



**BMT/11/7 Add.**

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ADDENDUM

COMPARING WHEAT VARIETIES WITH THEIR OFFSPRING  
BY MOLECULAR MARKERS

*Document prepared by an expert from Austria*

# Comparing Wheat Varieties with their Offspring by Molecular Markers

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PROBSTDORFER SAATZUCHT

## Introduction

### Probstdorfer Saatzucht

- seed producing company
- cereal seeds (wheat, durum, barley)  
breeder until 2000
- since 1<sup>st</sup> July 2000 shareholder of  
breeding company  
„Saatzucht Donau“



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## Austrian wheat seeds market

- total wheat market  
**19.000 – 21.000 tons C1**
- of which high quality wheat (quality groups 7 to 9, corresponds German E-type, French BAF)  
**13.000 – 14.000 tons C1 (2/3)**
- area 260.000 – 270.000 hectares



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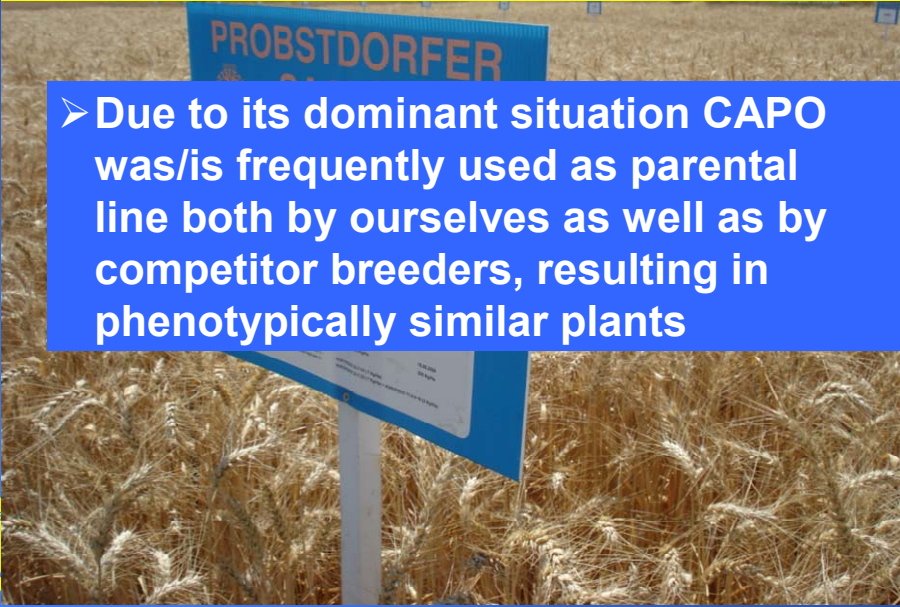
## Registered high quality wheat varieties

- currently 28 varieties of which
  - 24 of Austrian breeding
  - 17 of Probstdorf / Saatwucht Donau
- Exclusive Situation
  - CAPO registered 1989
  - still main variety
  - approx 35% share of seeds
  - leading in multiplication area



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## CAPO as progenitor

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- Due to its dominant situation CAPO was/is frequently used as parental line both by ourselves as well as by competitor breeders, resulting in phenotypically similar plants

## Comparison of CAPO with its offspring by molecular marker methods

84 Microsatellites covering all chromosomes of wheat

- CAPO 1990
- CAPO 2007
- CAPO own cross (VAR)
- CAPO competitor's cross (VAR)
- Backcross with CAPO sisterline (VAR)
- 3 non related varieties



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## Results of 84-Markers

	Difference	Identity
CAPO 2007	No/84	%
CAPO 1990	0	100
CAPO own cross	18	78
CAPO competitor's cross	19	77
Backcross CAPO sister	36	57
non related varieties	58-65	23-31



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## 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



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## And what is that ?

Our variety (reg. 1997)

- 92 markers
- 90 monomorph results
- 2 polymorph results

Competitor's variety (reg. 2001)

- 90 identical monomorph res.
- 2 monomorph results (of polym)

→ **comment ?**



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## Conclusions part 2/1

- In light of previous results → EDV
- It is necessary to stipulate a threshold to define EDVs
- In which generation have varieties been drawn apart – define the border between sisterlines and EDV

(in 2 sister varieties we observed a difference of 4/43 markers = 91% identity)



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## Conclusions part 2/2

### In case of potential EDVs

- call for an ISF arbitration a.s.a.p (look at trade and arbitration rules for time schedule) if applicable
- court cases will be tedious as long as there are no accepted threshold levels



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