



NIBIO

NORWEGIAN INSTITUTE OF
BIOECONOMY RESEARCH

Northern Cereal - New Markets for a Changing Environment

T4. Malting process and malt quality - Brewing from local grain

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Malting processes tested

Procedure		Steeping steps, Hours				Temp, °C	Proceeding treatment
I Standard	Wet	8	8	2		16	
	Dry	16	16				
Cycle time, h		24	24	2			
II Mette	Wet	4	4	4	4	16	
	Dry	8	8	8			
Cycle time, h		12	12	12	12		
III Swaen	Wet	5	3			11 / 16	Wetting 3 x a day for 2 days*
	Dry	16	8				
Cycle time, h		21	11				+ Wetting 3 x a day for 2 days*

Kilning (pilsner process). 55° in 16 hours, 72° in 4 hours

Quality data of cereal

Variety	HI-weight, kg	1000-kernel weight, g	Protein, %	Germination, %
Salome	67,2	47,9	10,1	97
Tiril	71,6	40,6	9	97
Bere	68,6	34,4	11,6	94
Kria	69,6	42	9,5	96

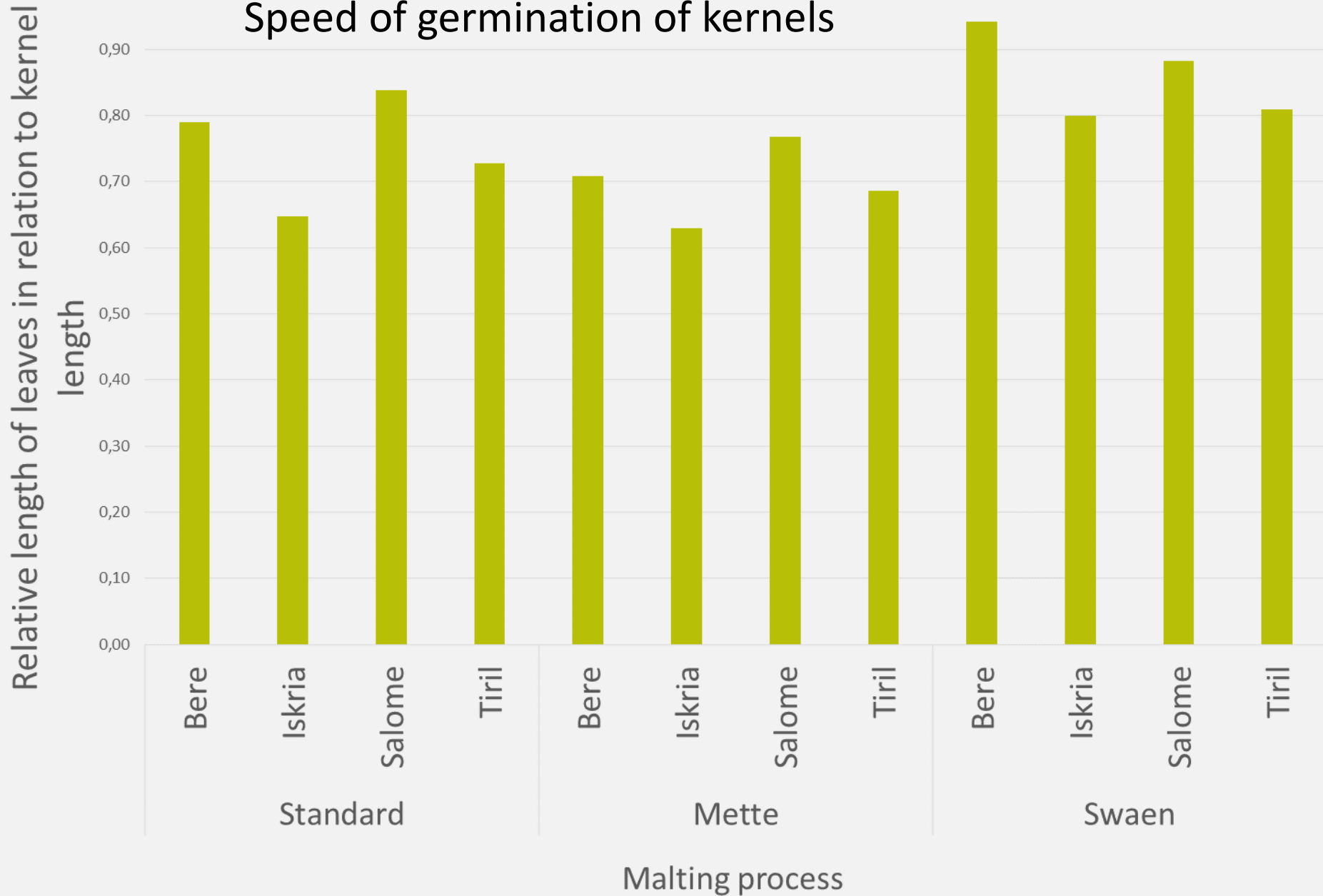
Test malting equipment



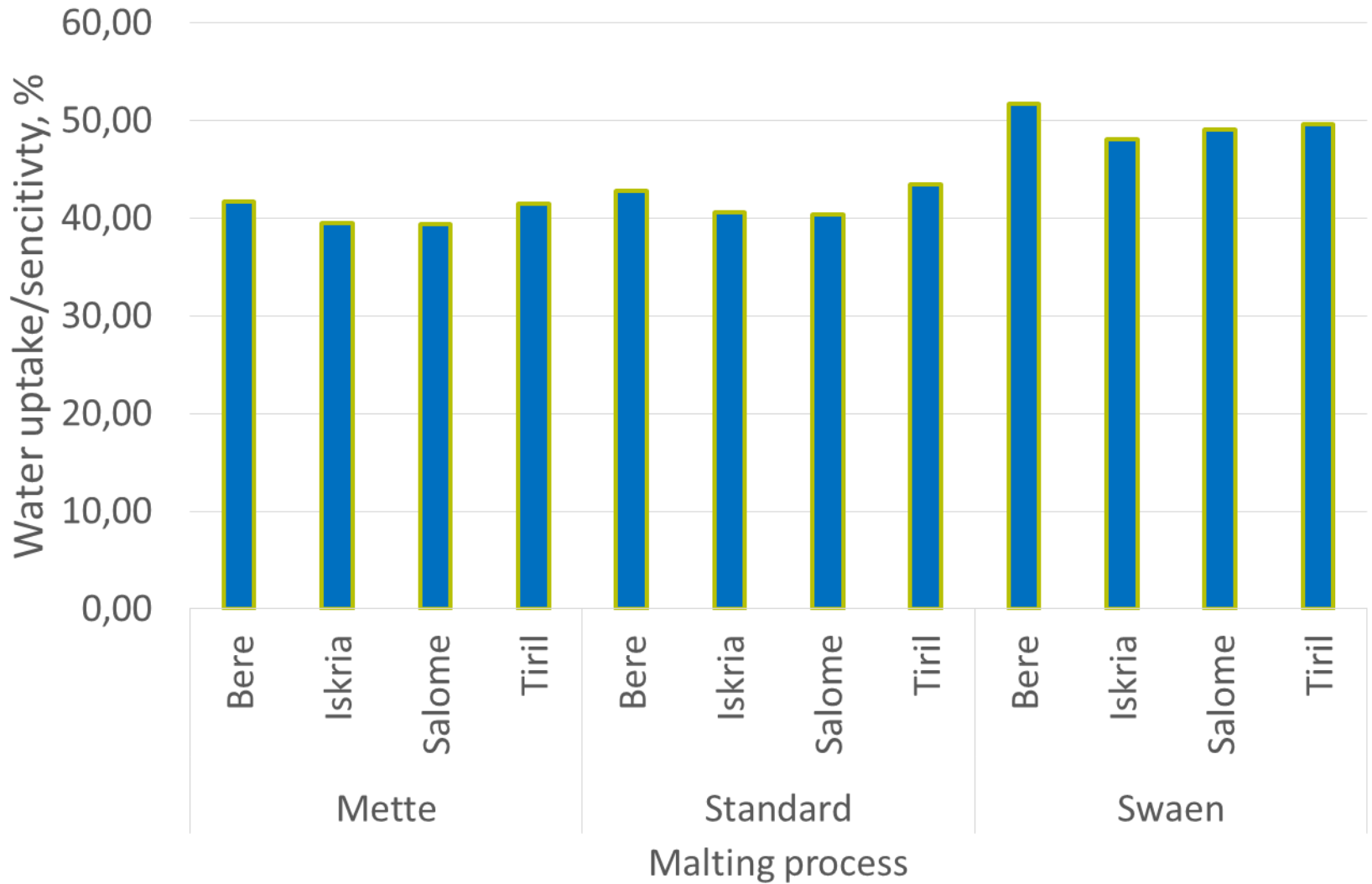
Finished sample



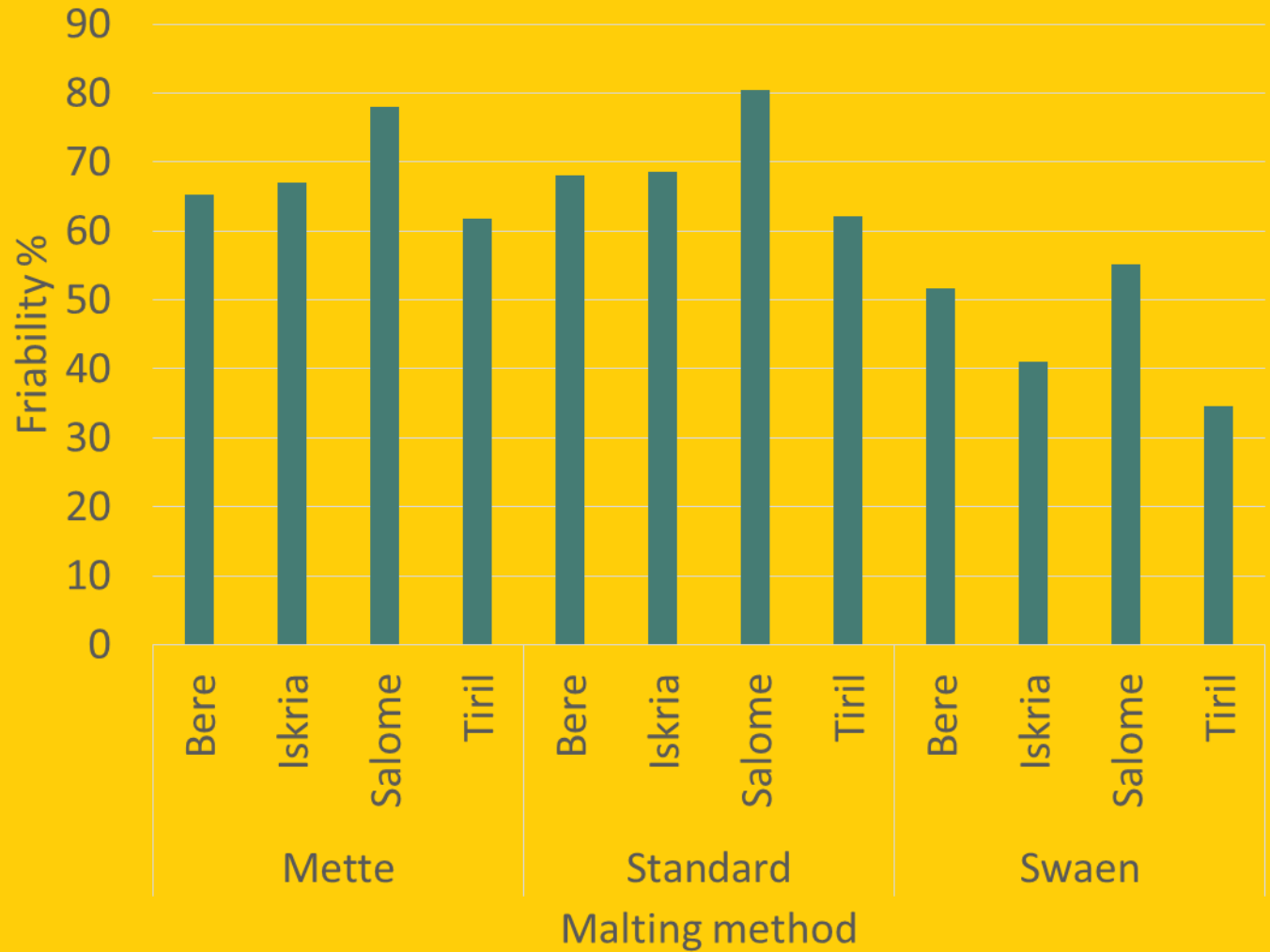
Speed of germination of kernels



Water uptake during steeping



Friability -



>80%

Milling of samples for mashing



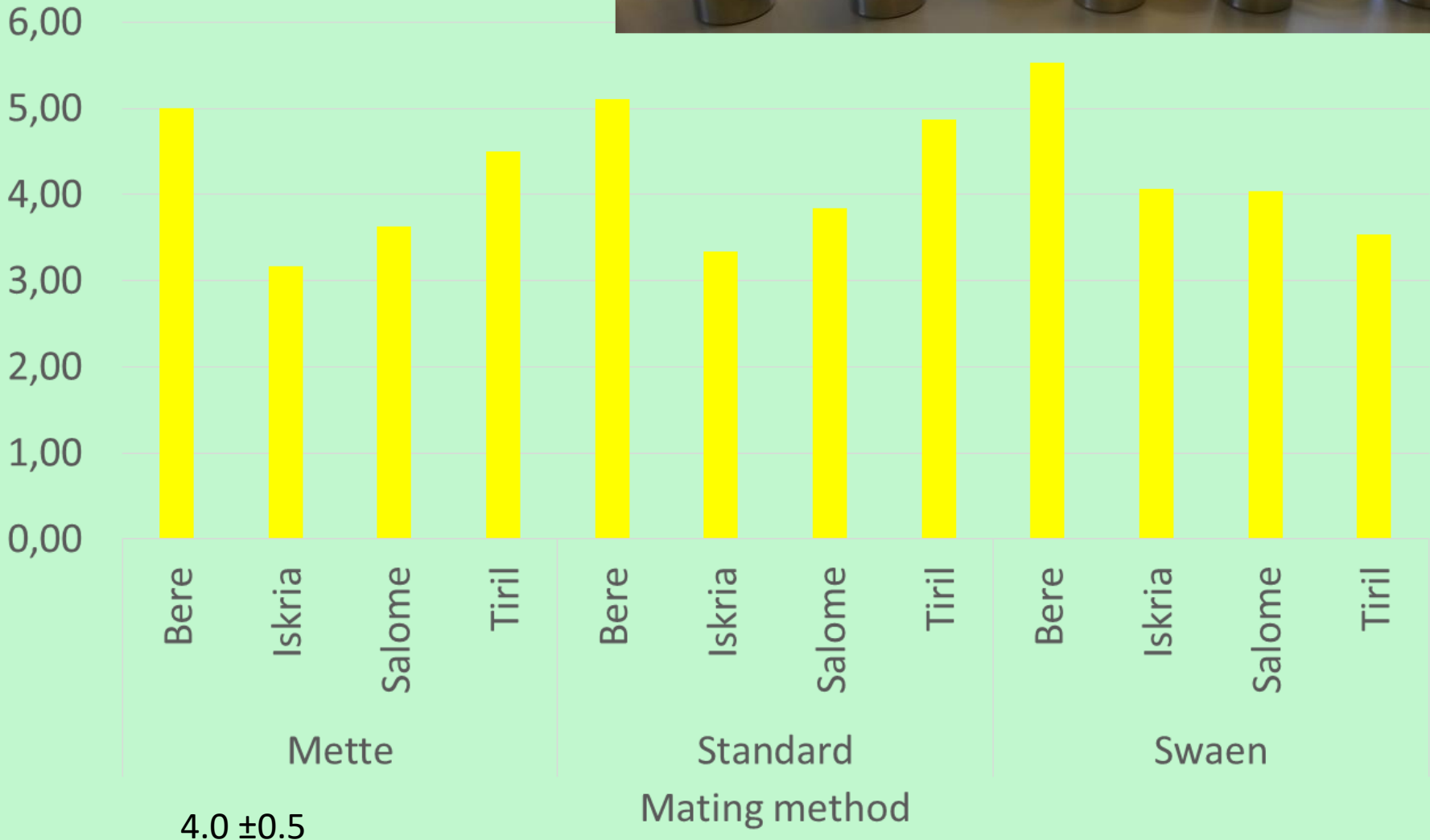
Mashing



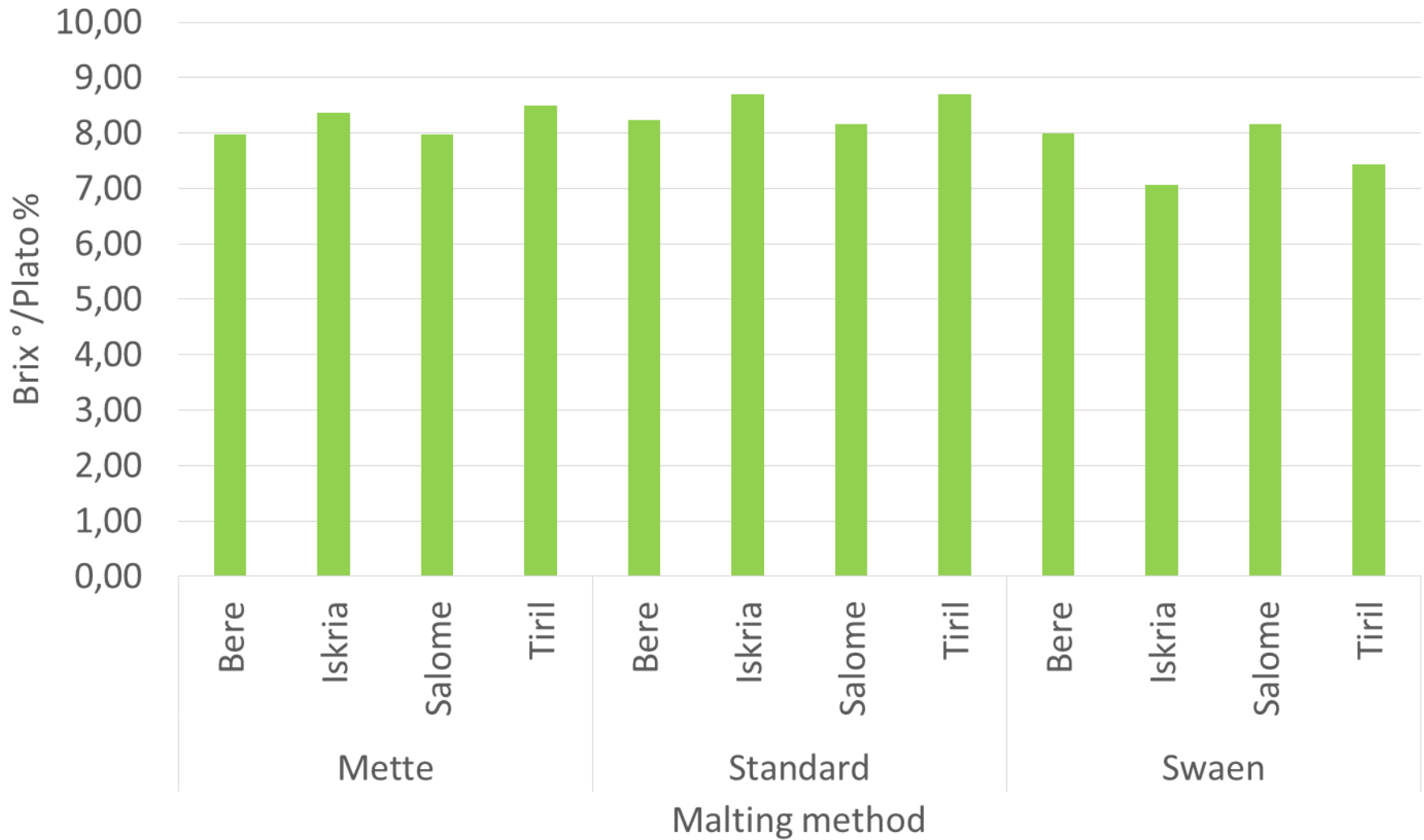
Colour of wort



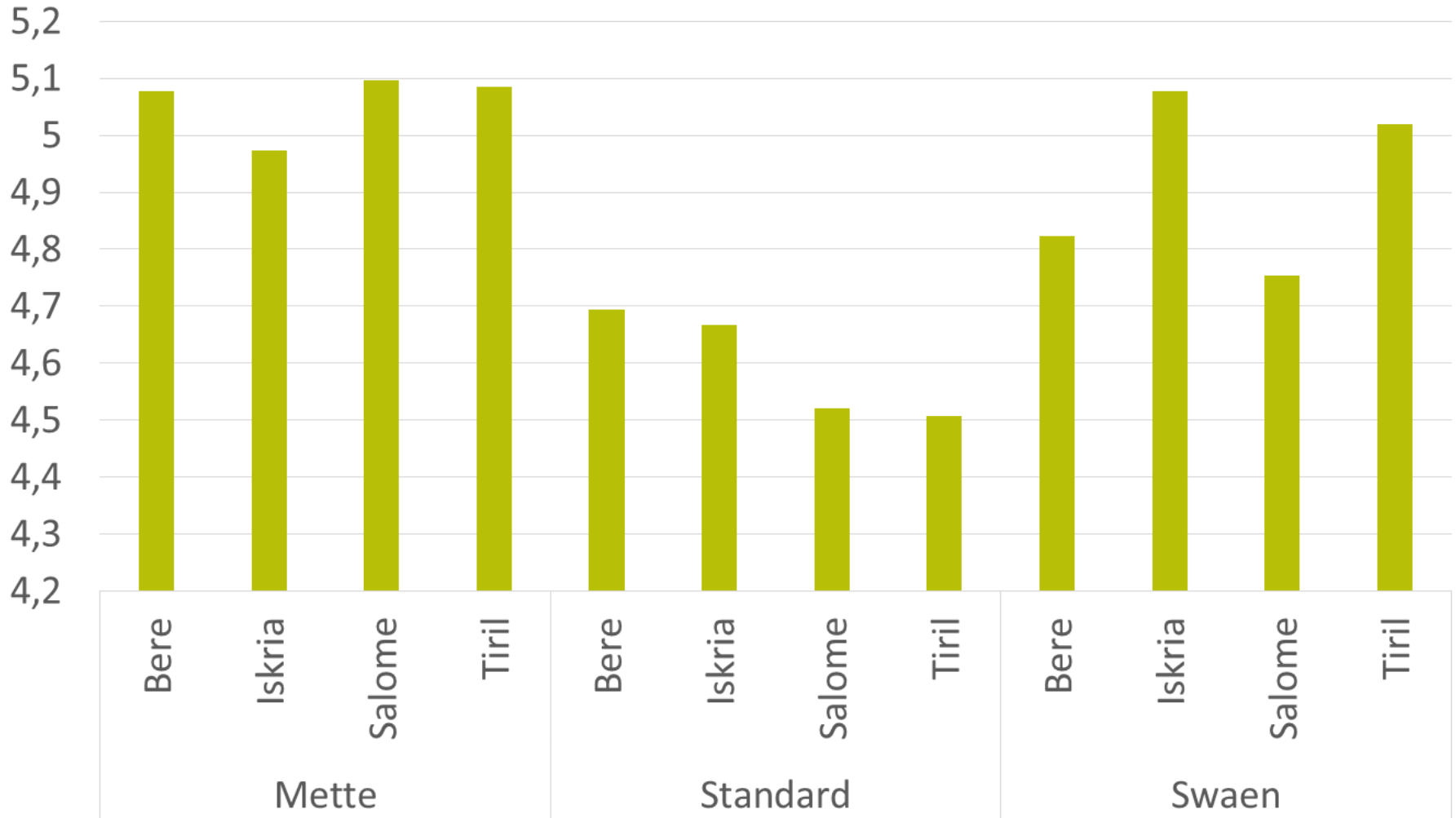
Colour in worth, using EBC



Brix° /Plato % in wort



% water in malt



Thank you for your attention



*St. Borashien
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