

**CURACRON® (PROFENOFOS)  
THE ECONOMICAL FOUNDATION PRODUCT**

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**Abstract**

Curacron (profenofos) has been used successfully in cotton for many years to control a variety of pests both alone and in tank-mix combinations. Curacron's strength is in its broadspectrum control and its ability to handle tough pests such as Heliothis, Armyworm, Aphid and Lygus. In a rapidly changing market with new products and technology, growers will have more tools available however the new tools are not always the most economical and are typically more pest specific. Curacron used as the foundation insecticide in a prescription program of tank-mixtures throughout the season with new and existing chemistry is a very cost effective way to manage most pest situations while in many cases still preserving beneficial insect populations.

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Curacron is a unique organophosphate insecticide with two very active isomers. It works both on contact and through stomach activity. Curacron controls both chewing and sucking pests and is active against all life stages including eggs, larvae and adults. The product is very photo stable and quite rainfast due to its quick leaf penetration after application.

The spectrum of control is quite broad with Curacron and includes cotton bollworm, tobacco budworm, fall, beet and striped armyworm, aphid, spider mites, Lygus, cotton leaf perforator and suppression of whitefly. Curacron is also effective on stink bug and fleahopper which are two pests expected to be added to the label soon. The only major pest Curacron does not control is Bollweevil. The Curacron use rates vary from 1/8 lb.-1 lb. AI/Acre (1/8-1 pt. Curacron 8E) depending upon the pest and its life stage.

Curacron has limited effect on beneficial insects when used at the 1/8-1/4 lb./Acre rate. Average mortality of 15-30% can be expected on many key beneficial insects at these rates with a relatively quick recovery or bounce back period. Due to this limited effect on beneficials, Curacron can be used effectively in an early or mid season IPM oriented program targeting such pests as Lygus (Tarnished Plant Bug) and Heliothis as an ovicide.

Using insecticide combinations is an effective way to broaden the control spectrum, increase performance, manage potential resistance and in many cases reduce cost. Due to Curacron's broadspectrum control, limited affect on beneficials and relative low cost at tank-mix rates it is an ideal "Foundation Insecticide" for tank-mixes throughout the season. Early season, Curacron can be combined with Thiodan, Vydate, Methyl Parathion, Bidrin and other labeled products to add weevil control and strengthen the control of other pests such as Lygus and aphid. Mid and late season, Curacron can be combined with Pyrethroids, Larvin, Pirate and others to enhance the level of control of Cotton Bollworm and Armyworm.

When comparing cost, Curacron is the most economical ovicide on the market when used at the 1/8-1/4 lb. labeled rate. As a larvicide Curacron is more expensive than the pyrethroids however priced very competitively vs. other non-pyrethroids. Tank-mix combinations with pyrethroids are the most cost effective approach to using Curacron as a larvicide however when targeting high populations of tough pests such as armyworm, combinations with Larvin or Pirate are the most effective in the field.

Tank-mix combinations have proven very effective in eliminating or delaying the onset of resistance to several groups of chemistry including the organophosphates and pyrethroids. In fact, combinations prove superior to rotations in resistance management programs tested with Curacron mixed with pyrethroids. In order for this strategy to be effective however, combinations must be used from the start before resistance develops. Monitoring for Heliothis resistance to Curacron has occurred for several years with little to no change in sensitivity. A good management plan using combinations is the best way to preserve this important product.

In summary as a foundation product, Curacron delivers effective broadspectrum control while allowing beneficial insect populations to be maintained in many situations. At tank-mix rates, Curacron delivers excellent value which can reduce the growers overall insecticide investment. Finally, tank-mix combinations eliminate or delay the onset of resistance development for good product stewardship.

### Control Spectrum Of Curacron

Pests Controlled	Use Rates (pts.)	Pests Not Controlled
• Bollworm	1/8-1/4 ovidice 1/2-1 larvicide	• Bollweevil
• Tobacco Budworm		
• Armyworm	3/4-1	
- Fall		
- Beer		
- Yellow-Striped	1/2	
• Aphid		
• Spider Mites	1/2-1	
• Lygus	1/4-1/2	
- Tarnished Plant Bug		
• Stink Bug	1/4-1/2	
• Fleahopper	1/4-1/2	
• Cotton Leaf Perforator	1/2-1	
• Whitefly (Suppression)	3/4-1	

SJW/GSF-121796 4

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### Curacron Toxicity To Cotesia marginiventris, A Primary Parasite Of The Beet Armyworm

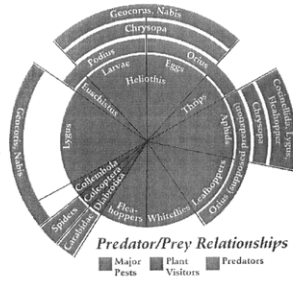
Treatment	Percent Survival At Time:				
	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.
Acetone	100.0	100.0	100.0	100.0	100.0
Curacron 0.125	97.6	95.2	100.0	100.0	85.5
Curacron 0.25	96.4	94.1	96.2	95.4	70.9
Curacron 0.75	89.5	84.6	89.3	85.9	56.4

University of Georgia, 1994

SJW/GSF-121796 7

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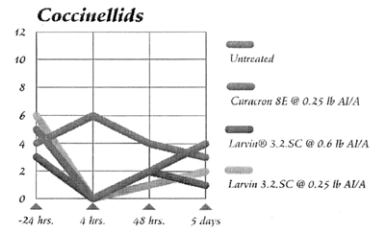
### Managing Beneficials For IPM



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### Average Number Of Beneficial Arthropods Per 100 Sweeps

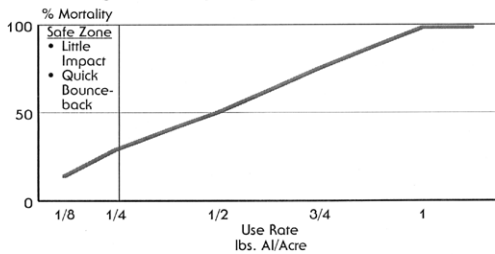


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### Impact Of Curacron On Beneficials "Average Among Key Beneficial Species"



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### Early Season

Typical Pests	"Combination Product"		
	"Foundation Insecticide" Curacron	Thiodan, Vydate, Orthene, Bidrin, Methyl	= Control
• Lygus			
- Tarnished Plant Bug	+	+	++
• Stink Bug	+	+	++
• Fleahopper	+	+	++
• Heliothis (Eggs & Larvae)			
- Tobacco Budworm	+	S	+
- Cotton Bollworm	+	S	+
• Aphid	+	+	++
• Spider Mites	+	S	+
• Bollweevil	-	+	+

SJW/GSF-121796 9

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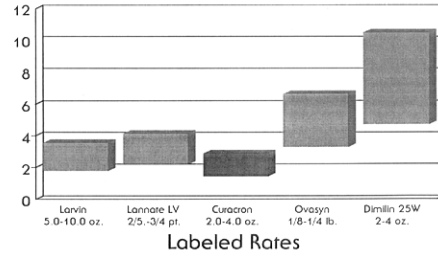
Mid & Late Season

Typical Pests	"Foundation Insecticide"	"Combination Product"	= Control
	Curacron	Larvin	
• Lygus			
– Tarnished Plant Bug	+	S	+
• Sink Bug	+	S	+
• Fleahopper	+	S	+
• Heliothis (Eggs & Larvae)			
– Tobacco Budworm	+	+	++
– Cotton Bollworm	+	+	++
• Aphid	+	–	+
• Armyworm			
– Fall	+	+	++
– Beet	+	+	++
– Striped	+	+	++
• Spider Mites	+	–	+
• Bollweevil	–	–	–

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Ovicide Cost Comparison – Grower Cost/Acre Dollars



Labeled Rates

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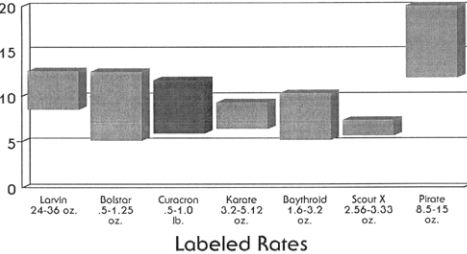
Mid & Late Season

Typical Pests	"Foundation Insecticide"	"Combination Product"	= Control
	Curacron	Pirate	
• Lygus			
– Tarnished Plant Bug	+	–	+
• Sink Bug	+	–	–
• Fleahopper	+	–	+
• Heliothis (Eggs & Larvae)			
– Tobacco Budworm	+	+	++
– Cotton Bollworm	+	+	++
• Aphid	+	–	+
• Armyworm			
– Fall	+	+	++
– Beet	+	+	++
– Striped	+	+	++
• Spider Mites	+	+	++
• Bollweevil	–	–	–

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Larvicide Cost Comparison – Grower Cost/Acre Dollars



Labeled Rates

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Mid & Late Season

Typical Pests	"Foundation Insecticide"	"Combination Product"	= Control
	Curacron	Pyrethroids	
• Lygus			
– Tarnished Plant Bug	+	+	++
• Sink Bug	+	+	++
• Fleahopper	+	+	++
• Heliothis (Eggs & Larvae)			
– Tobacco Budworm	+	(Susceptible Only) +	++
– Cotton Bollworm	+	+	++
• Aphid	+	+	++
• Armyworm			
– Fall	+	S	+
– Beet	+	S	+
– Striped	+	S	+
• Spider Mites	+	–	+
• Bollweevil	–	+	+

SJW/GSF-121796 13