

# PRESTIGE MEETING

Hotel *Chateau Du Lac* – Genval, 26<sup>th</sup> November 2001

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## Malting Characteristics of the new European Spring Barley Variety



*Dr. Frank Rath*

*Research Institute for Raw Materials*



seit 1883

# Research Institute for Raw Materials

- VLB Berlin -

Research Institute for Brewing and Malting Technology - Research Institute for Management and Logistics - Research Institute for Chemical / Technical Analysis  
Department of Water Engineering - Engineering Department - Testing Laboratory for Packaging - Zentral and Biological Laboratory

## Education

- TU Berlin
- Humboldt-University

## Information / Consulting

- Scientific Congresses
- Seminars / Workshops
- Scientific Books
- Scientific Journals

## Laboratory Services

- Identification of Varieties
- Elektrophoresis
- Analyses of Malt / Cereals
- Microbiological Analyses
- Mycotoxins
- Biotechnology / PCR
- Image Analysis / SEM
- NIR Spectroscopy



## Malting

- Micromalting (1-kg-Scale)
- Micromalting (50-g-Scale)

## Research

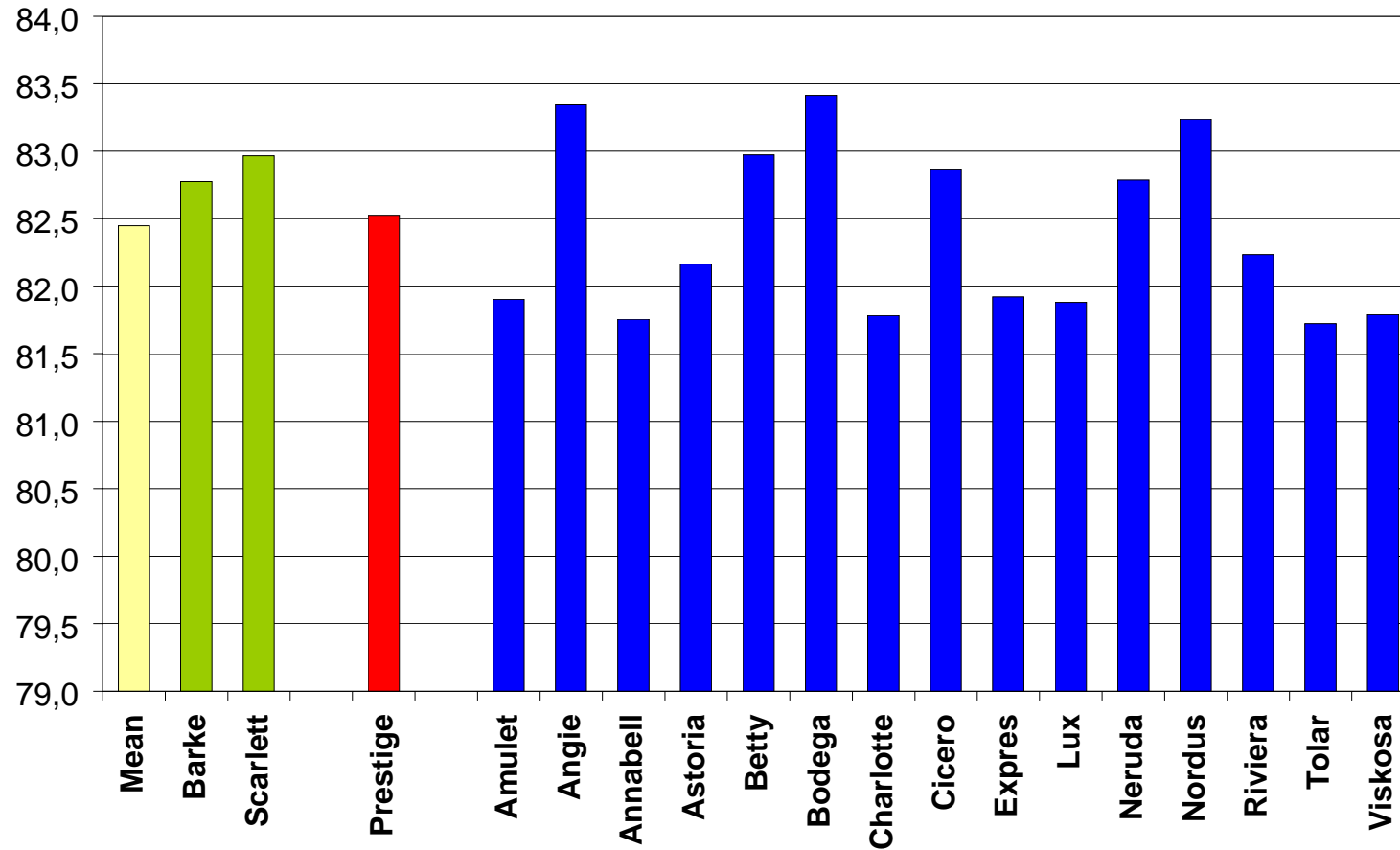
- Variety Identification (PCR)
- Gene Expression
- PCR Marker for Fusarium, Aspergillus, Penicillium ssp.
- Quantitative PCR
- Mykotoxins
- NIR Spectroscopy for Single Kernel Analysis
- Immunological Assays
- LOX
- Malting / Mashing Processes
- EBC Field Trial

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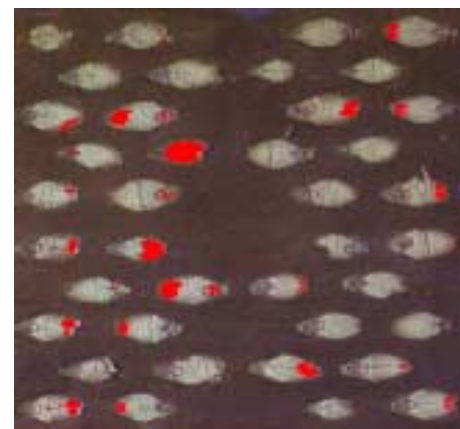
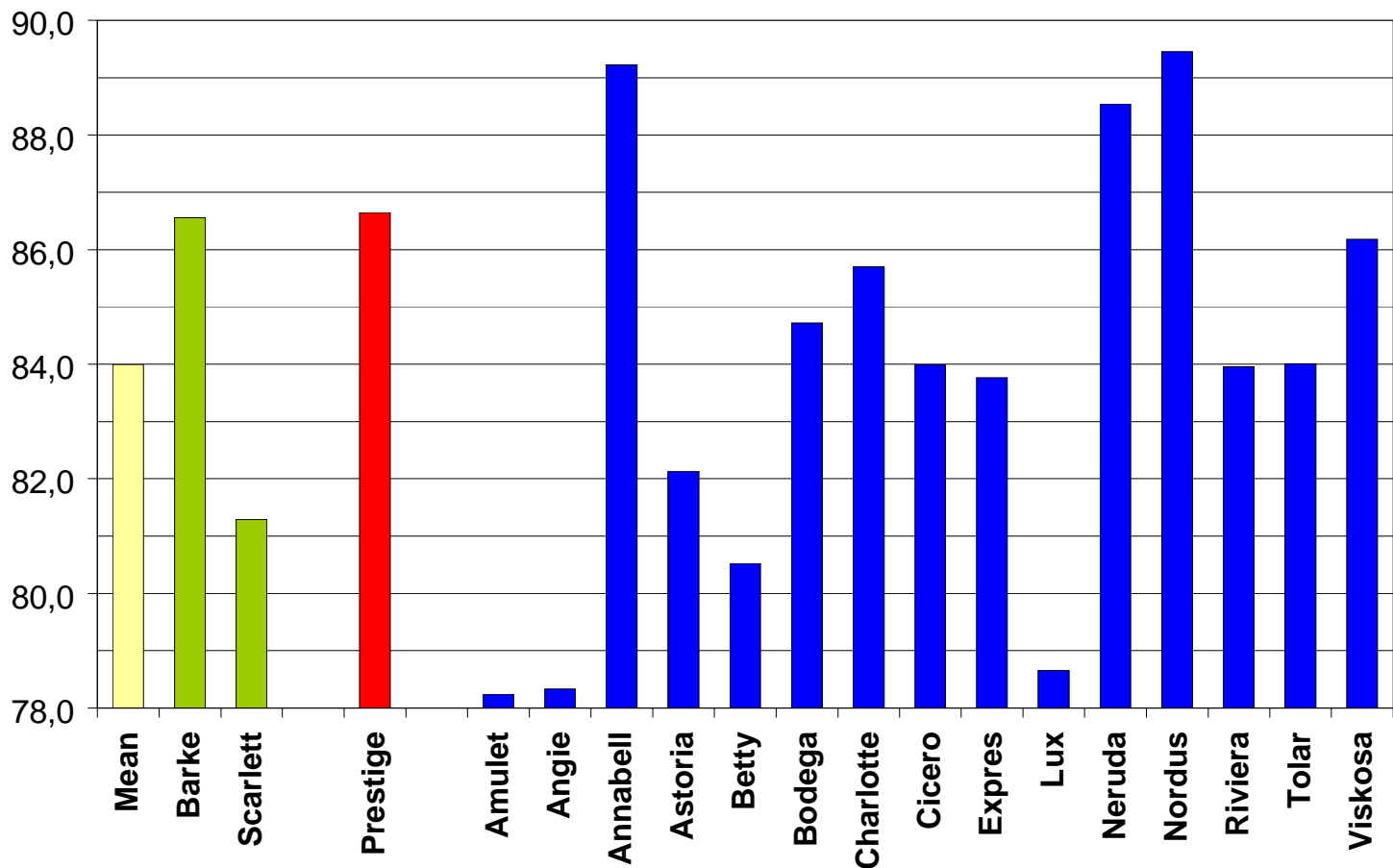
## EBC Field Trials 2000 - Germany

EXTRACT YIELD % (mean / N = 6 locations)



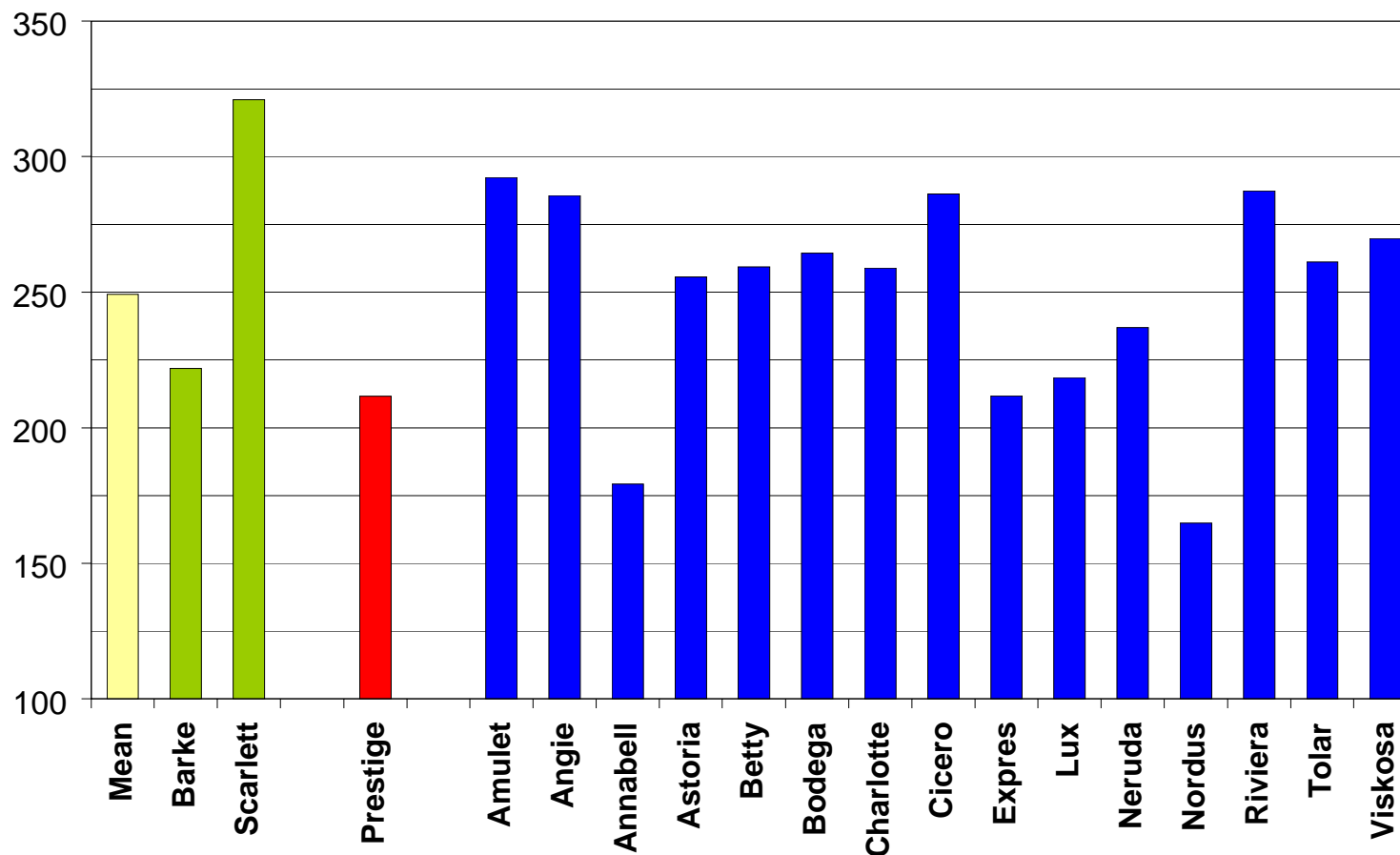
# EBC Field Trials 2000 - Germany

FRIABILITY % (mean / N = 6 locations)



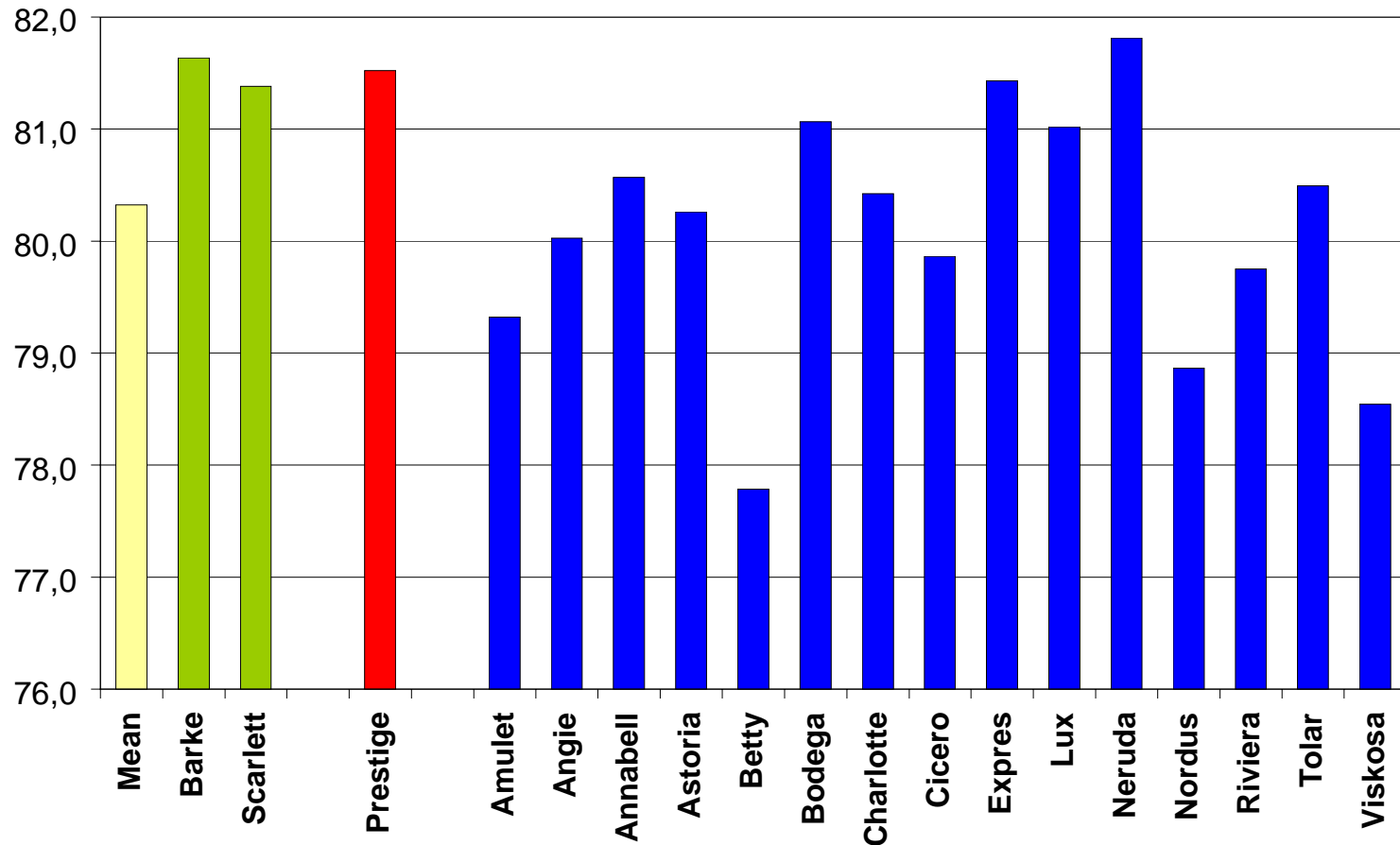
## EBC Field Trials 2000 - Germany

$\beta$ -GLUCAN mg/l (mean / N = 6 locations)



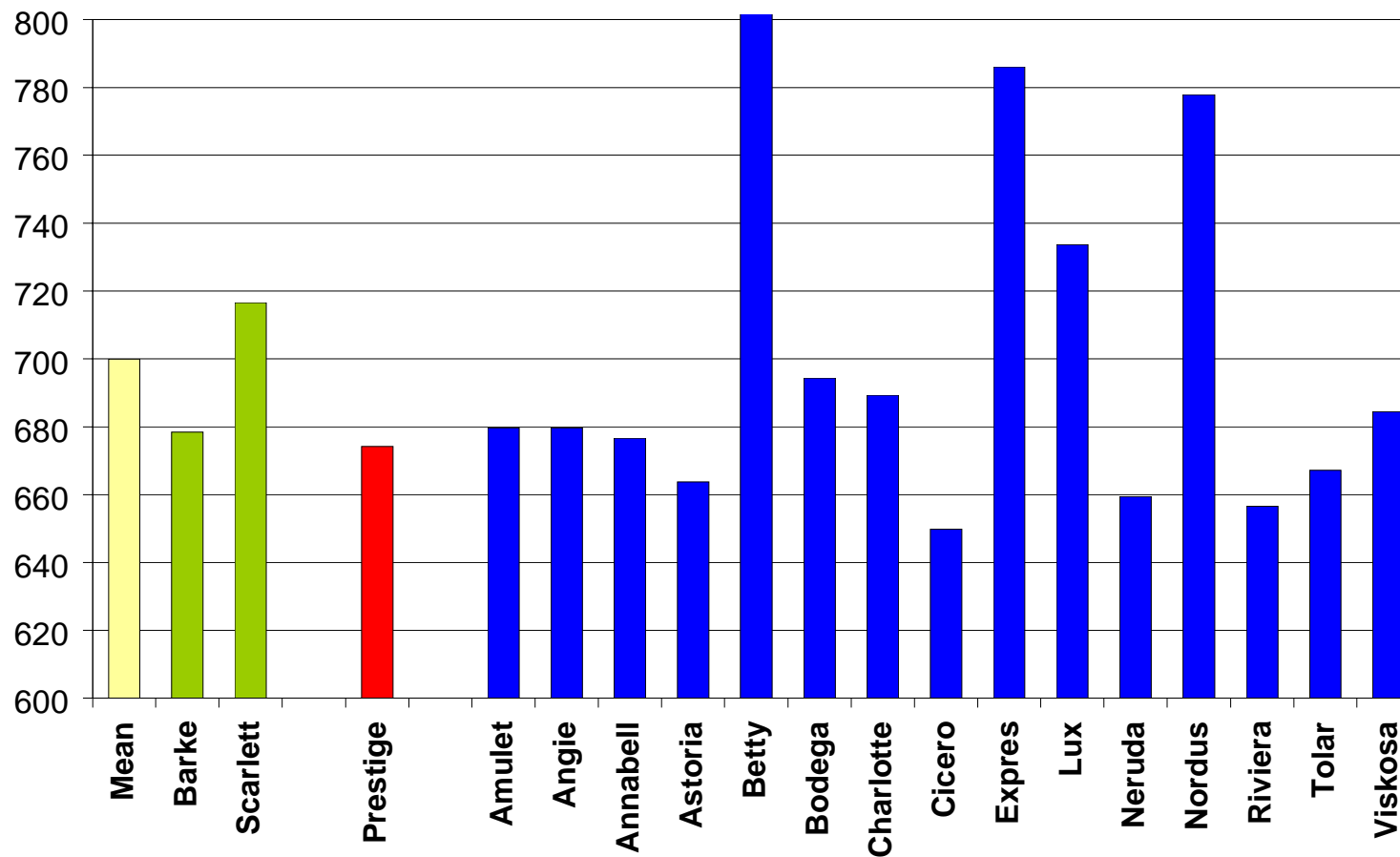
## EBC Field Trials 2000 - Germany

APP. FINAL ATTENUATION % (mean / N = 6 locations)



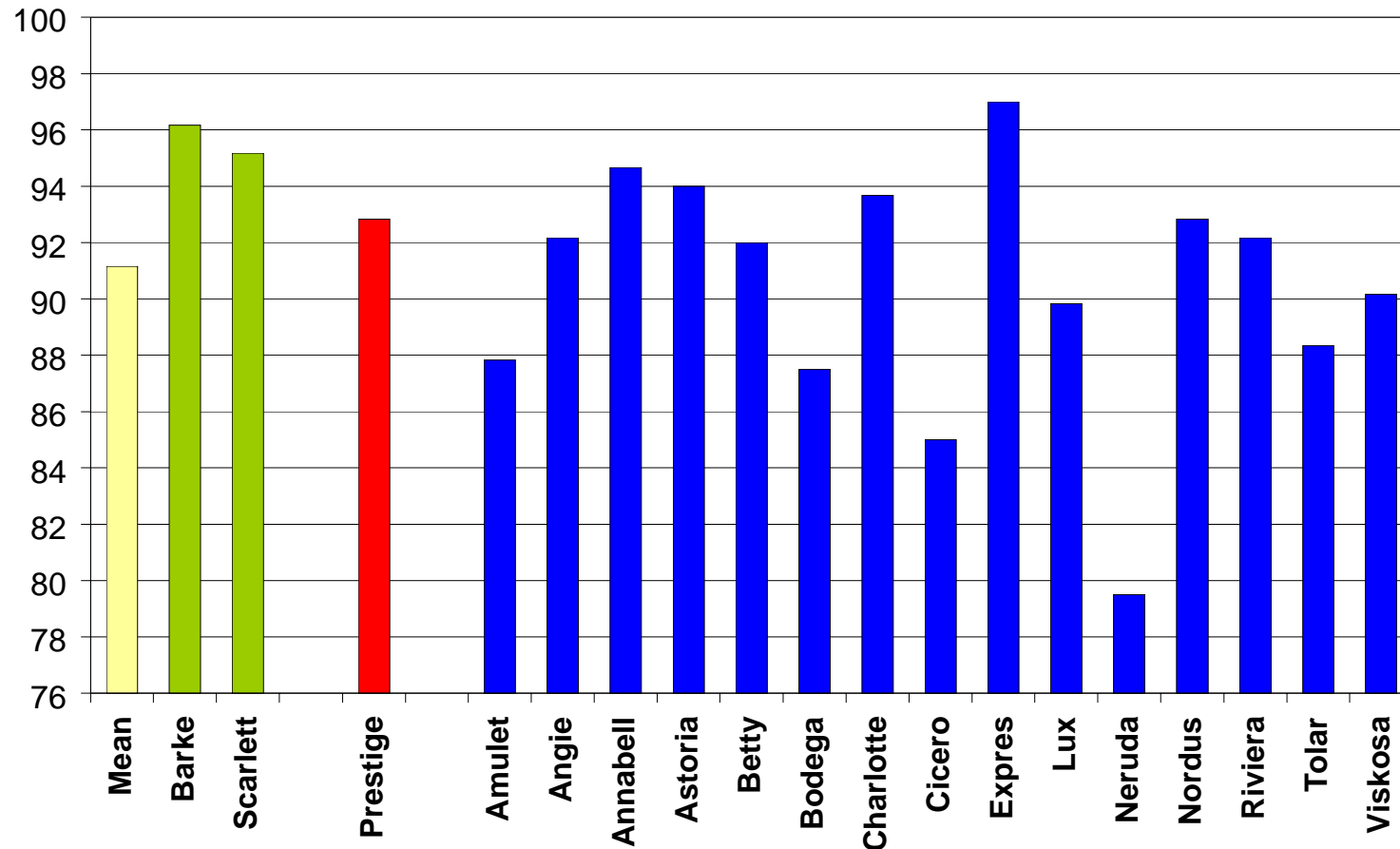
# EBC Field Trials 2000 - Germany

SOLUBLE NITROGEN mg/100 g (mean / N = 6 locations)



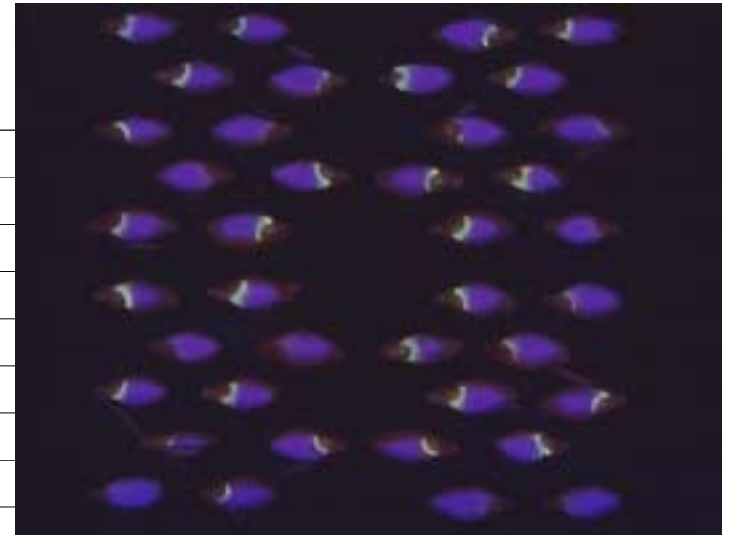
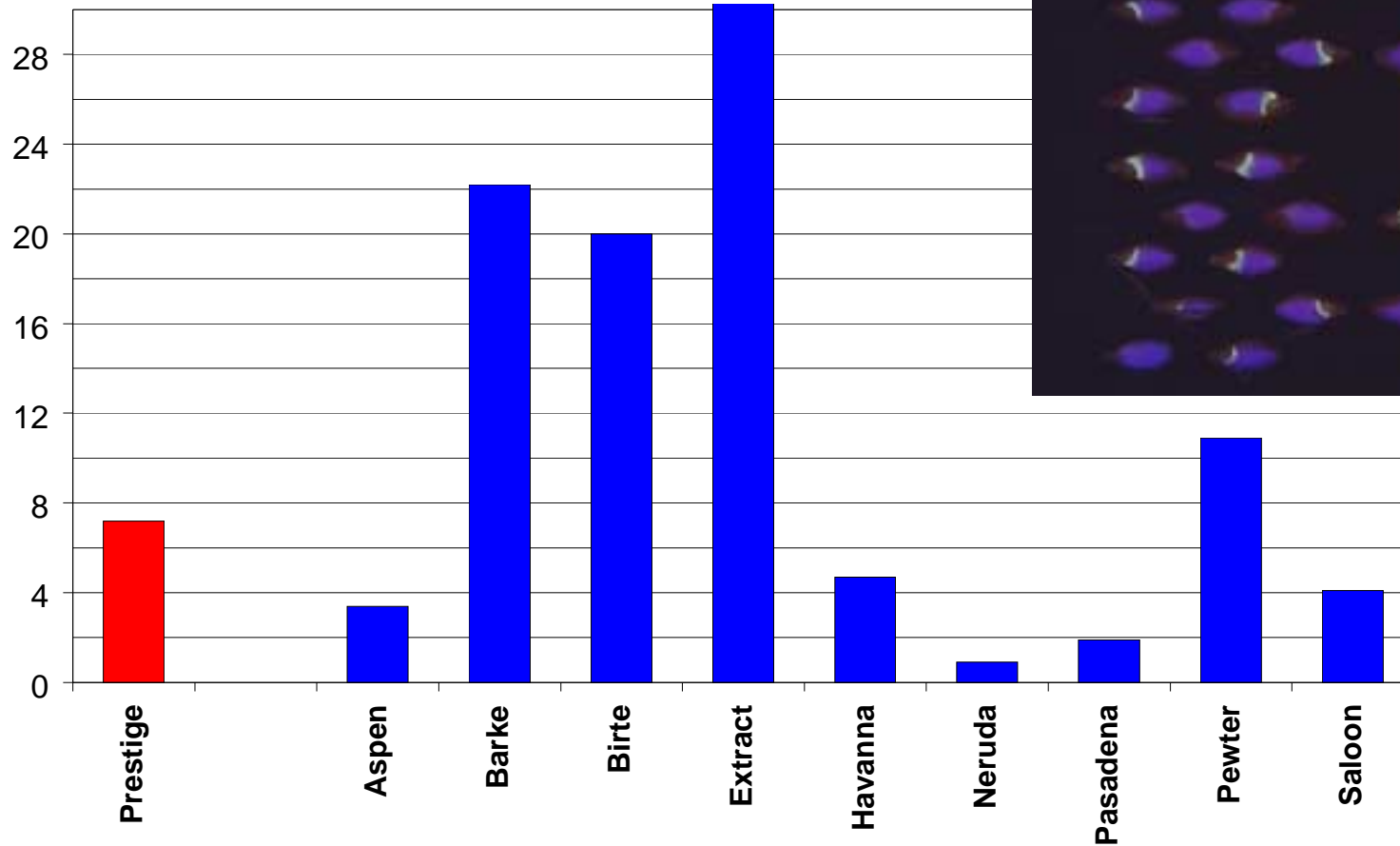
## EBC Field Trials 2000 - Germany

GERMINATION after 3 days % (mean / N = 6 locations)



## Regional Trials 2001 – Germany (Lower Saxony)

PREGERMINATION % (mean / N = 4 locations)



## EBC Field Trials 2000 – Region North

### MALT QUALITY (mean / N = 6 locations)

	Extract %	Protein Content %	Soluble N mg	Kolbach Index %	Friability %	Viscosity mPa*s	$\beta$ -Glukan mg/l	App. Fin. Atten. %	Diast. Power (W.K.)
Barke	83,4	10,6	770	46,0	82	1,45	226	85	356
Scarlett	83,7	10,8	840	48,0	77	1,46	326	83	297
<b>Prestige</b>	<b>83,2</b>	<b>10,6</b>	<b>820</b>	<b>48,0</b>	<b>85</b>	<b>1,42</b>	<b>141</b>	<b>84</b>	<b>354</b>
Century	83,4	10,1	740	46,0	78	1,50	321	81	313
Chamant	83,3	10,7	890	52,0	81	1,44	160	84	269
Pasadena	82,6	10,1	790	49,0	88	1,42	132	84	334
Ricarda	83,9	10,2	810	50,0	88	1,43	154	84	220
Saloon	83,0	10,2	800	49,0	80	1,41	156	84	284
Alliot	83,5	10,4	820	49,0	86	1,41	176	84	337
Annabell	82,6	9,8	760	48,0	92	1,42	97	83	244
Astoria	82,6	9,9	770	49,0	81	1,42	186	83	281
Cicero	83,2	10,1	780	48,0	84	1,42	174	83	232
Laura	81,5	11,4	830	45,0	76	1,48	253	81	389
<b>Regional mean</b>	<b>83,1</b>	<b>10,4</b>	<b>802</b>	<b>48,2</b>	<b>83</b>	<b>1,44</b>	<b>192</b>	<b>83,3</b>	<b>300,8</b>



## Recommended List Trials 1998 / 2000 - Germany

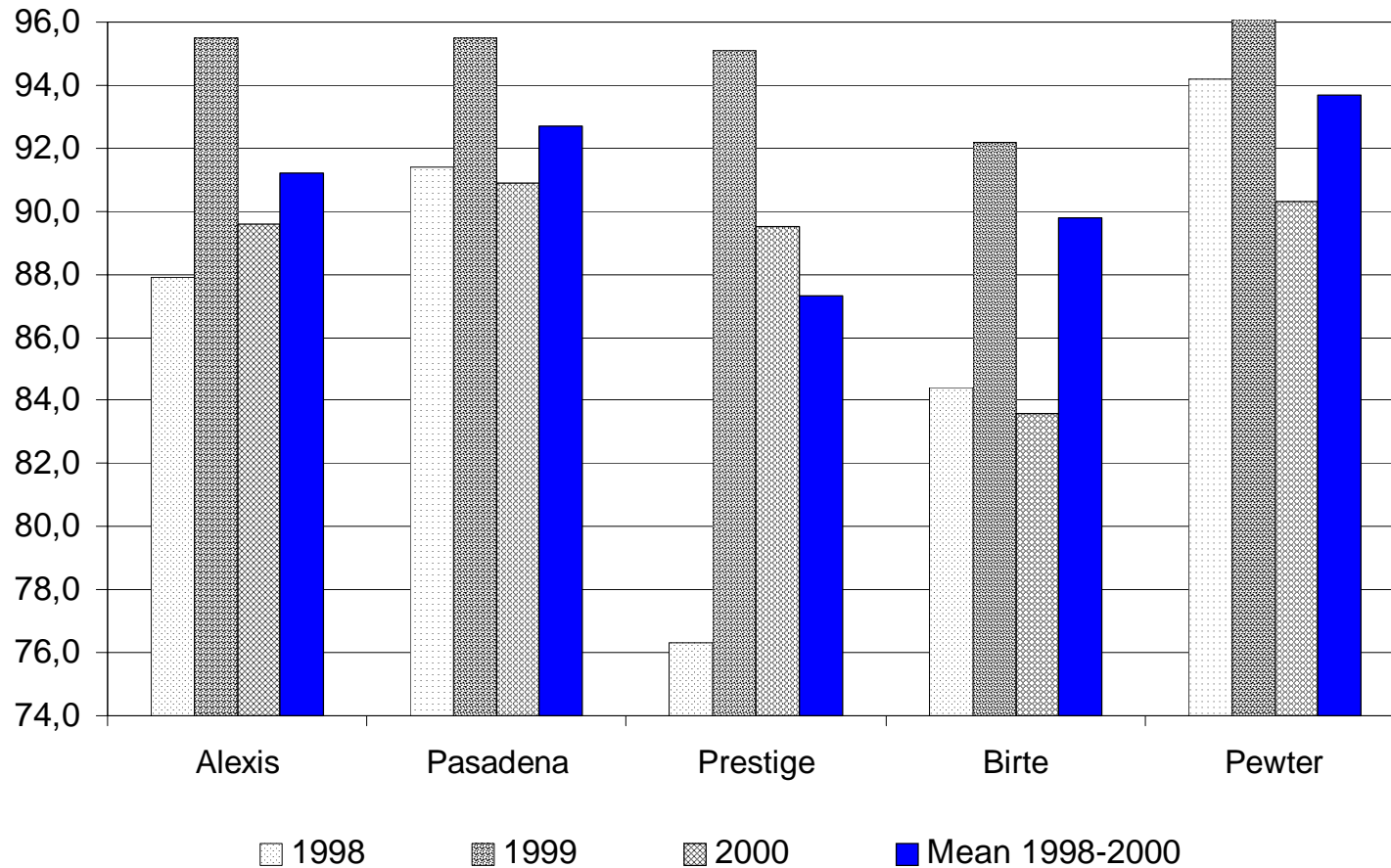
### DESCRIPTION OF NEW VARIETIES

	Extract Yield	Protein Content	Kolbach Index	Hartong VZ 45	Friability	Viscosity	App. Final Attenuation
<b>Prestige</b>	8	3	6	9	6	1	8
<b>Barke</b>	9	2	6	7	6	3	8
<b>Scarlett</b>	9	2	9	9	6	2	7
<b>Annabell</b>	8	2	8	6	9	1	7
<b>Aspen</b>	9	2	7	9	8	1	8
<b>Danuta</b>	7	2	9	9	7	1	7
<b>Extract</b>	9	2	8	9	8	1	7
<b>Neruda</b>	8	2	7	9	8	1	8
<b>Pasadena</b>	8	1	8	8	7	1	8

## Recommended List Trials 1998 / 2000 - Germany

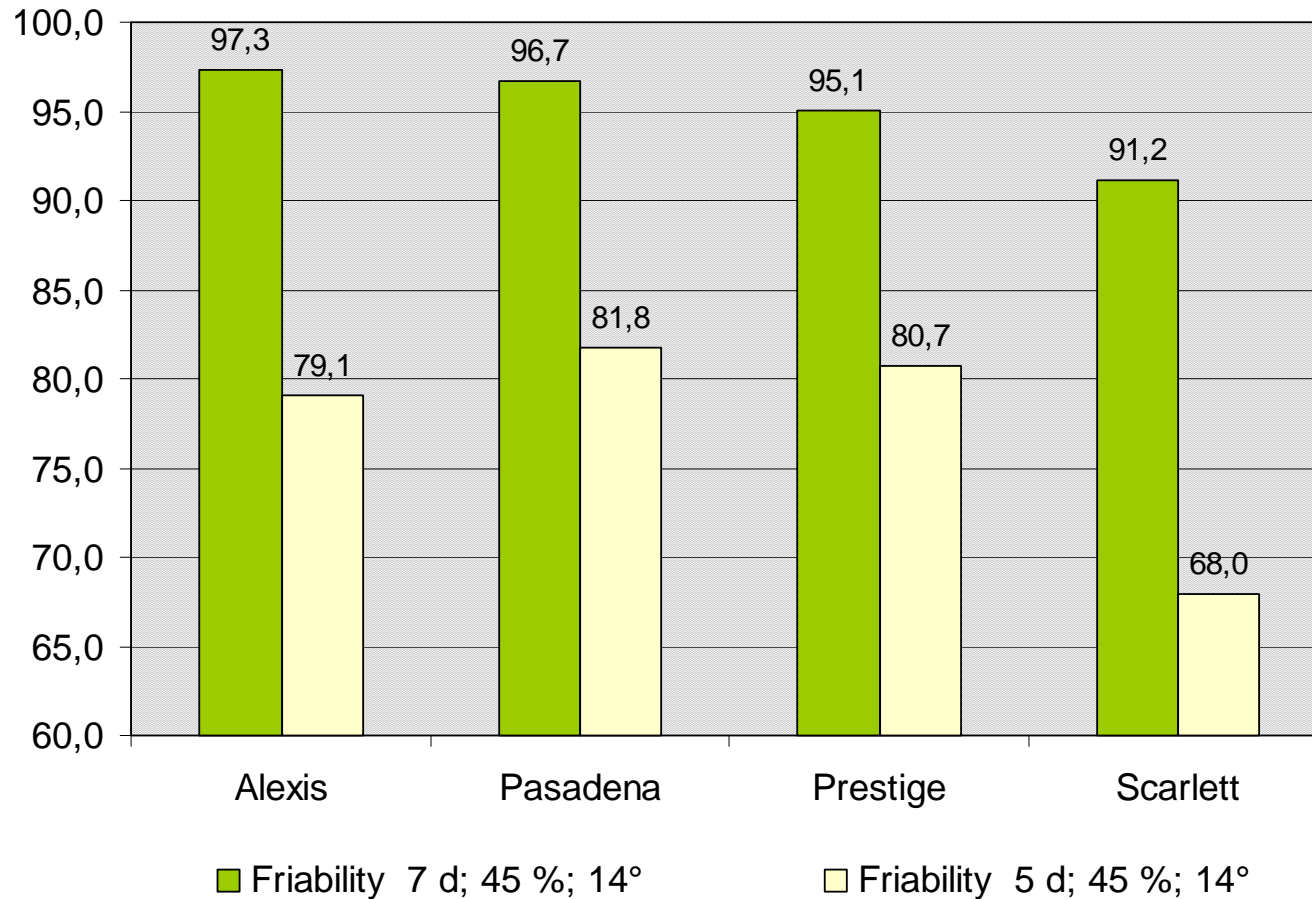
FRIABILITY %

(Data: Bundessortenamt BSA)



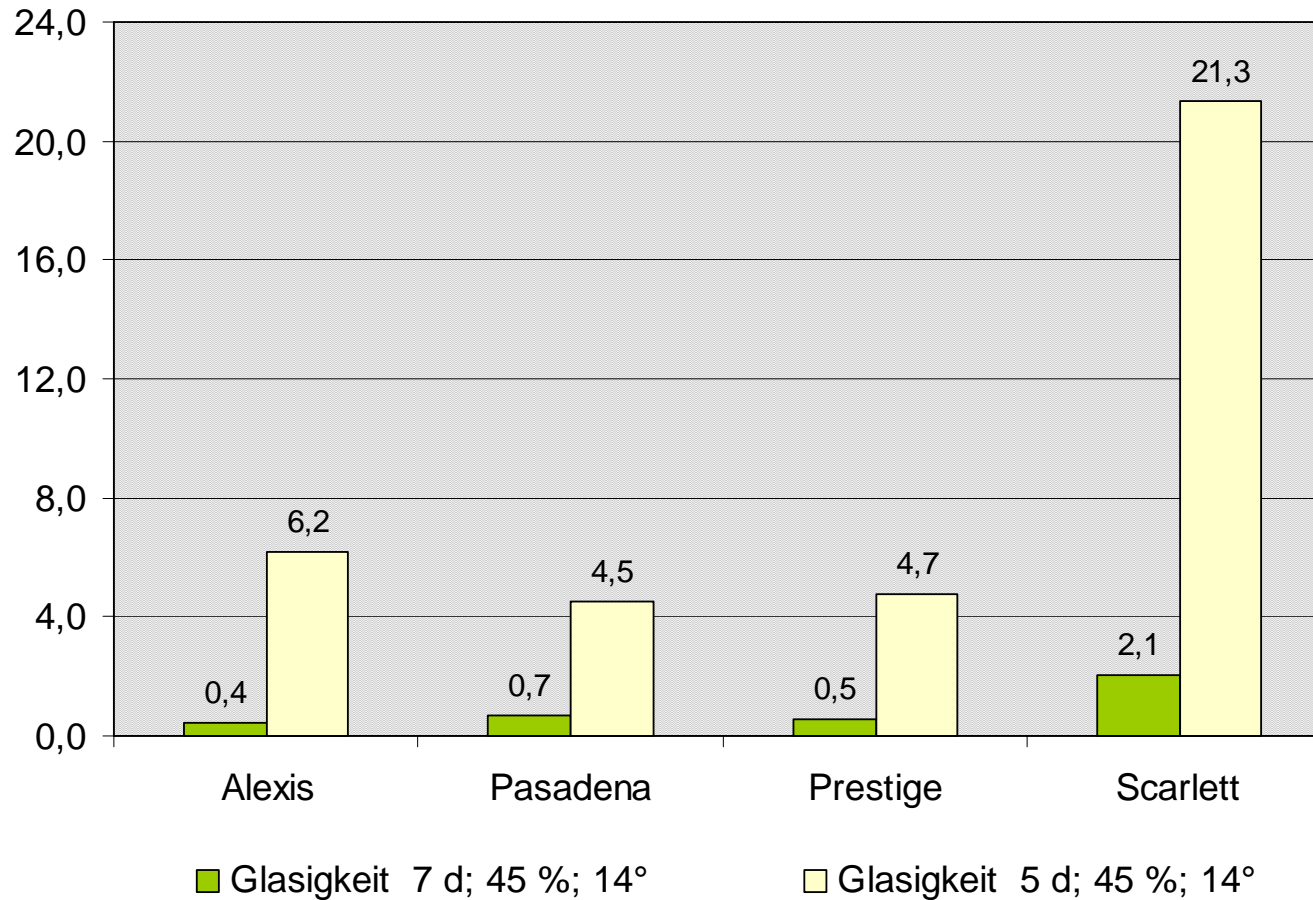
## PRESTIGE – Response to different micromalting conditions

FRIABILITY % (mean / N = 3 locations)



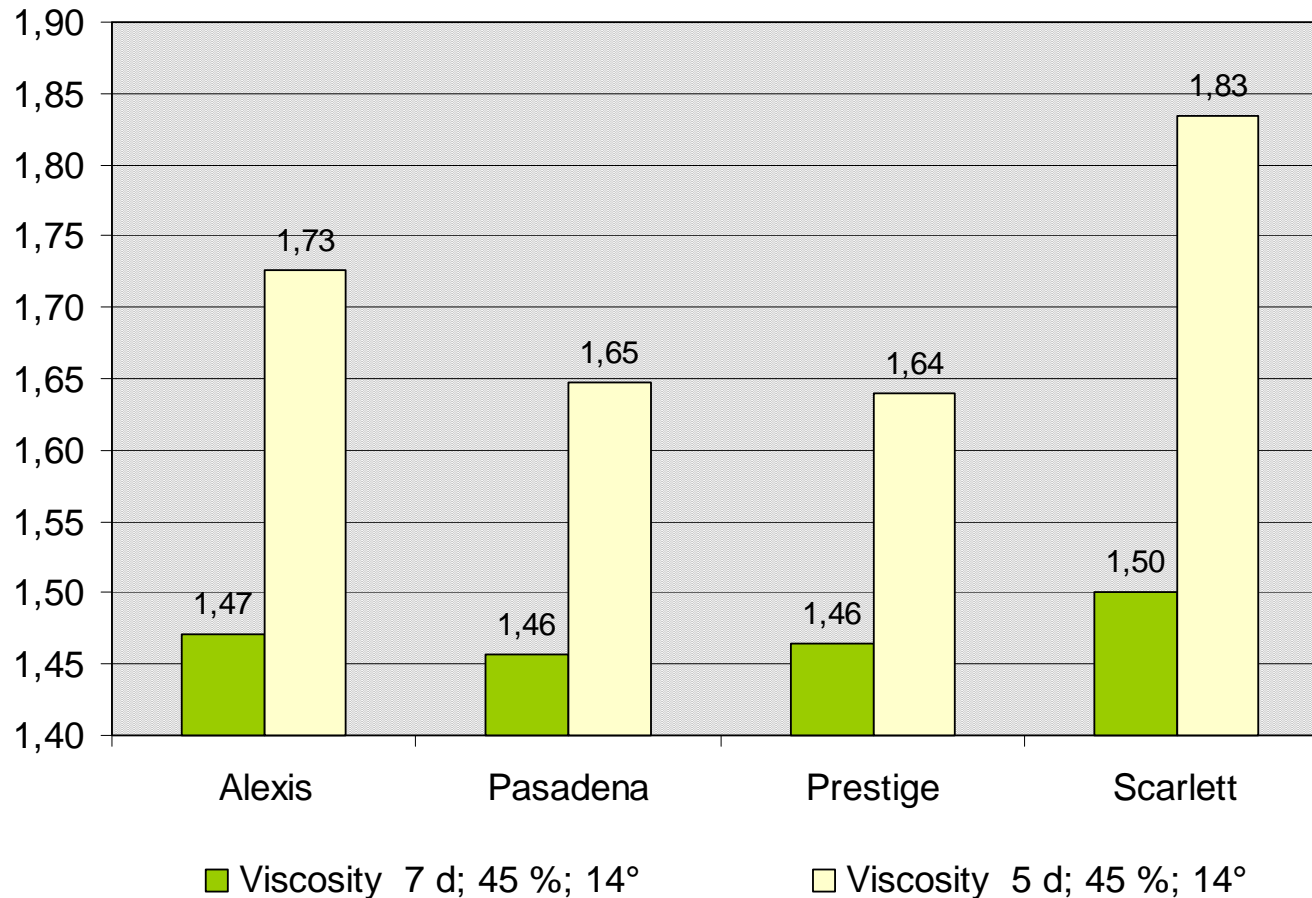
## PRESTIGE – Response to different micromalting conditions

### PARTLY UNMODIFIED KERNELS % (mean / N = 3 locations)



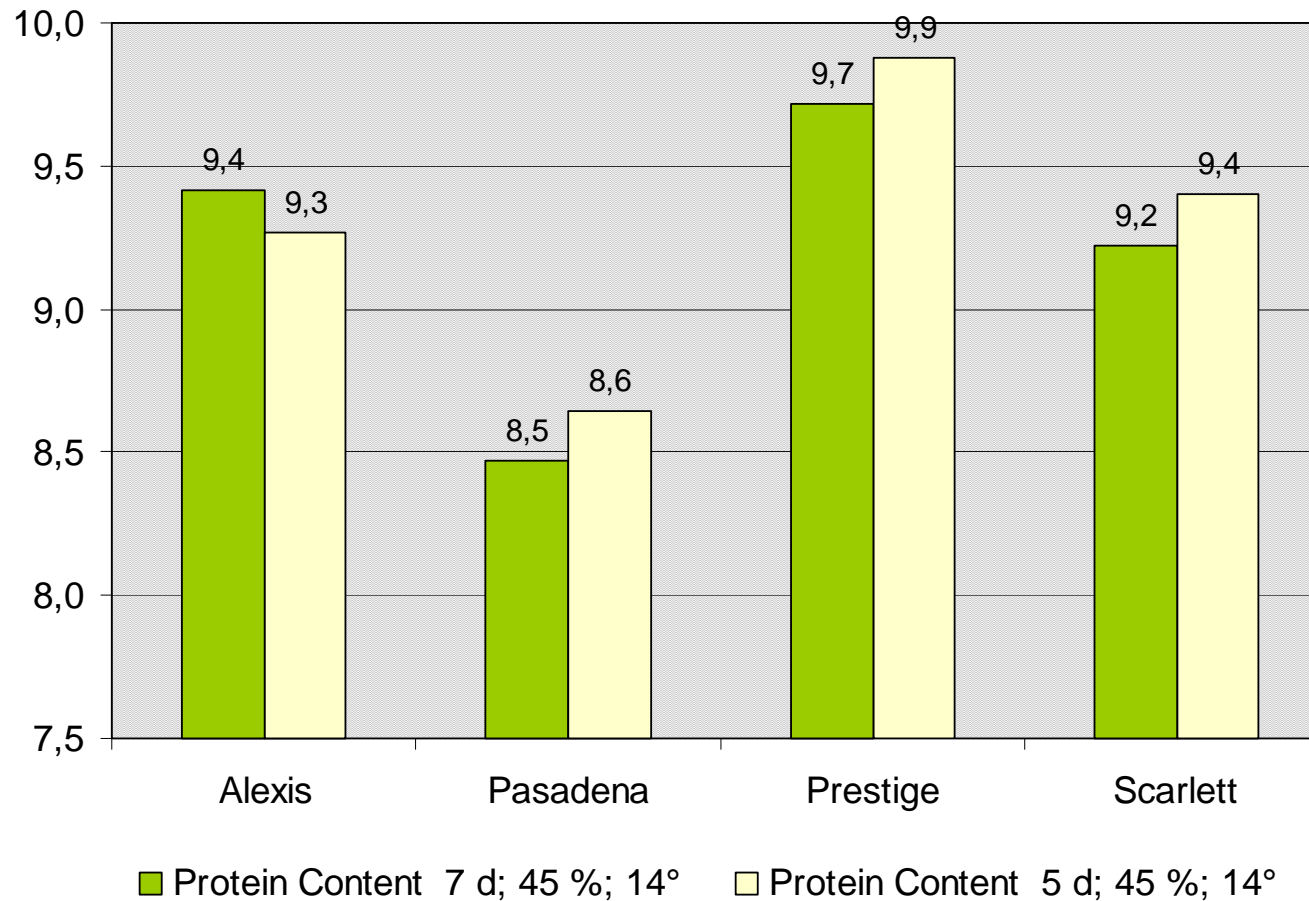
## PRESTIGE – Response to different micromalting conditions

VISCOSITY mPa\*s (mean / N = 3 locations)



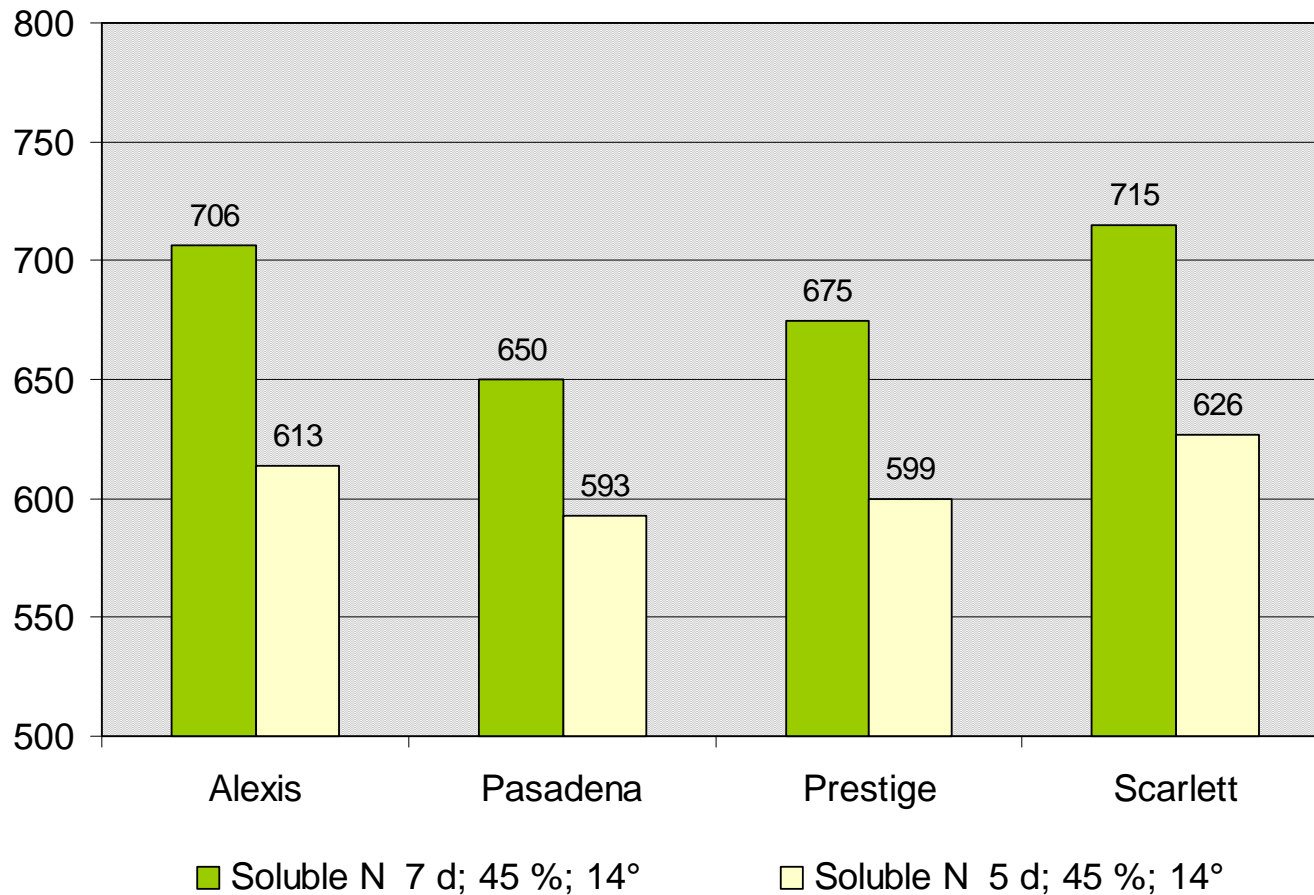
## PRESTIGE – Response to different micromalting conditions

PROTEIN CONTENT (Malt) % (mean / N = 3 locations)



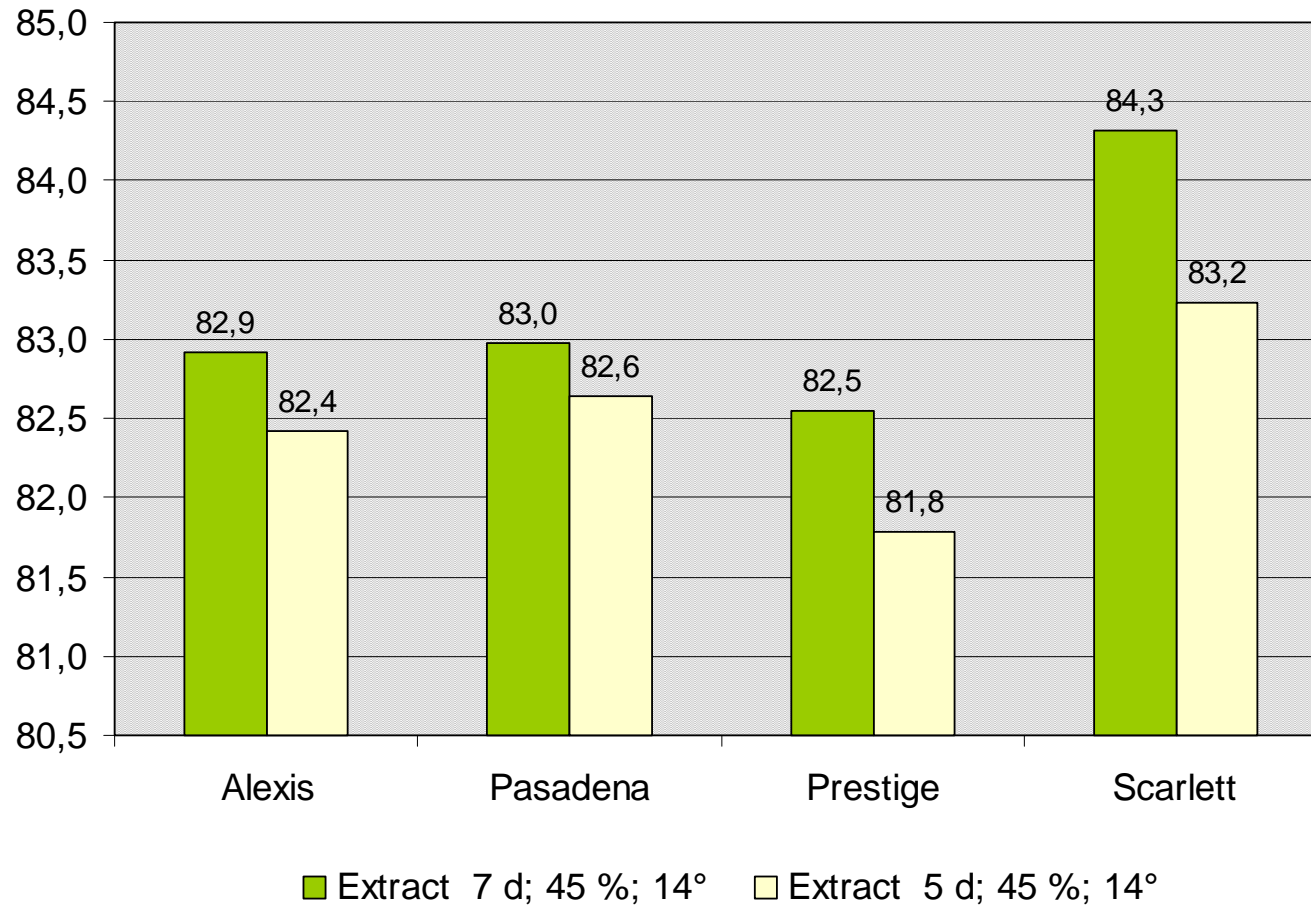
# PRESTIGE – Response to different micromalting conditions

## SOLUBLE NITROGEN mg/100 g (mean / N = 3 locations)



## PRESTIGE – Response to different micromalting conditions

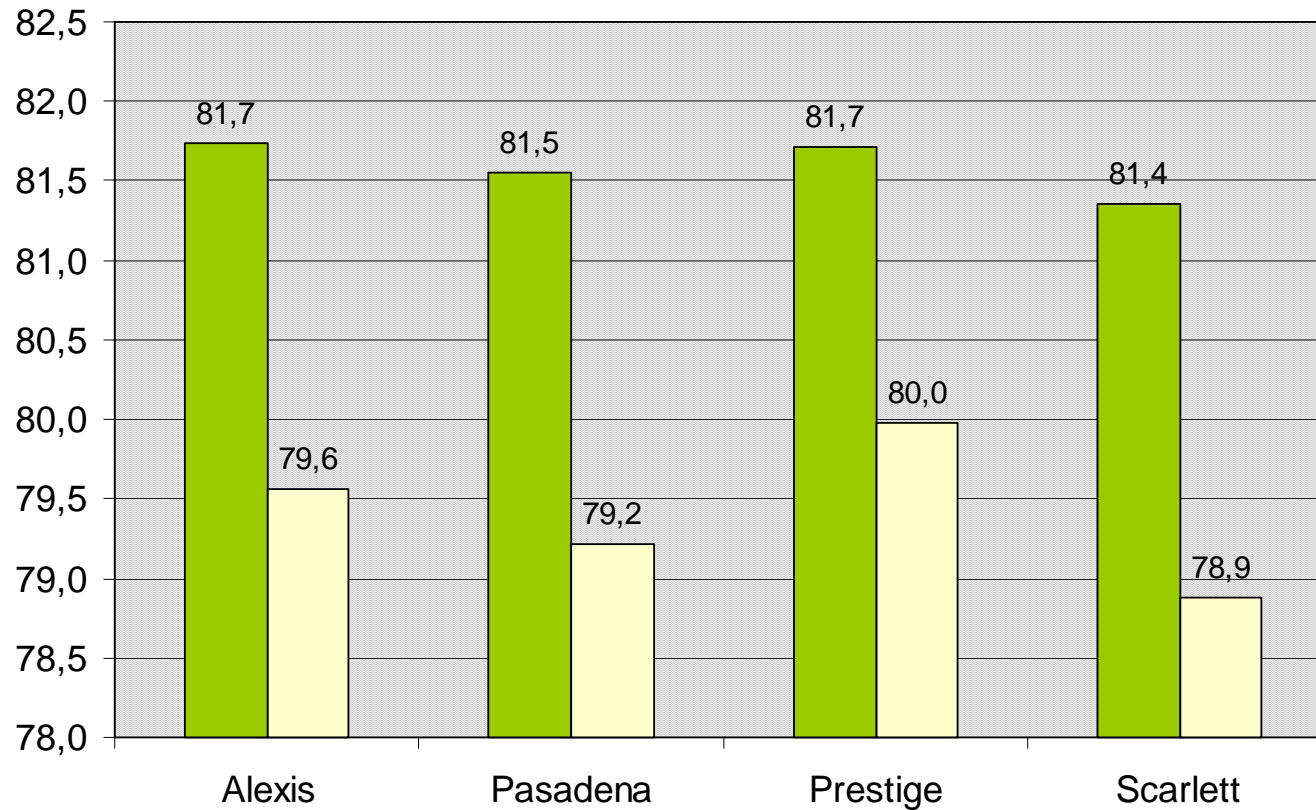
EXTRACT YIELD % (mean / N = 3 locations)





# PRESTIGE – Response to different micromalting conditions

APP. FINAL ATTENUATION % (mean / N = 3 locations)



■ App. Final Attenuation 7 d; 45 %; 14°    □ App. Final Attenuation 5 d; 45 %; 14°