BLACKBERRY/RASPBERRY INSECT CONTROL—COMMERCIAL

Insect	Material and Formulation	Amount to Use/Acre	Remarks/Precautions	Days to Harvest
LATE OCTOBER/EARLY NOVEMBER OR LATE MARCH (DORMANT)				
Raspberry Crown Borer	Altacor	3-4.5 oz	Apply Brigade or Hero after egg hatch ends from late October to early November or wait to apply in late March. Apply Brigade as a soil drench to the crown of plants in minimum of 50 gallons water per acre prior to significant rainfall event. DO NOT exceed 12.8 fl oz (0.2 lb ai) per acre per season. Apply Hero as a soil drench to crown of plant with 200 gallons water per acre	3
	Brigade 2 EC	6.4 fl oz		3
	Brigade WSB	16 oz		3
	Hero	10.3 fl oz		3
DELAYED DORMANT				
Rednecked Cane Borer	Cultural control		If less than 5% of fruiting canes have galls, then during winter, prune out galled fruiting canes, burn or shred these infested canes to kill overwintering larvae.	
PREBLOOM				
Strawberry Clipper	Actara	3 oz	When the first flower appears, begin randomly checking 100 clusters for clipped buds or tap flower clusters over a white paper plate to detect adult strawberry clipper weevils (1/10 inch long with snout). If more than 1% of buds are clipped or you find 1 adult weevil, apply insecticide and reapply at 10-day intervals as long as bud clipping or weevils occur.	3
	Sevin 4F	1-2 qt	Applications of Sevin and pyrethroids can cause mite flare-ups.	7
	Sevin 80S	1.25-2.5 lb		7
Spider Mites	Acramite	0.75-1 lb	Minimize road dust to prevent spider mite buildup.	1
	Aza-Direct	3.5 pt		4 hours
	Savey 50DF	4-6 oz		3
	Zeal	2-3 oz		0
EARLY BLOOM THROUGH BLOOM			**SAVE THE BEES!! DO NOT APPLY INSECTICIDES DURING BLOOM!!**	
POST-BLOOM TO HARVEST				
Rednecked Cane Borer	Admire Pro (4.6F)	10.5-14 fl oz	DO NOT apply prebloom, during bloom or when bees are foraging. If more than 5% fruiting canes have galls, apply Admire Pro by either chemigation into root zone or by a basal soil drenching in a minimum of 500 gallons solution per acre.	7
			Days of residual activity:	
Spotted Wing Drosophila**	Danitol 2.4EC	16-21.33 fl oz	7 days	3
	Delegate 25WG	3-6 oz	7 days	1
	Exirel	13.5-20.5 fl oz	5 days	3
	Malathion 8EC	1-4 pt	7 days	1
	Mustang Maxx	4 oz	5-7 days	1
	Entrust 2SC (OMRI*)	4-6 oz	3-5 days	1
	Pyganic 1.4 (OMRI*)	16-64 fl oz	0-2 days	0

*OMRI = Organic Materials Review Institute lists compounds approved for organic production.

**__Spotted Wing Drosophila (SWD)__ is a new invasive insect pest that was detected in ripening and ripened fruit in many Midwest states, including Arkansas, in 2013. The SWD larvae feed inside and damage ripening soft-skinned fruit, especially __blackberry, blueberry, raspberry and strawberry__. See the Spotted Wing Drosophila site: __http://www.ipm.msu.edu/invasive_species/spotted_wing_drosophila__ or the Arkansas SWD fact sheet: __https://www.uaex.uada.edu/publications/PDF/FSA-7079.pdf__

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POST-BLOOM TO HARVEST (cont.)				
Stink Bugs	Actara	3 oz	DO NOT exceed 6 oz Actara per acre per season. If leaf bronzing is occurring and mites are present, apply a foliar spray of Danitol. DO NOT exceed 12.8 fl oz Brigade per acre per season.	3
	Bifenthrin 2 EC	6.4 fl oz		3
	Brigade 2 EC	6.4 fl oz		3
	Danitol 2.4 EC	16 fl oz		3
Spider Mites	Acramite 50WS	0.75-1 lb	Apply miticide if scouting detects between 1 and 5 spider mites per leaf.	1
	Bifenthrin 2 EC	6.4 fl oz		3
	Brigade 2 EC	6.4 fl oz		3
	Danitol 2.4 EC	16 fl oz		3
	Kanemite	31 fl oz		7
	Savey DF	4-6 oz	DO NOT make more than 1 application of Savey per year.	3
	Zeal	2-3 oz		0
	JMS Stylet Oil (OMRI*)	3-6 qt		0
	M-Pede (OMRI*)	2 gal/100 gal	M-Pede may cause plant injury if plants are drought stressed or temperatures exceed 90ºF.	0
Leafrollers	Deliver (OMRI*)	0.25-1.5 lb	Deliver is a formulation of *Bacillus thuringiensis* var. *kurstaki* (Bt). This is approved for organic production. **Leafrollers are usually NOT a problem in caneberries.**	0
Japanese Beetle Green June Beetle	Assail 30SG	4.5-5.3 oz	Mid-June to late July, check for foliage feeding by Japanese beetle or fruit feeding by green June beetle and spray weekly as needed with 7-day minimum interval between applications.	1
	Assail 70WP	1.9-2.3 oz		1
	Danitol 2.4 EC	10 2/3-16 fl oz		3
	Sevin 4F	1-2 qt		7
	Sevin 80S	2.5 lb		7
	Malathion 5EC	3 pt		1
	Malathion 8F	1-4 pt		1
	Pyganic 1.4 (OMRI*)	16-64 fl oz		0
	Surround WP (OMRI*)	25-50 lb	After harvest, you can suppress Japanese beetle foliar feeding by applying enough Surround to white-wash the foliage. Reapply Surround as needed to maintain white-washed appearance. Supplemental controls may be needed for complete insect control.	0
Sap Beetles	Assail 30 SG	4.5-5.3 oz	**Sanitation:** Strawberry sap beetles are best controlled by timely and complete (“clean”) picking of over-ripe and damaged berries. Keep berries off the ground.	7
			Bait buckets can be used to detect and reduce local population of sap beetles: Fill a small, screened 4 oz specimen cup with over-ripe berries (your culls). Place cup of berries inside a 1 quart deli cup trap that has a lid with several 1/5-inch holes. Then add a beetle drowning mixture of 9 parts apple cider vinegar and 1 part ethanol. These traps may prove useful for intercepting dispersing beetles from woods to plantings of ripening berries, reduce beetle numbers in the harvested berries and aid in timing insecticide application. Empty beetles from bait buckets on a daily basis.	

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POST-BLOOM TO HARVEST				
Broad Mites***	Agri-Mek SC	3.5 fl oz	FIFRA Section 2(ee) recommendation for Agri-Mek® SC approved for use in AR, FL, IL, IN, NC, PA, SC for control of broad mites in caneberry. **Agri-Mek SC must be mixed with a non-ionic surfactant activator type wetting, spreading and/or penetrating spray adjuvant at 0.1-0.5% v/v.** By late May, begin weekly scouting for first damage (leaf bronzing and/or cupping) and presence of broad mites on underside of terminal leaflets, especially in primocane-fruiting cultivars. Use a 20x or 30x hand lens to see white, oval, spotted eggs and oval, white (immature) to amber adult broad mites. **Apply miticide only if/when** you detect new terminal leaf damage and leaflet samples average between one to five active broad mites per leaflet.	7
RED IMPORTED FIRE ANTS (ALL FIRE ANT BAITS) – Apply when ants are active and soil temperature is above 60 degrees F. DO NOT treat if rain is anticipated within 6 hours.				
	S-Methoprene (Extinguish)	3-5 Tbsp/mound 1.0-1.5 lb/acre	Mound-to-mound treatment rate. Broadcast rate. This product is an insect growth regulator (IGR). Apply 3 to 4 weeks prior to harvest date of production.	

***Broad Mites:** The broad mite damages terminal leaves, flowers and fruit on citrus, peppers, tomatoes and recently became a pest of blackberries, especially primocane-fruiting cultivars. This mite feeds by piercing the bud, leaf or flower. This feeding injects a toxin that stunts growth, curls and bronzes leaves and often kills terminal and lateral leaf and flower buds (looks like fire blight). This mite overwinters mostly in blackberry leaf litter, and to lesser extent under blackberry bud scales and in the soil. Eggs are oval and spotted (0.08 mm long), and the broad mites are oval and vary from small white immature to amber adults (0.2 mm). Primocane-fruiting blackberry cultivars usually have floricanes pruned to ground, removed and burned by bud break.This practice produces a late-summer to fall crop. From late-May through fall in Arkansas, you can find a buildup of broad mite numbers on terminal leaves of emerging primocanes. Broad mites have damaged floricane-fruiting blackberry cultivars. These mite-infested floricane blocks appear to have delayed bud break and low vigor in spring. Broad mites can be found on terminal floricane leaves from April until after mid-summer harvest when floricanes are usually removed.