6 Blueberry I

Where: Grand Gallery Room A & B
OH Recertification Credits: 1 (presentations as marked)
CCA Credits: CM (1) PM (1)
Moderator: Mike DeGrandchamp, MSHS Board, South Haven, MI

9:00 AM **Horticultural Review of Michigan's Blueberry Industry: A Reprise**
- Eric Hanson, Michigan State University

9:30 AM **SWD and Other Blueberry Insects (OH 2B, 1 hr)**
- Vaughn Walton, Oregon State University

10:00 AM **Seeking Your Input for MSU's New Blueberry Pathology Program**
- Tim Miles, Michigan State University

10:30 AM **Overview of the British Columbia Blueberry Industry**
- Eric Gerbrandt, British Columbia Blueberry Council

11:00 AM **Session Ends**

Gibberellin and Herbicide Trial Results - 2018

Eric Hanson and Lexie Kelsey, Department of Horticulture, MSU
(517.355-0386) email (hansone@msu.edu)

This reports described recent trials on efficacy of new herbicides on blueberry weeds and the effect of gibberellic acid (GA) on blueberry fruit set. The GA trials were conducted by Lexie Kelsey, an MSU undergraduate student.

GIBBERELLIN TRIALS

GA has been used for several decades to increase fruit set and yield in blueberries but how newer varieties respond to GA is not known. Some older varieties, such as 'Jersey', respond somewhat consistently to GA because fruit set is often poor. We conducted trials in 2017 and 2018 on several popular cultivars to determine their response to GA. Trials were conducted on plants in East Lansing that were planted in 2004 and managed organically until 2017, then conventionally in 2018.

2017 trials were conducted on 'Duke', 'Bluecrop' and 'Draper'. Treatments were an untreated control, 80 g a.i./acre GA applied at full bloom, and a split treatment of 40 g a.i./acre applied at full bloom and petal fall.. Treatments were applied to single bushes (4 replicates) with a hand sprayer to the point of drip. Flowers and resulting fruit on four branches per bush were counted to calculated percent fruit set. Mature fruit were harvested, counted and weighed to determine yield and average berry weight. The same treatments were tested in 2018 on the varieties Duke, Bluecrop, Draper, and Nelson.

Varieties varied in their response to GA treatments, with some types responding and others not (Tables 1 and 2). Often GA increased fruit set without a corresponding increase in yield. In 2017, the split treatment (bloom + petal fall) was superior whereas the bloom only application was more consistent in 2018. These inconsistent results are similar to initial studies years ago that lead to the labelling of GA on blueberries. Pollinators and weather conditions influence the response to GA from year to year. These results suggest that the newer varieties Duke, Draper and Nelson are responsive to GA when conditions are right.

Table 1. Effect of GA treatments on fruiting of three blueberry varieties in East Lansing, MI, 2017.

GA rate per acre, timing[y]	Fruit set (%)	lb/bush	g/berry
	DUKE		
Control	43 a[z]	1.7 a	1.27 b
80 g, bloom	84 b	2.2 ab	1.09 a
40 g, bloom and petal fall	78 b	3.4 b	1.06 a
	BLUECROP		
Control	72	2.0	1.36
80 g, bloom	87	1.8	1.23
40 g, bloom and petal fall	89	1.9	1.39
	DRAPER		
Control	50 a	1.9 a	1.59
80 g, bloom	72 ab	1.7 a	1.37
40 g, bloom and petal fall	82 b	3.4 b	1.27

[y] Bloom sprays applied on 5 May (Duke) or 15 May (Bluecrop, Draper). Petal fall sprays applied on 16 May (Duke) or 1 June (Bluecrop, Draper).

[z] Means followed by common letters not significantly different.

Table 2. Effect of GA treatments on fruiting of blueberry varieties in East Lansing, MI, 2018.

GA rate per acre and time [y]	Fruit set (%)	lb/bush	g/berry
	DUKE		
Control	49 a[z]	1.6	1.23
80 g at bloom	84 b	1.9	1.00
40 g at bloom and petal fall	62 ab	1.8	1.17
	BLUECROP		
Control	54 a	2.8	1.27
80 g at bloom	81 b	2.5	1.13
40 g at bloom and petal fall	78 ab	2.6	1.14
	DRAPER		
Control	53 a	1.1 a	1.27
80 g at bloom	84 ab	2.1 b	1.30
40 g at bloom and petal fall	86 ab	1.8 ab	1.37
	NELSON		
Control	34 a	1.4 a	1.46
80 g at bloom	65 ab	2.3 b	1.54
40 g at bloom and petal fall	80 b	1.7 ab	1.30

[y] Bloom sprays applied on 23 May (Duke, Bluecrop) 25 May (Draper) or 27 May (Nelson). Petal fall sprays applied on 31 May (Duke, Bluecrop, Nelson) or 1 June (Nelson).
[z] Means followed by common letters not significantly different.

HERBICIDE TRIALS

Two trials were conducted in 2017/2018 to compare some newer and older herbicides applied in the fall or spring. One trial was conducted in an old block of 'Jersey' where overall weed control was low. The primary weeds present were annual grasses (crabgrass, fall panicum), horse nettle, milkweed, yellow woodsorrel and Pennsylvania smartweed. The second trial was in a younger block of 'Elliott' where weed pressure was higher. Weeds present were wild carrot, annual grasses (crabgrass, foxtails, fall panicum), horsenettle, milkweed, marestail and Pennsylvania smartweed.

Plots were rated for percent weed cover on 15 June and 16 Aug, 2018. Elliott plots showed the most apparent treatment effects (Table 3). Fall Chateau and spring Alion had the fewest weeds. Alion and Solicam appeared to provide the best control of annual grasses. No herbicides provide control of perennial weeds (milkweed, horsenettle). Weed pressure in the Bluecrop block was low and treatment differences were limited (Table 4). The spring applied Chateauu and Casoron treatment provided the best overall control.

Spring treatments resulted in slightly better control than the same materials applied in the fall. In previous trials, fall and spring treatments often provided similar weed control. Why the spring treatments were more effective here in not known, but fall herbicide treatments are often more convenient than spring applications because growers are generally less busy and timing is a little less critical than in the spring. Growers are encouraged to experiment on their farms with fall applications. Herbicides that have relatively long residual activity, such as, Alion, Casoron, Chateau and Solicam seem to be good candidates for fall use.

Table 3. Effect of fall and spring herbicide treatments on weed control in 2018, 'Elliott' blueberries.

		% Weed Cover	
Time[Z]	Product (lb ai/acre)	15 June	16 Aug
Fall	Alion SC 1.67 (0.045)	17	43
Fall	Chateau 51% (0.38	8	37
Fall	Karmex 80 W (2)	33	100
Fall	Karmex 80W (2) + Matrix 25 SG (0.063)	25	83
Fall	Solicam 80DF (2)	40	90
Spring	Alion SC 1.67 (0.045)	7	38
Spring	Chateau 51% 0.38)	21	27
Spring	Karmex 80 W (2)	10	67
Spring	Karmex 80W (2) + Matrix 25 SG (0.063)	13	47
Spring	Solicam 80DF (2)	50	80
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[Z]Fall treatments: November 7, 2017. Spring treatments: April 27, 2018.

Table 4. Effect of fall and spring herbicide treatments on weed control in 2018, 'Jersey' blueberries.

		% Weed Cover	
Time[Z]	Product (lb ai/acre)	15 June	16 Aug
Fall	Casoron 1.4 CS (2)	16	37
Fall	Chateau 51% (0.38)	5	28
Fall	Karmex 80 W (2)	12	33
Fall	Karmex 80W (2) + Solicam 80DF (2)	8	23
Fall	Solicam 80DF (2)	22	40
Spring	Casoron 1.4 CS (2)	3	12
Spring	Chateau 51% (0.38)	4	7
Spring	Karmex 80 W (2)	10	17
Spring	Karmex 80W (2) + Solicam 80DF (2)	12	30
Spring	Solicam 80DF (2)	15	27
----	Control	27	53

[Z]Fall treatments: November 7, 2017. Spring treatments: April 27, 2018.