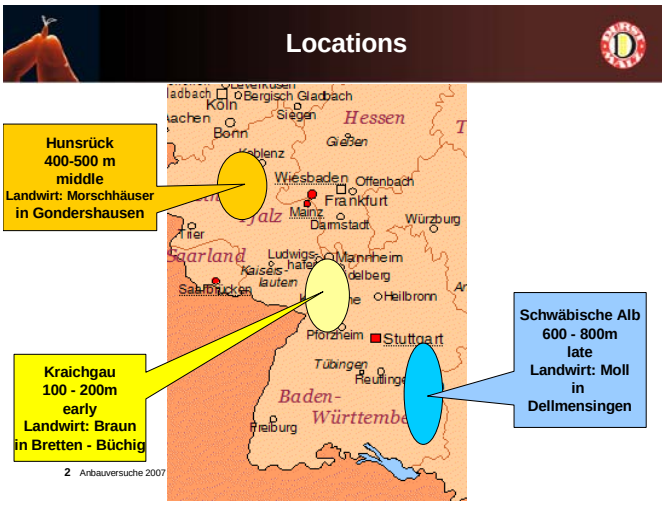
VARIETY TRIALS 2007 EVALUATION

DURST MALZ VARIETY TRIALS 2007

1. Locations and Conditions

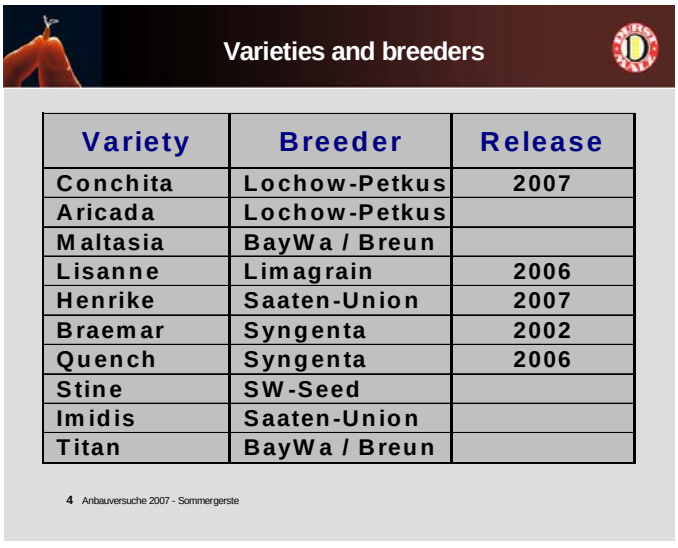
Following past years' tradition DURST MALZ, SCHWABEN MALZ and RWZ carried out variety trials in South West Germany (Baden Wuerttemberg) and Hunsrück (Rhenania-Palatinate)
The Strip Trials, with an assortment of 10 varieties (Braemar as reference) were planted on three locations with different agricultural and climatic conditions:
Kraichgau (Bretten – early harvest, low altitude)
Schwaebische Alb (Erbach – late harvest, high altitude) and
Hunsrück (Gondershausen– middle altitude) , for details refer to picture (1).



At Kraichgau, two fertiliser doses (70 and 102 kg N/ha) were applied (latzer mentioned as Version 1 and 2) resulting in lower and higher protein levels.
In addition a part of the strips remained without fungicide spraying to evaluate the resistency. Plant protection and soil preparation was done according to normal agricultural practice for these two regions.
Varieties Titan and Imidis were not tested in Hunsrück area.

At Schwäbische Alb fertilisation was 88 kgN/ha.

Pic. (1) Locations

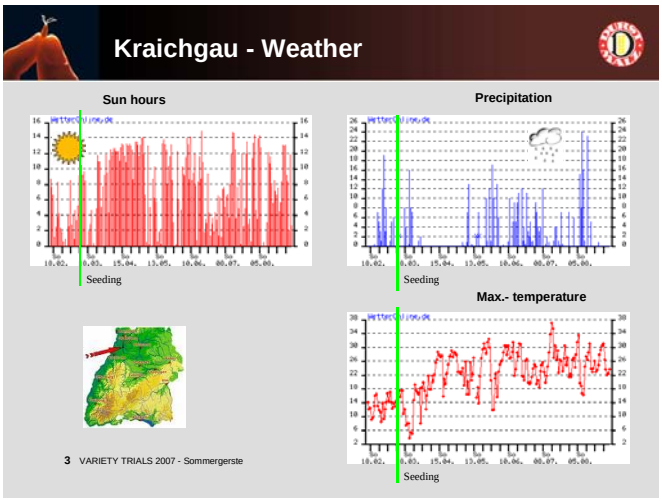


Variety	Breeder	Release
Conchita	Lochow-Petkus	2007
Aricada	Lochow-Petkus	
Maltasia	BayWa / Breun	
Lisanne	Limagrain	2006
Henrike	Saaten-Union	2007
Braemar	Syngenta	2002
Quench	Syngenta	2006
Stine	SW-Seed	
Imidis	Saaten-Union	
Titan	BayWa / Breun	

Pic. (2) Barley varieties and breeders

The varieties tested, the breeders and the year of approval are shown in Picture (2).
Data concerning vegetation period and observations at different stages are available on www.durst-malz.com. All varieties have been malted by the DURST MALZ pilot malting, according to the common German standard regime:
Steeping: 2 days
Germination: 4 days
Maximum moisture: 46% with decreasing temperatures

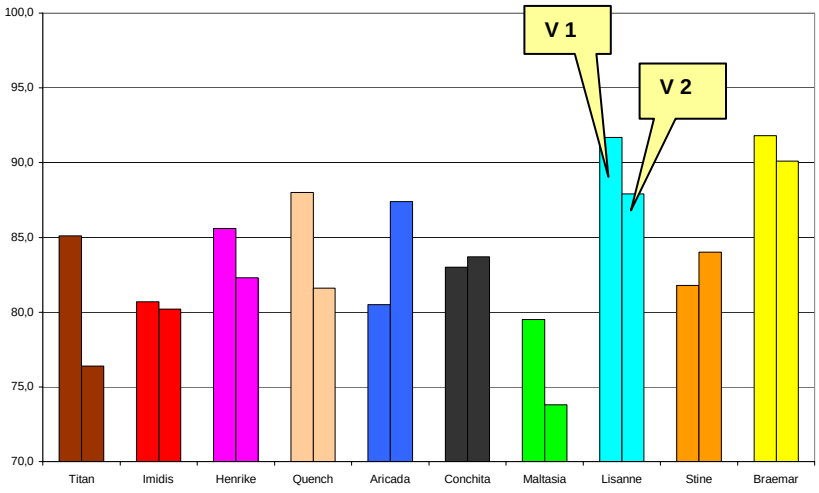
Vegetation period: Drilling was done in normal time and with appropiate soil conditions. In April, 6 weeks without rain lead to lesser growing. Higher-than-average rainfall in May and June are responsible for the barley quality. Due ato a late nitrogen mineralisation and smaller amount of stems, protein contents are partially very high.



Weather during crop in Kraichgau was fair. Locations Schwäbische Alb and Hunsrück suffered damages during rain in August with visible sprouting. Nontheless, all samples have been malted and tested.

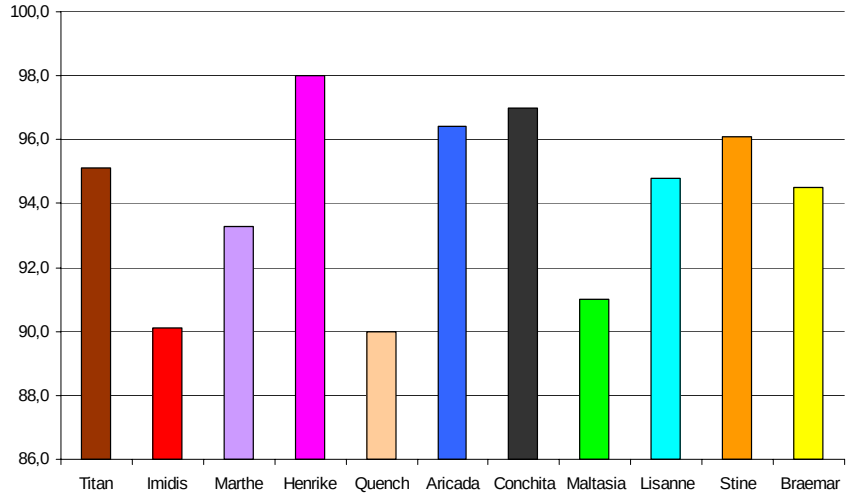
Pic. (3) Kraichgau Weather

2. Barley Quality



Full barley – Kraichgau: Braemar, well knwon for good full barley values confirms ist good results again.Lisanne is slightly below. Maltasia, Titan and Imidis shows weakness. Arcada is good in Version 2. Version 2 is in general poored than Version 1 due to layer

Pic. (4) Full Barley- Kraichgau



Pic. (5) Full Barley- Schwäbische Alb

Full Barley – Schwäbische Alb:

All varietis are > 90 %, with Henrike leading followed by Aricada and Conchita. Maltasia, Quench and Imidis are weaker

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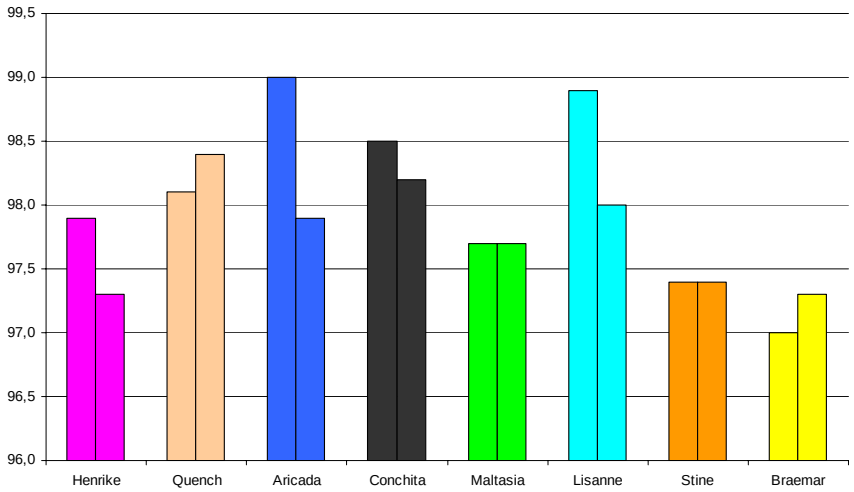
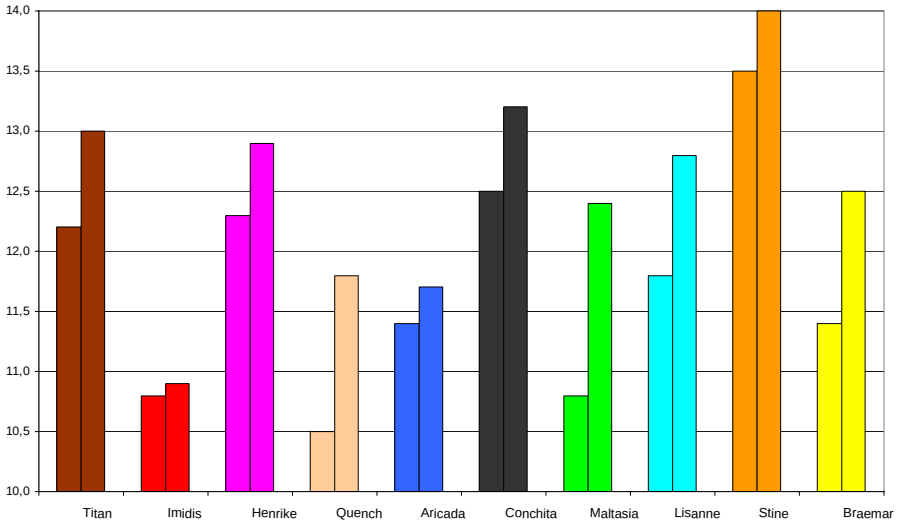


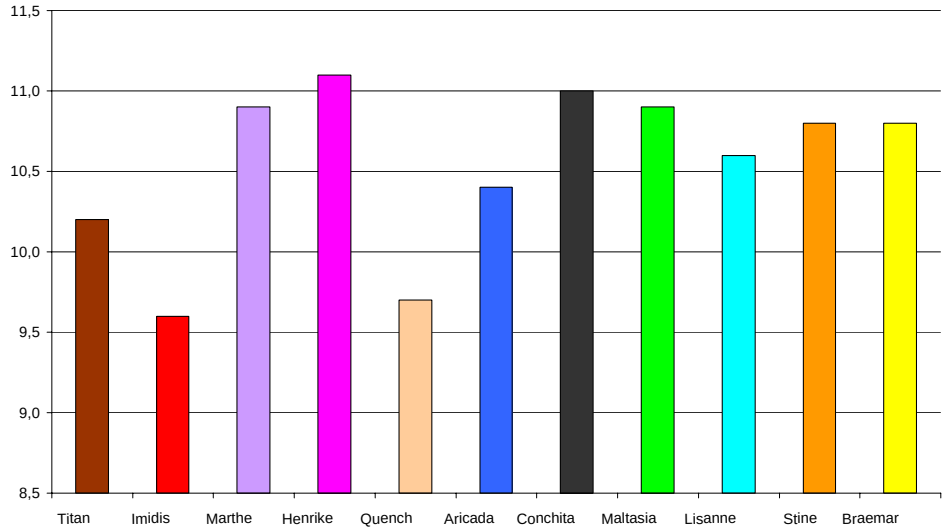
Pic. (6) Full Barley- Hunsrück

Full Barley – Hunsrück:
Outstanding calibration all over. The wet and cold summer helped to equalize the differences between the varieties.



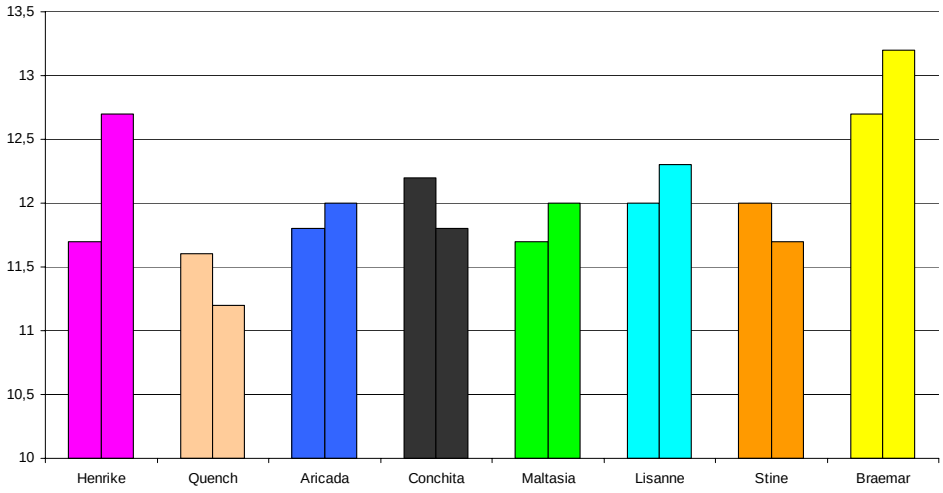
Protein – Kraichgau:
Average of version 1
11,7 %.
Average of version 2
12,5 %.
As expected Higher N dosage resulted in higher Protein content.
Imidis and Quench were the best. In both cases Stine has the highest protein content.

Pic. (7) Protein – Kraichgau



Pic. (8) Protein – Schwäbische Alb

Protein - Schwäbische Alb: Protein contents are excellent this year. All tested varieties are in the most preferred range of 10-11%. Imidis and Quench have the lowest figures.

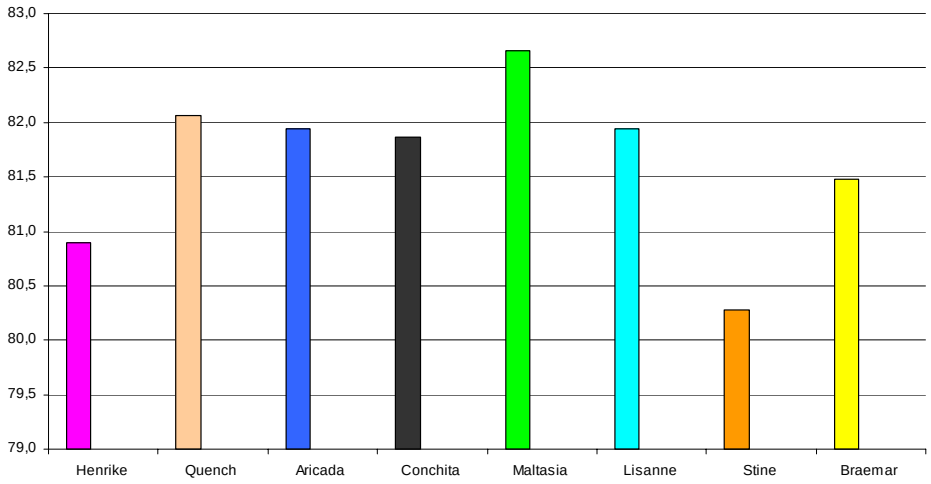


Pic. (9) Protein - Hunsrück

Protein – Hunsrück: Protein contents are on the higher side, same as Kraichgau. As in the other areas, Quench has the lowest values. The reference variety Braemar has the lowest performance.

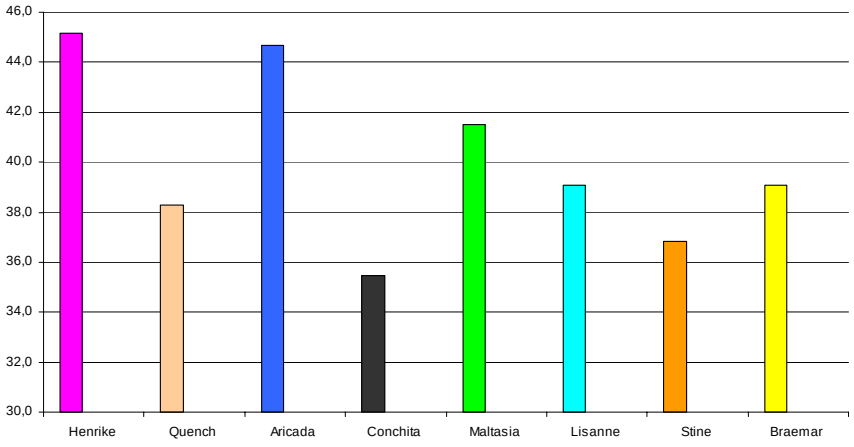
3. Malt quality

All graph show the mean value of all trials.



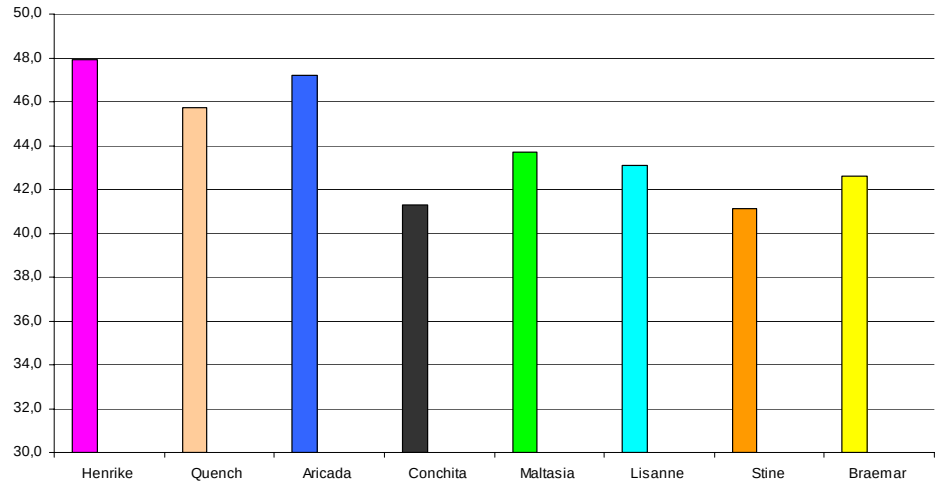
Pic. (10) Extrakt

Maltasia is the absolut leader with an extract average of 82,7%.
With the exception of Henrike and Stine all other have a value > 81,5%.



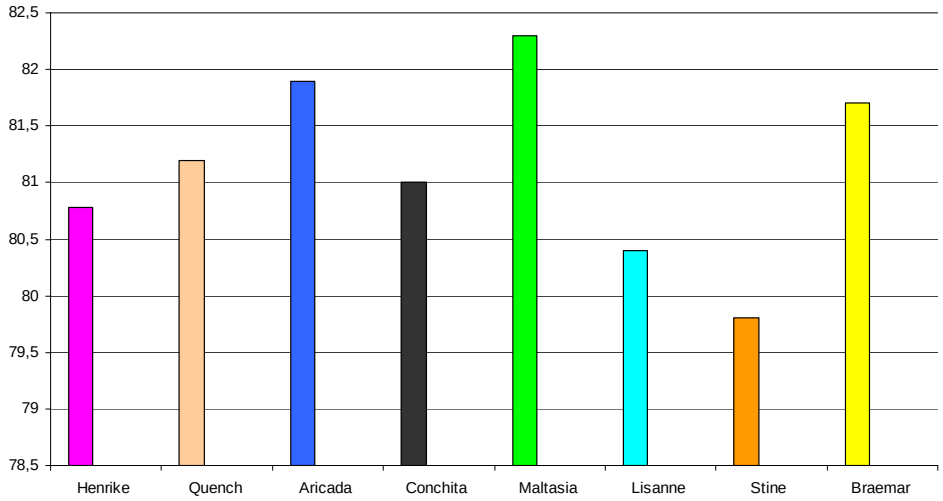
Pic. (11) Hartong

Henrike and Aricada have the best modification, followed by Maltasia.
Conchita and Stine are on the lower side..



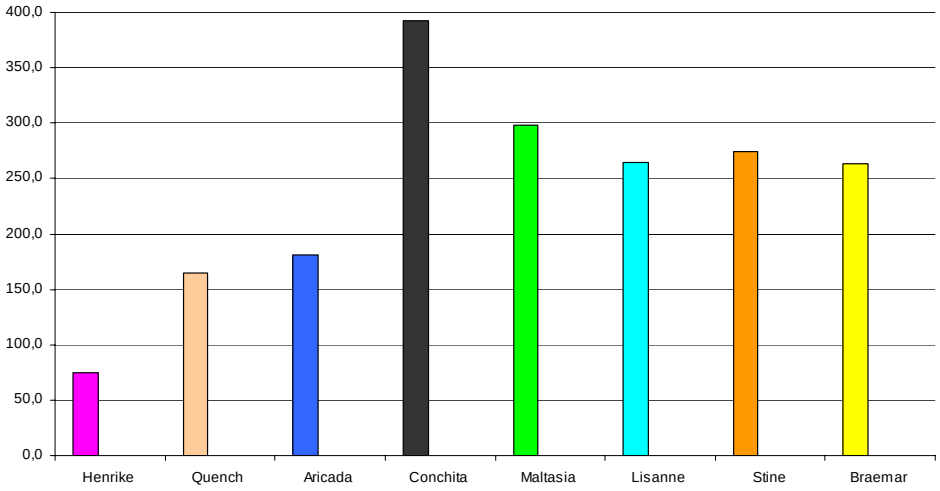
Pic. (12) Kolbach

Henrike and Aricada tend to over-modify.
Quench is also very high due to a lower protein content.
All other varieties are well balanced.



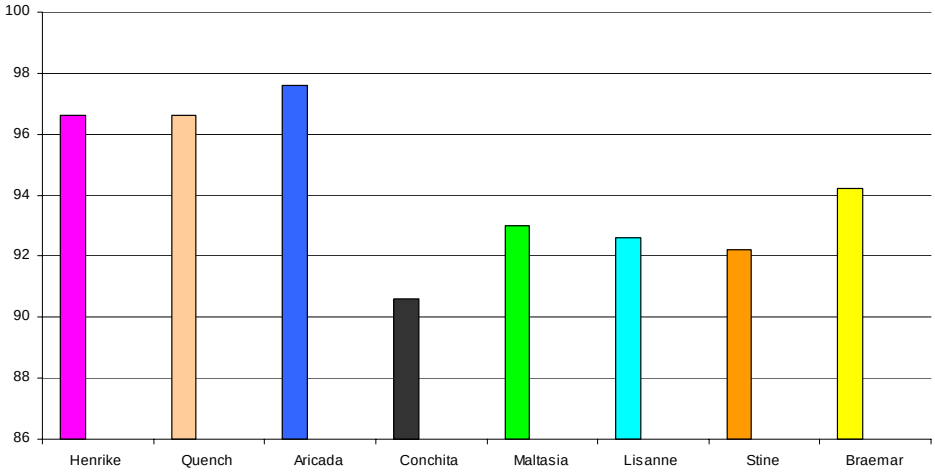
Pic. (13) Final attenuation

Maltasia, Aricada and Braemar show good results.
Stine is weaker.



Pic. (14) Beta glucan

Notable is the high value for Conchita.
Quench and Aricada show good, Henrike outstanding values.



Pic. (15) Friability

All results over 90 %, in a very good range.

4. Evaluation

1. **Braemar:**
   Poor yield, specially in higher altitudes. Is compensated with very good screening.
   Well-balanced malt quality.
2. **Quench:**
   Good to very good yield in Kraichgau and Schwäbische Alb, Hunsrück slightly weaker.
   Very good protein values with acceptable screening. High Extract value, low beta glucan and good modification potential.
3. **Lisanne:**
   Average yield with good screening. Protein value acceptable. Very good extract, good malt quality. Final attenuation tend weaker.
4. **Conchita:**
   Best yield potential. Good screening, slightly higher protein content. Extract range middle-good. Moderate modification potential. Cytolysis, specially Betaglucan degradation poor.
5. **Aricada:**
   Poor in yield, good in protein and screening. Extract good as well as modification potential.
   Final attenuation very good. Also friability and beta glucane content.
   ➔ Very good malting potential. Not released due to poor yield on the fields.

   Henrike:
   Yield below average. Pretein and screening acceptable.
   In Extract and Attenuation weaker than Braemar.
   Very high modification potential and low beta glucan values.
6. **Stine:**
   Very good yield. Protein content slightly higher, good screening.
   Poor in Extract, modest modification, poor attenuation.
7. **Maltasia:**
   Yield below average. Poor screening.
   Malt quality very good, Not released due to poor yield on the fields.
8. **Titan:**
   Yield below average. Poor screening.
   Malt quality good- very good, beside Henrike best in Beta glucan.
9. **Imidis:**
   Average yield. Good in protein but poor screening.
   High in extract, highest modification potential, best attenuation.
   Very good Beta glucan (low).

5. Location and influence of fertilisation.

- When comparing all locations it can be stated that the influence of the location on yield and protein is bigger than the variety. Same applies to screening. However, in case of malt quality the varieties play a key role.
- The different fertilisation lead to the expected poorer yield. Also protein values are higher with the version 2 (higher N). Extract and Cytolysis are lower as well. All other parameters show no difference.

6. Outlook and recommended varieties

Durst Malz will continue the Trials in cooperation with Schwaben Malz and RWZ in Locations Kraichgau, Schwäbische Alb and Hunsrück.

Same as last year, we will test Streif and Jennifer (new varieties recommened by Berliner Programm) in lots of 150 mt.

Recommendation for crop 2008:

- **Braemar**
- **Marthe**
- **Belana** (last time)

Recommendation for crop 2009:

- **Braemar**
- **Marthe**

7. Thanks

Hubert Braun, Anton Moll and Helmut Morschhäuser did an excellent job in caring about the strip trials and observing the development very thoroughly. Many thanks to them and not to forget also to the breeders for providing the seed material and their support.

8. Sources

(1) www.wetter-online.de