

2004 Dry Bulb Onion Weed Control Studies

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Objective: To evaluate various preemergence weed control materials on weed control and yield of dry bulb onions

Summary: Trial No. 1 demonstrated that ultra low rates of Chateau (i.e. 0.125 to 0.25 ounce material/A) applied preemergence provided good weed control and safety on onions. Goal Tender 4F is safer than Goal 2XL when applied at the first true leaf stage, as significant stand loss was seen with Goal 2XL applied at the first true leaf stage. The advantage of applying Goal Tender 4F at the first true leaf stage is to provide a post emergence weed control option to deal with particularly weedy situations. Trial No. 2 demonstrated that Prism and V-10137 were safe on onions and that Xpress Organic at 20% v/v provided a reasonable measure of weed control and was also safe for post emergence use on onions.

Methods: *Trial No. 1:* The trial was established in cooperation with Bob Martin of Gill Onions and Dan Pareda on the KCS Ranch, Lot 27A. The trial site was seeded on March 15 and irrigated on March 17. Preemergence treatments were applied on March 15 and postemergence treatments were applied on April 6 (1st true leaf) and April 14 (2nd true leaf). *Trial No. 2:* The trial was in the same field as described above. The focus of this trial was primarily the grass herbicide materials Prism and V10137; However, Xpress Organic was also included. All treatments were applied postemergence at the 2nd true leaf except for Xpress Organic that was also applied at the first true leaf on April 6. **Detail for both trials:** Each treatment was one 40-inch bed wide by 15 feet long and replicated four times in a randomized complete block design. All preemergence treatments were applied to the entire bed in 74 gallons of water per acre with two passes of 1 8008E teejet nozzle at 30 psi. The soil type at the site was Pico Fine Sandy Loam and the variety was Tamara.

Results: *Trial No. 1:* There was a good population of purslane at this site. Dacthal at 8.0 lbs and Chateau at 0.004 and 0.008 lbs and Goal Tender 4F at 0.125 and 0.25 lbs a.i./A provided good weed control on the first evaluation date (table 1). Combinations of Dacthal preemergence with postemergence applications of Goal 2XL and Goal Tender 4F at the first true leaf stage at both 0.125 and 0.25 lbs a.i./A provided additional weed control. Goal 2XL applied at the first true leaf stage significantly reduced the stand of onions, but not at the second true leaf stage. Goal Tender 4F applied at the first true leaf stage did not reduce the stand of onions. Dacthal at 8.0 lbs and Chateau at 0.004 and Goal Tender 4F at 0.125 lbs a.i./A continued to provide good weed control at the second evaluation date, but improved weed control was observed in the Chateau at 0.008 and Goal Tender 4F at 0.25 lbs a.i./A treatments (table 2). Significant phytotoxicity was observed in the Goal 2XL applied at the first true leaf and the Dual Magnum treatments. All treatments dramatically reduced the hours per acre to weed the onions over the untreated control. Goal 2XL applied at the first true leaf and Dual Magnum reduced the number and weight of marketable bulbs per plot (table 3). All other treatments had acceptable yields. *Trial No. 2:* Most of the treatments in this trial were grass weed control materials. No grass weeds were present at this site and no evaluations could be made of weed control for Prism and V-10137. Xpress Organic provided acceptable weed control at 20% v/v when applied at the second true leaf stage (table 4). None of the materials adversely affected the yield of onions (table 5).

Table 1. Trial No. 1. Weed count (4 ft²) and stand count (per plot) on April 14, 2004

Treatment	a.i./A lbs	Material per acre	Application ¹	Purslane	Night Shade	Malva	Total weeds	Stand count
Untreated	----	----	----	39.5	3.3	1.5	49.3	148.7
Dacthal W 75	8.0	10.65 lb	Pre	3.5	2.0	2.5	8.5	144.3
Chateau 51 WD	0.004	0.125 ounce	Pre	0.5	0.4	1.1	2.3	155.0
Chateau 51 WD	0.008	0.250 ounce	Pre	0.0	0.0	1.1	1.0	152.7
Dacthal W 75 + Goal 2XL	8.0 + 0.25	10.65 lb + 1.0 pt	Pre Post 1 t. leaf	0.0	0.4	0.1	0.3	127.8
Dacthal W 75 + Goal 2XL	8.0 + 0.25	10.65 lb + 1.0 pt	Pre Post 2 t. leaf	5.8	3.5	0.8	10.3	146.0
Dacthal W 75 + Goal Tender 4F	8.0 + 0.125	10.65 lb + 0.25 pt	Pre Post 1 t. leaf	0.0	0.3	1.3	2.0	144.3
Goal Tender 4F	0.125	0.25 pt	Post 1 t. leaf	0.0	2.8	0.8	3.8	146.0
Dacthal W 75 + Goal Tender 4F	8.0 + 0.25	10.65 lb + 0.5 pt	Pre Post 1 t. leaf	0.1	0.1	0.0	1.3	140.3
Goal Tender 4F	0.25	0.5 pt	Post 1 t. leaf	0.0	2.1	0.0	2.0	147.0
Dacthal W 75 + Goal Tender 4F	8.0 + 0.25	10.65 lb + 0.5 pt	Pre Post 2 t. leaf	3.5	3.0	1.5	8.5	---
Dacthal W 75 + Broadstar 0.25% Granules	8.0 + 0.063	10.65 lb + 25.2 lb	Pre Post 2 t. leaf	2.1	2.1	2.0	6.3	---
Dacthal W 75 + Dual Magnum 7.63	8.0 + 1.5	10.65 lb + 1.6 pt	Pre Post 2 t. leaf	3.8	1.0	1.5	6.8	---
Dacthal W 75 + Outlook 6	8.0 + 0.66	10.65 lb + 14 oz	Pre Post 2 t. leaf	4.5	2.1	1.1	8.0	---
LSD (0.05)				10.1	2.3	2.1	9.2	16.9

1: Pre = preemergence; Post 1 t. leaf = post emergence at the 1st true leaf stage; Post 2 t. leaf = post emergence at the 2nd true leaf stage

Table 2. Trial No. 1. Weed count (4 ft²), phytotoxicity rating and hours per acre to weed on May 4, 2004

Treatment	a.i./A lbs	Material per acre	Application ¹	Purslane	Night Shade	Malva	Total weeds	Phyto ²	Hours/A to weed
Untreated	----	----	----	21.0	3.0	0.5	28.5	0.0	48.4
Dacthal W 75	8.0	10.65 lb	Pre	0.0	1.5	2.3	5.3	0.0	4.0
Chateau 51 WD	0.004	0.125 ounce	Pre	1.3	1.0	1.0	4.5	0.0	3.4
Chateau 51 WD	0.008	0.250 ounce	Pre	0.5	0.0	1.3	1.8	0.0	1.9
Dacthal W 75 + Goal 2XL	8.0 + 0.25	10.65 lb + 1.0 pt	Pre Post 1 t. leaf	0.0	0.0	0.0	0.0	2.5	1.1
Dacthal W 75 + Goal 2XL	8.0 + 0.25	10.65 lb + 1.0 pt	Pre Post 2 t. leaf	0.0	0.3	0.0	0.5	1.0	1.3
Dacthal W 75 + Goal Tender 4F	8.0 + 0.125	10.65 lb + 0.25 pt	Pre Post 1 t. leaf	0.0	0.0	0.8	1.5	0.0	1.9
Goal Tender 4F	0.125	0.25 pt	Post 1 t. leaf	0.0	2.3	0.8	5.5	0.0	3.6
Dacthal W 75 + Goal Tender 4F	8.0 + 0.25	10.65 lb + 0.5 pt	Pre Post 1 t. leaf	0.0	0.0	0.0	0.8	0.0	1.3
Goal Tender 4F	0.25	0.5 pt	Post 1 t. leaf	0.1	0.6	0.3	2.0	0.0	1.4
Dacthal W 75 + Goal Tender 4F	8.0 + 0.25	10.65 lb + 0.5 pt	Pre Post 2 t. leaf	0.0	0.0	0.0	1.3	0.0	1.5
Dacthal W 75 + Broadstar 0.25% Granules	8.0 + 0.063	10.65 lb + 25.2 lb	Pre Post 2 t. leaf	0.0	0.0	1.0	2.0	0.0	1.9
Dacthal W 75 + Dual Magnum 7.63	8.0 + 1.5	10.65 lb + 1.6 pt	Pre Post 2 t. leaf	0.3	0.3	0.3	0.8	2.1	1.8
Dacthal W 75 + Outlook 6	8.0 + 0.66	10.65 lb + 14 oz	Pre Post 2 t. leaf	0.0	0.8	0.0	0.8	1.0	1.4
LSD (0.05)				1.8	1.2	1.1	2.9	1.4	9.5

1: Pre = preemergence; Post 1 t. leaf = post emergence at the 1st true leaf stage; Post 2 t. leaf = post emergence at the 2nd true leaf stage

2 – Scale: 0 = no crop damage to 10 crop dead

Table 3. Trial No. 1. Yield evaluation on October 1 (yield per 8 foot strip)

Treatment	a.i./A lbs	Material per acre	Application ¹	Marketable			Culls	
				Number Per plot	Wt per plot (lbs)	Mean Bulb Wt (lbs)	Number Per plot	Wt per plot (lbs)
Untreated	----	----	----	79.0	57.8	0.73	3.8	1.2
Dacthal W 75	8.0	10.65 lb	Pre	79.8	62.2	0.78	3.5	0.8
Chateau 51 WD	0.004	0.125 ounce	Pre	76.8	60.5	0.79	4.8	1.0
Chateau 51 WD	0.008	0.250 ounce	Pre	82.0	60.9	0.74	5.7	1.4
Dacthal W 75 + Goal 2XL	8.0 + 0.25	10.65 lb + 1.0 pt	Pre Post 1 t. leaf	66.8	54.9	0.82	1.5	0.5
Dacthal W 75 + Goal 2XL	8.0 + 0.25	10.65 lb + 1.0 pt	Pre Post 2 t. leaf	76.0	60.3	0.79	3.5	0.7
Dacthal W 75 + Goal Tender 4F	8.0 + 0.125	10.65 lb + 0.25 pt	Pre Post 1 t. leaf	77.8	63.3	0.81	2.8	0.7
Goal Tender 4F	0.125	0.25 pt	Post 1 t. leaf	80.0	59.4	0.74	3.8	0.8
Dacthal W 75 + Goal Tender 4F	8.0 + 0.25	10.65 lb + 0.5 pt	Pre Post 1 t. leaf	73.3	60.9	0.83	3.0	1.0
Goal Tender 4F	0.25	0.5 pt	Post 1 t. leaf	78.3	63.1	0.81	2.0	0.4
Dacthal W 75 + Goal Tender 4F	8.0 + 0.25	10.65 lb + 0.5 pt	Pre Post 2 t. leaf	76.3	61.2	0.80	2.0	0.5
Dacthal W 75 + Broadstar 0.25% Granules	8.0 + 0.063	10.65 lb + 25.2 lb	Pre Post 2 t. leaf	73.7	56.5	0.77	3.7	1.4
Dacthal W 75 + Dual Magnum 7.63	8.0 + 1.5	10.65 lb + 1.6 pt	Pre Post 2 t. leaf	51.3	39.0	0.76	5.5	1.1
Dacthal W 75 + Outlook 6	8.0 + 0.66	10.65 lb + 14 oz	Pre Post 2 t. leaf	77.8	60.0	0.77	4.0	0.8
LSD (0.05)				10.1	6.9		n.s.	n.s.

1: Pre = preemergence; Post 1 t. leaf = post emergence at the 1st true leaf stage; Post 2 t. leaf = post emergence at the 2nd true leaf stage

Table 4. Trial No. 2. Weed control and phytotoxicity on two dates.

Treatment	a.i./A lbs	Material per acre	Application Timing	Broadleaf weed counts	Weed control ¹	Phytotoxicity ²
				April 14	May 4	May 4
Untreated	----	----	----	12.7	0.0	0.0
V-10137 0.94 EC	0.13	17 fl. oz	2 nd True Leaf	----	0.0	0.0
V-10137 0.94 EC Herbimax COC	0.13 1%	17 fl. oz 1 gal/100 gals	2 nd True Leaf	----	0.0	0.0
Prism 0.94 EC Herbimax COC	0.13 1%	17 fl. oz 1 gal/100 gals	2 nd True Leaf	----	0.0	0.0
V-10137 0.94 EC	0.18	34 fl. oz	2 nd True Leaf	----	0.0	0.0
V-10137 0.94 EC Herbimax COC	0.18 1%	34 fl. oz 1 gal/100 gals	2 nd True Leaf	----	0.0	0.0
Prism 0.94 EC Herbimax COC	0.18 1%	34 fl. oz 1 gal/100 gals	2 nd True Leaf	----	0.0	0.0
Xpress Organic	20% v/v	20% v/v	1 st True Leaf	4.0	3.7	0.0
Xpress Organic	20% v/v	20% v/v	2 nd True Leaf	----	7.0	0.0
LDS (0.05)				ns	0.7	ns

1 – Scale: 0 no weed control to 10 complete weed control; no grass weeds emerged at this site and the ratings are for broadleaves only.

2 – Scale: 0 = no crop damage to 10 crop dead

Table 5. Trial No. 2. Yield evaluation on October 1 (yield per 8 foot strip)

Treatment	a.i./A lbs	Material per acre	Application Timing	Marketable			Culls	
				Number per plot	Wt per plot (lbs)	Mean Bulb Wt (lbs)	Number per plot	Wt per plot (lbs)
Untreated	----	----	----	81.0	62.9	0.78	4.7	1.2
V-10137 0.94 EC	0.13	17 fl. oz	2 nd True Leaf	80.7	63.8	0.79	3.3	0.7
V-10137 0.94 EC Herbimax COC	0.13 1%	17 fl. oz 1 gal/100 gals	2 nd True Leaf	77.3	60.7	0.79	2.7	0.5
Prism 0.94 EC Herbimax COC	0.13 1%	17 fl. oz 1 gal/100 gals	2 nd True Leaf	76.0	59.8	0.79	5.0	1.0
V-10137 0.94 EC	0.18	34 fl. oz	2 nd True Leaf	79.3	59.4	0.75	4.0	1.0
V-10137 0.94 EC Herbimax COC	0.18 1%	34 fl. oz 1 gal/100 gals	2 nd True Leaf	79.0	60.6	0.77	5.3	1.0
Prism 0.94 EC Herbimax COC	0.18 1%	34 fl. oz 1 gal/100 gals	2 nd True Leaf	77.0	60.4	0.78	4.3	1.2
Xpress Organic	20% v/v	20% v/v	1 st True Leaf	80.3	62.1	0.77	6.3	1.6
Xpress Organic	20% v/v	20% v/v	2 nd True Leaf	72.0	58.4	0.81	5.0	1.1
LDS (0.05)				n.s.	n.s.	n.s.	n.s.	n.s.

1 – Scale: 0 no weed control to 10 complete weed control; no grass weeds emerged at this site and the ratings are for broadleaves only.