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RANGAHAU AHUMĀRA KAI



TPP Control & Management Options

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Control and management options



- Resistance in aphids and PTM, plus TPP
- 'Potatoes NZ' championed an interim strategy for managing insect pests
 - Published in November 2009
- Overseas, TPP resistant to some MoA insecticides
- TPP 'strain' in NZ may already be resistant?
- Therefore, an insecticide resistance management strategy is crucial:
 - **WHY? WHEN? WHAT?**
 - **Rotate different MoA insecticides**

Resistance management strategy for potatoes (November 2008: Interim strategy)

1. Limit the use of insecticides

- » Eliminate alternative hosts, volunteer potatoes
- » Monitor the crop regularly to identify pest problems
- » Apply only when their use can be justified
- » Apply at recommended rates and with good coverage

2. Use no more than specified on the label

3. Rotate use of different mode of action (MoA) insecticides

- » Different MoA on different generations of pest

4. Use selective insecticides early to conserve natural enemies

Table 1: preliminary insecticide rotation strategy for insect pests in potatoes to conserve beneficial insects and change mode of actions (MoA). Divisions between Early and Late Windows may differ between regions (**new a.i.**)

Potato crop season	Target pests (label claim)	Insecticide chemical group	Common names (see Table 2 for products)
Early window Planting: spring to end of December	Aphids/TPP*	chloronicotinyl	thiamethoxam imidacloprid
"	aphids/ TPP*	pyridine azomethine	pymetrozine
"	aphids ¹	Carbamate	pirimicarb
If an insecticide is required for PTM, TPP or caterpillar pests, change to products below			
Late window January to autumn	PTM/TPP*/Heliiothis	Spinosyn	spinosad
"	Aphids ¹ /PTM/TPP*/Heliiothis	organo-phosphates	various (see Table 2)
"	PTM ¹ /TPP*/Heliiothis ¹	Pyrethroids	various (see Table 2)
"	PTM	Carbamates	carbaryl ²

* Products with claims for control of PTP overseas and registered for use on potatoes in New Zealand

¹Resistance known in some populations

²Take care when considering the use of carbamates. Overseas, soil-applied carbamates not only failed to control PTP but caused higher populations to occur on foliage.

Table 2. Products with label claims for control of aphids, potato tuber moth and other caterpillar pests in potatoes in New Zealand (revised October 2008). **Note:** the information about psyllid control is not a recommendation for use of the product. Growers must check product labels and ensure that produce does not contain chemical residues that exceed the Maximum Residue Levels (MRLs) at time of sale.

IRAC mode of action group number, insecticide group	Notes on resistance management recommendations for each mode of action (MoA) group	Common names and product names	Application rates Check and follow label instructions	Withholding period	Aphids	Potato tuber moth	Other caterpillars	Potato/tomato psyllid
1A Carbamate	Green peach & melon aphid; Tomato fruitworm. Rotate these insecticides with those in other MoA groups	Carbaryl (Carbaryl50F, Sevin Flo)	2.4-4.8 litres/ha or 240 ml/100 litres	1 day		V	V	Note 1
		Pirimicarb (Aphidex WG, Pirimor, Pirimisect, Piritek, Prohive)	500 g in 200-400 litres/ha	Nil	√			
1B Organophosphate	Green peach & melon aphid; Tomato fruitworm. Rotate these insecticides with those in other MoA groups	Acephate (Lancer 750 DF, Orthene WSG)	See label	7 days	√	√		Note 2
		Azinphos-methyl (Cotnion 200)	2.8 litres/ha	14 days		√		
		Dimethoate (Dimezyl40EC, Perfkthion S)	See label	14 days	√			
		Methamidophos (Metafort 60 SL, Monitor, Tameron)	See label	7 days	√	√	T	Note 1
		Phorate (granule) (Crop Care Phorate 20G, Dissect, Nufarm Phorate, Thimet 20G)	11 kg/ha in furrow at planting	13 weeks	√			Note 1
2A Cyclodiene	Green peach & melon aphid; Tomato fruitworm. Rotate these insecticides with those in other MoA groups	Endosulfan (Flavylan, Thiodan, Thionex)	200 ml/100 litres or 2 litres/ha	Nil	√	√	√	Note 1
3A Pyrethroids	Green peach & melon aphid; Tomato fruitworm. Rotate these insecticides with those in other MoA groups	Deltamethrin (Ballistic, Decis Forte, Delataphar 25EC)	See label	14 days		√	T	
		Lambda-cyhalothrin (Cyhella, Karate with Zeon)	40 ml/ha in at least 500 litres water	14 days		√		Note 1
		Esfenvalerate (Sumi-Alfa)	See label	Not given			T & CW	Note 1
4A Neonicotinoids	Green peach & melon aphid; Tomato fruitworm. Rotate these insecticides with those in other MoA groups	Imidacloprid (seed treatments) (Acclaim, Gaucho)	See label	Not given	√			Note 1
		Thiamethoxam (in furrow application) (Actara)	See label	90 days	√			Note 1
5 Spinosyns	Tomato fruitworm. Rotate these insecticides with those in other MoA groups	Spinosad (Success Naturalite)	See label	7 days		√	T	Note 1
6 Avermectins		Abamectin (Apostle, Avid, Verdex)						Note 1
9B Pyridine azomethine	Green peach & melon aphid; Rotate these insecticides with those in other MoA groups	Pymetrozine (Chess WG)	200 g/ha	7 days	√			
16 Buprofezin		Buprofezin (Applaud 40SC, Buprimax, Mortar, Ovation)						Note 2

CW = label claim for control of cutworm.

T = label claim for control of these pests on tomatoes.

V = label claim for control of these pests on vegetables.

Note 1. Overseas label claim for control of potato/tomato psyllid.

Note 2. Overseas label claim for control of psyllids [Note: no specific claim for potato/tomato psyllid found].

Control of TPP in potatoes with insecticides

WHY apply an insecticide?

WHEN to apply an insecticide?

WHAT insecticide should I use?

Resistance management :

- Limit the use of insecticides
- Rotate different MoA's over different generations of the pest
- **ROTATE! ROTATE! ROTATE (different MoA)!**

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