

FOCUS // BREEDING

BREEDING

- ✓ Consists in crossing yeast strains that have oenological characteristics of interest.
- ✓ **The resulting strain combines the performances of 2 or more different strains.**

DID YOU KNOW IT?

The choice of parental strains can be based on physiological criteria (fermentation performance, low VA and SO₂ production, release of aromas...) but also on genetic ones. In fact, we know now that a certain number of genetic characteristics (what we call QTL) are linked to physiological traits (phenotypes).

QTL MARKERS

Many research projects combining genomics and physiology have revealed genetic characteristics linked to physiological traits of oenological interest, named QTL (POF character, VA and SO₂ production, aroma production...). Therefore it is possible to search for yeast strains with specific genotypes of interest to use for breeding: **selection guided by markers.**

QTL USAGE

Allows to go beyond the analytical data based solely on fermentation phenotypes, therefore multiplying the possibilities for selecting parental spores. It also permits to better focus on areas of improvement in the selection process.

FX10

Fermentation performance
Volume

X5

Thiols production

XPURE

Low VA,
Low SO₂
Volume

RX60

Fruity aromas expression

X16

Esters, fermentation performance

QTL MARKERS GUIDED BREEDING

When a given strain (strain A) needs to be improved on a particular characteristic present in a different strain (strain B), it is possible to perform **genetic marker driven backcrossings**. Once strain A is bred with strain B, the descendent strain carrying the QTL of interest is identified, then crossed again with strain A. This step is repeated until obtaining a descendent **strain X** carrying the majority of the genetic background of strain A but enriched with the characteristics of interest from strain B.

