Evaluation of fruits variability among somaclonal variants of Jonagold apple cultivar.

H. Magein, A. Mahoux and Ph. Druart

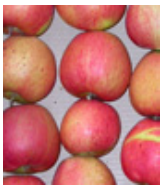
CRA W-Department Biotechnology, 234 Chaussée de Charleroi, 5030 Gembloux, Belgium. Email: druart@cra.wallonie.be

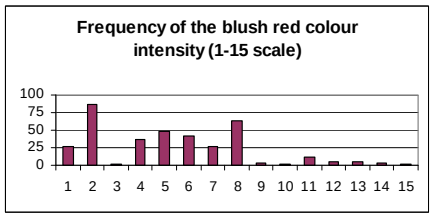
Adventitious buds of a'Jonagold' red mutant apple were cloned from 3 successive subcultures of regenerating leaves and transplanted to the orchard after micrografting on P22 rootstock. More than 200 different regeneration events, issued from 3 generations, reached the orchard where trees looked similar growing to the original variety since 1995.The rate of success including grafting and transfer in orchard reached ±90%.

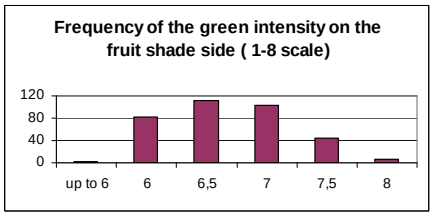
First fruits were harvested from several clones in 1998. From 1999 to 2004, fruits from clones were distributed each year into 14 classes from light red to dark red according to the fruit colour variability. Estimated percentages of red blush, green intensity of the shade side, single and double streaking or chimeria, and shape of the fruits were also measured Data about sugar content, starch stage and firmness were collected.

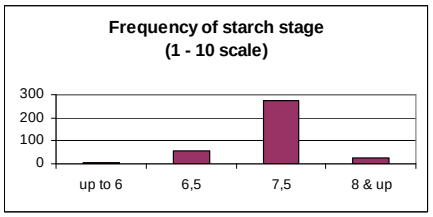
Clones variability

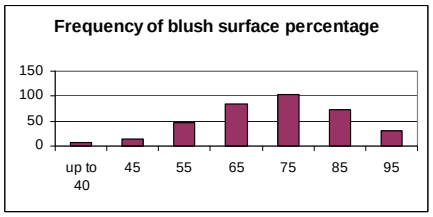


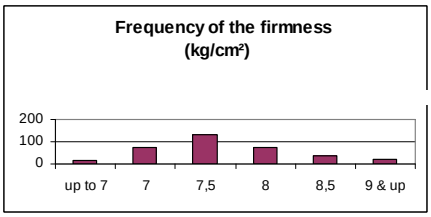



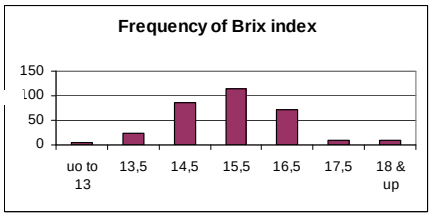







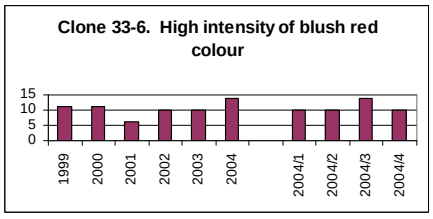


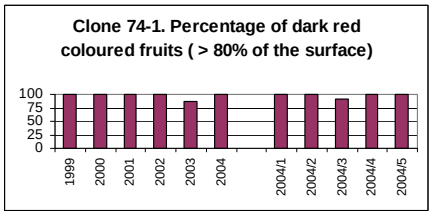


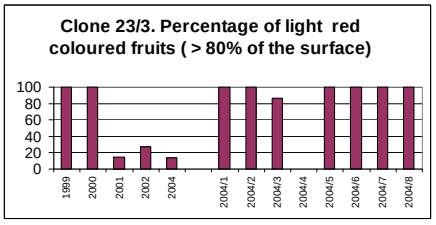


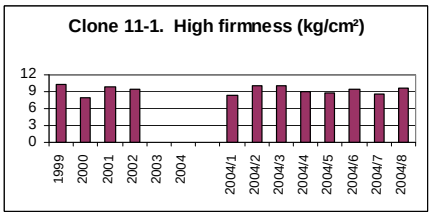
Clones stability

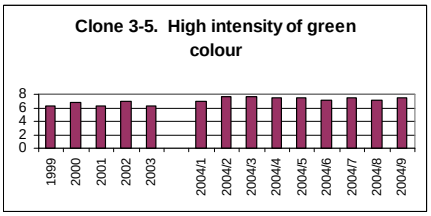
17 clones presenting particular interesting characteristics have been regrafted and replanted in more numerous samples to analyse the grafting stability of these variations. Tables show the original clone variations betwen 1999 and 2004 and their vegetative copies variations in 2004.











Conclusion

The intensity of blush red colour, the streaked or plain blush coulour, the earliness of colouration, the elongated shape and the firmness characteristics are stable along time and within vegetative duplication. Percentage of blushed surface (specially on light red coloured clones), green intensity of the shade side are more variable with year conditions. The stability along time and after secondary vegetative multiplication for such interesting characteristics shows that this method is efficient to create apple fruit diversity in a very short term of selection (5 to 6 years).

ISHS « International Symposium on Biotechnology of Temperate Fruit Crops and Tropical Species » Daytona (FL.) USA- Octobre 2005