



Great Lakes Fruit, Vegetable & Farm Market EXPO Michigan Greenhouse Growers EXPO

December 10-12, 2019

DeVos Place Convention Center, Grand Rapids, MI



Blueberry II

Moderator: Steve Hunt, MSHS Trust Committee, Grand Junction, MI

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|---------|--|
| 2:00 pm | Where Does the Michigan Blueberry Industry go From Here? <ul style="list-style-type: none">• Mark Longstroth, Michigan State University Extension |
| 2:30 pm | Managing the 'Spotted Weapon of Destruction' (SWD) in Michigan Blueberries (OH 2B, 0.5 hrs) <ul style="list-style-type: none">• Rufus Isaacs, Michigan State University (Department of Entomology) |
| 3:00 pm | Machine Harvesting Blueberries for the Fresh Market in Washington <ul style="list-style-type: none">• Lisa DeVetter, Washington State University Northwestern Washington Research and Extension Center |
| 3:20 pm | Blueberry Weed Control <ul style="list-style-type: none">• Bernie Zandstra, Michigan State University Horticulture Department |
| 3:30 pm | The Michigan Blueberry Commission <ul style="list-style-type: none">• Kevin Robson, Michigan Farm Bureau |

Blueberry Weed Control 2020
 Bernard Zandstra
 Michigan State University

 EXPO
 Grand Rapids, MI
 December 11, 2019

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New Herbicide Labels for Blueberry in Past 5 Years

- Prowl H₂O
- Alion
- Trellis
- Quinstar
- Embed Extra
- Fusilade

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Prowl H₂O

- The Prowl H₂O 24c label expired at the end of 2018. It will not be renewed, because of potential crop injury.

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Alion 1.67 SC

1. Cellulose synthesis inhibitor (29 L)
2. Blueberries > 1 year in the field.
3. Sol. 2040 ppm. Do not use on sand or gravel.
4. Controls grasses and broadleaves for 8-12 weeks.
5. Weak on COLQ, HOWE, CORW.

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Trellis 4.16 SC

1. Cellulose synthesis inhibitor (21 L).
2. Sol. 1 ppm.
3. Controls most broadleaves 4-6 weeks. HOWE, RESO, COPW
4. No grass control.
5. 60 day PHI.

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Quinstar 4L

1. Auxin disruption (4 0).
2. Postemergence control of COLQ, HOWE, mustard, nightshade, pigweed, ragweed, BYGR, LACG, foxtail, CATH, bindweed.
3. Apply before bud break and 30 days later. 30 day PHI.
4. Similar to Stinger and 2,4-D.

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Embed Extra 3.8L

1. Auxin disruptor (4 0); low volatile choline salt of 2,4-D.
2. Apply in spring or after harvest.
3. Controls annual and perennial BL.
4. BLBE is sensitive to 2,4-D. Use directed and shielded applications.
5. PHI of 30 days.

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Fusilade DX 2

1. Postemergence grass control (1 A).
2. Perennial grass control.
3. 1 day PHI.

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Preemergence Herbicides by MOA Photosynthetic Inhibitors (PSII)

<u>Trade Name</u>	<u>Common Name</u>	<u>Solubility (PPM)</u>	<u>HRAC Group</u>
Karmex	diuron	42	7(C2)
Sinbar	terbacil	710	5(C1)
Princep	simazine	2	5(C1)
Velpar	hexazinone	33,000	5(C1)

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PPO Inhibitors (14E)

Trade Name	Common Name	Solubility
Chateau	flumioxazin	2
Zeus XC	sulfentrazone	780

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Mitosis Inhibitors

Trade Name	Common Name	Solubility (PPM)	HRAC Group
Kerb	pronamide	15	3(K1)
Surflan	oryzalin	3	3(K1)
Devrinol	napropamide	73	15(K3)
Dual Magnum	s-metolachlor	488	15(K3)

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ALS Inhibitors

Trade Name	Common Name	Solubility (PPM)	HRAC Group
Matrix	rimsulfuron	7300	2(B)
Sandea	halosulfuron	15	2(B)

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Cellulose Synthesis Inhibitor

Trade Name	Common Name	Solubility (PPM)	HRAC Group
Trellis	isoxaben	1	21(L)
Alion	indaziflam	2040	29(L)
Casoron	diclofenil	21	29(L)

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Others

Trade Name	Common Name	Solubility (PPM)	HRAC Group
Solicam	norflurazon	28	12(F1)
Callisto	mesotrione	2200	27(F2)

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Problem Weeds

Weed	Herbicide
Yellow nutsedge	Sandea, Casoron, Zeus, Sinbar, Dual Magnum
Composites: white heath aster, goldenrod, horseweed, dandelion, fleabane, hawkweed, Canada thistle, sowthistle	Zeus Stinger, Quinstar, 2,4-D

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Problem Weeds

Weed	Herbicide
Red sorrel, hairy vetch, clover	Stinger, Trellis
Wild buckwheat	Mesotrione, Trellis Stinger, 2,4-D

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Problem Weeds

Weed	Herbicide
Wild grape, Virginia creeper, poison ivy, mulberry, maple	Hand removal, 2,4-D
White campion	Roundup, 2,4-D
Horsenettle	Casoron, Stinger

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- ### Early Spring Weed Control
1. Alion + Karmex + Glyphosate
 2. Chateau + Sinbar + Gramoxone
 3. Princep + Callisto + COC
 4. Trellis + Surflan + Rely

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Midsummer Weed Control (PHI)

1. Chateau (7) + Zeus XC (3) + Rely (14)
2. Sandea (14) + Stinger (30) + Fusilade (1)
3. Matrix (21) + Zeus XC (3) + Quinstar (30)

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After Harvest

1. Karmex; Princep; Chateau
2. Stinger; Quinstar; Embed Extra
3. Poast; Fusilade; Select Max

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Late Fall Herbicides

1. Kerb – quackgrass
2. Sinbar, Sollicam, Alion
3. Rely; Embed Extra; Stinger

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Stinger 3L – Weeds (1)

- **Composites:** aster, horseweed, fleabane, dandelion, thistle, sowthistle.
- **Legumes:** clover, vetch, trefoil.
- **Nightshade:** eastern black NS, groundcherry, horsenettle.

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Stinger 3L – Weeds (2)

- **Smartweeds:** ladythumb, Pennsylvania smartweed, prostrate knotweed, red sorrel, curly dock, wild buckwheat.
- **Wild carrot**
- **Plantain**

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Stinger 3L – Timing and Rate

- Max rate: 5.3 fl oz (0.125 lb ai) X2.
- Don't spray: 1 week before bloom – 1 week after bloom; 30 day PHI.
- Minimal effect on non-sensitive species, including blueberry.

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Gramoxone SL 3

- New formulation
- Closed system handling
- No backpack applications

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Velpar

- Weeds: broadleaves, woody perennials.
- Very soluble 33K; do not use on sand.
- No control of horsenettle, poison ivy, Virginia creeper, brambles.

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Cut-stump Treatment

- It doesn't work very well.
- Brush-apply herbicide to green bark and leaves of woody weeds.



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Weed control plans (1)

1. Early Spring: PSII inhibitor (Karmex) + PPO inhibitor (Zeus XC) + **Roundup**
2. Late Spring (if no early spring application): PSII inhibitor + PPO inhibitor + **Gramoxone** OR **Rely**
3. Mid-season: **Matrix** OR **Sandea** + grass killer
4. Fall: **Kerb** OR **Solicam**

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Weed control plans (2)

- Next year, use different herbicides:
 - **Alion**
 - **Callisto**
 - **Solicam**
 - **Surflan**
 - **Casoron**

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Thank You

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Questions?

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