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Climate Change and Grapevine Growing in the Southernmost Finland

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According to the scenarios estimating climate change, the annual mean air temperatures could rise from the current by 3°C to 4°C in the Helsinki area, and the growing season will become 30 to 40 days longer by the year 2100. The purpose of this study was to establish how much the annual mean air temperature between the years 2005 to 2014 have risen in the Helsinki area and how much the growing season has been extended in comparison to the mean in the years from 1971 to 2000. In addition, the air temperatures from May to October, grapevine growth and soil temperatures from late May to early June in 2014 were compared between the Helsinki area and Central European grapevine growing areas (Herrlisheim-prés-Colmar, Freyburg-Saale, and Neubrandenburg).

In the Helsinki region, the annual mean air temperature has risen by 1.1°C, and growing season has extended by 27 days between the years 2005 and 2014, as compared to the 1971 to 2000 levels. The mean air temperature in the Helsinki region was significantly lower in May, June, September and October of 2014 than in the comparison regions ($p<0.05$), but during July and August, there were no significant differences ($p>0.05$). Soil temperatures in the Helsinki region between 25 May and 3 June were lower by 3.4°C at a depth of 20 cm, and 4.6 °C at a depth of 40 cm than they were in Herrlisheim, and 1.8°C to 1.2°C and 0.9 to 0.6°C lower than those in Freyburg and Neubrandenburg, respectively. The grapevine growth stage (Eichhorn-Lorenz 17) in the Helsinki region on 4 June was equal to that of Herrlisheim's on 26 May.

The result indicates that over the past ten-year period, the climatic temperature and the length of the growing season during the summer months in the southernmost Finland have moved closer to the climate and growing season of Central Europe, and thanks to this, it is possible to grow a harvestable grapevine in the southernmost regions of Finland. Moreover, if according to the scenarios spring will arrive earlier and winters become milder, this will provide more and more opportunities for grapevine growing.

Keywords: climate change, air temperature, Nordic grapevine growing

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