

## RESEARCH SUMMARY – WEED CONTROL IN TOMATOES (2004)

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- The Effect of Weed Management Programs on Tomato Establishment and Yield** 4  
None of the treatments caused significant visual injury. Total yield was less than the untreated, weed-free check in the Treflan, Dual II and Treflan+Dual II tank mix treatments as a result of weed escapes that competed with the crop in those herbicide treatments. The tank mixes that included Sencor PPI had excellent weed control, and similar yields to the untreated, weed-free check. Tank mixing Venture L, Excel Super and Poast Ultra with postemergence applications of Sencor did not reduce control or accentuate crop injury.
- Weed Control and Tolerance of Tomatoes to Tank Mixes of Pinnacle, Prism or Sencor with Quadris or Cabrio** 12  
Adding Quadris or Cabrio to Prism or Sencor (80, 200 or 400 g/ac) did not cause significant visual injury. Adding Quadris to Pinnacle did not cause significant visual injury, while adding Cabrio to Pinnacle did result in commercially significant visual injury. Despite this, adding Cabrio to Pinnacle did not delay maturity or reduce yield. The addition of Quadris or Cabrio to Pinnacle, Prism or Sencor did not reduce weed control compared to the herbicides applied alone.
- Postemergence Weed Control in Tomatoes with Prism, Pinnacle and Bravo or Kocide Tank Mixes** 19  
Adding micro-rates of Sencor (80 g/ac) to tank mixes of Bravo or Kocide and Prism or Pinnacle did not increase visual injury. Lambsquarters control was reduced by the addition of copper to the Prism+Bravo treatment. Weed control was not affected by the addition of copper to the Pinnacle treatment. Total yields were not less in any treatments than in the untreated weed free check. However, as a result of delayed maturity, green yields were significantly greater than the untreated weed-free check in the following treatments: Prism+Sencor (48+400 g/ac), Pinnacle+Sencor (6.4+400 g/ac) and Prism+Pinnacle (48+6.4 g/ac).
- Weed Management in Tomatoes with New Tank Mixes** 25  
Red and total yield decreased as Valor and Callisto rate increased. However, despite the injury observed when either of these herbicides (at the low rate of each herbicide) followed the industry standard, no yield loss was observed. Red and total yields in the Spartan treatments (1X and 2X) and when Spartan followed the industry standard were not less than the untreated, weed free check. Spartan had excellent tolerance in tomato, and the parent company (FMC) has expressed interest in supporting a minor use label expansion.
- Effect of Postemergence Applications of Dual II on Weed Control and Tolerance in Processing Tomato** 33  
Red and total yield were not less than the weed-free check. When compared to the weedy control, yields increased in POST tank mixes of Sencor (80 g/ac) with Dual II (175-350 ml/ac), as a result of increased weed control, and did not cause visual injury to tomato.
- Tolerance of Processing Tomato Varieties to Pinnacle** 41  
There was commercially unacceptable injury and delayed maturity (as indicated by increased green yield and reduced red yields) in H7404, H3202, H8004, N1069, N2686SC, H7204, AD82 and H9706. The remaining varieties: TSH4, CC337, H8504 and H4803 were tolerant to Pinnacle (6.4 g/ac)
- Effect of Timing on Postemergence Applications of Dual II** 45  
Injury was commercially significant when the higher rate of Dual II+Sencor (0.35 L/ac + 80g/ac) was applied at 7 and 14 DAT. All treatments provided excellent control of redroot pigweed, common lamb's-quarters, and ragweed. Red and total yields were not decreased by any of the rates or timings of POST Dual II+Sencor. There is an acceptable margin of safety in tomato to low rates of Dual II (0.35 L/ac or less) applied at 21 or 28 DAT.

#### 04 TOM1

To determine the impact of potential new chemistry for weed management in processing tomato.

These tomato plants were tall and spindly at transplanting time. No injury was observed during the two weeks after transplanting. Subsequently, heavy rain and a hard wind blew most of the plants over such that the upper portion of the stem and often some leaves came in contact with the soil. This resulted in various levels of injury, plant stunting in some cases and a few plants dying. Overall the injury within many plots was variable. The severity of the injury can be gauged from the fact that the standard s-metolachlor (Dual Magnum) + metribuzin (Sencor) treatment resulted in almost 14% injury. At the lowest rate of each of sulfentrazone (Spartan), flumioxazin (Valor-USA trade name), or mesotrione (Callisto) the injury was higher than the standard but when tank mixed with the standard the injury generally was not increased over each of the treatments alone. Mesotrione at the 50 gm rate caused severe injury in the form of leaf chlorosis. Early grass control was acceptable only at the high rate of sulfentrazone and flumioxazin or with the tank mixes. All of the treatments provided excellent control of lambs-quarters, pigweed, hairy nightshade, and Eastern black nightshade. Sulfentrazone was the only new material that maintained grass control, while the low rate of flumioxazin or mesotrione allowed lambs-quarters to escape. The tank mixes of each of these materials with s-metolachlor + metribuzin provided slightly better nightshade control and the latter treatment alone. These plots were irrigated once in mid July but in general ample rain and lack of many hot days allowed good tomato growth and good weed growth later in the season if the chemical ran out or was weak on a particular species. Yield data is not yet available.

#### 04TOM2

To determine the impact of tank mixes of thifensulfuron-methyl, rimsulfuron, or metribuzin with azoxystrobin or pyraclostrobin on processing tomato.

These tomato plants were tall and spindly at transplanting time. No injury was observed during the two weeks after transplanting. Subsequently, heavy rain and a hard wind blew most of the plants over such that the upper portion of the stem and often some leaves came in contact with the soil. Overall the injury within many plots was variable with the plants just not growing as well as the weed free check. There was no injury that could be attributed to the application of azoxystrobin (Cabrio) or pyraclostrobin (Headline) in tank mixes with rimsulfuron (Elim) or metribuzin (Sencor) or thifensulfuron-methyl (Pinnacle). Excellent weed control was obtained with all treatments. Yield data not yet available.

#### 04TOM3

To determine the effect of weed management programs with metribuzin, thifensulfuron-methyl, and post emergence grass materials on processing tomato.

These tomato plants were tall and spindly at transplanting time. No injury was observed during the two weeks after transplanting. Subsequently, heavy rain and a hard wind blew most of the plants over such that the upper portion of the stem and often some leaves came in contact with the soil. Overall the injury within many plots was very slight. Mid July ratings indicated excellent weed control, even from treatments that normally provide only grass control. These plots were irrigated once in mid July but in general

ample rain and lack of many hot days allowed good tomato growth and good weed growth later in the season if the chemical ran out or was weak on a particular species. As might be expected, by mid August, trifluralin (Treflan), metribuzin (Sencor) or the tank mix were weak on Eastern black nightshade. Hairy nightshade control was marginal with these same treatments as well. Excellent grass and broadleaf weed control was obtained from all of the other tank mixes. Yield data not yet available.

#### 0403TOM2

To determine the impact of postemergence application of s-metolachlor for Eastern black nightshade control in processing tomato.

These tomato plants were tall and spindly at transplanting time. No injury was observed during the two weeks after transplanting. Subsequently, heavy rain and a hard wind blew most of the plants over such that the upper portion of the stem and often some leaves came in contact with the soil. The mid July rating noted sporadic tomato injury in the form of a thin stand but it did not correspond to any particular treatment nor to the s-metolachlor (Dual Magnum). These plots were irrigated once in mid July but in general ample rain and lack of many hot days allowed good tomato growth and the stand reduction was not very evident by early August. Where the low rate of s-metolachlor was applied, the control of lambs-quarters and pigweed was less than acceptable by early August. Good to excellent control of Eastern black nightshade and hairy nightshade were obtained. Yield data is not yet available.

#### 0400TOM5

To determine the tolerance of processing tomato to mesotrione applied preplant incorporated.

These tomato plants were tall and spindly at transplanting time. No injury was observed during the two weeks after transplanting. Subsequently, heavy rain and a hard wind blew most of the plants over such that the upper portion of the stem and often some leaves came in contact with the soil. The mid July rating noted sporadic tomato injury in the form of a thin stand particularly where a rate of 35 gm ai/ha of mesotrione (Callisto) had been applied. Crop tolerance at the 16 gm ai/ha rate was excellent given the weather conditions this year. Good to excellent control of Eastern black nightshade and hairy nightshade was obtained through to early August. Yield data is not yet available.

Financial support provided by the Ontario Tomato Research Institute and the Matching Investment Initiative of Agriculture & Agri-Food Canada is gratefully acknowledged.