International Society for Horticultural Science
Faculty of Agriculture, University of Belgrade
Institute of Pesticides and Environmental Protection, Belgrade

X International *Rubus & Ribes* Symposium

– Book of Abstracts –

Plasticity of blackcurrants in a changing climate; focus on water efficiency

Nataša Čerekovic[1], Hanne Lindhard Pedersen[1], Hanne Lakkenborg Kristensen[1], Karen Koefoed Petersen[1], Rex Brennan[2]

[1] Aarhus University (AU), Department of Horticulture, Kirstinebjergvej 10, Dk-5792 Aarslev, Denmark (Natasa.Cerekovic@agrsci.dk)

[2] Scottish Crop Research Institute (SCRI), Invergowie, Scotland

Changing climatic conditions are becoming a limiting factor in the commercial production of blackcurrants in Denmark. The overall aim of this project is to identify elite cultivars that have adaptive and phenotypic plasticity and therefore are more likely to remain productive during unfavourable weather conditions. This will be achieved by identifying specific traits such as an ability to maintain productivity and quality, and increase water use efficiency during drought or heavy rain stress and recovery phases.

Field trials to evaluate the influence of timing and level of water supply for blackcurrant cultivars were established as a randomized complete block design with five replications in the cultivars 'Titania', 'Nave Viking' and 'Ben Hope'. Soil water was measured using trime-piko iph/T3 equipment. The cultivas were evaluated for shoot and root growth using minirhizotrons, yield and fruit quality to investigate the interactions between water supply and plant factors. An additional potted experiment was established under greenhouse conditions to evaluate drought stress response for the cultivars 'Ben Alder', 'Ben Grain', 'Ben Hope', 'Ben Tirran', 'Narve Viking', 'Oyebyn' and 'Titania'. The cultivars were evaluated for CO_2 response, stomatal conductance, water potential, root/shoot ratio, flower initiation, fruit yield, fruit size and fruit quality.

We have evaluated the ability of elite cultivars to cope with stress and to recover after stress by looking at the interaction between water stress, root growth, and photosynthesis. This research will provide underpinning knowledge so that growers are able to sustain both productivity and quality of blackcurrants when climatic conditions become limiting.