Gooseberries, black-, and redcurrants for **fresh consumption**

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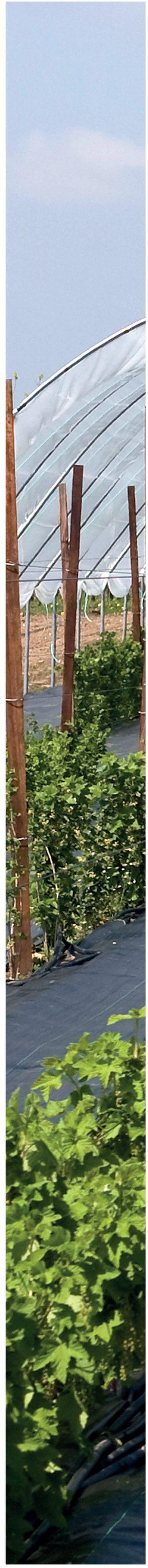

Background

Redcurrants, blackcurrants, and gooseberries are mainly produced for the processing industry in Denmark. However, there is commercial interest in increasing the value of the crop through the development of berry products for fresh consumption.

Trial

In spring 2009, the gooseberry cultivar 'Invicta', the blackcurrant cultivar 'Narve Viking' and the redcurrant cultivar 'Rovada' were planted. Plants where trained as espalier with three leading shoots and side shoots pruned as long spurs. In spring 2010 the nutrition trials started and the plastic tunnels where established.

Four productions systems were establishedfor the three berryfruit species:

1. Conventional, outdoor in the ground in mypex. Fertigation daily. Four levels of nitrogen (N): 0, 50, 100 and 150 kg N/ha.
2. Conventional, in tunnel in the ground in mypex. Fertigation daily. Four levels of nitrogen (N): 0, 50, 100 and 150 kg N/ha.
3. Conventional, in tunnel in pots. Fertigation 4 times daily. Three levels of nitrogen (N): 90, 180 and 270 kg N/ha.
4. Organic, in tunnel in the ground in mypex. Irrigation daily and poultry manure pellets in spring. Four levels of nitrogen (N): 70, 94, 122 and 144 kg N/ha.

Table 1: Yield for Gooseberry 'Invicta' (n = 48), blackcurrant 'Narve Viking' (n = 60), redcurrant 'Rovada' (n = 48), kg/bush for four production systems in 2010.

	Yield kg/bush			
Species and cultivar	1 Conventional Outdoor In ground Fertigation daily	2 Conventional In tunnel In ground Fertigation daily	3 Conventional In tunnel In pots Fertigation four times daily	4 Organic In tunnel In ground Irrigation daily Poultry manure
Gooseberries 'Invicta'	1.60	1.63	2.49	1.79
Blackcurrants 'Narve Viking'	0.33	0.63	1.18	0.69
Redcurrants 'Rovada'	0.35	0.61	1.25	0.48
Total	**2.28**	**2.87**	**4.92**	**2.96**

Different letters in rows denotes significant difference (P≤0.05).

Results

In the year 2010 no extreme weather events occurred in the period from flowering (late April) to harvest (July and beginning of August). The red- and blackcurrants ripened up to 7 days later when produced in the ground outside tunnels compared to production inside tunnels. Results from the first cropping year (2010), showed for all three berryfruit species, that inside the tunnels the potted plants produced 35 to 56% more yield compared to plants grown in the ground (Table 1). For black- and redcurrants plants grown in the ground, the yield doubled when the plants were grown inside the plastic tunnel (Table 1). For gooseberry there was no difference in yield between plants grown in the ground, either inside or outside of the tunnels.

Organic production delivered the same yield as conventional production for gooseberries and blackcurrants when produced in the ground in tunnels, however organic tunnel production of redcurrants was reduced compared to conventional tunnel production (Table 1). In all production systems, no significant differences occurred in yield in response to nitrogen supply in 2010. Blackcurrant 'Narve Viking' had a tendency to produce shorter strigs when grown in the ground outside the tunnels compared to plants grown in the ground inside tunnels. Potted 'Narve Viking' in tunnels were susceptible to infections of two spotted spidermites (Tetranychus urticae) and mildew (Sphaerotheca mors-uvae).

The redcurrant 'Rovada' had a larger fruit set and weight of strigs when grown in pots inside tunnels compared to production in the ground. No serious pests occurred.

In the gooseberry 'Invicta', mildew (Sphaerotheca mors-uvae) and gooseberry sawflies (Nematus ribesii) were serious diseases and pests that needed to be controlled.

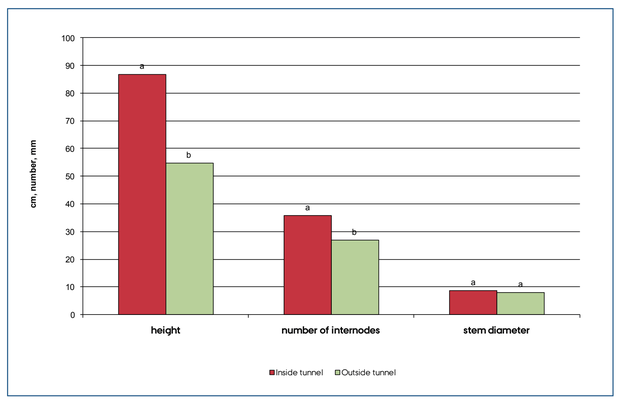

Figure 1: Total annual shoot growth, number of internodes per shoot and stem diameter for blackcurrant 'Narve Viking', grown inside and outside tunnels in 2010. Data is presented as averages (n = 10) and different letters denotes significant difference (P ≤ 0.05).

The vegetative growth of blackcurrants produced inside plastic tunnels was improved with respect to shoot height and number of internodes relative to plants grown outside of the tunnels, whereas there was no effect on stem diameter (Fig. 1). Shoot growth ceased in September 2010 in all plants. The climatic conditions in the tunnel were monitored; average air temperatures were higher by 1.33°C in July and by 1.11°C in August inside the tunnel than outside the tunnel, however, photosynthetic light intensity was reduced by 23% inside the tunnel compared to outside the tunnel.

Conclusion

Production in tunnels in pots increased yield significantly in gooseberries, black-, and redcurrants. Conventional black- and redcurrant production and organic production of gooseberries, black-, and redcurrants in ground inside tunnels is promising.

These trials will continue in both 2011 and 2012.

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