

PRESTIGE

Malting & Brewing at

Carlsberg

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The Carlsberg test system

- **New promising varieties from areas of interest for Carlsberg**
- **Varieties which is expecting to increase in production areas**
- **Varieties which have shown malting quality in the official testing system**
- **Quality is compared to a known standard variety**
- **Carlsberg positive list of varieties**

Carlsberg; Barley quality

Pilot trials

- Protein content
- **Grading > 2,5 mm**
- β -glucan content
- **Germination energy**
- **Germination index**
- **β -amylase content**
- **Fusarium infection**
- **Husk loss**

Carlsberg; Malting quality Pilot trials

- **Total hours to reach 95%
modification**
 - Different steeping degree
 - Different temperatures in steeping and germination

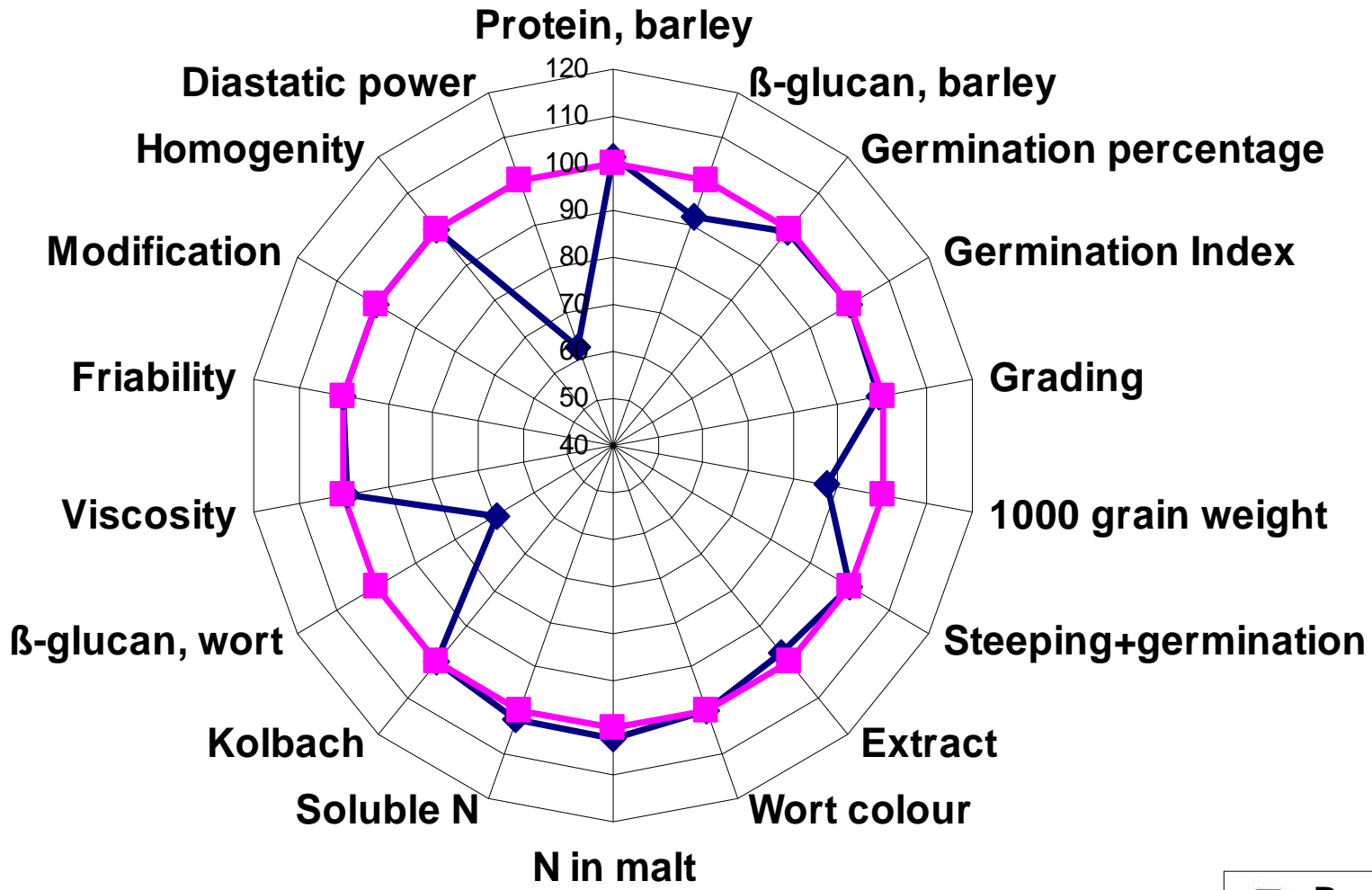
Carlsberg; Malt quality

Pilot trials

- Extract yield
- Wort colour
- Soluble N
- β -glucan in wort
- Friability
- Modification
- Homogeneity
- Diastatic power
- α -amylase

Variety X

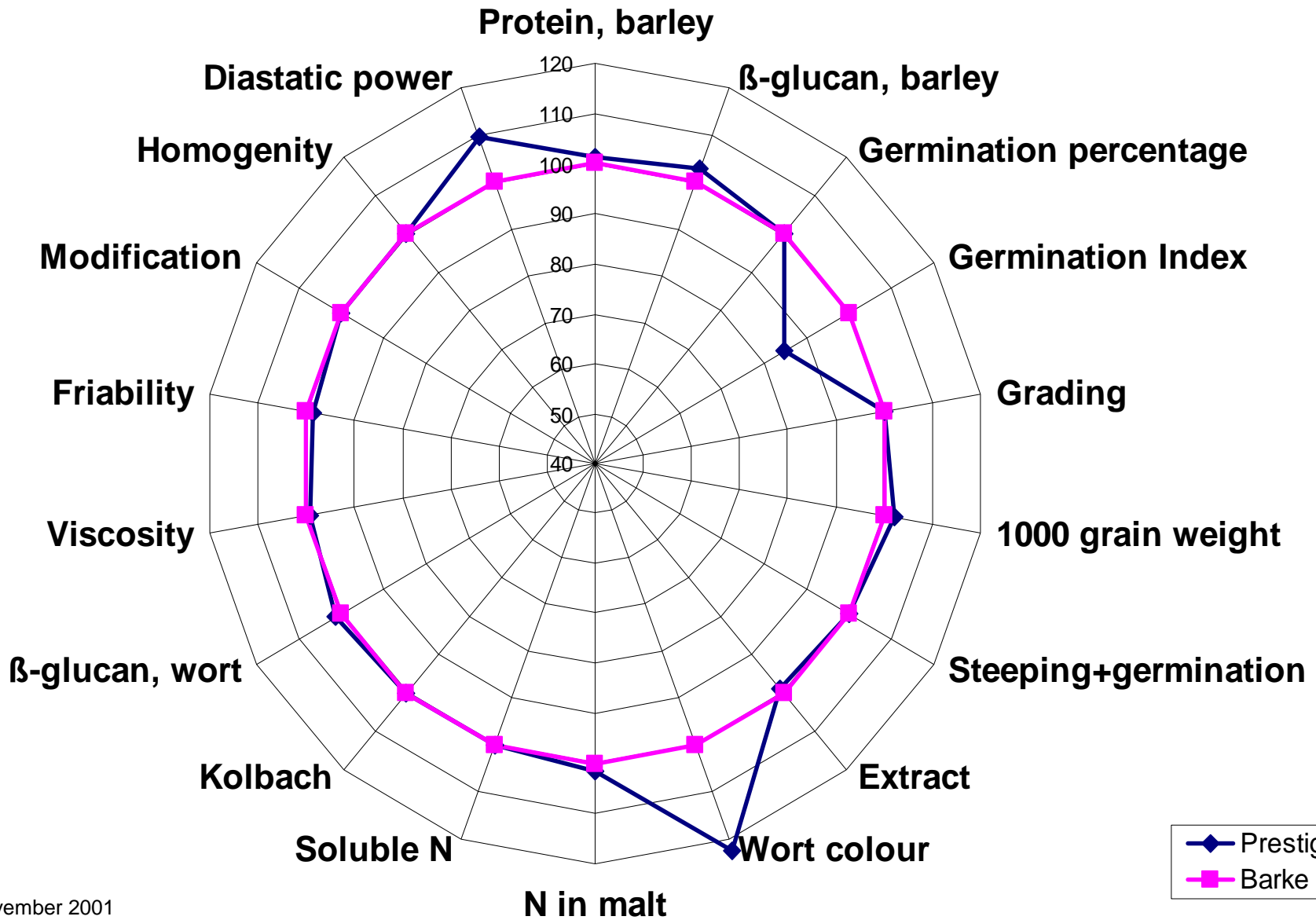
Bad



—■— Barke

PRESTIGE

Good



Carlsberg

Production trials

- **Full scale malting with quality within the Carlsberg specification for lager malt**
- **Full scale brewing at two separate breweries.**

Discriminating observations

- **Slow lautering**
- **Slow wort and beer filtration**
- **wort quality**
- **Length of fermentation**
- **Beer taste**
- **Beer flavor stability**
- **Beer foam**

Prestige barley, DMG

Harvest 2000

Supplier	DLG	DLG
• Tons	815	637
• Water content, %	14,7	14,3
• Germination %, 72 h.	98	99
• Germination Index	8,7	8,0
• Water sensitivity %	41	23
• Protein %	9,5	9,7
• % > 2,5 mm	98	98
• % β glucan	3,0	3,2
• Fusarium inf.	19	24

4 Steep, Harvest 2000

• Extract, %	81,8	-	82,5
• Soluble N, %	0,56	-	0,62
• Color	2,5	-	3,0
• Diastatic power	307	-	313
• β-glucan, mg/l	113	-	206
• Friability, %	86	-	92
• Modification	96	-	97
• Homogeneity	71	-	85
• Viscosity	1,53	-	1,57
• Hartong	36,9	-	42,5



Prestige brew, Carlsberg



(Meura mash-filter)

	C-beer	T-beer
• No of brews	8	8
• mBar on filter	550	520 (340)



MEURA
2001

2





Prestige brew, Carlsberg



(Meura mash-filter)

	C-beer	T-beer
• No of brews	8	8
• mBar on filter	550	520 (340)
• hl beer/ cycle	2055	1504 (3470)





Prestige brew, Carlsberg

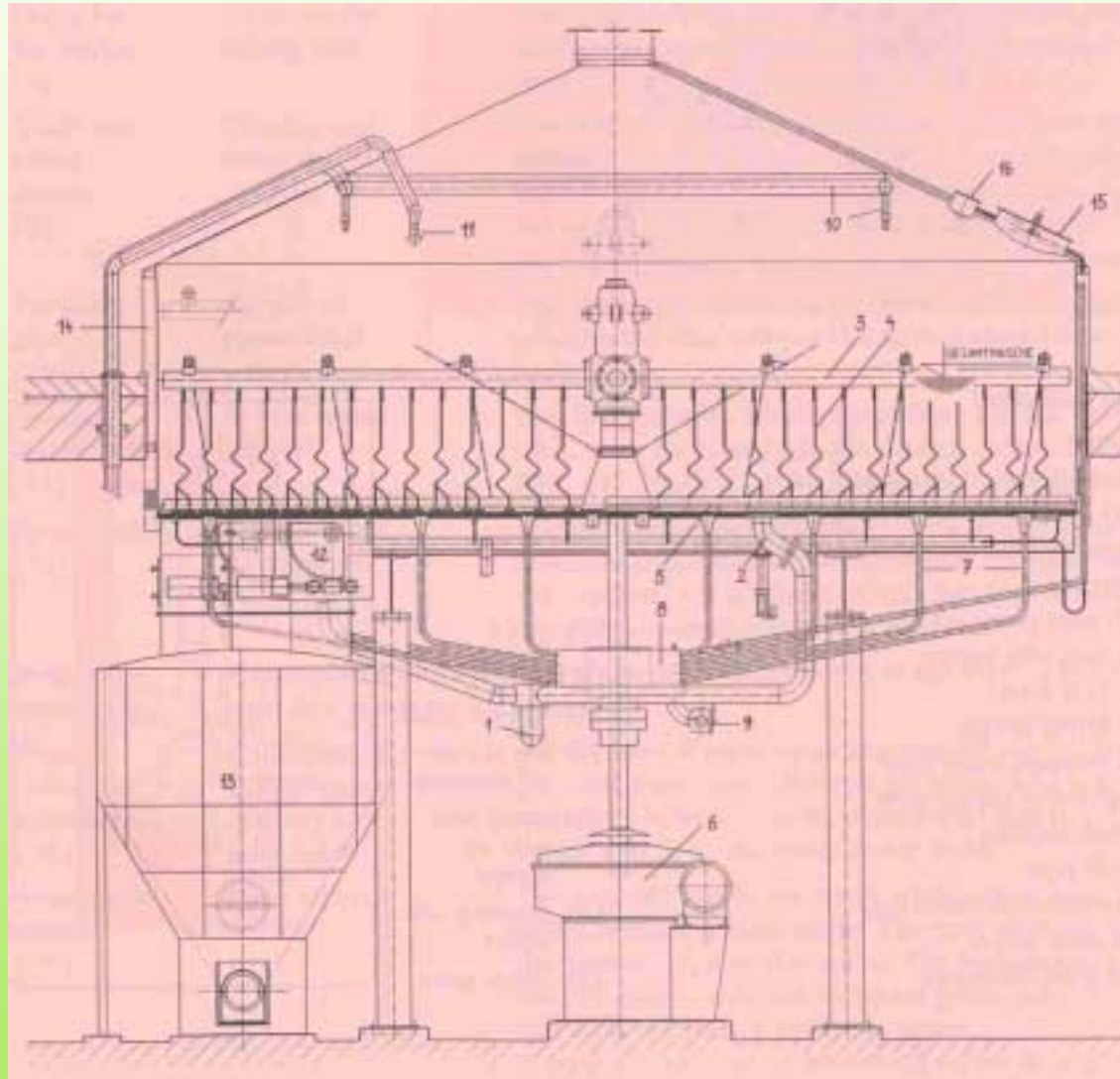
(Meura mash-filter)

	C-beer	T-beer
• No of brews	8	8
• mBar on filter	550	520 (340)
• hl beer/ cycle	2055	1504 (3470)
• Days fermentation	8	8
• Days to diac.accept	9	9
• Degree of fermentation	69,0	69,7
• Haze, EBC	0,37	0,41
• Total haze, 20°C,2md.	0,9	0,4
• Flavor, fresh	Sat	Sat
• Flavor, 20°C,2md.	Sat(stale)	Sat(fat acid)

Prestige brew, Tuborg

(Lautertun)

	C-beer	T-beer
• No of brews	10	10
• No of rakings	1 - 3	2 - 3 (1)



Prestige brew, Tuborg

(Lautertun)

	C-beer	T-beer
• No of brews	10	10
• No of rakings	1 - 3	2 - 3 (1)
• Days fermentation	7	7
• Days to diac.accept	10	10
• Degree of fermentation	70,2	69,7
• Haze, EBC	0,32	0,37
• Total haze, 20°C,2md.	1,0	1,0
• Flavor, fresh	Sat	Sat

