

New Pest Management Products and Registration Update for Berry Crops

NWHS

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Insecticides/Miticides

<u>Trade Name</u>	<u>Chemical Name</u>	<u>Strawb</u>	<u>Raspb</u>	<u>Blackb</u>	<u>Blueb</u>	<u>PHI^a (days)</u>	<u>REI^b (hours)</u>	<u>IRAC^c</u>
<u>Acramite</u>	<u>Bifenazate</u>	x	x	x		1	12	25
<u>Actara</u>	<u>Thiamethoxam</u>	x	x	x	x	3	12	4A
<u>Admire</u> (soil applied)	<u>Imidacloprid</u>	x	x	x	x	Straw=14; Cane/Blue = 7	12	4A
<u>Admire Pro</u> (foliar applied)	<u>Imidacloprid</u>	x	x	x	x	Straw=7; Cane/Blue = 3	12	4A
<u>Agri-mek</u>	<u>Abamectin</u>	x				3	12	6
<u>Altacor</u>	<u>Chlorantraniliprole</u>		x	x	x	Cane = 3; Blue = 1	4	28
<u>Asana XL</u>	<u>Esfenvalerate</u>		x	x	x	Cane = 7; Blue = 14	12	3A
<u>Assail</u>	<u>Acetamiprid</u>	x	x	x	x	1	12	4A
<u>Avaunt</u>	<u>Indoxacarb</u>				x	7	12	22A
<u>Brigade</u>	<u>Bifenthrin</u>	x	x	x	x	Straw = 0 Cane = 3; Blue = 1	12	3A
<u>Bt</u>	<u>DiPel, Javelin, MVP</u>	x	x	x	x	0	4	11B2
<u>Confirm</u>	<u>Tebufenozide</u>		x	x	x	14	4	18A
<u>Coragen</u>	<u>Chlorantraniliprole</u>	x				1	4	28
<u>Courier</u>	<u>Buprofezin</u>	x				3	12	16
<u>Cryolite Bait</u>	<u>Cryolite</u>	x ^{0, W}	x ^{0, W}	x ^{0, W}	x ^{0, W}	3	12	9A
<u>Danitol</u>	<u>Fenpropathrin</u>	x	x	x	x	Straw = 2 Cane & Blue = 3	24	3A
<u>Delegate</u>	<u>Spinetoram</u>		x	x	x	Cane = 1; Blue = 3	4	5
<u>Diazinon</u>	<u>Diazinon</u>	x	x	x	x	Straw = 5 Cane & Blue = 7	Straw = 3 days; Cane & Blue = 5 days	1B
<u>Dibrom</u>	<u>Naled</u>	x				1	48	1B
<u>Dicofol</u>	<u>Dicofol</u>	x				2	31days	?
<u>Esteem</u>	<u>Pyriproxyfen</u>	x ^s			x ^s	Straw = 2; Blue = 7	12	7C
<u>Fujimite</u>	<u>Fenpyroximate</u>	x ^s				1	12	21A
<u>Imidan</u>	<u>Phosmet</u>				x	3	24	1B

IR-4/NWREC Field Research Center

Specialty Crops Research and Registration Program

Personnel:

- Joe DeFrancesco, Center Director, SLR for Oregon
- Gina Koskela, Field Research Director, Archivist and Facilities Manager
- Pete Sturman, Field Research Director
- Judy Kowalski, Ornamentals Research
- Katie Murray, Assistant
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Gina



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Bee Warning for Neonics

(clothianidin, dinotefuran, imidacloprid, and thiamethoxam)



- EPA is requiring that certain neonicotinoid insecticides include a “Bee Advisory Box” on the label that lists use restrictions
 - Prohibits the use of the product if bees are present
 - Application prohibited until after complete and final petal fall
- Oregon berries:
 - Imidacloprid (Admire, Provado, Alias, and others)
 - Thiamethoxam (Actara and Platinum)
- <http://www.epa.gov/pesticides/ecosystem/pollinator>

Blueberry Registrations

Zeus XC (sulfentrazone)

- New pre- and post-emergent herbicide from FMC
 - Broadleaf weeds, grasses, and nutsedge
 - Long residual
- 3-day PHI
- Blueberries on Zeus XC label, not on Zeus label
- Restrictions:
 - Plants must be at least 3-years old
 - Hooded or shielded sprayer required if used after petal-fall.
- HRG #14 (as is Aim and Chateau)

Proline (prothioconazole)

- New fungicide from Bayer
 - Controls mummy berry, phomopsis, and other diseases
- FRAC #3 (as is Indar, Quash and Tilt/Orbit)
- Superior efficacy in Oregon field trials for primary and secondary mummy berry disease infections.

Exeril (cyantraniliprole)

- New insecticide from DuPont
 - Controls adult root weevils, leafrollers, and SWD
 - More effective and broad-spectrum than Altacor
 - Both IRAC #28; new IRAC for weevils, leafrollers, SWD
- Cost may be an issue but coming down (\$40/ac/app)

Zinc Phosphide Pellets

- Current Section 3 label from Hacco allows:
 - Broadcast application
 - Dormancy only: from final harvest up to leaf emergence
- SLN/Section 24c label (#OR-140015) allows:
 - Down-the-hole applications
 - Non-bearing: year-round
 - Bearing: from final harvest up to fruit set

Metaldehyde Slug Baits

(Numerous brands)

- New labels now on the market
- Changes:
 - 20 lb./A max per application (old = 10-40)
 - Three applications per year
 - 14-day treatment interval
- Can continue to use old labeled product
 - Follow the directions on those labels

Lime Sulfur Applied to the Soil for Mummy berry Control not Allowed

- Once recommended as a directed application to the apothecia in the soil.
- Soil application does not appear on any lime sulfur label. As such, it is considered an illegal application.
- Dr. Jay Pscheidt, OSU Extension Plant Pathologist, indicates some of the apothecia are destroyed but there are no studies to show it effectively controls mummy berry disease.

Endosulfan Registration to be Cancelled

- Thionex
- Used for erophyid mites (blueberry budmite)
- Phase-out of all endosulfan registrations
 - EPA not fond of organochlorine products
 - Blueberry = 7/31/15
 - Perennial strawberry = 7/31/16

Malathion 24c Labels for SWD (Blueberry)

SLN labels allow 2 applications at 2.5 lb ai/A
(Sec. 3 label allows 3 applications at 1.25 lb ai/A)

- Malathion 8 Aquamul (Loveland)
 - SLN# OR-130013
- Malathion 8 Flowable (Gowan)
 - SLN# OR-130010

Pending Blueberry Registrations

**** Not yet registered ****

Pending Registrations – *Herbicides (pg.1)*

- **Alion** (indaziflam)
 - Mainly pre-emergence herbicide but has some post-emerge activity. Effective in controlling broadleaf weeds, such as sow thistle, horseweed, purslane, smartweed, and vetch, and some grass weeds. (2013) New: HRG #29.
- **Fusilade** (fluazifop-butyl)
 - A post-emergence grass herbicide currently registered for use in non-bearing blueberries. The new registration will allow use in bearing blueberries fields. (2010)
- **Poast** (sethoxydim)
 - A post-emergence grass herbicide currently registered with a 30-day PHI; the new registration will reduce PHI to 1-day or 7-days. (2008)
- **Prowl** (pendimethalin)
 - A pre- and post-emergence herbicide for broadleaf and grass weeds. Currently at EPA; hope to see label by April 2015. New: HRG #3 (2011)
- **Quinstar** (quinclorac)
 - A pre- and post-emergence herbicide that will control broadleaf and grass weeds. Performance data from Oregon indicates it provides good control of field bindweed and morningglory. Waiting for the completion of a metabolism study to submit to EPA (2010)

Pending Registrations – *Herbicides* (pg. 2)

- **Velpar** (hexazinone)
 - A pre- and post-emergence herbicide currently registered for control of broadleaf and grass weeds. Reduce PHI from 90 to 50 days. (2012)
- **Trellis** (isoxaben) (2014)
 - A pre-emergence herbicide, currently registered for use in non-bearing blueberries (labeled as “Gallery”).
 - New project will allow it to be used in bearing blueberry fields.
 - Controls broadleaf weeds, such as wild carrot, horseweed, dandelion, and field bindweed (partial control of seedlings).
 - When used close to harvest (~ 14-day PHI), good weed control throughout the entire harvest period.
 - New HRG #21: mode of action different from other currently registered blueberry herbicides

Pending Registrations - *Fungicides*

- **Mancozeb** (mancozide)
 - A fungicide that can be mixed with copper and used post-harvest for control of *Pseudomonas* disease. FRAC #M3 (2007). Waiting to hear from EPA if there are risk cup issues which will determine if registration moves forward.
- **Protexio** (V-10135/fenpyrazamine)
 - A fungicide for control of Botrytis fruit rot and mummy berry disease. FRAC #17 (2009). Valent hopes to issue label in 2015.
- **Fontelis** (pentiopyrad)
 - A systemic fungicide that is both preventative and curative, and will be useful in controlling mummy berry disease. FRAC #7 (others = FRAC #3). (2012)

Pending Registrations – *Insecticides & Miticides*

- **Movento** (spirotetramat)
 - A systemic insecticide for control of aphids. Tolerance has been established but Bayer planning to delay issuance of a label until 2015 due to “bee issues”. (2010)
New IRAC #23.
- **Sivanto** (BYI-02960/flupyradifurone)
 - A non-systemic insecticide that is bee-safe and can be used to control aphids.
(2011) IRAC class unknown at this time. Hope to see label in 2015.
- **Envidor** (spirodiclofen)
 - A miticide for control of bud mites (an eriophyid mite) which are not currently found in Oregon blueberries. (2006) PRIA date = 10/16/13
- **Entrust/Success** (spinosad)
 - Currently registered
 - Project designed to reduce PHI from 3-day to 1-day

Caneberry Registrations

Zeus XC (sulfentrazone)

- Pre-emergence herbicide by FMC
 - Long residual
 - Controls broadleaf and grass weeds, and nutsedge
 - 3-day PHI
- Caneberries on Zeus XC and XC Prime; not Zeus
- HRG #14 (as is Aim, Goal and Chateau)
- Many restrictions on label:
 - Plants must be in ground > 3 years
 - Hooded or shielded sprayer required if used after petalfall

Intrepid (methoxyfenozide)

- Insect Growth Regulator
 - Controls leafrollers and other Lep larvae
 - IRAC #18A
 - Similar to Confirm but more broad spectrum
 - 3-day PHI (Confirm = 14 days)
 - Currently on a supplemental label; will add caneberries to main label at next revision.

Metaldehyde Slug Baits

(Numerous brands)

- New labels now on the market
- Changes:
 - 20 lb./A max per application (old = 10-40)
 - Three applications per year
 - 14-day treatment interval
- Can continue to use old labeled product
 - Follow the directions on those labels

Malathion 24c Labels for SWD (Caneberry)

SLN labels allow 4 applications per season

- Malathion 8 Aquamul (Loveland)
 - SLN# OR-130013
- Malathion 8 Flowable (Gowan)
 - SLN# OR-130011

Pending Caneberry Registrations

**** Not yet registered ****

Caneberry Registrations in Progress

(Not yet registered)

Herbicides (7)

Chateau (2009) (flumioxazin)	Pre-emerge; some post-emerge activity; broadleaf and grass weeds; Current = NB rasp only. HRG#14 (as are Aim and Goal)
Fusilade (2010) (fluazifop-butyl)	Post-emerge grass herbicide; excellent on guackgrass; Current = NB only. HRG#1 (as are Poast and Select)
Quinstar (2010) (quinclorac)	Pre- and post-emerge; broadleaf and grass weeds; good on field bindweed and morningglory; HRG #14; (as are Aim and Goal)
Prowl (2011) (pendimethalin)	Pre-emerge; broadleaf and grass weeds; HRG#3 (as are Kerb and Surflan)
Alion (2013) (indaziflam)	Mainly pre-emerge but some post-emerge activity; esp. effective in controlling broadleaf weeds (cow thistle, horseweed, smartweed, purslane, and vetch, and some grasses). HRG #29 (new class).
Sharpen (2014) (saflufenacil)	Pre- and post-emergence herbicide for broadleaf weeds. It has also been shown to be effective for primocane suppression.
Poast (2014) (sethoxydim)	Post-emerge grass herbicide. Currently registered for non-bearing. New study is to shorten PHI from 45- days to 1-day PHI.

Caneberry Registrations in Progress

(Not yet registered)

Insecticides (7)

Agri-Mek (2000) (abamectin)	Miticide for TSSM; adults and nymphs; full risk cup but now room; submit to EPA April 2013; IRAC #6 (new for caneberries)
Platinum (2009) (thiamethoxam)	Soil-applied for aphids (foliar, Actara, currently registered); root weevil larvae, also; “on hold” due to bee issues with neonics
Fujimite (2012) (fenyroximate)	Miticide for TSSM; adults and nymphs; IRAC #21A (new for caneberries)
Sivanto (2012) (flupyradifurone)	For aphid control; similar to spirotetramat (Movento) but non-systemic. IRAC class unknown. Label in 2015? Bee safe.
Exeril (2013) (cyantraniliprole)	Similar to chlorantraniliprole (Altacor); greater efficacy in control of root weevil adults, leafrollers, and SWD.
Closer (2014) (sulfoxalflor)	For control of piercing/sucking insects (aphids, Lygus, etc.) and suppression of thrips. It has low toxicity to beneficials. IRAC #4C (new for caneberries)
Tolfenpyrad/Hatchi (tolfenpyrad)	Wide-spectrum insecticide effective in controlling all life stages of aphids, thrips, scale insects, leafrollers, and spotted wing drosophila. IRAC #21 (new caneberries)

Caneberry Registrations in Progress

Fungicides (1)

Protexio (V-10135)
(fenpyrazamine)

A fungicide for control of Botrytis fruit rot disease. FRAC #17 (similar to Elevate/Captevate). Valent developed a new formulation that does not photo-degrade. Hope to see a label soon.

Residue Field Trials Slated for 2015

- Clopyralid (Stinger)
 - Post-emergence, contact herbicide. Effective in controlling clovers and hard-to-control weeds like Canada thistle.
 - Research shows ~100% control with 1/3 pint applied once in fall followed by a spring application.
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- Isoxaben (Trellis)
 - Currently registered as “Gallery” for NB caneberries
 - Broad-spectrum, pre-emergence herbicide. Effective in controlling broadleaf weeds like wild carrot, horseweed, sowthistle, prickly lettuce, dandelion. Partial control of field bindweed seedlings.
 - Safety to caneberries well documented

Metaldehyde Slug Baits

(Deadline, Blue Bombshell, others)

- Tolerance established 11/27/13.
- New labels to appear in 2014.
 - Rate = 20 lb pellets/A (0.8 lb ai/A)
 - 3 applications per season
 - 14 day retreatment interval
- Roll-out of new labels will be slow
- Can use old product with old label

Strawberry Registrations

Nealta (cyflumetofen)

- New miticide from BASF
 - Controls TSSM and other Tetranychid mites
 - All stages: eggs, nymphs and adults
 - Quick knock-down, long residual
 - 1-day PHI
- IRAC #25 (same as Acramite)

Merivon

(fluxapyroxad + pyraclostrobin)

- New fungicide from BASF
- Controls:
 - Leaf spot and powdery mildew at low rate
 - Anthracnose at middle rate
 - Botrytis fruit rot at high rate
- FRAC #7 and #11 (similar to Pristine)
 - Fontelis = #7
 - Cabrio, Abound/Quadris, Evito, Flint = #11

Metaldehyde Slug Baits

(Deadline, Blue Bombshell, others)

- Tolerance established 11/27/13.
- New labels to appear in 2014 (slow roll-out).
 - New Rate: 30 lbs. pellets/A (1.0 lb. ai/A)
 - Old Rate: 20-40 lbs. pellets (0.8-1.6 lb.)
 - New: 3 applications per season
 - Old label: undefined (∞)
 - New: 14 day retreatment interval
 - Old label: undefined
- Do Not Broadcast (apply next to, beneath or between plants)
- Can use old product with old label
- Follow rate, etc., on label of whichever product you have

Endosulfan Registration to be Cancelled

- Thionex and Thiodan
- Used for eriophyid mites (cyclamen mite)
- Phase-out of all endosulfan registrations
 - EPA not fond of organochlorine products
 - Perennial strawberry cancellation = 7/31/16
- Dicofol: stop-sale in 2013
 - Can use old product until 10/31/16
- Products containing avermectin or abamectin effective
 - Agrimek

Pending Strawberry Registrations

**** Not yet registered ****

Pending Strawberry Registrations - *Herbicides*

Dual (2009) (S-metolachlor)	Pre-emerge for grass and b.l. weeds. Esp. good on yellow nutsedge. HRG #15 (as is Devrinol). Use periods will be: at planting, after renovation, in fall, during dormancy. Petition sent to EPA 12/2012.
Fusilade (2010) (fluazifop-butyl)	Post-emerge for grass weeds. Esp. good on quackgrass. Registration will allow use in bearing crop (currently NB only). HRG# 1.
Reflex (2010) (fomesafen)	Some pre-emerge activity but best as post-emerge. Best on b.l. weeds (weak on grasses). HGR# 14 (new for strawb)

Pending Strawberry Registrations - *Fungicides*

Protexio (2009)
(fenpyrazamine)
(V-10135)

For *Botrytis* control. FRAC# 17 (same as Elevate). Valent developed a new formulation that does not photodegrade. Hope to see label in 2015.

Pending Strawberry Registrations - *Insecticides*

<p>Clutch (2008) (clothianidin)</p>	<p>IRAC# 4A insecticide (neonic): same as imidacloprid, thiamethoxam, and acetamiprid, but more broad spectrum. Controls many pests (aphid, leafhopper, Lygus, and others). Currently under review at EPA. PRIA date = 1/18/13. Still waiting for a tolerance.</p>
<p>Movento (mfg) (spirotetramat)</p>	<p>For aphids. Systemic. Bee-safe. Bayer not sure they will allow any further registrations of Movento in any crop, so not certain a registration will be granted and a label issued. IRAC #23 (new for strawberries)</p>



QUESTIONS?

