Project Number: 13C-3419-7297

Title: Wild Buckwheat (Bindweed) Control in Red Raspberries

Personnel: Timothy W. Miller, WSU Mount Vernon NWREC
Carl R. Libbey, WSU Mount Vernon NWREC

Reporting Period: 2010-11

Accomplishments: The trial was conducted near Lynden (Randy Honcoop, cooperator) and 2010 was the second season of testing the effects of several herbicides on wild buckwheat (locally called bindweed). Three other trials testing the effects of potential and currently registered primocane management products and the Canada thistle control herbicide clopyralid on red raspberry were also conducted (at WSU NWREC and near Burlington (Sakuma Brothers farms, cooperator). Data for the first all trials will be presented at the red raspberry commission meeting for project review and at winter grower meetings during 2010-11.

Materials and Methods:
In 2009, treatments were applied April 7, April 17, and May 27 for preemergence, for caneburning, and for postemergence timings. Weed control was evaluated June 17 and then plots were weeded by the cooperator. Berries were sampled July 10, and primocane counts were made in April, 2010. The same plots were used in 2010. This year's treatments were applied April 2, May 4, and June 3 preemergence, for caneburning, and for postemergence timings. Weed control was estimated June 3 and June 30. Berries were sampled July 14, after which the raspberry block was removed by the cooperator. The design was a randomized complete block with four replicates.

Results:
2009 trial. Due to variability in the amount of seedlings found in each plot, there was not a significant affect of herbicide treatment on wild buckwheat control (Table 1). Still, the raw numbers indicate that several of these herbicides likely showed activity on wild buckwheat. Labels of all products mention annual *Polygonum* spp. weeds, although only Karmex and Aim labels specifically mention wild buckwheat (Karmex for control, Aim for suppression). No herbicide caused a reduction in berry yield, so it appears all these products are safe in raspberry. A second year of testing is warranted, particularly using combination treatments of these products, provided a suitable field can be located.

2010 trial: There were no difference in floricane counts amongst the 2009 treatments, indicating that these herbicides did not cause lasting effects to primocanes in 2009 (Table 3). While wild buckwheat did not show significant effects by any herbicide on June 3, by June 30 wild buckwheat control was significantly better than in non-treated plots (Table 2). Primocane reductions at the same evaluation date ranged from slight with preemergence herbicides (1 to 18%), to high with a second cane burning with Aim or Goal (67 and 59%, respectively) or Matrix or Sandea (63 and 55%, respectively). This level of injury from Matrix and Sandea was not noted during 2009, or in studies conducted in previous years, although evaluations were made at similar timings after postemergence applications. Should either product be registered

for use in raspberry (note that neither is currently registered), care should be exercised if applied in midseason. Berry yield was reduced by Matrix compared to nontreated raspberries, although yield in this older planting was low (Table 3).

Based on this two-year trial, it appears that wild buckwheat is controlled after two annual applications of Surflan, Karmex, or simazine applied at cane burning time. June applications with Aim, Goal, Matrix, or Sandea caused injury to primocanes in 2010, while Matrix also significantly reduced berry yield.

Table 1. Wild buckwheat density and control and raspberry yield following application of several herbicides in red raspberry (2009).

Treatment[a]	Timing	Rate	Wild buckwheat[b]	Berry yield[c]
		product/a	no./25 ft row (% control)	lb/a
Surflan	Cane burn 1	4 qt	31 (70)	1498
Karmex	Cane burn 1	3 lb	10 (90)	1383
Simazine	Cane burn 1	3 qt	2 (98)	1608
Devrinol	Cane burn 1	8 lb	33 (68)	1685
Aim + mso	Cane burn 2	6.4 fl.oz + 1%	51 (50)	1388
Goal + mso	Cane burn 2	2 pt + 1%	9 (91)	1559
Matrix + nis	POST	4 oz + 0.25%	30 (71)	1743
Sandea + nis	POST	2 oz + 0.25%	8 (92)	1785
Non-treated	---	---	103 (0)	1706
$LSD_{0.05}$	---	---	NS	NS

Means followed by the same letter are not significantly different ($P < 0.05$).
[a]Herbicides were applied April 7 (Caneburn1), April 17 (Caneburn2), and May 27 (POST).
[b]Weed control estimated June 17.
[c]Berries sampled by hand July 10.

Table 2. Wild buckwheat density and control following application of several herbicides in red raspberry (2010).

			Wild buckwheat[b]	
Treatment[a]	Timing	Rate	June 3	June 30
		product/a	no./25 ft row (% control)	% control
Surflan	Cane burn 1	4 qt	30 (97)	94 a
Karmex	Cane burn 1	3 lb	48 (88)	82 a
Simazine	Cane burn 1	3 qt	37 (93)	77 ab
Devrinol	Cane burn 1	8 lb	150 (66)	53 bc
Aim + mso	Cane burn 2	6.4 fl.oz + 1%	49 (93)	78 ab
Goal + mso	Cane burn 2	2 pt + 1%	3 (99)	96 a
Matrix + nis	POST	4 oz + 0.25%	---	89 a
Sandea + nis	POST	2 oz + 0.25%	---	95 a
Non-treated	---	---	152 (69)	47 c
$LSD_{0.05}$	---	---	NS	27

Means followed by the same letter are not significantly different ($P < 0.05$).
[a]Herbicides were applied April 2 (Caneburn1), May 4 (Caneburn2), and June 3 (POST).
[b]Weed control estimated June 3 and June 30.

Table 3. Raspberry floricane counts and primocane reduction following application of several herbicides in red raspberry (2010).

Treatment[a]	Timing	Rate	Floricane count[b]	Primocane reduction/injury[b]	Berry yield[c]
		product/a	no./25 ft row	% control	lbs/a
Surflan	Cane burn 1	4 qt	91	15 bc	2990 a
Karmex	Cane burn 1	3 lb	92	1 c	2508 ab
Simazine	Cane burn 1	3 qt	93	11 bc	2366 ab
Devrinol	Cane burn 1	8 lb	96	18 bc	2094 bc
Aim + mso	Cane burn 2	6.4 fl.oz + 1%	85	67 a	2330 abc
Goal + mso	Cane burn 2	2 pt + 1%	85	59 a	2503 ab
Matrix + nis	POST	4 oz + 0.25%	67	63 a	1476 c
Sandea + nis	POST	2 oz + 0.25%	82	55 a	2189 abc
Non-treated	---	---	94	25 b	2459 ab
$LSD_{0.05}$	---	---	NS	21	900

Means followed by the same letter are not significantly different ($P < 0.05$).

[a]Herbicides were applied April 2 (Caneburn1), May 4 (Caneburn2), and June 3 (POST).

[b]Floricanes counted April 2, 2010; primocane injury estimated June 30.

[c]Berries sampled by hand July 14.