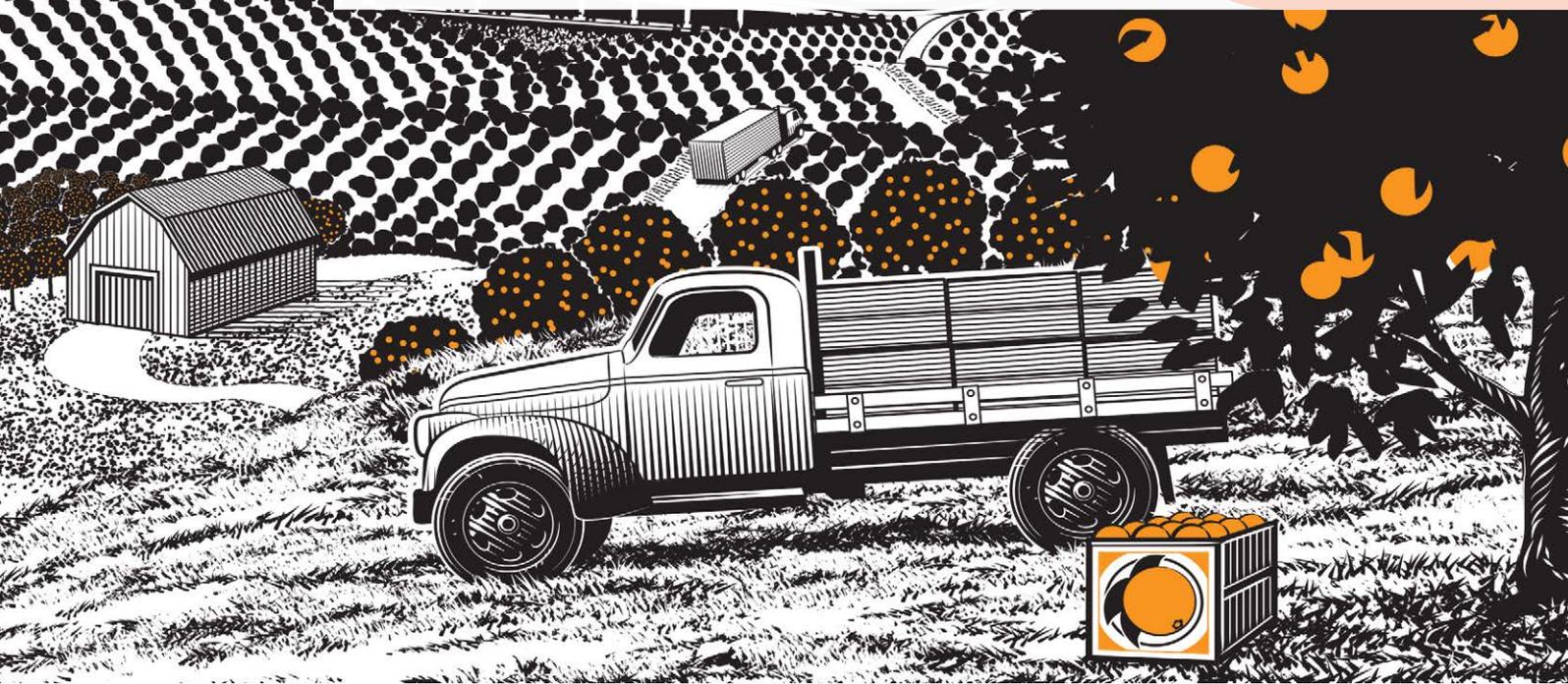


Fruit protection starts with Exirel®

Exirel®
INSECTICIDE



Exirel® insecticide Provides Outstanding and Extended Crop Protection

When applied early in pest infestation cycle, Exirel® helps to keep pest populations below damaging levels.

Exirel® - Features a Unique Combination of Product Benefits

→ Cross spectrum activity	✓ Control of mixed pest populations
→ Rapid stop feeding	✓ Protection from feeding damage
→ Translaminar activity & local translocation	✓ Rainfastness and improved availability of Exirel® to targeted pests
→ New MOA for chewing and rasping pests in Citrus	✓ Control of pests resistant to other MOA's
→ Low mammalian toxicity	✓ Convenience & minimal disruption to field operations

Exirel® Contains Cyantraniliprole (Branded as Cyazypyr®)

Cyantraniliprole is the second active ingredient in the anthranilic diamide class (Group 28) and the first to control a cross-spectrum of chewing and sucking pests.

Exirel® provides unique cross-spectrum activity on a range of chewing and rasping pests in citrus crops

Chewing Pests	Light brown apple moth (<i>Epiphyas postvittana</i>)	  
	Fuller's rose weevil (<i>Asynonychus cervinus</i>) - Suppression only	
Rasping Pests	Kelly's citrus thrips (<i>Pezothrips kellyanus</i>)	<p>Apple moth Weevil Thrips</p>

Photos courtesy of R&D Solutions



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Unique Cross-Spectrum Control

The unique cross-spectrum of Exirel® is a critical addition to management of prolific and difficult-to-control pests.

Pests	Exirel® Group 28	Chlorpyrifos Group 1B	Spirotetramat Group 23	Thiamethoxam Group 4A
Kelly's citrus thrips	++	++	++	+++
Light brown apple moth	+++	+++	-	-
Fuller's rose weevil	++	-	-	-

Rating	% Efficacy Level
+++	Excellent 91-100
++	Good 75-90
+	Moderate 60-75
-	Poor < 60

Exirel® - Rapid Feeding Cessation

Exirel® stops pest feeding very quickly providing almost immediate crop protection.

- Feeding activity of chewing & rasping pests coming into contact with Cyazypyr® treated crops stops very rapidly, providing almost immediate crop protection.
- Actual mortality of pests may take a few days depending on pest species, dose & environmental conditions.

Exirel®- Translaminar Activity and Local Translocation

Translaminar action by Exirel® improves rainfastness for more effective control.

Exirel® translaminar activity and local translocation in plant material aids spray coverage and control of pests in hidden feeding sites.

Industry guidance on the selectivity of Exirel® to some key citrus beneficial arthropods

Beneficial species	Major prey target	Where tested	Life stage exposed	Formulation & Rate (g ai/100 L)	Maximum effect observed
Lacewings					
Brown lacewing, <i>Micromus tasmaniae</i>	Generalist	Australia ¹	Larvae- direct spray	OD; 40	Harmless
		Australia ¹	Larvae- dried residue	OD; 40	Harmless
Green lacewing, <i>Chrysoperla carnea</i>	Generalist	Europe / USA ²	Larvae- dried residue	SE & OD; 10	Harmless
		Europe / USA ³	Adult- direct spray	OD; 10	Moderately harmful
Green lacewing, <i>Mallada signata</i>	Generalist		Not tested		Not tested
Parasitoid wasps					
<i>Anagyrus fusciventris</i>	Mealybug		Not tested		Not tested
<i>Aphidius colemani</i>	Aphids	Europe ⁴	Mummies & emerging adults- direct spray	OD; 10	Moderately harmful
<i>Aphytis melinus</i>	Red scale	Europe / USA ³	Adult- dried residue	SE; 10	Slightly harmful
<i>Comperiella bifasciata</i>	Red scale		Not tested		Not tested
<i>Trichogramma pretiosum</i>	Lep eggs	Australia ¹	Adult- direct spray	OD; 40	Harmless
		Australia ¹	Adult- dried residue	OD; 40	Moderately harmful
Predatory beetles					
Mealybug ladybeetle, <i>Cryptolaemus montrouzieri</i>	Mealybug	Europe ³	Larvae- dried residue	SE; 10 + oil	Slightly harmful
White collared ladybeetle, <i>Hippodamia variegata</i>	Generalist	Australia ¹	Larvae- direct spray	OD; 40	Harmless
		Australia ¹	Larvae- dried residue	OD; 40	Moderately harmful
Predatory bugs					
Damsel bug, <i>Nabis kinbergii</i>	Generalist	Australia ¹	Nymph- direct spray	OD; 40	Slightly harmful
		Australia ¹	Nymph- dried residue	OD; 40	Moderately harmful
Predatory mites					
<i>Euseius stipulatus</i>	Mites	Europe ⁵	Mixed population	SE; 10 +/- oil	Slightly harmful
Phytoseiid mites, <i>Euseius victoriensis</i>	Mites		Not tested		Not tested

¹ DuPont-20665

² ESH-08-015, ESH-09-005 & from DuPont Cyazypyr global KT document 2006-11

³ SRES12-252-151C & from DuPont Cyazypyr global KT document 2006-11

⁴ ESC-09-002; ESC-10-001 (3 studies)

⁵ ITV-13-245 & SRES12-254-151C

IOBC classification for the evaluation of insecticide's harmfulness (Hassan 1985)

class 1	Harmless	< 25% mortality vs. untreated check
class 2	Slightly harmful	25-50% mortality vs. untreated check
class 3	Moderately harmful	51-75% mortality vs. untreated check
class 4	Harmful	> 75% mortality vs. untreated check

Exirel® Label Directions for Citrus

Crop	Pest	Rate/ha	WHP	Critical Comments
Citrus	<p>Rasping pest;</p> <p>Kelly's citrus thrips (<i>Pezothrips kellyanus</i>)</p> <p>Chewing pests;</p> <p>Light brown apple moth (<i>Epiphyas postvittana</i>)</p> <p>Fuller's rose weevil (<i>Asynonychus cervinus</i>) - <i>Suppression only</i></p>	<p>Dilute spraying:</p> <p>75 mL/100 L DO NOT apply more than 3 L/ha (This means a water volume of no more than 4,000 L/ha)</p> <p>Concentrate spraying:</p> <p>Refer to Mixing/ Application section</p> <p>(DO NOT add a Surfactant/ Wetting agent)</p>	NIL	<p>A maximum of two (2) applications are to be applied to any one crop per season.</p> <p>Monitor crops from flowering onwards for the presence of Kelly's citrus thrips and Light brown apple moth. Apply Exirel®, after flowering, once local pest thresholds are reached.</p> <p>A single application may be suitable where pest pressure is low. Continue to monitor crops and where thrips pressure is moderate to high, apply a second application, no less than 14 days after the first and prior to calyx closure.</p> <p>Fuller's rose weevil: Monitor for weevil emergence. Continue monitoring after spraying. Time at least one application to occur prior to the start of egg lay which usually occurs from late summer and through autumn. DO NOT retreat within fourteen (14) days. The use of Exirel® should be used in conjunction with other weevil control measures. DO NOT use for trunk band spraying.</p>

Exirel® - When to Use to Protect Your Citrus



Pests	May-mid August Floral induction & initiation	September Flowering & fruit set	October Flowering & fruit set	November Flowering & fruit set	December	January	February	March	April Fruit maturation	May Fruit maturation	June Fruit maturation & harvest
Chewing pests											
Light brown apple moth (<i>Epiphyas postvittana</i>)											
Rasping pests											
Kelly's citrus thrips (<i>Pezothrips kellyanus</i>)											

Use Exirel® after flowering for KCT & LBAM

Apply up to 2 consecutive applications of Exirel® no less than 14 days apart after flowering but pre-calyx closure

Pests	May-mid August Floral induction & initiation	September Flowering & fruit set	October Flowering & fruit set	November Flowering & fruit set	December	January	February	March	April Fruit maturation	May Fruit maturation	June Fruit maturation & harvest
Chewing pests											
Fuller's rose weevil (<i>Asynonychus cervinus</i>)						Peak adult emergence					

Use Exirel® after flowering for FRW

Apply up to 2 consecutive applications of Exirel® no less than 14 days apart

Use Trunk Band Spray here for FRW

Apply up to 2 consecutive trunk band applications 6 weeks apart.

DuPont® trial work conducted over the last two seasons (2015-16 & 2016-17) indicates that Exirel® has reasonable spray timing flexibility for effective control of Fuller's rose weevil, in order to pass Korea/China/Thailand inspection protocols both in February and at harvest. The most reliable Exirel® program was an early season application (around calyx closure) followed by a second application in early February. For full season protection, a Trunk Band Spray program should be initiated about 6 weeks after the second Exirel® application.

Insecticide Resistance Management Principles for Exirel®

Exirel® is a **GROUP 28 INSECTICIDE**

To help prevent the development of resistance to Exirel® insecticide, observe the following instructions:

- Apply Exirel® using a “window” approach to avoid exposure of consecutive insect pest generations to the same mode of action, successive applications of Exirel® are acceptable if they are used to treat a single insect generation. Apply a max of two applications of Exirel® per crop.
- Following a “window” of Exirel® rotate to a “window” of applications of effective insecticides with a different mode of action
- The total exposure period of Group 28 active windows applied throughout the crop cycle (from fruit set to harvest) should not exceed 50% of the crop cycle
- Incorporate IPM techniques into the overall pest management program
- Monitor insect populations for loss of field efficacy

Exirel® - Application considerations

EXPORT OF TREATED PRODUCE

- Suitable Maximum Residue Limits (MRLs) or import tolerances for produce treated with Exirel® insecticide may not be established in some countries. Consult with your exporter or FMC before applying Exirel® insecticide to crops from which produce is to be exported.
- Citrus Australia is a good resource for up to date information on which countries have established MRL's for cyantraniliprole in citrus.
 - The following table presents the most current knowledge (as of 08/2017) for global MRL's in citrus:

CITRUS MAXIMUM RESIDUE LIMITS

For agricultural chemicals registered for use on Australian Oranges, Grapefruit, Mandarins and Lemons, for domestic and export markets

Chemical	Australia & NZ	Codex	Canada	China	Malaysia	Singapore	Japan	USA	Taiwan	Indonesia	Korea	EU	Thailand	Hong Kong
INSECTICIDES														
Cyantraniliprole (Exirel®)	0.7	0.7	0.7	Not set	0.7	0.7	0.7	0.7	Not set	Not set	0.7 (M) 0.5 (G) 0.6 (L) 0.7 (O)	0.9	0.7	Not set

Exirel® - OH&S & PPE Requirements

Signal warning

- **CAUTION** - May irritate the eyes. Will irritate the skin. Repeated exposure may cause allergic disorders.

Avoid

- Avoid contact with eyes and skin.

When opening container, mixing or applying wear

- Chemical resistant gloves.
- Cotton overalls buttoned to the neck and wrist.

Wash hands after use.

After each day's use wash gloves and contaminated clothing.

Re-entry

- **DO NOT** allow entry into treated areas until the product has dried, unless wearing cotton overalls to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each days use.



Need help? Visit www.fmccrop.com.au/en/contact_us to contact your local representative if you need help with determining the best application parameters for your Exirel® spray here.

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