

## **P63 – Setting up new tools to reduce the duration of the grapevine breeding process in the first French private breeding company**

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### **Abstract**

Since some years, the French wine sector faces strategical challenges, all linked to climate changes. Multiple issues have been observed like diseases development, early frost, hailstorms, drought, change in the precocity and maturity of grapes, each one resulting in loss of productivity and yield. In France, the varieties proposed today by nurseries are historical varieties that are not well adapted to those changes. Therefore, Mercier Frères, the first French and second world leader grapevine nursery, have decided to start its own research programs, with the help of its laboratory Novatech, to answer the growing demand for new grapevine varieties. One approach will be presented, the NATHY program, consisting in creating new varieties by traditional breeding, with the help of molecular tools and new production techniques. In partnership with breeders around the world, the aim is to develop and propose resistant varieties first to the most harmful fungi: downy and powdery mildew, and black rot. Traditional breeding of perennial species as grapevine can take 25 to 30 years. The challenge for the company is to reach a breeding cycle of 10 years from the seed to the registration of the variety. To achieve this goal, the combination of multiple tools is required. Marker assisted selection allows us to detect resistance genes in the early life of the plant, and to discard rapidly genotypes that don't meet our expectations. Another major improvement is to reduce the time to product scion. A tomato-like production system has been settled, enabling the plant to produce scions in only one year after the planting, instead of 3 years in a classic field process. Multiples other tools are tested to study all way to reduce the breeding cycle. With this rupture innovation program, we hope to create new genetic resources meeting growers' expectations about climate change challenges.

**Keywords:** viticulture, climate change, resistant varieties, greenhouse production, marker assisted selection