

EXECUTIVE SUMMARY – WEED CONTROL IN TOMATOES (2009)

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Effect of Hail Damage on Tolerance of Tomato to Herbicides

This trial was established to assess tolerance of transplanted tomato to combinations of simulated hail damage and various postemergence herbicides (Pinnacle, Sencor and Prism), to determine whether these cumulative stresses reduce yield more than each stress individually. Though visual injury was initially higher and plant dry weight was lower in those treatments where hail damage had been simulated along with an application of Pinnacle, there were no differences in final yield.

Tolerance of Processing Tomato Varieties to Pinnacle

This trial was established to determine the tolerance of six processing tomato varieties to Pinnacle (thifensulfuron-methyl) applied 28 days after transplanting (DAT) at a rate of 6.4 g/ac. H2401, H7209, H4007, H4107 were injured by Pinnacle applied at 6.4 g/ac. Red yield was less in the Pinnacle treatment than the untreated control for both H7209 and H4007. Though red yield was not reduced by Pinnacle for H4107, green yields were higher at harvest and flowering was delayed by 3-5 days.

Hairy Nightshade Control with Prism

Four studies were established to compare control of hairy nightshade at 15, 25 and 35 gai/ha (24, 35 and 46 g/ac) of Prism in various growers' fields to meet requirements for the increased rate of Prism in tomato URMULE submission. Control was 75% or less at 24 g/ac, increased to 80% at 36 g/ac, and was best (86%) at the 48 g/ac rate of Prism.

Recropping After Prism Use in Tomato

A recropping study was established last year to determine the potential for carryover from Prism applied at 46 and 92 g/ac. Winter wheat was planted last fall, and seed corn, soybean, snap bean, edible beans, potatoes, peas, and sugar beet were planted in the spring. Prism reduced stand and yield of sugarbeet one year after Prism application, regardless of rate. The other crops were not injured.

Tolerance of Tomato to Kixor, Sulfentrazone, Valtera and Reflex

Kixor, sulfentrazone, Valtera or Reflex were applied PRE to tomatoes to determine tolerance at rates used in soybean. Kixor, sulfentrazone and Valtera caused significant injury, stand mortality and yield loss, while tomato was tolerant to Reflex applied prior to transplanting.

Executive Summary: Weed Control in Tomatoes

By: Rob Nurse, AAFC, Harrow

09TOM1: Effect of Hail Damage on herbicide tolerance and yield in processing tomato

Question: Can a grower apply a POST herbicide to their tomatoes after hail damage has occurred? Additionally, will applying a fungicide within 24-hr lower the prevalence of disease or increase the tolerance of the plants to the herbicide?

Background: This trial was established to simulate the scenario where a grower may have experienced hail damage 2-3 wks after transplanting their tomatoes into the field. At this point in the season it is unlikely that any of the POST herbicide treatments have been applied. Therefore, if the grower decides that the crop is salvageable they will then need to decide how to proceed with weed management. The concern is that because the plants will be injured and set back by the hail that their tolerance to commonly used herbicides may be lower.

Herbicides were either applied alone or in combination with a fungicide. The fungicide was applied within 24 hours of the hail damage. The herbicide was applied 4 days after hail damage. The purpose of the fungicide was to determine if this would decrease the likelihood of disease due to the hail damage, or if there may be an interaction with the herbicide that would increase the plants tolerance to injury.

Results:

Injury - The extent of hail damage was not measured in the injury ratings. The main focus was on whether or not there was any increase in visual herbicide injury symptoms.

At 4 DAT there was an increase (7-10%) in visual injury in the Pinnacle treated plots for the tomatoes receiving hail damage. The addition of the fungicide did not have any impact on lowering visual injury by the herbicide.

By 7DAT (and beyond) there was no observable injury due to the herbicides.

Dry Weights – As expected the dry weights of hail injured plants were lower than non-injured plants (Figure 1). There were no effects of herbicide or fungicide on dry weights.

Yield – Yield was lower in hail injured plants versus non-injured plants (Figure 2). There were no effects of herbicide or fungicide on final yield.

09TOMRecrop: Growing tomatoes after seed corn. Potential of carryover for new seed corn herbicides.

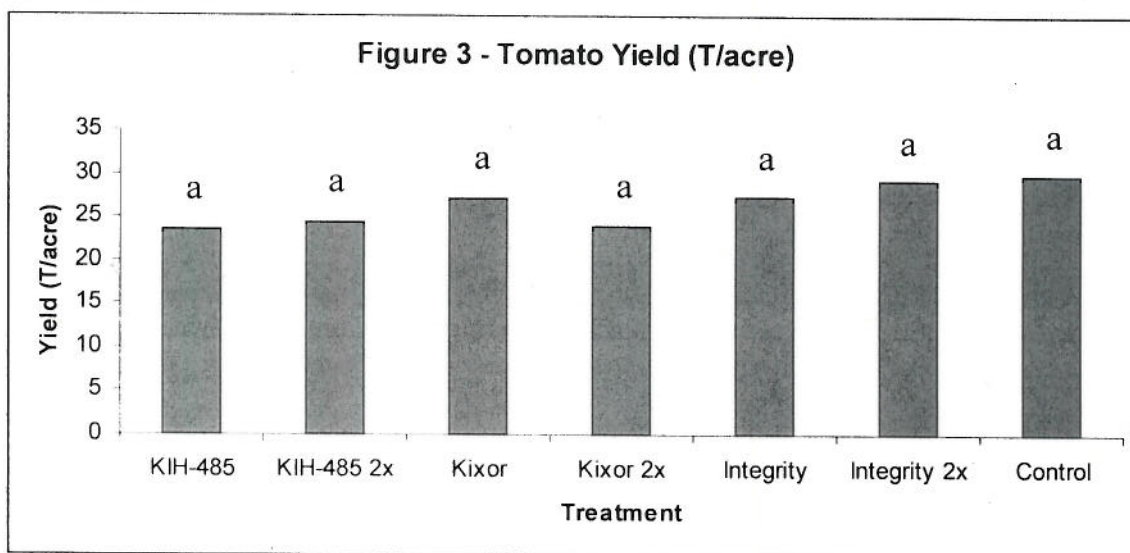
Question: Several new herbicides are being tested for potential registration in seed corn, because tomatoes are a common crop following seed corn in a rotation is there any concern about carry-over from the soil applied herbicides.

Background: I have been testing several new herbicide options for the seed corn market and have the ability to transplant tomatoes into the field the following year. Several of the candidate herbicides are soil applied and therefore may have potential carry-over effects in tomato. The herbicides of concern are KIH-485, Kixor, and Integrity.

Results:

Injury – There were no injury concerns the following season from KIH-485. There was however up to 17% (7 and 14 DAT) and 8% (28 DAT) injury from Kixor and Integrity, respectively.

Yield - The injury observed did not translate into any measurable yield reduction in comparison to a control plot (Figure 3).



0908TOM4: Potential minor use in tomatoes – Reflex and Prefix

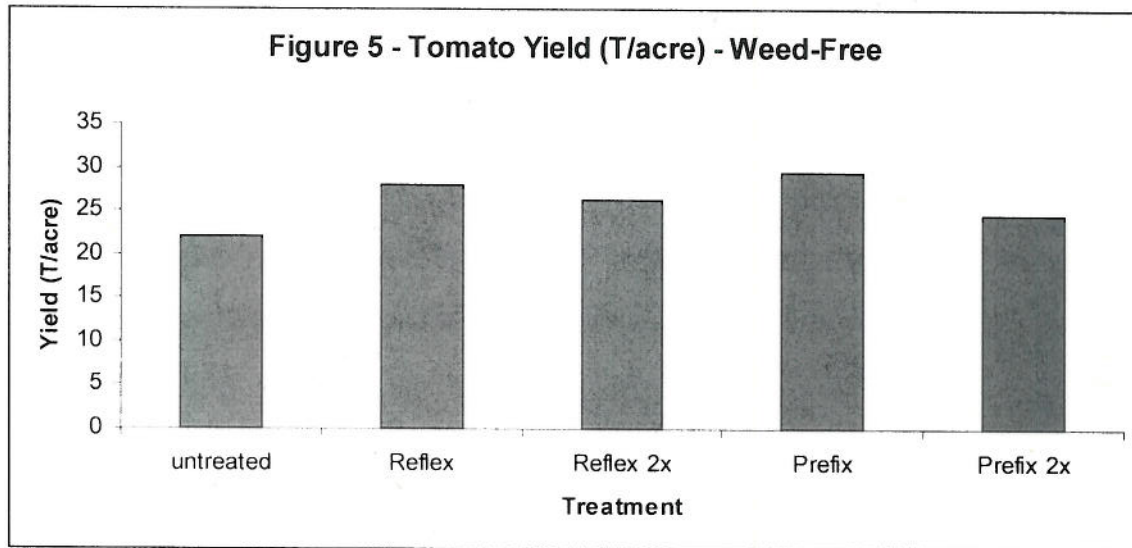
Background: The purpose of this trial is to parallel the testing of Reflex and Prefix for weed control that is being done in the U.S.

Results:

Injury: There were no injury concerns from any treatment.

Weed Control: Weed control was poor (<50%) for common lambsquarters, redroot pigweed, eastern black nightshade, and crabgrass when Reflex was applied. However when Dual was added (Prefix) weed control was excellent (>90%) for all species.

Yield: There were no differences among treatments for yield. (Figure 5)



0908ORG2: Organic Tomato Production

Background: Develop novel weed management techniques for organic tomato growers using compost and compost plus newspaper.

Results:

Weed Control: Weed control was improved by the application of compost alone; however, weeds were completely eliminated when compost was applied in combination with newspaper.

Yield: Yield was significantly improved by the addition of compost or compost + newspaper. When applied to the entire plot yields were higher than in the hand-weeded weed-free control.