

# SARE ONE15-231: Evaluation of biological fungicides to control diseases of spinach in winter high tunnels

## 2016 Annual Report Addendum



Figure 1. Left: Emerged seedlings killed by damping off pathogens. Center: Treatments were applied using a soil drench application at specified intervals. Right: Poor stand was observed in spinach tunnels.

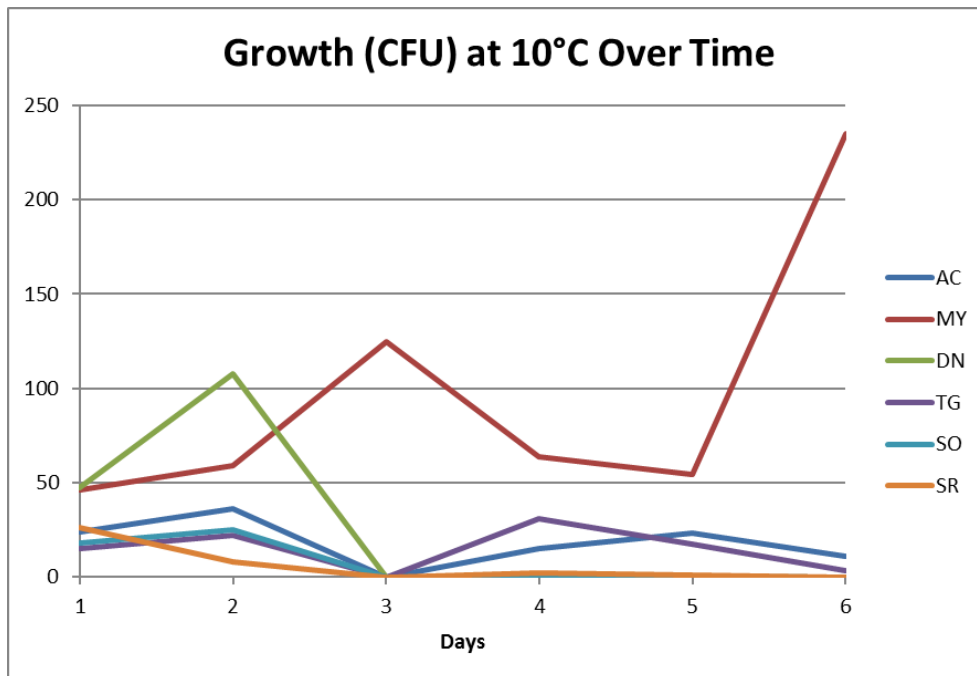


Figure 2. Of the bacteria tested, *Mycostop* grew best at 10 degrees Celsius.

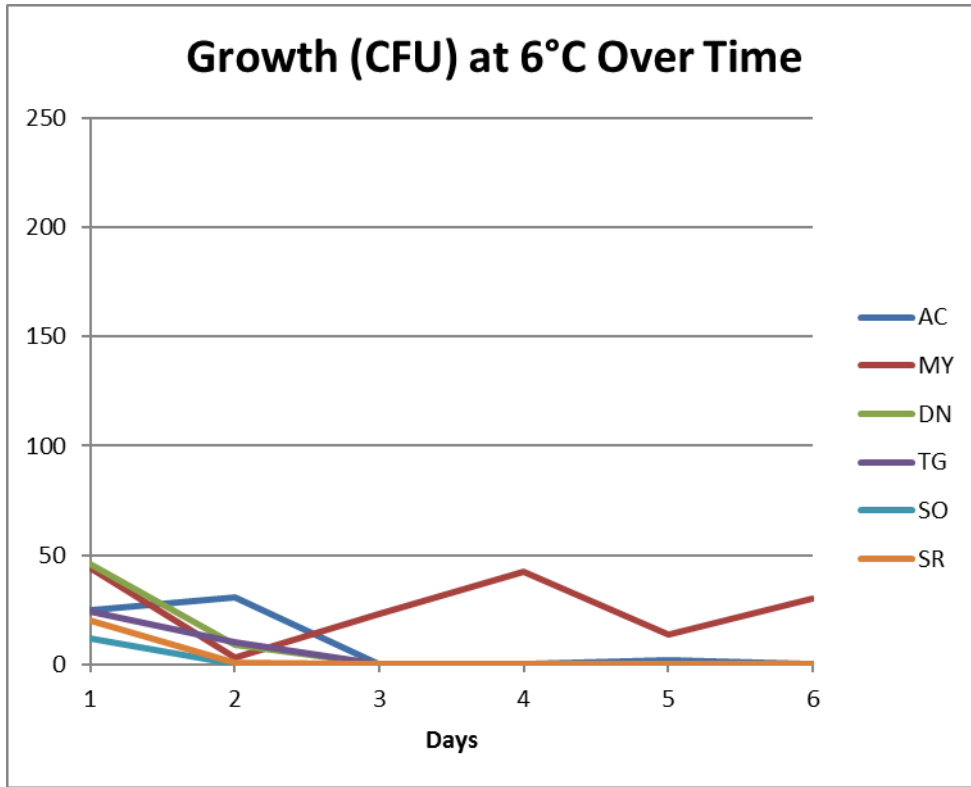


Figure 3. At 6 degrees Celsius none of the bacteria grew except Mycostop in the first replication of the study.

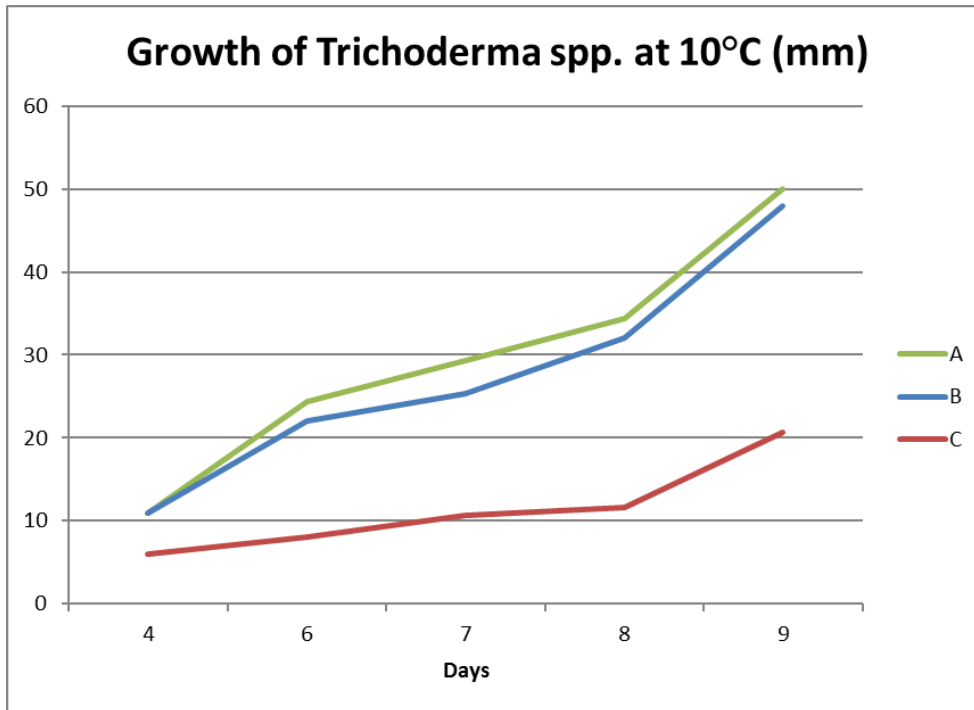


Figure 4. All of the Trichoderma isolates we tested from Rootshield Plus grew at 10 degrees Celsius.

Table 1. Descriptions of materials, rates, and cost per program used in the field study.

Treatment	Product	Interval	Rate	Cost (\$) / Tunnel / Season
1	Untreated			0.00
2	Double Nickel LC	2 wks	1.5 qt/100 gall	114.13
3	Rootshield Plus	6 wks	8 oz/100 gall	74.82
4	Actinovate AG	2 wks	9 oz/100 gall	245.39
5	Mycostop G	4 wks	2 g/100 sq ft	864.00
6	Oxidate	1 wks	24 at 1:300	753.21
7	RootShield Plus, Oxidate	6 wks; 1 wks	8 OZ/100 Gall; 1:300	828.03

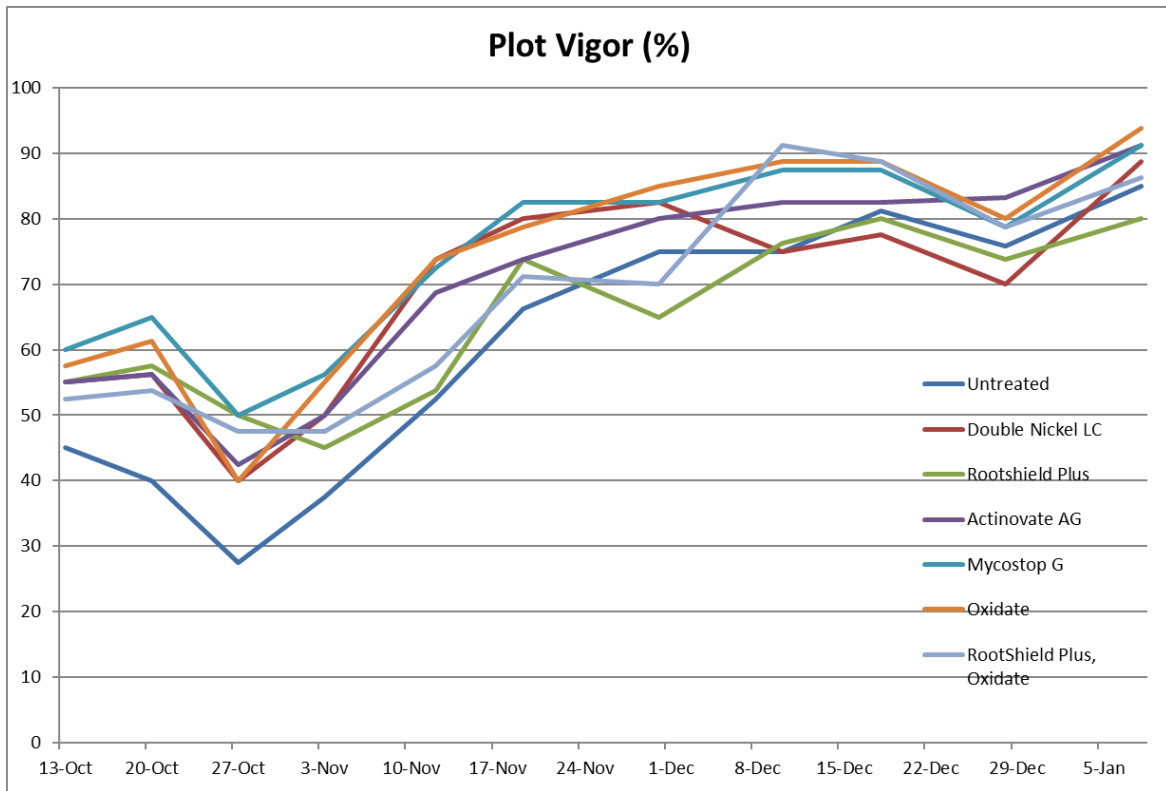
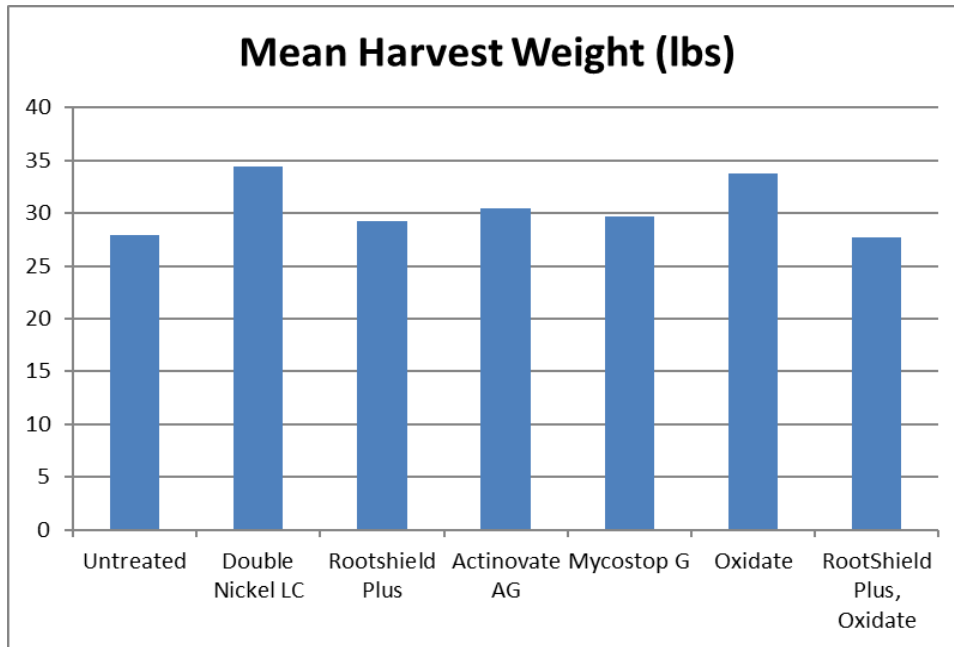


Figure 5. There were no statistically significant differences between treatments except for at the second time-point, where all products but Rootshield Plus performed better than the untreated control.



*Figure 6. No significant differences in marketable yield were observed for any treatment.*