Cropping and Chemical Composition of Black Currant (Ribes nigrum L) Cultivars in Norway

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INTRODUCTION

Black currants are widely grown in Europe and have become more valuable in later years as there has been more focus on the high content of health related chemical components that may reduce chronic diseases. Significant differences both between cultivars and species have been presented earlier (Halvorsen et al. 2002).The high content of L-ascorbic acid and antioxidants in black currants is well known (Heiberg et al 1992). Great variation between cultivars of black currant is demonstrated in later work (Remberg et al 2007). Effects of cultivation practice did not demonstrate any significance in an earlier investigation (Nes et al 2008).
This poster presents Norwegian results of yield and some chemical ingredients of fruits of several black currant cultivars and years.

MATERIAL AND METHODS

A trial of 15 cultivars of black currants was carried out using a randomised block design with tree replicates and two plants per plot at Bioforsk Kise (60o 40` N; 10o 11` E) in the South Eastern Norway from 2003 to 2010. The plants were in single rows 4.0 m apart and the a planting distance was 1.5 m. The field had a morainic loam soil with 6 - 8 % humus and pH in water of 5.6. The plant available P and K were 90 and 250 mg/kg respectively. Before planting the field was applied with 500 kg per ha 15-4-12 NPK compound fertilizer. Irrigation was carried out with overhead sprinklers whenever soil moisture deficit exceeded 10 mm. Grass that was kept short covered the alleyways, combined with a herbicide strip 0.5 m wide along the rows. Fertilization was carried according to leaf analyzes in early spring and after harvest. The fruits were all years harvested at commercial stage of ripeness in the middle of August. The yield, berry size and soluble sugar were recorded at harvest and berry samples were stored at -20oC, and analysed later. All chemical analyses were according to Remberg et al 2010.

RESULTS AND CONCLUSIONS

The yield data of the cultivars and advanced selections presented in table 1 show significant variation both between cultivars and years. The highest cropping cultivars showed little differences in average yield, but the variation between years were highly significant for all of them. In average for the six years the Polish cultivar yielded highest closely followed by the Norwegian cultivar Narve Viking and the Scottish cultivar Ben Tron. Tiben is a new cultivar in Norway while Ben Tron is well established. This cultivar obtained the highest yield among all. However, also Ben Tron showed large variability in yield between years. The reasons for these variations are some winter damage and also bad climatic conditions during flowering.
A considerable variation in chemical composition of selected cultivars of the experiment is shown in table 2. Some of the variation may be due to variation in maturity of the samples giving some advantage to early ripening cultivars, but there was always high focus on avoiding such variation.
The content of soluble solids showed large variation and the Polish cultivar Tisel had always abundantly higher value than the others. This cultivar was, however, not among the most productive in the experiment. The cultivar Tiben that also is a Polish cultivar had highest acidity all years. This cultivar also contained significantly most vitamin C. Most cultivars showed high values of antioxidants and Ben Tron was all years the richest.

Literature Cited

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