

Overview: This is a test conducted by Johnny's Select Seeds to determine the effectiveness of

SoilBiotics 1r – Seed Treatment in improving vegetable seed germination and stands.

Location: Red Fire Farm, Montague, Ma

Date Visited: 5/16/19

Enhancement Tested: 1r Seed Treatment, from Soil Biotics

Crops Treated: Spinach (pages 1-3), Red and Golden Beets (page 4), and Carrots (pages 4-5)

Spinach:

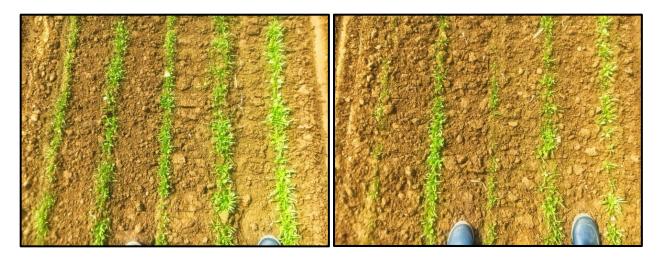
- o Kolibri (SRIJ), 80% JSS Germ.
- o 2 Plantings
 - ★ 4/24/19: Two beds, one seeded with treated seed, the other seeded w/ untreated seed
 - ★ 5/1/19: One bed, three rows seeded with treated seed, two rows with untreated ○
 Clear visual difference between treated and untreated beds, seedling counts
 unnecessary ★ Treated beds had thicker, more consistent stands.





Treated Rep

Untreated Rep



Treated Rep

Untreated Rep



Left Three Rows: Treated: **Right Two Rows:** Untreated



Untreated Treated Untreated Treated

Beets:

- Boro (SBEJ), 80% JSS Germ and Touchstone Gold, (SSAK), 75% JSS Germ Seeded 4/23/19
- One bed seeded with treated seed, one bed with untreated Seedlings just emerging, difficult to make visual comparison Seedling Counts conducted as follows:
 - → Beds were walked, every ten paces technician would count emerged seedlings from all three rows of a one-bed-foot-plot.

Boro Seedling Counts					
Plot:	Treated:	Untreated:	Difference:		
1	14	25	-11		
2	16	21	-5		
3	27	21	6		
4	24	9	15		
5	35	2	33		
6	21	12	9		
7	30	36	-6		
8	30	17	13		
9	28	0	28		
10	28	23	5		
Total:	253	166	87		
		Percent Difference:	42%		
		P-Value:	4%		

Touchstone Gold Seedling Counts					
Plot:	Treated:	Untreated:	Difference:		
1	15	9	6		
2	10	18	-8		
3	12	10	2		
4	20	6	14		
5	21	4	17		
6	14	8	6		
7	16	11	5		
8	20	11	9		
9	16	11	5		
10	13	7	6		
Total:	157	95	62		
_		Percent Difference:	49%		
		P-Value:	1%		

• As shown in the above table, there was a statistically significant increase in germination rates in the treated seed, compared to untreated, for both Boro and Touchstone Gold.

Carrots:

- \circ Yaya (SBEJ), 75% JSS Germ \circ Seeded 5/1/19
- One bed seeded with treated seed, one bed with untreated
 - ★ Treated seed planted into edge bed, with poorer field conditions Seedlings just emerging, difficult to make visual comparison ○ Seedling Counts conducted as follows:
 - → Beds were walked, every ten paces technician would count emerged seedlings from all three rows of one-bed-foot-plot.

Yaya					
Plot:	Treated:	Untreated:	Difference:		
1	53	31	22		
2	42	44	-2		
3	51	36	15		
4	41	35	6		
5	34	28	6		
6	33	28	5		
7	45	37	8		
8	37	20	17		
9	33	24	9		
10	37	28	9		
Total:	406	311	95		
		Percent Difference:	26%		
		P-Value:	0%		

 As shown in the above table, there was a statistically significant increase in germination rates in the treated seed, compared to untreated

Conclusions:

 SoilBiotics 1r – Seed Treatment showed a significant improvement on germination rates and stand quality for all three crops.