

Chemical Pinching of Processing Tomato Blossoms for Fruit Set and Yield Management - 2007

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Objectives:

To investigate the use of low rates of Ethrel on late vegetative/early reproductive phase of processing tomato plants for removal of early blooms and measurement of later bloom and fruit yield response compared to untreated and hand-thinned plants. This field study was in response to industry concerns about limited options in managing (1) fields of small plants which exhibit heavy flowering, and (2) split-set situations.

Materials and Methods:

Processing tomatoes 'Heinz 9704' and '7983' transplants were obtained from Chris McDonnell (McDonnell Greenhouses, Delta, Ohio). Plants were transplanted in the field on May 23 at the North Central Ag Research Station (NCARS) near Fremont, OH. Plots were 15 feet long and planted in three replications. Ethrel at two low rates (0.5, 1.0 pts/A) were applied to plants at 2 growth stages; first bloom (June 20) and three weeks after first bloom (July 11). Hand-thinning of blooms was done on June 20 as a mechanical check in addition to an untreated control. Marketable yield, percent red, and average fruit size were recorded at harvest. Plots were machine harvested on August 29. Marketable reds, greens, and culls were recorded along with average fruit weight and percent red fruit at harvest.

Results:

There were no differences in marketable red fruit for either cultivar. 'Heinz 9704' had significant differences in green and culled fruit and average fruit weight. Red fruit yields ranged from 17.3 to 25.6 T/A. Average fruit size was significantly smaller from control plots compared to the ethrel treatments and hand thinning (Table 1). There were no differences in green fruit or average fruit weight for '7983'. Red T/A yield ranged from 9.5 to 14.9. There were no differences in percent red fruit at harvest for either cultivar.

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Table 1. Chemical Pinching of Processing Tomato Blossoms for Fruit Set and Yield Management - 2007

Cultivar: 'Heinz 9704'

Treatment	Red T/A	Green T/A	Culls T/A	Avg. fruit wt (lbs)	Percent red
					fruit at harvest
Control	21.1	8.5	4.0	0.13	60
Hand thin @ first bloom	20.8	11.8	1.3	0.16	61
Ethrel .5 pts/A 3 wks after 1st bloom	17.3	8.4	3.7	0.14	58
Ethrel .5 pts/A @ 1st bloom	24.4	8.2	4.1	0.15	66
Ethrel 1 pts/A 3 wks after 1st bloom	25.6	7.9	3.9	0.14	67
Ethrel 1 pts/A @ 1st bloom	17.6	6.7	4.1	0.14	62
LSD (0.05)	NS	2.45	1.34	0.016	NS
p value	0.742	0.017	0.006	0.026	0.637
CV	32.7	22.5	33.3	8.5	10.8

Cultivar: '7983'

Treatment	Red T/A	Green T/A	Culls T/A	Avg. fruit wt (lbs)	Percent red
					fruit at harvest
Control	9.5	4.2	3.3	0.12	56
Hand thin @ first bloom	13.4	7.3	1.5	0.13	61
Ethrel .5 pts/A 3 wks after 1st bloom	14.9	3.7	3.0	0.12	70
Ethrel .5 pts/A @ 1st bloom	12.4	3.0	3.7	0.12	65
Ethrel 1 pts/A 3 wks after 1st bloom	13.0	3.6	2.4	0.12	67
Ethrel 1 pts/A @ 1st bloom	12.0	3.5	2.7	0.12	66
LSD (0.05)	NS	NS	0.84	NS	NS
p value	0.426	0.083	0.002	0.214	0.208
CV	25.0	46.8	32.1	6.0	10.5