

GRAPE INSECT CONTROL – COMMERCIAL

Insect	Material and Formulation	Dosage of Insecticides/Acre	Remarks/Precautions	Days to Harvest
DORMANT				
Grape Scale	Look for weakened vines with loose trunk bark, peel bark off and check for grape scale. See BUD SWELL for scale oil spray or PREBLOOM TO BLOOM for timing grape scale crawler spray.			
BUD SWELL				
Grape Scale	Superior oil (70 sec viscosity)	4 gal	Spray trunk and cordons of scale-infested vines by bud swell.	0
Flea Beetle	Baythroid XL	2.4-3.2 fl oz	During bud swell, scout at least twice weekly for feeding holes in buds or during daylight check for presence of bluish-black flea beetle adults on buds or inspect buds after dusk for presence of cutworms. Spray weekly as long as there is more than 1% new bud damage.	3
Climbing Cutworm	Danitol 2.4EC	5 1/3-10 2/3 fl oz		21
	Renounce 20WP	3-4 oz		3
	Sevin 80S	2.5 lb		7
	Belt	3-4 fl oz		7
	Delegate 25 WG	3-5 oz		7
	Success	4-8 fl oz		7
	Entrust	1.25-2.5 oz		7
	Deliver	0.5-1.0 lb		0
BUD BREAK				
Flea Beetle	SEE BUD SWELL SPRAY			
Climbing Cutworm				
Mealybug	Admire Pro	10.5-14.0 fl oz	Surface application of Admire Pro followed by 0.25 inch of rain or overhead irrigation. Maximum Admire Pro allowed per season is 14 fl oz/acre	30
Leafhopper	Alias 2F	16-24 fl oz		30
	Movento	6-8 fl oz		7
	Provado	0.8-1.0 oz		0
	Clutch 50WDG	6 oz		30
	Baythroid	2.4-3.2 fl oz		3
BY APRIL 1	Place 3 grape berry moth pheromone traps at eye level on perimeter trees of woods adjacent to vineyard (overwintering site of grape berry moth) and check twice weekly to record first consistent moth emergence (mid April) = GBM biofix . Be sure to keep trap bottoms clean and replace lures monthly or every two months for long-life lures. After GBM biofix date, begin calculating number of daily degree days (DD) using base 47° F = DD = (maximum daily temperature + minimum daily temperature)/2 – 47 .			
Initiate grape berry moth scouting program				
PREBLOOM TO BLOOM				
Honeybees	Since insects do not pollinate grapes, there is no danger to honeybees at this time unless they are working on blooming weeds in the vineyard. Mow drive row before spraying grapes to eliminate blooms on weeds in drive row.			
Flea Beetle Larvae	SEE BUD SWELL	Check for presence of flea beetle larvae on leaves anytime between 4 to 10 inches of shoot growth and bloom.		
Rose Chafer	Assail 30 SG	2.5 oz	Check for rose chafer on clusters during and after bloom.	7
	Assail 70 WP	1.1 oz		7
	Danitol 2.4 EC	10 2/3 lb		21
	Imidan 70W	1 1/2-2 1/8 lb		7
	Sevin 80S	1 1/2-2 3/4 lb		7
BY MAY 15	Move grape berry moth pheromone traps into the vineyard interior.			
Grape Berry Moth	Intrepid 2F	8-16 fl oz	Grape berry moth larvae usually hatch and feed on perimeter grape clusters from mid May to early June or from 400 to 800 DD since GBM biofix in April. Begin weekly inspections of 100 to 200 clusters in the perimeter and second row for new berry moth larvae tunneling under the berry skin (damaged berry skin appears pink to purple). Spray the perimeter vines in May to early June, if greater than 1% clusters damaged by berry moth. Intrepid is an insect growth regulator that provides control of grape berry moth if first applied just before initiation of grape berry moth hatch (200 to 300 DD) and reapplied 10 days later.	30
	SEE SHATTER for other formulations			

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BY MAY 15 (cont.)				
Foliar Grape Phylloxera	Admire Pro	7-14 oz	Grape phylloxera crawlers produce second generation foliar galls in May. These crawlers mature and produce additional generations of crawlers on susceptible cultivars including Catawba, Cayuga White, Chambourcin, Chardonnay, Delaware, Norton/Cynthiana, Reliance, Vignoles, Vidal). Apply insecticide in May against grape phylloxera crawlers when you first see expanding terminal leaves on susceptible vines with a rash-like appearance (new leaf galls forming). For Admire Pro to be effective against grape phylloxera, it must be applied to soil around vines and watered in by irrigation or rain in early April to move systemically up trunk into leaves (SEE BUD BREAK). Use of Induce® adjuvant only with Movento is prohibited once fruit are present due to adverse plant compatibility.	30
	Assail 30 SG	2.5 oz		7
	Danitol 2.4EC	10 2/3-21 1/3 fl oz		21
	Movento	6-8 oz		7
Grape Scale	Lorsban Advanced (supplemental label)	1 qt	Do not make more than one application of Lorsban Advanced or another product containing chlorpyrifos per season.	35
Spider Mites	Agri-Mek 0.15 EC	8-16 fl oz plus non-ionic surfactant	Grape scale crawlers can be detected by wrapping double-stick tape around scale-infested limbs beginning in early May. Weekly inspect the tape for yellow crawlers or lift scale covers to check for crawler presence. Apply crawler spray at 10-day intervals as long as crawlers are detected. No labeled insecticides are available at this time in Arkansas.	28
	Acramite 50WS	0.75-1.0 lb	Spider mite flare-ups may occur due to road dust coating grape leaves.	14
	Pyramite	3.3 oz (dilute rate)	Apply miticide between 1 and 5 spider mites per leaf.	7
	Vendex 50WP	1.0-2.5 lb	Make no more than 2 applications of Vendex per season no closer than 21 days apart.	28
	JMS Stylet Oil	1-2 gal	JMS Stylet Oil and M-Pede are approved for organic production.	0
M-Pede	2 gal/100 gal	Phytotoxicity: Do not apply sulfur within 10 days of JMS Stylet Oil application, but you can repeat oil spray every 10-14 days. M-Pede should not be applied to <i>Vitis vinifera</i> or <i>Calmeria</i> grapes. M-Pede may cause plant injury if plants are drought stressed or temperatures exceed 90°F or burned by sulfur if applied within 3 days of sulfur application. M-Pede may alter the waxy bloom of grape and affect quality rating of table grapes.	0	
Leafhopper Sharpshooters	SEE SHATTER Assail 30 SG	2.5 oz	Do not make more than two applications per season at 14-day interval.	7
SHATTER				
Grape Berry Moth (new hatched)	Biobit HP	0.5-1.0 lb	Biobit, Javelin and Deliver are approved for organic production.	0
Leafrollers	Deliver	0.5-1.25 lb	Re-apply weekly as necessary. Javelin is also labeled for leafrollers.	0
	Javelin WG	0.25-1.5 lb		7
Grape Berry Moth	Actara	1.5-3.5 oz	Grape berry moth: Spray if greater than 1% of clusters in perimeter vines are damaged by grape berry moth.	5
Rose Chafer	Assail 30 SG	2.5 oz		7
Grape Curculio	Assail 70WP	1.1 oz	Leafhopper: Inspect leaves in four locations for white stippling by leafhopper. If stippled, inspect underside of 5 leaves on each of 5 vines in 4 locations for presence of leafhoppers. Spray if greater than 5 leafhopper nymphs found per leaf.	7
Japanese Beetle	Avaunt DG	5-6 oz		3
Leafrollers	Baythroid XL	2.4-3.2 oz		3
Leafhoppers	Baythroid 2E	2.4-3.2 oz	Grape curculio (the legless larvae that feed in berries from mid-June into July). These larvae have recently attacked grape blocks receiving only a perimeter spray against grape berry moth. Starting on June 15, check clusters weekly in the unsprayed vineyard interior for new berry damage by these legless larvae.	30
Grape Mealy Bug	Brigade 2 EC	8-16 oz	Actara has a 14-day minimum interval between applications. Do not make more than two applications per season at 14-day interval.	21
Grape Rootworm	Danitol 2.4 EC	10.6-21.3 fl oz		14
	Imidan 70W	1 1/3 to 2 1/8 lb		30
	Intrepid 2F	8-16 fl oz		
	Provado Solupak	0.75-1.0 oz		0
	Renounce 20WP	3-4 oz		3
	Sevin 80S	1 1/2 to 2 3/4 lb		3
	Lannate SP	0.5-1.0 lb		14
	Lannate LV	1.5-3.0 pt		14
	Altacor	2.0-4.5 oz		14

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FIRST COVER TO VERASION				
Grape Berry Moth	SEE SHATTER		Spray whole vineyard if greater than 1% of clusters damaged by grape berry moth. Second and third generations of grape berry moth hatch in mid to late June (1330 to 1700 DD) and after mid-July (2300 DD). Continue weekly inspections of 100 to 200 clusters in the perimeter and second row for new grape berry moth larvae tunneling.	
Rose Chafer	Sevin 80S	2.5 lb	Leafhopper usually is not a problem in Arkansas. You can inspect underside of leaves weekly and	3
Leafhopper	Sevin XLR	2 qt	spray if you detect more than 10 nymphs per leaf.	3
Grape Rootworm	Movento	6-8 fl oz	Use of Induce® adjuvant only with Movento is prohibited once fruit are present due to adverse plant compatibility.	7
Grape Mealybug				
VERASION TO HARVEST				
Grape Berry Moth	SEE SHATTER		Spray whole vineyard if greater than 1% of clusters damaged by grape berry moth.	
Japanese Beetle	SEE SHATTER		Continue weekly monitoring for insect pests. Apply insecticides as needed.	
Leafhopper	Sevin 80S	2.5 lb	Japanese beetle: This is a pest that was introduced to northwest Arkansas in the late 1990s and became an economic pest defoliating grapes and other fruits and ornamentals by 2002. Late June and July, Japanese beetles will defoliate most of the canopy of susceptible grapes on Norton, Vidal, Vignoles, Chambourcin, Cabernet Franc and others. Weekly insecticide sprays are required to prevent foliar damage. Surround applied to white-wash foliage will suppress Japanese beetle defoliation but should be re-applied as often as needed to keep vines white-washed, especially after a rain. Surround is approved for organic production.	7
	Sevin XLR	2 qt		7
	Hero	10.3 fl oz		30
	Mustang Max	4 oz		3
	Danitol 2.4 EC	10.67-21.33 fl oz		1
	Surround WP	25-50 lb		
Green June Beetle	Sevin 80S	2.5 lb	In July and early August, green June beetles will feed on and damage ripening fruit. Apply spray in July when first beetles enter the vineyard. Reapply as needed (weekly).	7
	Sevin XLR	2 qt		7
Grape Root Borer	Lorsban Advanced	4.5 pt/100 gal water	Use to control the pest just prior to adult emergence from the soil or new larvae entering soil. Apply Lorsban to the soil surface in a 1- to 2-foot band on either side of the vine. Do not allow spray to contact fruit or foliage. Make one application per season by 35 days pre-harvest or after harvest. Generic formulations of chlorpyrifos are also labeled for use against grape root borer. Application can be made with flood nozzles and at low pressure (40-60 psi).	35
	Cultural control		Cultural tactic: Maintain weed-free area under vines. Use a grape root borer pheromone trap to detect first moth emergence. Use grape hoe at first catch of grape root borer moths and repeat 1 month later to pile soil to 4- to 6-inch depth and 1-foot width on both sides of trunk. Mounded soil needs to be removed by September 1. This practice will greatly suppress moth ability to emerge from the soil.	
	Mass trapping		Mass trapping: By June 15, hang 1 grape root borer green bucket trap per acre from top trellis wire. Hang 1 trap in every eighth panel (200 row feet) of every 20th row to achieve 1 trap per acre (10 foot row spacing and 24 foot panel length). Bait each trap with a grape root borer sex pheromone lure (replace lure monthly) and place an insecticide impregnated vaportape inside each bucket to kill captured moths.	

GRAPE BERRY MOTH – MATING DISRUPTION STRATEGY: Mating disruption strategy requires good insecticidal control of the first generation in early to mid-May. In mid-May set out ISOMATE GBM PLUS* at minimum of 200 dispensers per acre or **maximum of 400 dispensers per acre must be applied to high-risk vineyards**. The pheromone is slowly emitted from plastic twist-ties for about 150 days in the warmer southern states. The atmosphere of the vineyard becomes saturated with the GBM pheromone odor. Male moths become confused so they are unable to locate and mate with females. Females are unaffected by the pheromone but lay unfertilized eggs that will not hatch. **To ensure a low GBM population, apply two insecticide sprays against first generation grape berry moths in mid- to late May. This strategy should be considered only for vineyards that are at least 5 acres in size.**

*ISOMATE-GBM is manufactured by Shin-estu Chemical Co. and distributed by Pacific Biocontrol. This product is available from Great Lakes IPM, Vestaburg, Michigan (phone 989-268-5693 or 800-235-0285).