New Herbicides for Old Problems in Blueberry, Grape, Raspberry and Strawberry

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New Long Residual Herbicides for Weed Control in Perennial Crops (1)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
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<td>diclofop-methyl</td>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
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</tr>
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</tr>
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</tr>
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</tr>
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</tr>
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Preemergence Herbicides
Labeled for Fruit Crops

- Karmex – diuron
- Princep – simazine
- Sinbar – terbacil
- Chateau – flumioxazin
- Prowl H20 - pendimethalin
- Surflan – oryzalin
- Solicam – norflurazon
- Kerb – pronamide
- Goal – oxyfluorfen
- Velpar - hexazinone
Postemergence Herbicides
Labeled for Fruit Crops

- **Weedar** – 2, 4 D amine
- **Starane** – fluroxypyr
- **Rely** – glufosinate
- **Roundup** – glyphosate
- **Venue** – pyraflufen
- **Poast** – sethoxydim
- **Select** – clethodim
- **Gramoxone** – paraquat
- **Stinger** – clopyralid
Recent Herbicide Labels for Fruit Crops (1)

**Alion** – Pome, stone, tree nuts, **grape**

**Treevix** – Apple, pear

**Sandea** – Apple, **blueberry**

**Casoron CS** – Apple, pear, cherry, **grape**, **blueberry**

**Prowl H2O** – Pome, stone, **grape**
Recent Herbicide Labels for Fruit Crops (2)

**Matrix** – Pome, stone, grape, blueberry, raspberry

**Sinbar WDG** – Apple, peach

**Venue** – Pome, stone, grape

**Starane** – Pome

**Trellis** – grape, nuts

**Dual Magnum** – blueberry, caneberry
New Registrations in Process for Fruit Crops

Mission – flazasulfuron – grape (labeled in CA)
Trellis – isoxaben – all fruit; Labeled in grape.
Spartan – sulfentrazone – apple, blueberry
Pindar – penoxsulam + oxyfluorfen – grape, apple
Callisto – mesotrione – apple, grape
Prowl – pendimethalin – caneberry
Sandea – halosulfuron – caneberry, stone
Alion (indaziflam) 1.67 SC

Mode of Action: Cellulose synthesis inhibitor
Rate: 0.065-0.085 lb ai/a (5-6.5 fl oz)
Crops Labeled: Apple, pear, cherry, grape, peach, plum, nuts, trees established more than 3 years
Timing: Spring or Fall
Weeds Controlled: Most seedling annuals; no effect on emerged weeds
Apply with Roundup or Rely.
Casoron (dichlobenil) 1.4 CS

Mode of Action: Cellulose synthesis inhibitor
Rate: 2-4 lb ai/a (1.4-2.8 gal)
Timing: Fall or Spring
Crops Labeled: Apple, pear, cherry, grape, blueberry, raspberry
Weeds Controlled: Most annuals and perennials, nutsedge
Trellis (Gallery)(isoxaben)

- **MOA:** Cellulose Synthesis Inhibitor
- **Crops:** Grape, blueberry, raspberry; labeled on grape
- **Rate:** 1-1.33 lb product/acre
  Apply over the row after soil has settled.
- **Weeds Controlled:** Annual broadleaves (6-8 weeks); no grass control
Prowl H2O
(pendimethalin) 3.8 CS

Mode of Action: Mitosis inhibitor
Rate: 1.9-3.8 lb ai/a (2-4 qt)
Crops Labeled: Pome, stone, grape
Timing: Preemergence in Spring
Weeds Controlled: Annual grasses, broadleaves
Sandea (halosulfuron) 75 WG

Mode of Action: ALS inhibitor
Rate: 0.023-0.047 lb ai/a (0.5-1 oz)
Crops Labeled: Apple, blueberry
Timing: Pre or Post to weeds
Weeds Controlled: Nutsedge, pigweed, broadleaves
Matrix (rimsulfuron) 25 DF

Mode of Action: ALS Inhibitor
Rate: 0.063 lb ai/a (4 oz)
Crops Labeled: Pome, stone, blueberry, raspberry, grape
Timing: Spring
Weeds Controlled: Most annual broadleaves and grasses; poor groundsel control
Mission (flazasulfuron)

Mode of Action: ALS inhibitor
Rate: 0.045-0.9 lb ai/a
Crops Labeled: grape in CA only; other states will be later.
Timing: Preemergence in Spring
Weeds Controlled: Annual grasses, broadleaves
Chateau
(flumioxazin) 51 WDG

Mode of Action: PPO Inhibitor
Rate: 0.192-0.383 lb ai/a (6-12 oz)
Crops Labeled: Pome, stone, grape, blueberry
Timing: Fall or Spring
Weeds Controlled: Most annual broadleaves and grasses; poor horseweed control
Treevix (saflufenacil) 70 WG

Mode of Action: PPO Inhibitor
Rate: 0.044 lb ai/a (1 oz)
Crops Labeled: Apple, pear; no current plans to add crops to label.
Timing: Postemergence anytime
Weeds Controlled: Horseweed; many broadleaves
**Venue**

(pyraflufen-ethyl) 0.177 SC

**Mode of Action:** PPO Inhibitor

**Rate:** 0.001-0.0055 lb ai/a (0.7-4 fl oz)

**Crops Labeled:** Pome, stone, grape

**Timing:** Postemergence, use with Roundup or Rely to improve desiccation

**Weeds Controlled:** Faster desiccation of broadleaves; no effect on grass
Stinger (clopyralid) 3L

Mode of Action: Synthetic Auxin
Rate: 0.124-0.25 lb ai/a (0.33-0.67 pt)
Crops Labeled: Stone fruit, apple, blueberry
Timing: Emerged weeds
Weeds Controlled: Dandelion, horseweed, goldenrod, thistle, clover, vetch, nightshade, buckwheat, plantain
Preemergence Weed Control in New Fruit Plantings

• Surflan (oryzalin)
• Prowl H2O (pendimethalin)
• Devrinol (napropamide)
• Gallery – Trellis (isoxaben)
• Kerb (pronamidae)
Surflan (oryzalin)

- **MOA:** Mitosis Inhibitor
- **Crops:** Blueberry, raspberry, grape
- **Rate:** 2-4 qt/acre (max 12 qt/year)
  Apply soon after planting to weed-free soil
- **Weeds Controlled:** Annual grasses (6-8 weeks), annual broadleaves (4-6 weeks)
Prowl H2O (pendimethalin)

- **MOA:** Mitosis Inhibitor
- **Crops:** Grape
- **Rate:** 2-4 qt/acre
  
  Apply after soil settles, directed to soil. Do not apply over plants

- **Weeds Controlled:** Annual grasses and broadleaves. No control of composites, mustards, or perennials (8-10 weeks control at high rate)
Devrinol (napropamide)

- **MOA:** Cell Division Inhibitor
- **Crops:** Blueberry, caneberry, cranberry, grape
- **Rate:** 6-8 lb product/acre
  
  Apply as broadcast over the row of new plants
- **Weeds Controlled:** Annual grasses and broadleaves (6-8 weeks control)
Kerb (pronamido) 3.3 SC

- **MOA:** Mitosis Inhibitor
- **Crops:** Grape established more than 6 months; blueberry, raspberry (established 3 months)
- **Rate:** 1-4 lb/ai (2.5 – 9.5 pt/a)
- **Weeds Controlled:** Quackgrass, annual grasses (4-8 weeks). Apply in fall if possible.
Gallery – Trellis (isoxaben)

- **MOA:** Cellulose Synthesis Inhibitor
- **Crops:** Grape, blueberry, raspberry; Safe on young bushes and trees.
- **Rate:** 1-1.33 lb product/acre
  Apply over the row after soil has settled.
- **Weeds Controlled:** Annual broadleaves (6-8 weeks); no grass control
Postemergence Weed Control in Small Fruit Plantings

Gramoxone – paraquat
Roundup – glyphosate
Stinger – clopyralid
Aim – carfentrazone
Venue – pyraflufen-ethyl
Rely - glufosinate
Gramoxone (paraquat)

**MOA:** PSI inhibitor

**Crops:** All fruit crops

**Rate:** 2.5-4 pt/a + NIS

**Weeds:** Desiccates all green plants. Potential crop injury; avoid contact with crop plants
Roundup (glyphosate)

Crops: All fruit crops
Rate: 1-4 qt/acre
Weeds: Annuals and perennials. Potential crop injury; do not spray crop plants. Original formula (4 lb IPA salt/gal) is the safest on crop plants; do not add surfactant if there is potential for crop contact.
Stinger 3L (clopyralid)

Spur – Albaugh product
MOA: auxin disruptor
Crops: Blueberry
Rate: 2.6-5.3 fl oz/a (0.063-0.125 lb ai) on blueberry
Weeds: Composites (dandelion, Canada thistle, horseweed), legumes, nightshade, smartweeds, plantain
Rely (glufosinate)

**MOA:** glutamine synthesis inhibitor

**Crops:** Grape, blueberry

**Rate:** 0.88 – 1.5 lb/ai (3-4 pt/a)

**Weeds:** most annuals

**Caution:** do not spray on crop plants; safer than Roundup on crop plants, but no translocation; no product for 2013.
Aim – carfentrazone

**MOA:** PPO inhibitor

**Crops:** Grape, blueberry, raspberry

**Rate:** 2-6 fl oz/a

**Weeds:** Small broadleaves. Do not spray crop plants. Direct the spray to the soil at the base of bushes and trees.
**Venue – pyraflufen-ethyl**

**MOA:** PPO inhibitor

**Crops:** Grape

**Rate:** 0.7-4 fl oz/a

**Weeds:** Desiccation of small broadleaves. Do not spray trees or vines. Use with other POST herbicides. May be used for sucker control.
Fusilade, Poast, Select Max

**Crops:** All fruit crops have one or more postemergence grass herbicides registered

**Rate:** Use high rates for perennial grass control

**Weeds:** Annual bluegrass – Select Max
Quackgrass – Fusilade
Other grasses – Any grass killer
Preemergence Weed Control for New Plantings

1. **ProwlH2O**: grape, strawberry
2. **Surflan**: blueberry, caneberry, grape
3. **Devrinol**: blueberry, caneberry, grape, strawberry
4. **Gallery/Trellis**: blueberry, caneberry
Postemergence For New Plantings

1. Postemergence herbicides (except Stinger, Poast, Select) may injure young crop plants.

2. Use a shielded sprayer for applications during the growing season.

3. In fall, Roundup may be applied in a band on each side of row to kill winter annuals and perennials.

4. Include Aim or Venue with Roundup and Rely for faster burn down.
Weed Control in Year of Planting Blueberry

• Set dormant plants in early spring.
• Apply Devrinol or Surflan plus Gallery after soil has settled and before annual weeds germinate.
• Solicam after 6 months for Pre grass control
• Poast, Fusilade, or Select for Post grasses.
• Stinger for composites, clover, nightshade; avoid crop contact.
Preemergence Weed Control in Established Blueberry - Fall

• Dormant – Casoron or Princep, Karmex, or Sinbar; or Chateau; and/or Kerb for quackgrass.

• Include Roundup to kill winter annuals; avoid spraying green bark of blueberry. Use 4 lb IPA salt/gal (original) formulation.
Preemergence Weed Control in Established Blueberry – Spring

- **Velpar** – Early spring before bud break for woody perennials; every other year
- **Callisto plus Sinbar, Karmex, or Princep**
- **Chateau** during the growing season (7 day PHI)
- **Sandea** for YENS control. 14 day PHI
- **Roundup** for emerged weeds in aisles
Postemergence Weed Control in Established Blueberry

- Rely 280, Gramoxone, or Aim after new blueberry growth appears, for weed desiccation.
- Poast to control grasses. 30 day PHI
- Sandea for nutsedge and pigweeds, other broadleaves. 14 day PHI
- Stinger for composites, clover, nightshade, smartweed, plantain. 30 day PHI
- Roundup: do not spray on bushes; contact with young canes will injure the plant. 14 day PHI
Preemergence Herbicide Combinations for Grapes

- Karmex 3-4 lb + Surflan 2-4 qt
- Princep 3-4 lb + Prowl H2O 4-6 qt
- Chateau 8-12 oz + Prowl 4 or Surflan 4 qt
- Matrix 4 oz + Prowl 4 or Surflan 4 qt
- Trellis 1 lb + Kerb 4 lb
Additional Preemergence Herbicides for Grape

- **Kerb** 3-4 lb in fall for quackgrass, annual bluegrass, common chickweed control
- **Casoron** 1.4 CS 2.8 gal in fall for nutsedge and other perennials
- **Goaltender** 2-4 pt in spring for broadleaves; field pansy control
Postemergence Applications - Grape

- **Roundup** 1-3 qt in spring with PRE herbicides or post during the season; 14 day PHI
- **Rely 280** in spring or during the season to kill emerged weeds; 14 day PHI
- **Gramoxone** to kill emerged weeds
- **Aim** 1-2 oz/acre. Use with other herbicides; for broadleaf desiccation. 3 day PHI
- **Venue** 1-4 fl oz. Use with other herbicides. 0 day PHI.
- **Poast** to kill emerged grasses; PHI 50 days
Weed Control in New Caneberry Plantings

1. **Surflan + Gallery** Preemerge after planting
2. **Poast, Fusilade, or Select** POST for grasses
3. **Kerb** 1-3 lb/ai after 3 months for PRE grass control
Weed Control in Established Caneberry (1)

1. Pre - **Karmex** or **Sinbar** in fall or spring for horseweed and fleabane control

2. **Surflan** or **Dual Magnum** in spring for grass control

3. **Casoron CS** – fall perennial control

4. **Kerb SC**- fall quackgrass and annual bluegrass control
Weed Control in Established Caneberry (2)

5. **Matrix** spring PRE or early POST; directed to soil on each side of row; potential crop stunting

6. **Roundup** or **Gramoxone** directed to each side of the row; avoid crop contact

7. **Fusilade, Poast** or **Select** for post grass control
Weed Control in Strawberry – New Plantings

Devrinol: 3-4 lb/ai – apply after transplanting

Sinbar: 0.1–.3 lb/ai - 2-6 oz after transplanting

Spartan: 4-8 fl oz before or after transplanting

Prowl H2O: 0.71 – 1.4 lb/ai (1.5-3 pt) before or after transplanting – annual grasses
Strawberry – Established Plantings

**Devrinol**: 4-8 lb early spring

**Spartan**: 4-8 fl oz early spring, at renovation, or late fall; for control of field pansy, groundsel, mayweed, pigweed, wood sorrel, white campion, buckwheat

**Prowl H20**: 3 pt early spring, after renovation, fall dormant for annual grasses

**Sinbar**: 0.4 (8 oz)- renovation or fall dormant

**Ultra Blazer**: 1.5 pt – renovation and fall dormant
Strawberry Postemergence

• 2, 4-D amine (Formula 40) 1 qt – at renovation for perennial weed control

• Stinger 5-10 fl oz – spring or fall – composite weeds, thistle, dandelion, mayweed, clover

• Poast and Select- grasses
SPARTAN 0.25
FALL
Pesticide Labels

All labels of registered pesticides in USA are available at: CDMS.net

Dual Magnum indemnified labels at: www.farmassist.com

The End.