Project Number: 13C-3419-7297

Title: Perennial Weed Control in Red Raspberries

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Accomplishments: The herbicide trial was conducted at WSU NWREC. Two other raspberry trials were conducted during 2012: an IR-4 performance trial for Dual Magnum (s-metolachlor), Prowl H2O (pendimethalin), and Facet (quinclorac), and a polytunnel raspberry herbicide trial in Invergowrie, Scotland. Data for the herbicide trial are reported here; data from all the trials will be presented during the red raspberry portion of the Northwestern Washington Small Fruit Conference in Lynden in December, 2012.

Materials and Methods:

The trial was conducted on established 'Meeker' at WSU NWREC. Callisto (mesotrione) was applied preemergence (PRE) to primocanes alone at two rates and in combination with Sinbar (terbacil), simazine, Reflex (fomesafen), or Dual Magnum on March 24, 2012. Stinger (clopyralid) was applied postemergence (POST) June 3, 2012. Plots were caneburned with Aim (carfentrazone) April 12 (whole bed). Weed control and crop injury were evaluated May 2, and June 13, 19, and 29. Berries were machine harvested eight times July 9 through August 7. The design was a randomized complete block with four replicates.

Results:

There was no visible primocane injury resulting from any Callisto application, either alone or in combination (Table 1). Stinger application in early June caused leaf cupping and other epinastic growth in foliage, which persisted through the end of June. Weed control was initially excellent, ranging from 90 to 98% in early May; control from all treated plots exceeded 80% by the end of June. The primary weed in the plots was fringed willow-herb (*Epilobium ciliatum*), with field horsetail (*Equisetum arvense*) and dandelion (*Taraxacum officinale*) also present in many of the plots. Total berry yield was similar for all treatments, ranging from 6224 to 7280 lb/acre.

These results indicate that the herbicides used in this trial were safe for established red raspberry. Stinger applied POST caused slight damage to primocane foliage, but did not negatively affect berry yield.

Table 1. Primocane injury and weed control following application of several herbicides in red raspberry (2012).

Treatment[a]	Rate	Primocane injury[b]				Weed control[b]			
		5/2	6/13	6/19	6/29	5/2	6/13	6/19	6/29
	product/a	%	%	%	%	%	%	%	%
Callisto + Sinbar	3 fl.oz + 1.5 lb	0	0 c	0 c	0 c	98 a	95	95 a	95 a
Callisto + simazine	3 fl.oz + 3 qt	0	0 c	0 c	0 c	96 ab	94	95 a	95 a
Callisto + Reflex	3 fl.oz + 2 pt	0	0 c	0 c	0 c	95 ab	93	93 ab	95 a
Callisto + Dual Magnum	3 fl.oz + 2 pt	0	0 c	0 c	0 c	95 ab	90	95 a	95 a
Stinger	5.3 fl.oz	---	15 b	5 b	5 b	---	96	93 ab	95 a
Stinger	10.7 fl.oz	---	25 a	8 a	10 a	---	91	91 ab	95 a
Callisto	3 fl.oz	0	0 c	0 c	0 c	93 ab	86	90 ab	84 b
Callisto	6 fl.oz	0	0 c	0 c	0 c	90 b	79	86 bc	94 a

Means within a column and followed by the same letter, or not followed by a letter, are not significantly different ($P < 0.05$).

[a]Callisto and Callisto tank mixtures were applied March 25 (PRE), Stinger was applied June 3 (POST), 2012.

[b]Primocane injury and weed control on May 2 were prior to Stinger application.

Table 2. Raspberry yield following application of several herbicides (2012).

Treatment[a]	Rate	Total berry harvest[b]
	product/a	lbs/a
Callisto + Sinbar	3 fl.oz + 1.5 lb	7280
Callisto + simazine	3 fl.oz + 3 qt	7262
Callisto + Reflex	3 fl.oz + 2 pt	7351
Callisto + Dual Magnum	3 fl.oz + 2 pt	6459
Stinger	5.3 fl.oz	6894
Stinger	10.7 fl.oz	6964
Callisto	3 fl.oz	6381
Callisto	6 fl.oz	6224
Non-treated	---	6720

Means within a column and followed by the same letter or not followed by a letter are not significantly different ($P < 0.05$).

[a]Callisto and Callisto tank mixtures were applied March 25 (PRE), Stinger was applied June 3 (POST), 2012.

[b]Berries harvested eight times by machine (July 9 through August 7, 2012).