

To perfect this



Exirel[®]
INSECTICIDE

you need to protect this.

Now a more
affordable
solution.

Exirel[®] Insecticide Provides Outstanding and Extended Crop Protection

When applied early in the 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
→ Selectivity for key beneficial insects	✓ Good fit in IPM programs
→ Rapid stop feeding	✓ Protection from feeding damage
→ Translaminar activity & local translocation	✓ Rainfastness and improved availability of Exirel [®] to targeted pests
→ New MOA for sucking pests	✓ Control of pests resistant to other MOA's
→ Low mammalian toxicity & short re-entry interval	✓ 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 a New Unique Mode of Action to Control Sucking Pests in Australian Cotton Crops

Chewing Pests	Cotton bollworm (<i>Helicoverpa armigera</i>)	 Heliiothis	 Whitefly	 Aphid
	Native budworm (<i>Helicoverpa punctigera</i>)			
Sucking Pests	Silverleaf whitefly (<i>Bemisia tabaci</i> B biotype)			
	Cotton aphid (<i>Aphis gossypii</i>) - suppression			

Unique Cross-Spectrum Control

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

Pests	Exirel [®] Group 28	Diafenthionon Group 12A	Pyriproxyfen Group 7C	Spirotetramat Group 23	Rating	
					Rating	% Efficacy Level
Whitefly	+++	++	+++	++	+++	Excellent 91-100
Heliiothis	+++	-	-	-	++	Good 75-90
Aphid	+	+	-	+++	+	Moderate 60-75
					-	Poor < 60



An Agricultural
Sciences Company

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Exirel® - Rapid Feeding Cessation

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

- Feeding activity of chewing & sucking pests coming into contact with Cyazapyr® 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® - Crop Protection from Feeding Damage

Fast action by Exirel® protects against feeding damage.

Sooty moulds are dark fungi that grow on honeydew excreted by sucking insects such as Whiteflies & Aphids. The black fungus blocks sunlight making photosynthesis less efficient and causes stunting of affected plants.



Honeydew after five sequential applications
"Control"
Decis* (180 mL/ha)



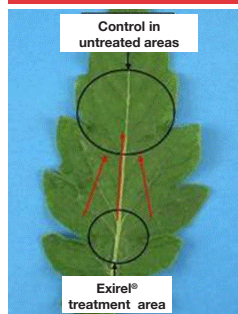
No honeydew
Exirel® (600 mL/ha) + Hasten*
Superior Crop Protection by Cyazapyr® from feeding damage by Cotton aphid and honeydew contamination on cotton.

Source: Australian Cotton Research Institute, Myall Vale, NSW. Cotton pest & beneficial screen (Wilson, L & Heimoana, S), (2010-11.)

*Non FMC Trademark

Exirel® - Translaminar Activity and Local Translocation

Local Translocation by Exirel® allows product to reach where pests feed for more effective control



Leaf Location Treated	Product	% Mortality	
		Treated Area	Untreated Area
Base	Cyazapyr®	100	97
Tip	Cyazapyr®	97	13

% Mortality of SLWF nymphs in treated and untreated tissue of two leaf locations (base vs tip)

When Cyazapyr® is applied to the leaf surface, it moves more readily from base to tip, not from tip to base. In this tomato study, Cyazapyr® showed superior translaminar activity and local movement.

Source: DuPont Stine-Haskell Research Center, Delaware, USA (2008)

Exirel®- Translaminar Activity and Local Translocation

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

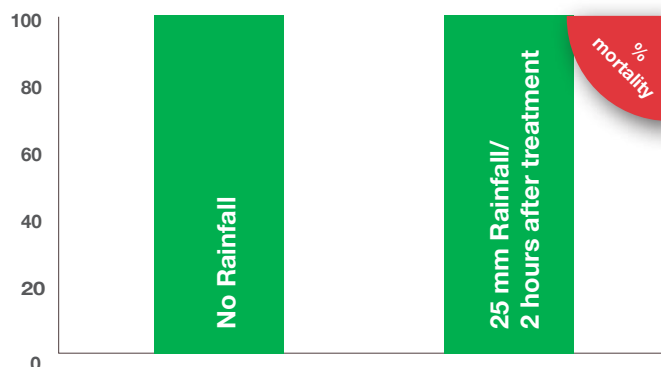
Paired field plots were subjected to a rain simulation of 25 mm or not, 2 hours after treatment. Leaf samples were collected 7 days later and tested for biological activity against 2nd instar *Helicoverpa zea* larvae.

Helicoverpa zea* = Corn ear worm = *Heliothis

In this study on Tomatoes there was no loss of activity after 25 mm of rain, 2 hours after treatment.

Source: DuPont Field Research Stations Delaware, Texas and California, USA. (2008)

Rainfastness of Cyazapyr® applied at 50 gai/ha in tomato field trials (measured as % *Helicoverpa zea* larvae mortality)



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 (maximum of four Group 28 insecticides* per season)
- 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 seedling 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
- Cultivate all cotton fields as soon as possible after picking to destroy over-wintering pupae of *Helicoverpa armigera*


*Altacor® insecticide is a Group 28 insecticide

Exirel® Label Directions for Cotton

Crop	Pest	Rate/ha	WHP	Critical Comments
Cotton	Sucking insects: Silverleaf whitefly (<i>Bemisia tabaci</i> B biotype) Cotton aphid (<i>Aphis gossypii</i>) Suppression only Chewing insects: Cotton bollworm (<i>Helicoverpa armigera</i>) Native budworm (<i>Helicoverpa punctigera</i>)	600 mL + Ethylated seed oil at 0.5% v/v (e.g. Hastern* @500 mL/100 L)	Harvest: 14 days after application Grazing: Do not allow livestock to graze crops, cotton stubble or gin trash	Silverleaf whitefly- target early developing populations. Exirel® is primarily active on the early nymph stage. Heliothis - target eggs and hatchling (neonates or 1st instar) to small larvae (2nd instar) when they reach the economic spray threshold and before they become entrenched in hidden feeding sites, such as squares, flowers or bolls. A maximum of two (2) applications are to be applied to any one crop per season. Further treatments should be made with alternative mode of action insecticides.

*Non FMC Trademark

Exirel® - When to Use to Protect Your Cotton



Pests	Planting	Emergence 7-14 days	Vegetative 15 - 41 days	Squaring 42 days after Sowing	Flowering 65 days after Planting	Peak Flowering	Boll Opening 63 days after Flowering	Defoliation & Boll Opening	Picking ~180 days
Days (Estimate)	0	7	15	42	65	110	128	160	180
Cumulative Day Degrees	0	80		505	775	1300	1525	1835	
Lepidoptera (chewing pests)									
Native budworm (<i>Helicoverpa punctigera</i>)				Exirel® insecticide					
Cotton bollworm (<i>Helicoverpa armigera</i>)				Exirel® insecticide					
Sucking pests									
Cotton aphid (<i>Aphis gossypii</i>)				Exirel® insecticide (Suppression)					
Silverleaf whitefly (<i>Bemisia tabaci</i> B biotype)						Exirel® insecticide Use Exirel® here for SLWF Apply 2 consecutive applications 10-15 days apart			

Best applied before canopy closure on an early developmental stage of SLWF population

SLWF spray decision support tool

Target Amber and Red Pathway

Exirel® - Responsible Resistance Management in Cotton

Exirel® & responsible resistance management in cotton

- Unique mode of action with no known cross resistance
- Unique tool for the control of sucking pests in cotton
- Has the potential to take the selection pressure off older MOA's
- Maximum of two (2) applications per crop per season
- Works best when applied back to back, limiting exposure to one generation of insect
- Baseline resistance status for Cyazypyr® on *Helicoverpa armigera* and *Bemisia tabaci* has been established prior to commercialisation so that a discriminating dose can be used for seasonal resistance management

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 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



For any further information please contact:

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