

EXECUTIVE SUMMARY – WEED CONTROL IN TOMATOES (2017)

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Research Goal: The first goal of the tomato weed management research program is to provide data needed to support minor use (URMULE) submissions for new herbicide registrations in tomatoes, and examine how these potential new registrations fit with currently registered herbicides. The second objective of this research program is to examine tomato tolerance to new herbicide active ingredients being developed for use in major field crops (soybean, corn and wheat). All experiments that examine PRE-Transplant herbicides are now conducted on two soil types each year to account for effect of soil characteristics (OM, pH, texture, CEC) on the activity of residual herbicides.

Experiment 1. Weed Management with Authority, Sandea and Sencor PRE-Transplant Tank-Mixes

Objective: Determine whether adding Authority or Sandea to Sencor will improve residual control of broadleaf and grass weeds in tomatoes.

Conclusions: The addition of Authority, Sandea or Authority+Sandea to Sencor improved control of common ragweed, wild buckwheat, eastern black nightshade and green foxtail compared to Sencor applied alone. In addition to an improvement in weed control, the addition of these tank-mix partners to Sencor increased tomato injury by 5 to 12%. Yields were 5 to 12 T/ac greater in the tank-mix treatments than the Sencor PPI treatment.

Experiment 2. Tolerance of Tomato to POST Applications of Sandea and Prism

Objective: Determine the effect of different rates of POST applications of Sandea + Prism on tomato tolerance.

Conclusions: The purpose of this study was to determine the tolerance of tomatoes to different rate combinations of Sandea (between 14 and 28 g/ac) and Prism (between 24 and 56 g/ac) applied POST to tomatoes. None of the tank mix combinations caused commercially significant injury, nor did they reduce plant dry weight (at late flower) or yield of tomato. Tomato yield was 43 T/ac in the untreated weedfree check, and ranged from 42 to 50 T/ac among all treatments – none of which were significantly different than one another.

Experiment 3. Tolerance of Tomato to POST Applications of Sandea and Sencor

Objective: Determine the effect of different rates of POST applications of Sandea + Sencor on tomato tolerance.

Conclusions: The purpose of this study was to determine the tolerance of tomatoes to different rate combinations of Sandea (between 14 and 28 g/ac) and Sencor micro-rates (between 120 and 180 ml/ac) applied POST to tomatoes. None of the tank mix combinations caused commercially significant injury, nor did they reduce plant dry weight (at late flower) or yield of tomato. Tomato yield was 44 T/ac in the untreated weedfree check, and ranged from 40 to 49 T/ac among all treatments – none of which were significantly different than one another.

Experiment 4. Tolerance of Tomato to PRE-Transplant Herbicides – Broadleaf Herbicides

Objective: This trial was established to determine tolerance of transplanted tomato to pre-transplant applications of Reflex, Valtera and tank mixes with Dual II Magnum and Sencor.

Conclusions: This trial was established to determine tolerance of transplanted tomato to pre-transplant applications of Reflex, Valtera and tank mixes with Dual II Magnum and Sencor. Treatments containing Valtera (alone or in tank mix) caused significant injury AND yield loss, as has been seen in previous years. Tomato showed excellent tolerance to Reflex.

Experiment 5. Tolerance of Tomato to PRE-Transplant Herbicides – Grass Herbicides

Objective: This trial was established to determine tolerance of transplanted tomato to pre-transplant applications of Prowl H2O, Zidua (pyroxasulfone), Shieldex (tolpyralate) and pethoxamid (in development).

Conclusions: Treatments containing Shieldex caused some bleaching (up to 10%) and treatments containing Zidua caused some shortening of the leaf midribs (up to 8%). Tomato plant dry weight at late flower and marketable yield were not different than the untreated, weedfree check. Tomato showed excellent tolerance to all herbicides at 1X and 2X the proposed label rates. **Data were submitted to support a minor use submission for Prowl H2O.**