Pre Emergent Weed Control in Roundup Ready Field Corn

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OBJECTIVE: Evaluate herbicides that can be used in RR field corn applied preemergence to reduce potential for developing glyphosate resistant weeds.

MATERIALS & METHODS: A single trial was conducted in a commercial field of RR field corn near Elk Grove, California. The trial was initiated on June 4, 2012 as a preemergence treatment for weed efficacy/crop tolerance. The corn was planted on June 2, 2012 at 33,000 seeds/A. and 30" rows. The corn was flood irrigated on June 9 for germination, and again on June 22, and July 7, 2012. Plots were 10 by 25 ft (4 rows corn/plot) arranged in a randomized complete block design with three replications. Application was made with a CO_2 back pack sprayer, 38 psi in 20.7 gpa of water. There were no weeds at the time of the application.

RAINFALL/IRRIGATION DATA: Weather Station: **San Joaquin Weathernet Thornton**
PRECIPPITATION AMOUNT (INCHES) *Application Date: 6-4-12

Date	Inches
6-4-12	0.05 Rain
6-9-12	Flood Irrigation
6-22-12	Flood Irrigation
7-7-12	Flood Irrigation

RESULTS & DISCUSSIONS:

Field Corn Injury

A stand count was made 14 days after application. There was no significant difference between treatments for number plants per row foot. No foliar injury or stunting was observed with any herbicdes.

Pre Emergent Weed Control

The following materials were applied as preemergence treatments expressed with their trade names: Valor @ 3 oz wt/A, Fierce @ 3 oz wt/A, Callisto @ 7 floz/A, Laudis + MSO + Urea @ 5 floz +1 % V/V + 1.5 qt/A, Valor SX, Dual 1.3 pt/A, and Matrix 1.5 ozwt/A. Roundup Weather Max + Ammonium Sulfate @ 22 fl oz/A + 2.5 lb/A was applied to treatments of Valor, Fierce, Callisto on 7-2-12.
Capreno @ 3 floz/A + Phase @ 1 % V/V + Ammonium Sulfate @ 10 lb/A was applied later post emergence on 6-19-12. Weeds present when Capreno applied were purslane 0.5-1.0" ht, velvet leaf 0.5-1.0" ht, wild radish 0.25-0.5" ht, pigweed 0.12-0.25" ht and watergrass 0.5-1.5" ht. Weed efficacy ratings were made at 14 and 23 days after the pre application (A 6-4-12); 8, 21 and 34 days after the Capreno application (B 6-19-12) and 8 days after the Roundup + Ammonium Sulfate application (C 7-2-12).

14 DAA

There were 4 rows of corn per plot. The 2 middle rows were counted to determine stand count. There was no significant difference between treatments for number plants per row-ft. The untreated averaged 1.77 plants/row-ft while the treatments averaged 1.7 - 1.88 plants/row-ft.
Weeds rated at this rating were barnyardgrass, Purslane, velvetleaf and wild radish. The best treatment was Fierce which gave 95% control of all weeds rated. Matrix gave 93% control while Valor, Callisto, Laudis, Valor plus Dual were giving 79, 68, 61, 72 and 71% control respectively.

23 DAA

The following weeds were rated: barnyardgrass, purslane, velvetleaf, wild radish, common mallow, pigweed and lambsquarters.
There was no crop injury from any treatment.
Fierce and Matrix were giving the best weed control at 96%.
Valor + Ammonium Sulfate gave 65% control of all weeds while Valor without Ammonium Sulfate gave 80% control of weeds rated.
Laudis as a pre treatment is still giving poor control of the weeds rated (62%). It only gave good control of common mallow.
Dual gave 78% control of the weeds rated with velvetleaf being the one least controlled.

Capreno Post Application

8 Days After Application: Weeds rated were barnyardgrass, Purslane, velvetleaf, wild radish, common mallow, pigweed and lambsquarters.
Capreno gave 99% control of weeds rated.
There was no foliar injury to the corn.

21 Days After Application: Weeds rated were barnyardgrass, Purslane, velvetleaf, wild radish, common mallow, pigweed and lambsquarters.
Capreno still providing 99% control of weeds rated.

34 Days After Application: Weeds rated were barnyardgrass, Purslane, velvetleaf, wild radish, common mallow, pigweed and lambsquarters.
Capreno gave 99% control of all weeds.

Roundup + Ammonium Sulfate Application to Pre-emergence Treatments on July 2,2012.

8 Days After Application: Weeds rated were barnyardgrass, Purslane, velvetleaf, wild radish, common mallow, pigweed and lambsquarters.
Roundup gave 90 – 98 % control of the emerged weeds rated.
Dual and Matrix were also rated at this time which was 36 days after the pre application. Roundup was not specified nor applied to the Dual and Matrix plots. Dual was the worst at 31% control of the weeds while Matrix gave 79% control.

Summary

Purslane and velvetleaf were the most prevalent weeds in the plots.

Fierce and Matrix gave the best weed control applied preemergence to the corn.

Capreno gave 99% control of the weeds rated for 34 days when applied post to corn and weeds in the 3 leaf stage.

Roundup applied 30 days after the preemergence application gave excellent weed control.

Dual gave the worst weed control at 36 days after application. Dual plots did not receive any Roundup treatment. Matrix was giving fair control at 36 days after application and also did not receive any post Roundup treatment.