

Final Report (summary) of the SLU-Ekoforsk project:

Produktionssystem för ekologisk odling av trädgårdsblåbär

Organic production systems in Northern highbush blueberries



foto: Birgitta Svensson

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Summary

The project aims to explore how to optimize organic production of blueberries in a Nordic climate. Key objectives of the project are: 1.study of growth and establishment in plastic tunnels and in the open with respect to variety and substrate, development, yield, pest problems and climate adaptation and 2.examine the role of mycorrhizae in the establishment and growth of plants and their uptake of nutrients from organic fertilizers.

A field trial with blueberries is conducted at SLU, Rånna Experimental Station in Skövde 2011-2013. The varieties Duke, Reka and Northblue are planted in high plastic tunnel and outdoor and in two different substrates: 1. coarse peat mixed with bark approx.10 percent and 2.coarse peat mixed with bark approx. 10 percent and forest soil approx. 10 percent. Plots are randomized within three blocks of the tunnel and within three blocks outdoor. Vegetative growth has been larger in the tunnel than outdoor. The volume of the varieties Duke and Reka are higher in the tunnel than outdoor, while the variety Northblue has the same volume in the tunnel and outdoor in 2013. Yield for each variety was equal in the tunnel and outdoor in 2012, while it was higher in the tunnel in 2013 when there had been both winter injuries and spring frosts at flowering. Harvest period was about a week earlier in tunnel 2012 compared to outdoor while there were no differences in earliness 2013. Varieties Duke and Reka have provided significantly higher yield than the variety Northblue. There have been no differences between the substrates in development or yields.

The influence of different mycorrhizal inocula and organic fertilizers was studied for the varieties Duke and Reka in pot experiments at SLU-Alnarp. There was a tendency to increased plant growth for the fertilizer Biofer compared with Biobact. Shoot or leaf mineral nutrient content was within the normal range for blueberries with the exception of boron which was below recommended values. The mycorrhizal treatments had no significant effect on plant growth neither in the pot experiments or one year after planting at Rånna Experimental Station in Skövde. Both the variety and the mycorrhizal treatment affected the composition of microbial populations characterised with phospholipid fatty acid (PLFA) profiles and the occurrence of genes for enzymes involved in soil nitrogen turnover.