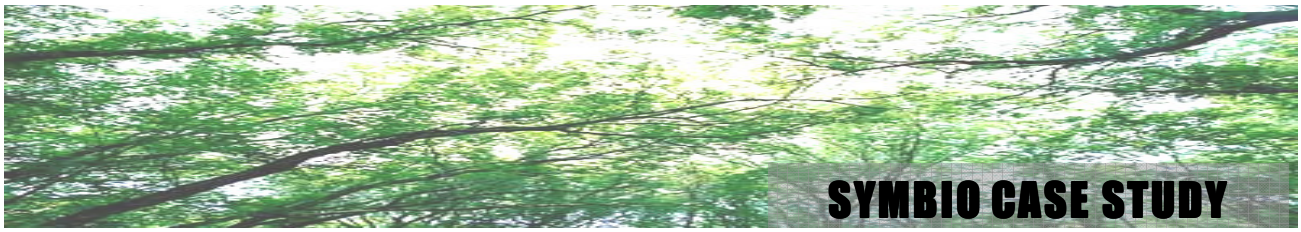


The Effect of Mycorrhizae on Two Varieties of Runner Bean

By Johanne Shannon-Lowe, Symbio & Bookham & Fetcham Garden Society

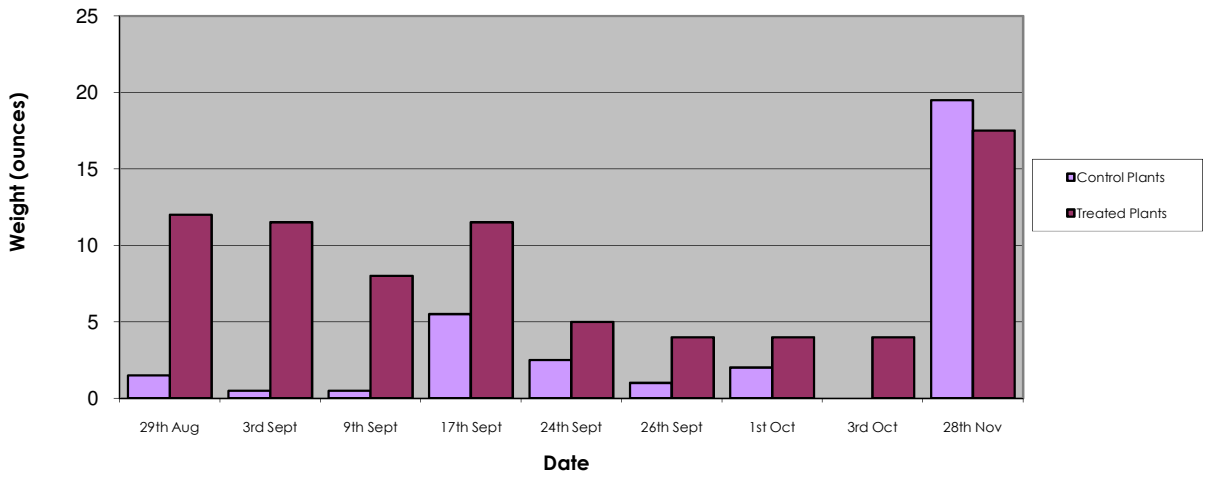
20 Runner Bean "Streamline" and 20 Runner Bean "Painted Lady" seeds were sown on 7th August. They were potted into the greenhouse and then hardened off. They were planted out on 8th August in 2 circles of loft canes; 10 Streamline and 10 Painted Lady in each circle. One circle was treated on 12th August.

Results & Observations

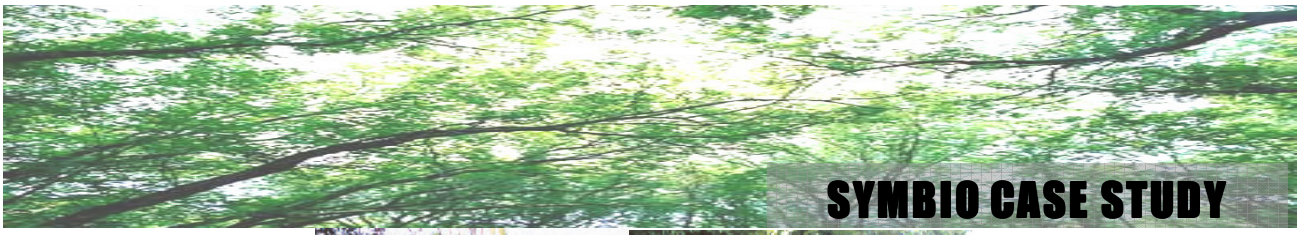
Date	Growth Pattern	
	Control	Treated
19th June	No difference	
26th June		Leaves a bit stiffer
3rd July		Top of canes pale leaves
10th July		Leaves much stronger
17th July	In flower	In flower
24th July		More flower
31st July		More leaves much sturdier
7th August		Leaves still sturdier
14th August	Maxicrop full rate	Flowers begin to set beans
21stAugust		Maxicrop1/2 rate
28th August		Beans forming, leaves darker

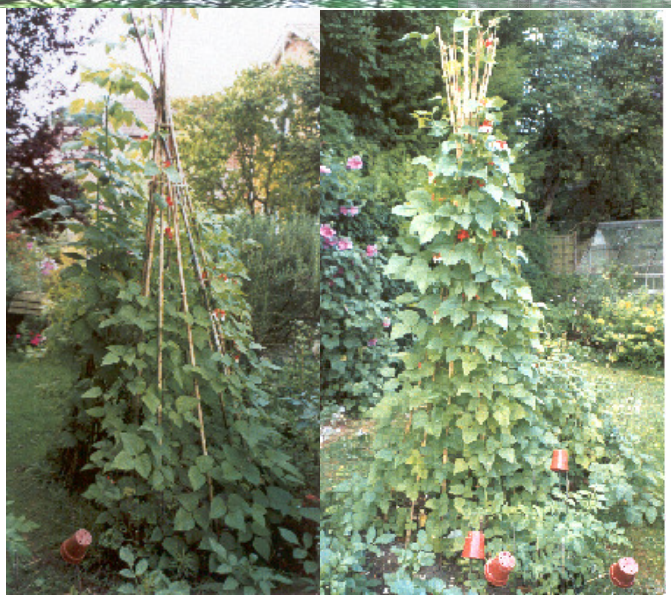
The treated plants withstood heavy rain & strong winds much better than the control plants. The roots were stronger and had spread out further. Watering was kept to a minimum and the plants were only fed once.

Comparison of the Harvest Weight of Runner Beans Between Control and Treated Plants



Symbio, Unit 8, Coopers Place, Combe Lane, Wormley Surrey, GU8 5SZ
Tel: 44 (0) 01428 685762 Fax: 44 (0) 1428 685702
www.symbio.co.uk fungalfun@symbio.co.uk





Control August 6th Treated August 6th

September 27th Control Treated

October 6th Control Treated

Symbio, Unit 8, Coopers Place, Combe Lane, Wormley Surrey, GU8 5SZ
Tel: 44 (0) 01428 685762 Fax: 44 (0) 1428 685702
www.symbio.co.uk fungalfun@symbio.co.uk

Conclusion

Over the 3 months of the bean harvest the treated variety produced 57% more beans than the control counterpart. It can be seen from the photos taken in August, September and October that the treated plants were bushier with more leaves, they also started flowering earlier, producing more flowers therefore setting to more beans than the control plants earlier than the control plants (see table above).

It was noted that there was no difference in the growth pattern between the control and treated plants 3 days after treatment. This is due to the lag phase of the mycorrhizal fungi, it represents the time taken for the fungi to associate with the plants roots and set up equilibrium where the fungi increase the amount of nutrients and water going to the plant and the plants photosynthesises more producing more carbohydrates for the fungi. After this equilibrium is set up (after 14 days in this case), benefits predictive of mycorrhizal association begin to be noticed, e.g. stronger leaves due to increased nutrient uptake, going into flower earlier and for longer, producing a high yield crop whilst at only ½ the rate of normal feed (maxicrop is a seaweed based feed) compared to the control.

After the 28th November the plants were destroyed by frost so the roots were dug up and examined (see photo below);

These are eight random root systems taken from the 40 plants. The four on the left are the control varieties; the four on the right are the treated varieties. There is quite a visual difference in size between the systems that were treated and those of the plants that were not treated. This could be due to the mycorrhizal fungi increasing the root surface area and the beneficial Biofixation (soil bacteria) in Symbio products, which encourage increased root growth.

Symbio, Unit 8, Coopers Place, Combe Lane, Wormley Surrey, GU8 5SZ
Tel: 44 (0) 01428 685762 Fax: 44 (0) 1428 685702
www.symbio.co.uk fungalfun@symbio.co.uk