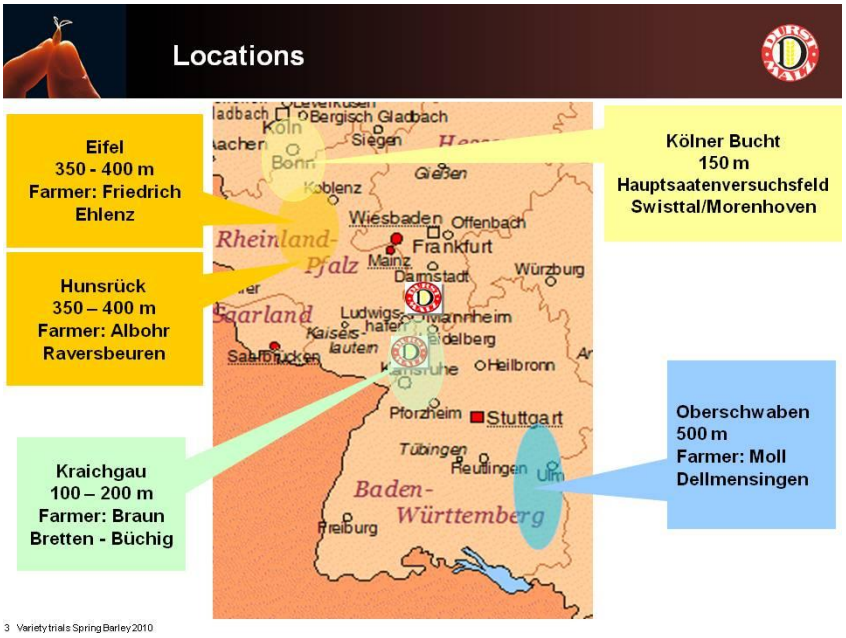
Variety Trials spring malting barley 2010 Evaluation

1. Locations an conditions

Variety trials crop 2010 have been carried out by Durst Malz in collaboration with Schwaben Malz and RWZ



Picture (1) Locations

The Strip Trials, with an assortment of 8 varieties (Braemar as reference) were planted in five different locations.

At Oberschwaben fertilization was 70 kg N/ha.
In the other four locations two fertilization doses were applied
70 kg N/ha (version 1) and 100 kg N/ha (version 2).

At Kraichgau version 1 (70 kg N/ha) without fungicide treatment was applied additionally.

Varieties and breeders

Variety	Breeder	Release
Braemar	Syngenta	2002
Livia	KWS	
SY Taberna	Syngenta	2010
Propino	Syngenta	2009
Bambina	KWS	2009
Aspira	Limagrain GmbH	
Sunshine	Breun/BayWa	2009
Zeppelin	Sejet/BayWa	2010

2 Variety trials Spring Barley 2010

Picture (2) Barley varieties

Barleys of all locations used for these strip trials have been malted by the Durst Malz pilot malting according to the common German standard regime:
2 days steeping, 4 days germination with 46 % steeping degree and decreasing temperatures.

2. Barley quality

Yields dt/ha

Varieties	Kraichgau*	Oberschwaben	Hunsrück*	Eifel*	Kölner Bucht*	Ø
Braemar	71,4	54,8	64,0	72,4	66,5	65,8
Livia	74,3	49,0	62,0	71,4	67,0	64,7
SY Taberna	78,9	60,0	67,5	76,6	63,0	69,2
Propino	81,4	57,8	67,5	73,8	66,9	69,5
Bambina	75,9	55,0	65,7	78,1	64,1	67,8
Aspira	67,3	49,6	67,8	75,2	66,5	65,3
Sunshine	75,4	57,5	67,2	73,6	67,0	68,1
Zeppelin	58,0	57,7	68,2	75,2	66,0	65,0
Ø	**72,8**	**55,2**	**66,2**	**74,5**	**65,9**	**66,9**

•Average of all varieties V1+V2

50 Variety trials Spring Barley 2010

Picture (3) Yields of all locations

Variety Propino delivered the highest yield through all versions followed by Taberna, Sunshine and Bambina.

The influence of the location is much bigger than the dependency on the variety.

Protein %

Sorten	Kraichgau*	Oberschwaben	Hunsrück*	Eifel*	Kölner Bucht*	Ø
Braemar	11,0	11,3	9,9	12,0	13,4	11,5
Livia	11,3	11,3	10,1	11,1	12,8	11,3
SY Taberna	10,5	10,9	9,1	10,8	13,0	10,9
Propino	10,8	10,8	9,4	13,2	13,2	11,5
Bambina	11,0	10,5	9,1	11,1	12,4	10,8
Aspira	10,7	10,8	9,5	11,4	12,9	11,1
Sunshine	11,4	10,7	9,9	11,9	13,7	11,5
Zeppelin	11,0	10,5	8,9	10,4	13,3	10,8
Ø	**10,9**	**10,9**	**9,5**	**11,5**	**13,1**	**11,2**

•Average all varieties V1+V2

52 Variety trials Spring Barley 2010

Picture (4) Protein of all varieties

The influence of the location is dominant.
There is no big difference between the varieties.

As expected, the protein content of version 2 (100 kgN) (depending on the location) is up to 2 % higher than the one of version 1 (70 kgN).

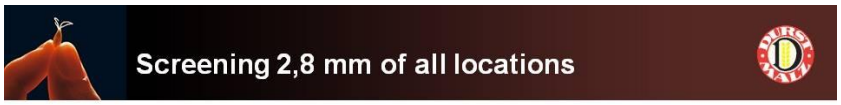
Protein %

Varieties	Kraichgau*		Hunsrück*		Eifel*		Kölner Bucht*	
	V1	V2	V1	V2	V1	V2	V1	V2
Braemar	10,3	11,6	9,7	10,1	11,2	12,8	12,0	14,7
Livia	11,2	11,3	9,6	10,6	10,3	11,8	12,1	13,4
SY Taberna	9,6	11,3	8,5	9,6	10,2	11,3	12,0	13,9
Propino	10,1	11,4	8,8	10,0	13,2	13,2	12,5	13,8
Bambina	10,4	11,6	8,8	9,4	10,1	12,0	11,7	13,0
Aspira	10,2	11,2	9,0	10,0	10,7	12,1	11,9	13,9
Sunshine	10,7	12,1	9,1	10,7	10,6	13,2	12,0	15,3
Zeppelin	9,7	12,2	8,5	9,3	9,8	10,9	12,0	14,6
Ø	**10,3**	**11,6**	**9,0**	**10,0**	**10,8**	**12,2**	**12,0**	**14,1**

•Average of all varieties V1+V2

53 Variety trials Spring Barley 2010

Picture (5) Protein of all locations/Comparision V1+V2



Variety Propino points out through excellent screening.
Disappointing are the varieties Aspira, Taberna and specially Zeppelin.

The location Kölner Bucht suffered hardly under a long dry period.

Screening 2,8 mm %

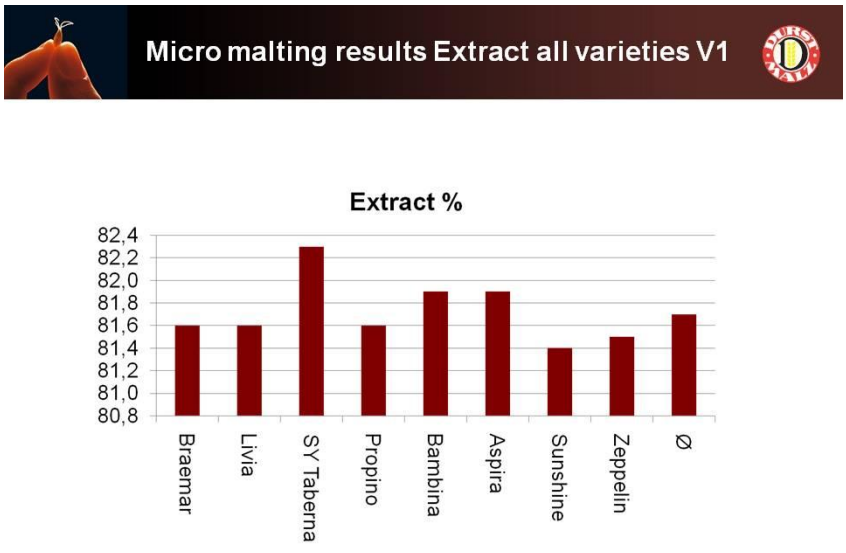
Varieties	Kraichgau*	Oberschwaben	Hunsrück*	Eifel*	Kölner Bucht*	Ø
Braemar	72,2	66,1	76,2	78,1	30,0	64,5
Livia	71,9	75,6	86,4	66,1	33,0	66,6
SY Taberna	64,7	47,3	50,1	60,9	13,4	47,3
Propino	83,4	81,2	81,2	85,6	45,2	75,3
Bambina	56,5	77,0	65,4	75,5	38,2	62,5
Aspira	59,5	55,2	64,5	49,3	18,0	49,3
Sunshine	71,2	69,5	82,4	83,7	23,4	66,0
Zeppelin	30,4	34,2	70,2	58,8	16,1	41,9
Ø	**63,7**	**63,3**	**72,4**	**69,7**	**27,1**	59,2

* Average of all varieties V1+V2

54 Variety trials Spring Barley 2010

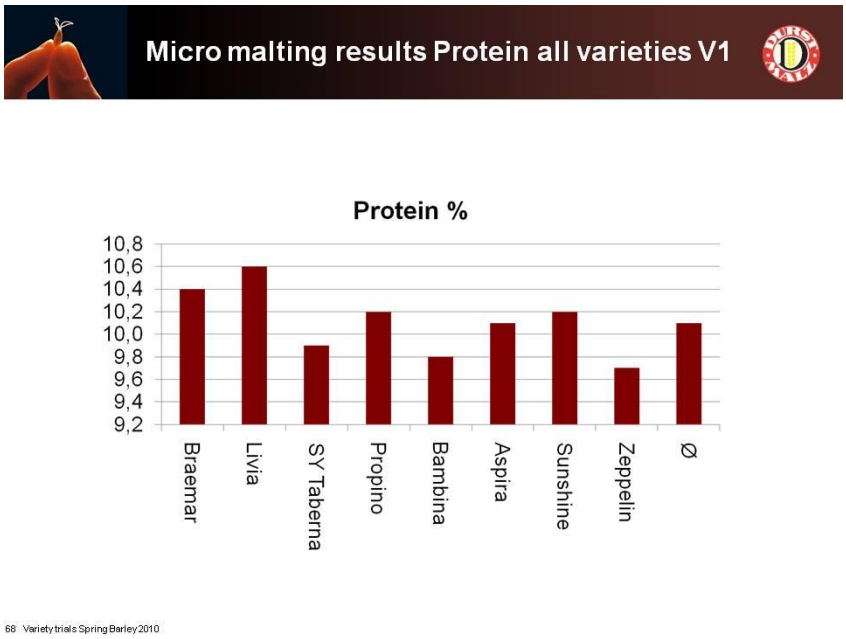
Picture (6) Screening of all locations

3. Malt qualities



Picture (7) Extract all varieties V1

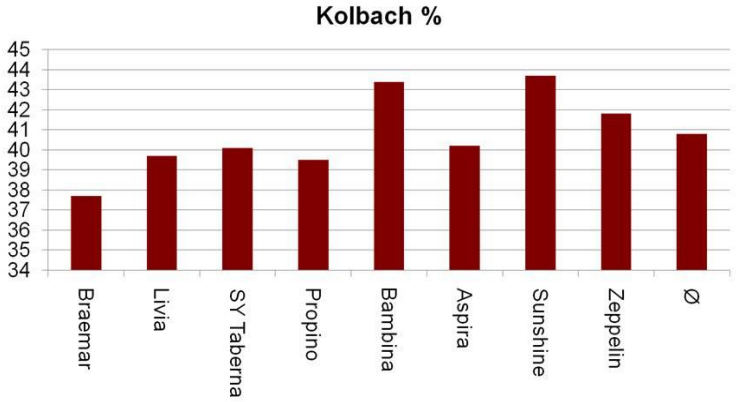
Variety Taberna with 82,3 % is the best, all other varieties are barely above or under the average. Sunshine is with 81,4 % the weakest.



Picture (8) Protein of all varieties V1

Livia is with 10,6 % the highest. Zeppelin is with 9,7 % the lowest, all other varieties are around the average with +/- 0,3 %.

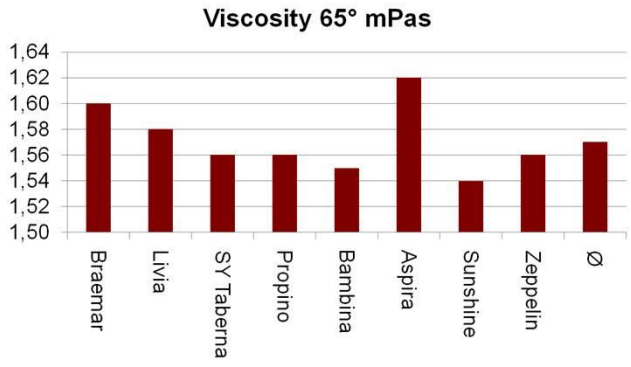
Braemar with 37,7 % has the lowest Kolbach index.
Sunshine and Bambina have the highest values.



70 Variety trials Spring Barley 2010

Picture (9) Kolbach of all varieties V1

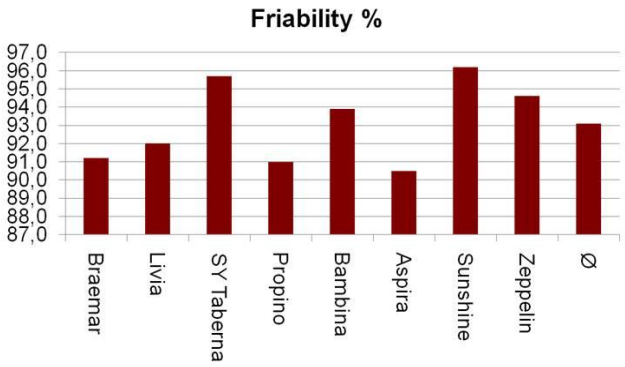
The values of Aspira and Braemar have slightly increased. Sunshine and Bambina have the best values.



71 Sortenversuche 2010/03.02.2011

Picture (10) Viscosity 65° all varieties V1

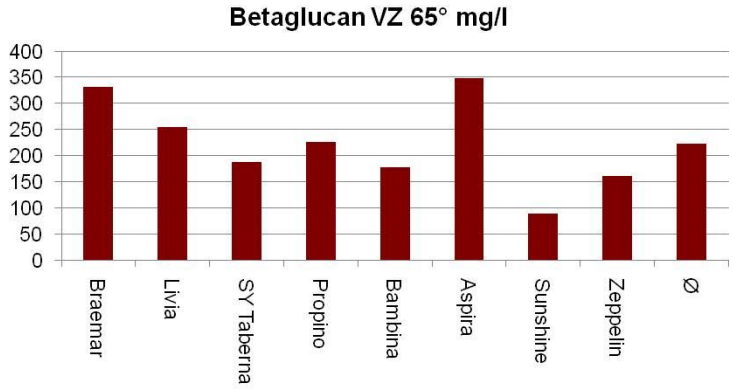
The values of all varieties lie excellent over 90 %. Varieties Taberna and Sunshine provided the highest values.



72 Sortenversuche 2010/03.02.2011

Picture (11) Friability all varieties V1

Variety Sunshine shows again the lowest ß-Glucan value as last year. Aspira and Braemar are clearly over the average.

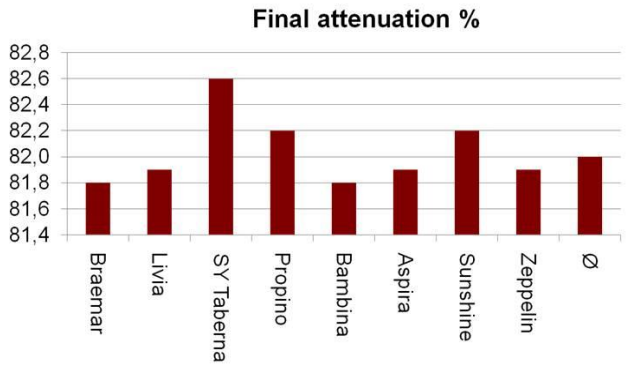


73 Sortenversuche 2010/03.02.2011

Picture (12) Betaglucan all varieties V1

Micro malting results Final attenuation all varieties V1

Variety Taberna is the best with 82,6 %, Propino and Sunshine are over the average as well.



74 Sortenversuche 2010/03.02.2011

Picture (13) Final attenuation all varieties V1

4. Evaluation

Braemar:	yields are slightly under the average, known as a variety with good screening and slightly high protein content, good extract content with weak protein modification, cytolytic modification is under average, it shows the high ß-Glucan content, average final attenuation
Bambina:	good yields, low protein content, screening with strong fluctuations in some locations, good extract content, high protein modification, good cytolytic modification, average final attenuation.
Propino:	high yields through all varieties, average protein content, best screening in all locations, good extract, moderate protein and cytolytic modification, very good final attenuation.
Sunshine:	good yield, fluctuating protein content tending to high values, good screening, extract content under average, high protein and cytolytic modification (excellent betaglucan values), very good final attenuation
Taberna:	good yield, protein content under average, bad screening in almost all locations, highest extract content, moderate protein modification, good cytolytic modification, best final attenuation
Zeppelin:	very bad yield in Kraichgau, average yield in all other locations, favourable protein content with very bad screening, good extract content, good protein and cytolytic modification, average final attenuation.
Aspria:	average yields, low protein content, very bad screening, good extract content, moderate protein modification, scarce cytolytic modification, good final attenuation
Livia:	yields are under average, average protein content, good screening, average extract content, good protein and cytolytic modification, average final attenuation.

5. Outlook DURST MALZ variety trials and variety recommendation Crop 2010

Winter malting barley Crop 2010

In addition to Wintmalt as reference variety, trials took place with Melodica, Acanta, Violetta and Salamandre.
Screening results of Acanta, Violetta and Salamandre were disappointing.

From the point of view of malting all new varieties were qualitative clearly behind Wintmalt, same applies for the extract and primarily for the cytolytic modification.

DURST MALZ recommended varieties for sowing 2011 and 2012 are: **Wintmalt and Malwinta**.

Spring malting barley Crop 2010

Reference variety Braemar and the three varieties from „Berliner Programm“ Bambina, Propino and Sunshine were planted in five locations (Kraichgau, Oberschwaben, Eifel, Hunsrück and Kölner Bucht).

According to prior agreement with the breeders promising new varieties Livia, Taberna, Aspira and Zeppelin were included in the trials.

Varieties Livia and Aspira didn’t get an authorisation from “Federal Office for Plant Varieties” in December 2010.

Two variants with 70 kgN and 100 kgN were planted in Eifel, Hunsrück and Kölner Bucht.
In Kraichgau additionally a third variant was drilled without fungicide treatment in order to test the resistance of the varieties. In Oberschwaben only one variant was sowed.

Variety Propino was in all trials the best in yield and screening. As to protein content and grain abnormities all varieties were inconspicuous.

DURST MALZ made a pilot malting with all barleys.

The 3 varieties from „Berliner Programm“ Propino, Sunshine and Bambina confirmed their good malt quality and brought better proteolytic and cytolytic values as the reference variety Braemar.

DURST MALZ recommends from 2011 the varietiy **Propino** for consumption based on its very good agronomic (yield/screening/protein) and good malting qualities.

Varieties Taberna and Zeppelin were not authorised for the large-scale trials of „Berliner Programm 2011“ and thus irrelevant.

Given that none of the new malting barley varieties Natasia, Jazz, SY Taberna, Traveler and Zeppelin which were authorised through the “Federal Office for Plant Varieties“ were registered for large-scale trials from „Berliner Programm 2011“ and no further varieties are under discussion, we also recommend varieties **Bambina and Sunshine** for contract growing in view of their good malt qualities.

6. Thanks:

Many thanks to the farmers who did an excellent job in carrying out and supervising the strip trials and not to forget also our thanks to the breeders for providing the information about their new varieties and the seed material.