

Trial report (prepared on 10/23/2018)

# Fall 2017 Tomato Field Trial

## Evaluation of CrabLife™ Powder

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# Location & Trial Period

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**Location:** UF/IFAS Gulf Coast Research and Education Center in Balm, FL

**Trial period:** Fall 2017 (Sep 14 – Dec 28)

Gulf Coast Research & Education Center



Tomato field trial



# Treatments

#	Description	Method	Rate	Timing
1	Untreated	--	--	--
2	Greenhouse treatment	Spray	1.4 g/L @ 1400 ml/tray	11, 18, and 25 d after sowing
3	Field treatment	Drench Drip injection*	7 g/gal @ 200 ml/plant 5 lb/acre	At transplanting Every 1-2 weeks, starting at Wk 2
4	Greenhouse + Field treatment	Treatment 2 + Treatment 3		

\*Drip injection was performed 7 times during the experiment.

Spray



Drench



Drip injection



# Materials & Methods

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## Plant material

Tomato 'HM1823' (major fresh market cultivar in Florida)

## Experiment design

- Complete randomized block design
- 12 plants/plot
- 4 replicated plots per treatment

## Schedule

- 8/4                      Field preparation (fumigation and bedding)
- 9/14                     Transplanting (4-wk-old seedlings)
- 9/27-11/30            Drip injection treatment (7 times in total)
- 11/29                   1<sup>st</sup> harvest
- 12/11                   2<sup>nd</sup> harvest
- 12/28                   3<sup>rd</sup> harvest

August 21, 2017 (18 days after sowing)  
2<sup>nd</sup> spray treatment





August 28, 2017 (25 days after sowing)

Untreated

Greenhouse treatment



October 5, 2017 (21 days after transplanting)

Untreated

Field treatment





# October 11, 2017 (27 days after transplanting)

Untreated



GH Treatment



Field Treatment



GH + Field Treatment





# Canopy Area

Treatment	Canopy area (cm <sup>2</sup> /plant)		
	27 DAT	40 DAT	56 DAT
Untreated	1744	2900	2952 BC
Greenhouse	1675	2828	3272 A
Field	1772	2878	3157 AB
Greenhouse + Field	1722	2750	2847 C
% changes by Crab-Life Powder	4%↓2%↑	1-5%↓	4%↓11%↑
	Pooled data		
All Crab-Life Powder treatments	1723	2819	3092
All greenhouse treatments	1698	2789	3060
All field treatments	1747	2814	3002
	<i>P</i> value* <sup>1</sup>		
Treatment effect	0.4165	0.2046	0.0832
Untreated vs. all Crab-Life Powder treatments	0.6642	0.1838	0.2976
Untreated vs. all greenhouse treatments	0.3794	0.0960	0.4440
Untreated vs. all field treatments	0.9479	0.1855	0.7173

DAT = days after transplanting.

LSD test at  $P < 0.05$  (lowercase letters) or  $P < 0.10$  (uppercase letters)

\*<sup>1</sup>ANOVA and contrast analysis were performed to test treatment effects and specific hypotheses, respectively.

# December 11, 2017 (88 days after transplanting)

Untreated



GH Treatment



Field Treatment



GH + Field Treatment



# Plant Biomass at Harvest

Treatment	Shoot biomass* <sup>1</sup> (kg/plant)
Untreated	1.37 b
Greenhouse	1.37 b
Field	1.43 ab
Greenhouse + Field	1.58 a
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% changes by Crab-Life Powder	0-15%↑
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Pooled data	
All Crab-Life Powder treatments	1.50
All greenhouse treatments	1.43
All field treatments	1.58
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<i>P</i> value* <sup>2</sup>	
Treatment effect	0.0261
Untreated vs. all Crab-Life Powder treatments	0.1038
Untreated vs. all greenhouse treatments	0.0844
Untreated vs. all field treatments	0.0308

LSD test at  $P < 0.05$  (lowercase letters) or  $P < 0.10$  (uppercase letters).

\*<sup>1</sup>Shoot fresh weight was measured immediately after the final harvest.

\*<sup>2</sup>ANOVA and contrast analysis were performed to test treatment effects and specific hypotheses, respectively.



# Marketable Fruit Yield

Treatment	Marketable yield (t/ha)			
	Medium	Large	XL	Total
Untreated	11.1	22.4	80.5 b	114.0
Greenhouse	8.1	18.4	90.8 a	117.2
Field	10.1	20.2	78.6 b	108.9
Greenhouse + Field	9.8	20.1	80.6 b	110.5
% changes by Crab-Life Powder	9-27%↓	10-18%↓	2%↓13%↑	4%↓3%↑
	Pooled data			
All Crab-Life Powder treatments	9.3	19.5	83.3	112.2
All greenhouse treatments	9.0	19.2	85.7	113.9
All field treatments	10.0	20.1	79.6	109.7
	<i>P</i> value* <sup>1</sup>			
Treatment effect	0.1077	0.5186	0.0491	0.2814
Untreated vs. all Crab-Life Powder treatments	0.0807	0.2106	0.4069	0.6305
Untreated vs. all greenhouse treatments	0.0493	0.1908	0.1654	0.9768
Untreated vs. all field treatments	0.2710	0.3392	0.7946	0.2822

XL = extra large fruit.

LSD test at  $P < 0.05$  (lowercase letters) or  $P < 0.10$  (uppercase letters).

\*<sup>1</sup>ANOVA and contrast analysis were performed to test treatment effects and specific hypotheses, respectively.

# Summary

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- Overall, the greenhouse treatment of CrabLife Powder had the greatest positive effects (11% ↑ in canopy area, 3% ↑ in marketable yield and 13% ↑ in extra large fruit yield compared to the untreated).
- Although field treatments of CrabLife Powder increased shoot biomass by 15% at the end of the season, they did not result in yield increases.
- The results suggest that CrabLife Powder can have positive effects on tomato growth and yield if applied in the greenhouse.