

## **P21 – Development of cultivars with fast fruit development suited for growing in Northern Europe**

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### **Abstract**

For the first time breeding of grapes for a growing region as cold as in Northern Europe including Scandinavia has been initiated. The breeding is established in a cooperation between a small private breeding company 'FastGrapes' established by Toldam-Andersen, T. B. and the Julius Kühn Institute. The cultivar 'Solaris' was introduced in 2003 and has quickly established as the dominant cultivars in especially Denmark and Sweden, but is even grown in Norway. In Denmark it uses in average 95 days from flowering to harvest maturity (based on country average of the last 15 years). Harvest maturity, is in average reached by 1<sup>st</sup> October (+/- 15 days). This is an ideal time of maturity, as high quality grapes can be harvested every year. The successful growing of Solaris means it now represents approx. 40% of the commercial viticultural area in Denmark. In total 200 ha is now grown, and the area show exponential growth. Thus, in the new breeding programme, we use Solaris as reference cultivar. The work was initiated in 2020 where about 5000 seedlings at JKI Geilweilerhof was screened 15-18 August. 40 potential genotypes were identified from which 25 was selected for propagation and further testing. In 2021 an additional 2850 seedlings were screened adding 4 new selections to the list. Selection in further seedling fields will be performed in the coming years. In addition to time of maturity an array of parameters are evaluated (yield components, growth habit and disease tolerance). Depending on the crossing partners used it appears between 0,5 and 2 % segregates out as fast maturing genotypes. The genetic background of the seedling fields is complex including several *Vitis* species used in almost 200 years of breeding. Recently also a breeding line from cooperation between INRA and JKI is utilized. It bring in new resistance genes from *Muscadinia*. As a result, multiple resistance loci is found in the selected FastGrapes breeding lines against downy and powdery mildew. From the mother plants as many plants as possible are propagated (in average 40) in order to plant test plots in 6 Danish locations, 2 Swedish and 1 in Northern Germany in addition to JKI in Siebeldingen. A 'fast track' strategy has been developed, in which cultivar candidates are selected after two years of cropping (year 4 after planting). The candidates are then multiplied and planted in 5 locations with 200 of each in each place in order to allow for larger scale enology test. Final selection for variety nomination is made after 2 years of harvest. The fast track procedure allows new cultivars to be developed in 10 years after selection in the seedling fields.

**Keywords:** Robust cultivars, short development, resistance