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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS GENEVA

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COMPARING WHEAT VARIETIES WITH THEIR OFFSPRING BY MOLECULAR MARKERS

Document prepared by an expert from Austria

- 1. The Austrian wheat seed market is exceptional, as two-thirds of the seed sold is of varieties in the premium quality wheat categories. One of these, our variety 'Capo' registered in 1989, is still the market leader with over 30% share of the market.
- 2. Needless to say that such a successful long-living variety has often been used as a breeding parent. As a consequence, several phenotypically quite similar varieties have been registered.
- 3. An analysis with 84 molecular markers covering all chromosomes was performed to check the relationship between those similar varieties. The tested wheats included 'Capo', a 'Capo' cross of our own and one from a competitor, a backcross to a 'Capo' sister line and three unrelated varieties.
- 4. Genetic similarities of the 'Capo' crosses were in the range of 57% 78%, while those of the non related varieties were between 23% to 31%. The molecular analysis confirmed the pedigree information and also identified the competitor's variety as a true cross.

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- 5. In a different case of phenotypically similar varieties our own variety and the competitor's variety showed a similarity of 98% when analyzed with molecular markers. That value is unlikely if two breeders selected from the same cross but could be explained by reselection from a variety with residual heterogeneity.
- 6. In the light of those findings it is necessary to define thresholds to differentiate sister lines from essentially derived varieties (EDVs).
- 7. If applicable, ISF arbitration procedures are to be preferred before initiating court cases.

Dr. Michael Gohn Probstdorfer Saatzucht Austria

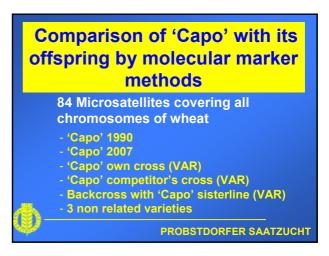


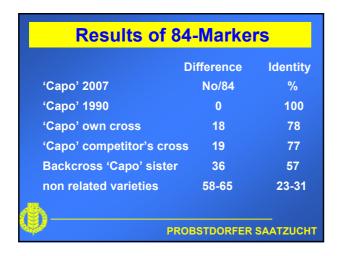


Austrian wheat seeds market > total wheat market 19,000 - 21,000 tons C1 > of which high quality wheat (quality groups 7 to 9, corresponds to German E-type, French BAF) 13,000 - 14,000 tons C1 (2/3) > area 260,000 - 270,000 hectars PROBSTDORFER SAATZUCHT









Conclusions 1st part 84 Microsatellites distributed over genome give adequate results for market control competitor's variety established as true cross for statistical evaluation probably more in-depth tests necessary PROBSTDORFER SAATZUCHT



