

## **Final Report**

**Title:** Developing Herbicide Programs for Weed Management in Commercial Blackberry Plantings.

**SRSFC Project # 2010-08**

### **Name, Mailing and Email Address of Principal Investigator(s):**

Wayne Mitchem  
NCSU Department of Horticultural Science  
455 Research Drive  
Mills River, NC 28759  
wayne\_mitchem@ncsu.edu

Katherine Jennings  
NCSU Department of Horticultural Science  
Box 7609, Raleigh, NC 27695-7609  
katie\_jennings@ncsu.edu

### **Objectives:**

1. Develop research based weed management programs for commercial blackberry production to be utilized in state and regional publications.
2. Compare registered herbicides for their effectiveness in commercial blackberry production.
3. Evaluate herbicides undergoing label development through IR-4 for their utility in commercial blackberry production.

### **Materials and Methods:**

Studies were initiated in December 2009 at three North Carolina commercial blackberry locations: one in Lincolnton (Western NC) with 'Navaho' blackberry and two in Bailey (Eastern NC) with 'Ouachita' blackberry. Treatments consisted of six herbicide programs (Table 1.) using registered blackberry herbicides and Dual Magnum, a herbicide undergoing registration development through the IR-4 program. A weedy check plot was included for comparison. Fall, winter, and late spring treatments were applied in early December, mid February, and April, respectively. Data collected included weed control and blackberry tolerance on a scale of 0 (no weed control or no injury) to 100% (complete weed control or crop death), primocane number, berry number, berry weight, and total yield. Weed control and blackberry tolerance ratings were observed at bud break (March), primocane emergence (April), and at first harvest (June).

Table 1. Herbicide Programs evaluated in commercial blackberry production.

<b>Program</b>	<b>Herbicide</b>	<b>Rate (per acre)</b>	<b>Application Time</b>
#1	Weedy check	--	--
#2	Chateau	6 oz	Fall
	Firestorm + NIS*	2 pt	Fall
	Chateau	8 oz	Late Spring
	Firestorm + NIS	2 pt	Late Spring
#3	Simazine	2 qt	Fall
	Firestorm + NIS	2 pt	Fall
	Sinbar	2 lb	Late Spring
	Firestorm + NIS	2 pt	Late Spring
#4	Sinbar	1.5 lb	Fall
	Firestorm + NIS	2 pt	Fall
	Surflan	3 qt	Late Spring
	Simazine	2 qt	Late Spring
	Firestorm + NIS	2 pt	Late Spring
#5	Solicam	2.5 lb	Fall
	Firestorm + NIS	2 qt	Fall
	Surflan	2 qt	Late Spring
	Simazine	2 qt	Late Spring
	Firestorm + NIS	2 pt	Late Spring
#6	Casoron CS	2.8 gal	Winter
	Firestorm+NIS	2 pt	Winter
#7	Sinbar	1.5 lb	Fall
	Firestorm+NIS	2 pt	Fall
	Dual Magnum	1 qt	Late Spring
	Simazine	2 qt	Late Spring
	Firestorm+NIS	2 pt	Late Spring

All treatments received a Firestorm application after floriculture removal.

\*NIS = nonionic surfactant.

**Results:**

*Blackberry Injury.* Crop injury was observed in April. At Lincoln injury was observed in treatments of Chateau followed by Chateau and Solicam followed by Surlan and Simazine (Table 1). At Bailey, injury was observed in treatments of Solicam followed by Surflan and Simazine (Table 2). Injury from treatment 2 was expressed as leaf necrosis associated with Chateau applied in late spring. Injury from treatment 5 was expressed as veinal chlorosis associated with fall-applied Solicam. Veinal chlorosis injury was greater (30%) at Lincoln than in Bailey (5%).

*Weed Control.* Weed species observed varied by season. Weeds present at all locations in March and April included wild lettuce, purple deadnettle, and henbit. Oxalis was observed at the Lincoln site. Cutleaf evening primrose, dog fennel, yellow nutsedge, goosegrass, and American pokeweed were observed at Bailey. In June dandelion, false dandelion (Lincoln), and large crabgrass were observed. Due to a lack of uniformity in weed pressure at Bailey, total weed control is reported.

Weed control was excellent at both locations in March (98 to 100%) (Tables 1 and 2). In April, oxalis control was excellent for treatments at Lincoln (97 to 100%), but treatments 3, 5, and 7 provided poor control of henbit (6%). At Bailey the predominant weed species in April was yellow nutsedge. Control was highly variable and ranged from 48 to 100%. In June control at Lincoln ranged from 95 to 100% for false dandelion, 80 to 100% for oxalis, and 70 to 100% for large crabgrass. Casoron provided less oxalis and large crabgrass control at Lincoln compared to other treatments. At the Bailey site Casoron provided the least yellow nutsedge control at Bailey (83%) compared to other treatments (91 to 96%).

*Primocane number.* Primocane number per plant did not differ with treatment. An average of 4 to 6 primocanes was observed at Lincoln and 5 to 7 primocanes at Bailey.

*Berry number, size, and total yield.* Berry number per plot, size (g/berry), and total yield did not differ with treatment. Berry counts at Bailey ranged from 497 to 541 per plant. Berry weight at Bailey ranged from 8.1 to 8.7 g/berry. Total yield per plant ranged from 4,379 to 4,801 g.