

EXECUTIVE SUMMARY – WEED CONTROL IN TOMATOES (2005)

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The Effect of Weed Management Programs on Tomato Establishment and Yield

None of the treatments caused significant visual injury. Total yield was less than the untreated, weed-free check in the Dual II and Sencor PPI tank mix treatments as a result of weed escapes that competed with the crop in those herbicide treatments. The treatments that included Sencor micro-rates had excellent broadleaf weed control but poor grass control. Tank mixing Prism, Venture L, Excel Super and Poast Ultra with micro-rate applications of Sencor improved yields due to excellent barnyardgrass control.

Weed Control and Tolerance of Tomatoes to Tank Mixes of Pinnacle, Prism or Sencor with Quadris or Cabrio

Adding Quadris or Cabrio to Prism or Sencor (80 and 120 g/ac) did not cause significant visual injury, however there was some injury (5%) when 240 g/ac Sencor was tank mixed with either Quadris or Cabrio. 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.

Weed Management in Tomatoes with New Tank Mixes

Red and total yield decreased as Valor and Callisto rate increased. When either of these herbicides (at the low rate of each herbicide) was applied along with the industry standard, significant stand and yield losses were observed. Red and total yields in the Spartan treatments (1X and 2X) and when Spartan was applied along with 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 Tomato

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. However, as a result of velvetleaf escapes, red and total yield were less than the weed-free check in all herbicide treatments.

Tolerance of Processing Tomato Varieties to Pinnacle

16 tomato varieties were tested for tolerance to Pinnacle at the overlap rate (6.4 g /ac) – seven of the 16 varieties showed injury, and delayed maturity, while the remaining nine varieties were tolerant to Pinnacle.

Effect of Timing on Postemergence Applications of Dual II

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 common lamb's-quarters and ragweed. However, some early emerging redroot pigweed and velvetleaf plants escaped the POST Dual II+Sencor applications at 21 or 28 DAT, likely due to their size at these timings. This reduction in control corresponded to a decrease in yield at these later application timings compared with the untreated weed-free check. 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.

Effect of Time of Day on Tolerance of Tomato to Pinnacle

Pinnacle was applied to H9478 (a Pinnacle-tolerant tomato variety) at 6:00am, 10:00am, 1:00pm, 4:30pm and 9:00pm to determine the effect of time of day of application on tolerance in tomato. Injury was greatest when Pinnacle was applied at 1:00pm. The 4:30pm and 9:00pm treatments caused little or no injury. The injury observed at 1:00pm resulted in significantly lower yield (19.1 T/ac) than in the evening treatments (25.4 T/ac) and the untreated, weed-free check (23.3 T/ac). Common lamb's-quarters control was not affected by application timing.

Effect of Water Volume on Weed Control of Pinnacle Tank-Mixed with Kocide

Pinnacle plus Kocide was applied to H9478 (a Pinnacle-tolerant tomato variety) at 20, 30 and 40 ga/ac to determine the effect of time of water volume on weed control and tolerance in tomato. A change in water volume did not affect control of common lamb's-quarters. Antagonism was observed at all water volumes tested, so Pinnacle should not be tank-mixed with Kocide, even at high water volume.