spray as required for rust mites every 6 to 8 weeks (particularly in coastal areas)						
	<b>Probable sprays</b>	Scales			Best time for wax scale spray	Best time for red scale and white louse spray								
		Mealybug			Best time for spray particularly in Navels									
		Spined citrus bug						Watch Imperial mandarins and Lisbon lemons carefully particularly in inland areas						
	<b>Possible sprays</b>	Flatids						Main period for flatids						
		Jassids						Main period for jassids						
		Leafminer						Sprays only necessary on trees up to 4 years old and only on main leaf flushes						
Aphids							Sprays only necessary on growth flushes. Apply to the perimeter of the canopy. Mainly a problem on young trees up to 4 years old.							
Katydid							Main period for katydids							
	Gall wasp						Only spray time							
		AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	