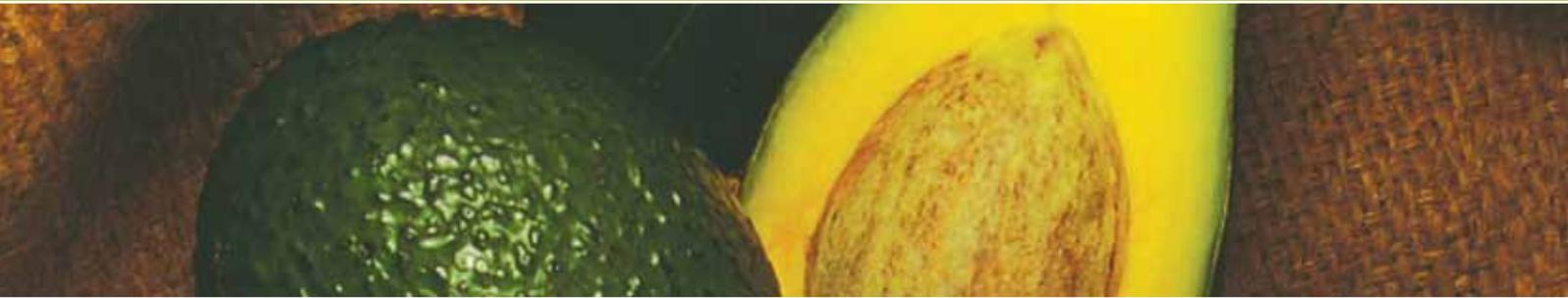


# Avocado information kit

Reprint – information current in 2001



## 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 2001. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research: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- Financial information—costs and returns listed in this publication are out of date.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 2001. 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 avocados. 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.



Queensland Government

# Pest & Disease Management

## HANDY GUIDE

for avocado pests and diseases

### Handy Guide 2

Recommended chemicals, including trade products, withholding periods and registration status for all states are listed in the *Problem Solver Handy Guide*.



May 2001

### SAFETY FIRST

Read the label  
Follow the directions  
Wear protective clothing

\* Timing shown applies to coastal south-east Queensland and northern New South Wales. Some adjustment in timing will be necessary for other production areas.

Pest or disease	Production areas	September	October	November	December	January	February	March	April	May	June	July	August
Root rot disease	All*	Inject phosphonate for severely affected trees.		Inject phosphonate for mildly or moderately affected trees (when spring flush has matured).	Inject phosphonate for healthy trees (six weeks after end of spring flush).	Inject phosphonate for mildly, moderately and severely affected trees. Do not apply in conjunction with copper hydroxide, if copper hydroxide residues are present on leaves, or within 7 to 10 days before or after sprays containing dimethoate.							
Anthraxnose disease	All*	Spray from fruit set to harvest. Recommended interval is 14 days (prolonged wet weather) and 28 days (clear weather). In eastern Australia, summer and autumn are critical periods. In south-west WA, spring and autumn are critical periods.											
Fruit-spotting bugs	Eastern Australia*	Monitor fruit from fruit set for damage. Start spraying as soon as significant early bug damage is detected (2% or more of fruit with fresh damage). Continue at 14 to 28 day intervals. Use the shorter interval in areas adjacent to bushland or high-incidence areas.											
Queensland fruit fly	Eastern Australia (coastal)*	Monitor fruit of thin-skinned varieties (Fuerte, Rincon, Shepard) for damage and start bait sprays as soon as damage is detected. Continue bait sprays at 7 to 14 day intervals as indicated by monitoring.											
Leaf-eating beetles	Eastern Australia (coastal)	Monitor trees 2 to 3 times a week for swarms and leaf and fruit damage, particularly during spring after rain. Pay particular attention to trees on the edge of the orchard and adjacent to eucalypt windbreaks. Spot spray infested trees immediately.											
Avocado leafroller	North Qld	Monitor trees fortnightly for webbing and leaves attached to fruit and start spraying when 10 or more webs or larvae are recorded per large tree. Pay particular attention to Wurtz and Reed.											
Ivy leafroller	Eastern Australia (coastal) and south-west WA*	Monitor trees fortnightly for webbing and leaves attached to fruit and start spraying when 10 or more webs or larvae are recorded per large tree. Pay particular attention to Wurtz and Reed.											
Latania scale	All*	Monitor leaves, twigs and fruit monthly. Spray as for December–January.											
Fruitborer	North Qld	Monitor fruit for fruit damage and presence of fruitborer eggs. Pay particular attention to trees along the boundary of the orchard, particularly on the side facing the main prevailing winds or where damage has occurred previously. Spray when damage or eggs are detected.											
Ectropis looper	North Qld, Bundaberg–Childers	Monitor trees weekly for caterpillars, damage and <i>Apanteles</i> parasite (see comment at right). Spray when damage is severe and parasites absent.											
Tea red spider mite	All*	Monitor trees monthly for leaf bronzing, presence of live mites and presence of natural predators. Spray as at right.											
Garden weevil	South-west WA	Monitor trees fortnightly for leaf and fruit damage low down on the tree where branches are close to the ground. Pay particular attention to areas of the orchard where damage has been detected previously. Spot spray affected trees only.											
Mosquito bug	North Qld	Monitor newly set fruit weekly for bug damage. Spray when damage is detected.											
		Monitor trees regularly for shoot damage. Spray if damage becomes severe.											
		Monitor trees monthly for leaf bronzing, presence of live mites and presence of natural predators. Spray as at left.											

# Crop Management

## HANDY GUIDE

for avocados

Handy Guide 2

May 2001



\* Timing shown applies to coastal south-east Queensland and northern New South Wales. Some adjustment in timing will be necessary for other production areas.

Operation	September	October	November	December	January	February	March	April	May	June	July	August
<b>Crop cycle</b>	<p>FLOWERING</p> <p>spring leaf flush</p> <p>LEAF GROWTH</p> <p>summer leaf flush</p> <p>EARLY FRUIT DROP</p> <p>SECOND FRUIT DROP</p>											
<b>Fertilising</b>	<p><b>Nitrogen</b> Do not apply nitrogen during this period unless trees are sick with root rot; a deficiency exists; soils are very sandy (e.g. WA); growth regulators are used; or a small fruit problem exists with Hass in warm climates (<i>Key Issues</i>, page 78).</p> <p><b>Potassium</b> See nitrogen comment above.</p>											
	First application.		Second application.		Third application.		Fourth application.		Fifth application.		Sixth application. (1 month before flower bud break).	
<b>Boron</b>	Where fertigation is used, apply monthly over the whole year. In very sandy soils (e.g. WA), apply weekly.											
	Foliar spray of Solubor 3 weeks before flowering (leaf B < 30 ppm).											
<b>Zinc</b>												Apply in a band at dripline.
<b>Phosphorus</b>												
<b>Calcium, magnesium and pH</b>												
<b>Leaf and soil analysis</b>									Correct time for leaf analysis (summer flush hardened off). Best to do soil analysis at same time.			
<b>Irrigation</b>	<p>Tree water demands are greatest during flowering, fruit set, fruit growth and fruit drop.</p> <p>Tree water demands are still significant during fruit sizing and maturation.</p> <p>Tree water demands are lowest during this period.</p> <p>Ensure adequate moisture before flowering.</p>											
<b>Pruning and canopy management</b>	<p>Use soil moisture monitoring systems (for example, tensiometers, capacitance probes) to determine frequency and amounts of irrigation.</p> <p>Best time to staghorn trees.</p> <p>Best time for hedgerow trimming (<i>Growing the Crop</i>, page 37).</p> <p>Lightly trim hedgerow if required (<i>Growing the Crop</i>, page 37).</p> <p>Best time for major pruning including hedgerow shaping.</p>											
<b>Other</b>	Where Sunny@ is used, apply at mid-bloom ( <i>Growing the Crop</i> , page 39).			Renew mulch if roots are unprotected.								Apply mulch to a depth of 10 to 15 cm.



# Problem Solver — **HANDY GUIDE**

for avocado pests and diseases

Handy Guide 1

**SAFETY FIRST**

**Read the label**  
Follow the directions  
Wear protective clothing



April 2001

Active ingredient	Bt(k) - <i>Bacillus thuringiensis</i>	phosphonate fungicide (phosphorous acid)	copper fungicides (copper oxychloride, copper hydroxide, cuprous oxide, copper ammonium acetate)	foseyl-Al	petroleum oil	trichloron	carbaryl	methomyl	alpha-cypermethrin	bifenthrin	chlorpyrifos	chlorpyrifos + yeast autlysate (bait spray)	dichlorvos	chlorpyrifos + dichlorvos	dimethoate	fenthion	metaxyli	methidathion	endosulfan**	fenbutatin-oxide	tebufenozide	dimethoate (postharvest)	prochloraz (postharvest)
Withholding period (days)	0	0	1	1	1	2	3	3	7	7	7	7	7	7	7	7	7	7	14	14	14	NA	NA
<b>Insect and mite pests</b>																							
Ectoparasitic wasp																							
Florida scale																							
Fruit flies																							
Fruit-spotting bugs																							
Garden weevil																							
Greenhouse thrips																							
Hairy leaf-eating caterpillar																							
Leafrollers (avocado, ivy)																							
Latania scale																							
Lightbrown apple moth																							
Looper caterpillars (grey, brown)																							
Mediterranean fruit fly																							
Mites (tea red spider, sixspotted)																							
Orange fruitborer																							
Queensland fruit fly																							
Redbanded thrips																							
Redshouldered leaf beetle (Monolepta beetle)																							
Scale insects (Indian white wax, pink wax, soft brown)																							
Swarming leaf beetles																							
Yellow peach moth																							
<b>Diseases</b>																							
Anthraxnose																							
Cercospora leaf and fruit spot																							
Phytophthora root rot																							
Sooty blotch																							
Stem-end rot																							

**Disclaimer:** This is a guide only. The product labels are the official authority. Use it to confirm all data relating to use of a chemical. In no event shall the authors or their respective organisations be liable for any damages whatsoever resulting from use of the data in this handy guide.

✓ indicates that a trade product containing the active ingredient is registered in at least one Australian state. For a list of trade products and their registration status in all states, see reverse side. Always check the label before purchase or use.

\* approved for use under NRA permit.

✓ indicates the preferred choice considering effectiveness, compatibility with beneficial insects and environmental effects.

✓<sup>1</sup> Note that this product is not used alone but mixed with the contact insecticide chlorpyrifos. Follow label directions.

✓<sup>1</sup> Carbaryl is preferred for this pest as it is more effective and safer to use near waterways. However, as it is toxic to bees, spray during the late afternoon or evening when bees are less active.

\*\* Note that growers require chemical accreditation (ChemCert) to buy and use this chemical.

# Trade names and registration status

Note: The information listed here is a guide only. The product label is the official authority. Use it to confirm all data before use.

## Handy Guide 1

Active ingredient	Chemical group*	Trade product	QLD	NSW	VIC	SA	WA	NT	TAS	ACT
alpha-cypermethrin	pyrethroid	NRA permit (no trade product specified)					✓			
bifenthrin	pyrethroid	Talstar (NRA permit)					✓			
Bt (k)	non-chemical (biological insecticide)	NRA permit (no trade product specified)	✓							
carbaryl	carbamate	Bugmaster; Carbaryl	✓				✓			
chlorpyrifos	organophosphate	Lorsban; Bar 500; Voodoo; Chlorpyrimax; Optem	✓	✓						
chlorpyrifos; Strike-Out		Chlorpyrifos; Strike-Out	✓	✓			✓			
chlorpyrifos + yeast autolysate	organophosphate + yeast compound	Lorsban; Pyrinex; Strike-Out (with yeast autolysate)	✓	✓						
		Chlorpyrifos (with yeast autolysate)	✓							
		Cyren (with yeast autolysate)	✓							
chlorpyrifos + dichlorvos	organophosphate + organophosphate	NRA permit (no trade product specified)*	✓							
copper ammonium acetate	inorganic	Liquicop	✓	✓			✓			
copper hydroxide	inorganic	Blue Shield; Champion; Copper Hydroxide; Flo-Bordo	✓	✓			✓			
		Coppit-OH	✓	✓			✓			
		Kocide	✓	✓			✓			✓
copper oxychloride	inorganic	Copperoxychloride; Copper Oxy; Coppurite; Lancop; Oxydul	✓	✓						
		Cuprox	✓	✓						
		Brycop	✓	✓						
		Coppox	✓	✓						
		Copper Oxychloride	✓	✓						

\* NOTE: Pesticides which cause most disruption to beneficial insects generally belong to the organophosphate, carbamate and pyrethroid chemical groups.



April 2001

Active ingredient	Chemical group*	Trade product	QLD	NSW	VIC	SA	WA	NT	TAS	ACT
cuprous oxide	inorganic	Nordox; Norshield	✓	✓		✓	✓			
dichlorvos	organophosphate	Dichlorvos; Provap	✓	✓						
dimethoate	organophosphate	Dimethomax; Rogor	✓	✓				✓		
		Romethoate	✓	✓			✓	✓		
		Saboteur	✓	✓			✓	✓		
		Dimethoate	✓	✓			✓	✓		
endosulfan	organochlorine	Endosari; Endosulfan; Thiodan	✓	✓		✓	✓	✓		✓
fenbutatin-oxide	organotin	Torque	✓	✓			✓			
fenthion	organophosphate	Lebaycid	✓	✓			✓	✓		
fosetyl-Al	inorganic	Aliette	✓	✓		✓	✓			
metalaxyl	acylamine	Axiom; Ridomil Gold; Zee-Mil	✓	✓		✓	✓			
methidathion	organophosphate	Supracide; Suprathion	✓				✓			
methomyl	carbamate	NRA permit (no trade product specified)	✓							
petroleum oil	petroleum based oil	D-C-Tron Plus; Minder Spray Oil; Spray Oil Universal; Summer Oil; Summer Spray Oil	✓	✓			✓			
phosphonate fungicide (phosphorous acid)	inorganic	Agri-Fos; Agri-Fos Supa; Fol-R-Fos; Fungacid; Fungex; Fungi-Fos; Phos-A; Phosacid; Phospot; Sprayphos; Throw Down	✓	✓		✓	✓			
prochloraz	conazole	Protak; Sportak	✓	✓			✓	✓		
tebufenozide	insect growth regulator	Mimic (NRA permit)	✓	✓		✓	✓			
trichlorfon	organophosphate	Dipterex; Lepidex	✓					✓		