Project Title: Agroculture liquid fertilizer in processing tomato – 2016

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Methods:

Tomato transplants (cv. H9874) were obtained from a local greenhouse and were transplanted June 2, 2016 using a 2 row RJ transplanter on a Brookston clay loam sand spot phase soil. Soil moisture tension was monitored using tensiometers, and drip irrigation was used when tensiometers read below 30 kPa. Dual and Sencor were applied ppi for weed control, followed by hand hoeing. Weed control was poor, likely due to the dry soil conditions in the spring of 2016. Fungicides were applied as per OMAFRA recommendations.

Plots consisted of 8 m long double rows spaced 45 cm apart, for a total of 16 plants per plot. Plots were spaced 2 m apart. The trial was arranged in randomized complete block design with four replicates. Treatments were applied as follows:

Trt	Timing	Product	Rate
1	PPI	0-0-60	504 kg/ha
	Transplant	6-24-6	77 L/ha
	Side dress 2 WAP	6-24-6	158 L/ha
		28% UAN	310 L/ha
	Side dress 4 WAP	6-24-6	158 L/ha
		28% UAN	310 L/ha
2	Transplant	Pro-Germinator	18.7 L/ha
		Sure-K	9.35 L/ha
		Micro 500	9.35 L/ha
		MicroLink B	1.2 L/ha
		MicroLink Mn	1.2 L/ha
	Side dress 2 WAP	High NRG-N	112.2 L/ha
		28% + eNhance	150 L/ha
		Sure-K	140.25 L/ha
		Pro-Germinator	46.75 L/ha
	Side dress 4 WAP	High NRG-N	112.2 L/ha
		28% + eNhance	150 L/ha
		Sure-K	130.9 L/ha
		Pro-Germinator	37.4 L/ha
3	Transplant	Pro-Germinator	18.7 L/ha
		Sure-K	9.35 L/ha
		Micro 500	9.35 L/ha
		MicroLink B	1.2 L/ha
		MicroLink Mn	1.2 L/ha
	Side dress 2 WAP	High NRG-N	112.2 L/ha
		28% + eNhance	150 L/ha

		Sure-K	140.25 L/ha
		Pro-Germinator	46.75 L/ha
		C-14	9.35 L/ha
	Side dress 4 WAP	High NRG-N	84.2 L/ha
		28% + eNhance	102.9 L/ha
		Sure-K	130.9 L/ha
		Pro-Germinator	37.4 L/ha
		C-14	9.35 L/ha
4	Transplant	Pro-Germinator	18.7 L/ha
		Sure-K	9.35 L/ha
		Micro 500	9.35 L/ha
		MicroLink B	1.2 L/ha
		MicroLink Mn	1.2 L/ha
	Side dress 2 WAP	High NRG-N	112.2 L/ha
		28% + eNhance	150 L/ha
		Sure-K	140.25 L/ha
		Pro-Germinator	46.75 L/ha
		C-15	9.35 L/ha
	Side dress 4 WAP	High NRG-N	84.2 L/ha
		28% + eNhance	102.9 L/ha
		Sure-K	130.9 L/ha
		Pro-Germinator	37.4 L/ha
		C-15	9.35 L/ha

At flowering, the number of open flowers on 10 plants were counted weekly for 3 weeks. Plots were then monitored for maturity, commencing harvest when the most mature treatments had 80% fully ripened fruit. At harvest, fruit from 16 plants per plot were collected, sorted into ripe, rot and green categories, and weighed. Twenty (20) random ripe fruit from each plot were selected for soluble solids analysis with a hand held refractometer.

Discussion:

Tomatoes established well after transplanting, despite hot and dry conditions. Fertilizer treatments were all applied on time, with no adverse effects observed in the tomatoes. Harvest was conducted on September 13th. There were no significant differences among treatments for yield or fruit quality (Table 2).

Table 2. Flowering (WAP=weeks after planting) and yield data of fertilizer trial for processing tomato, 2016.

				Yield per Plant			
	Flowers per Plant			Ripe	Rot	Green	Soluble Solids
Treatment	**3 WAP**	**4 WAP**	**5 WAP**	kg	kg	g	%
1	1	4	20	2.3	1.2	56.1	5.1
2	1	4	21	3.4	1.2	98.3	4.6
3	1	4	23	2.9	1.6	41.0	4.7
4	2	4	23	2.8	1.6	29.0	4.4
CV	24.6	15.72	13.06	43.88	30.15	75.62	7.82
Prob (F)	0.2595	0.8055	0.3600	0.6727	0.3416	0.1797	0.1891