

Storability as a variety characteristic of sugar beet?

Christine Kenter, Erwin Ladewig

Institute of Sugar Beet Research (IfZ), Göttingen, Germany

Background:

- Genotypic differences in storability of sugar beet have been found in many studies.
- Storage properties of commercial varieties grown in Germany have not yet been routinely assessed.
- Information on the storability of current varieties might contribute to a further improvement in storage management.

Objective:

Test the storability of 13 sugar beet varieties with a method that could be established as a routine in variety testing.



Materials and methods:

- 9 storage trials 2016-2018
- field trials were selected from official variety trials; homogenous crops without stress
- machine harvesting, no additional damage
- storage in climate containers for approximately 480 °Cd
- determination of **root weight**, **sugar content** and **marc content**
- methodology coordinated by the Coordination Board at IfZ, breeding companies and the German Federal Plant Variety Office.



← Beets from each plot were divided into a storage sample and a directly processed reference sample.

Results:

Table 1: Sugar loss during storage of sugar beet grown at nine environments in Germany, mean of 13 varieties. Different letters indicate significant differences (multiple t-test, $p \leq 0.05$)

year	site	sugar loss (%)	
2016	Merbitz	5.52	bc
	Rehmsdorf	5.94	b
	Schnedinghausen	4.75	cd
2017	Merbitz	2.77	e
	Borwede	3.65	de
	Heddesheim*	9.63	a
2018	Tellmer	2.50	e
	Hankensbüttel	2.73	e
	Assenheim	4.22	d
mean		4.64	

* trial cancelled because of SBR

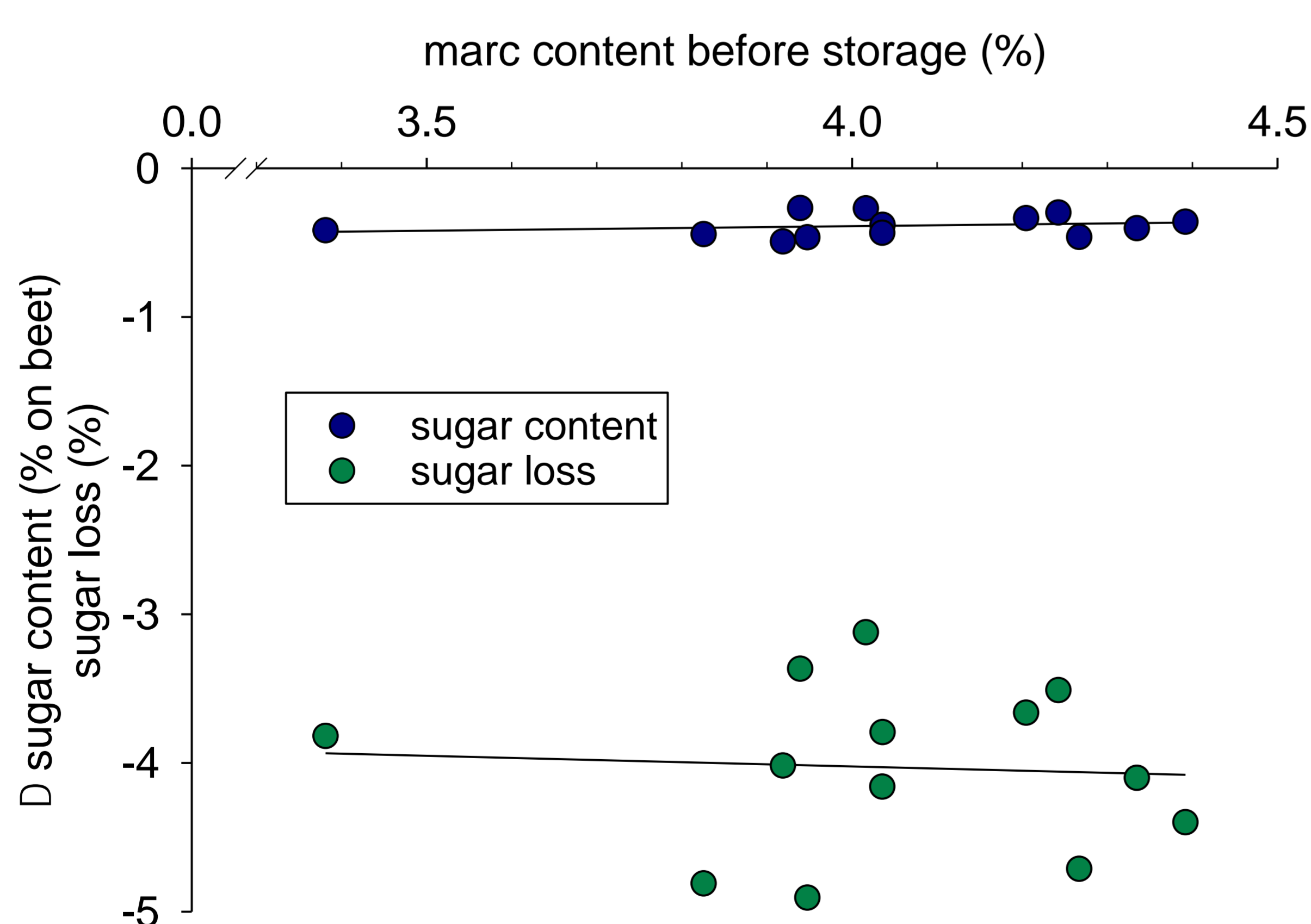


Figure 2: Marc content of 13 varieties and sugar losses during storage, mean of eight environments 2016-2018

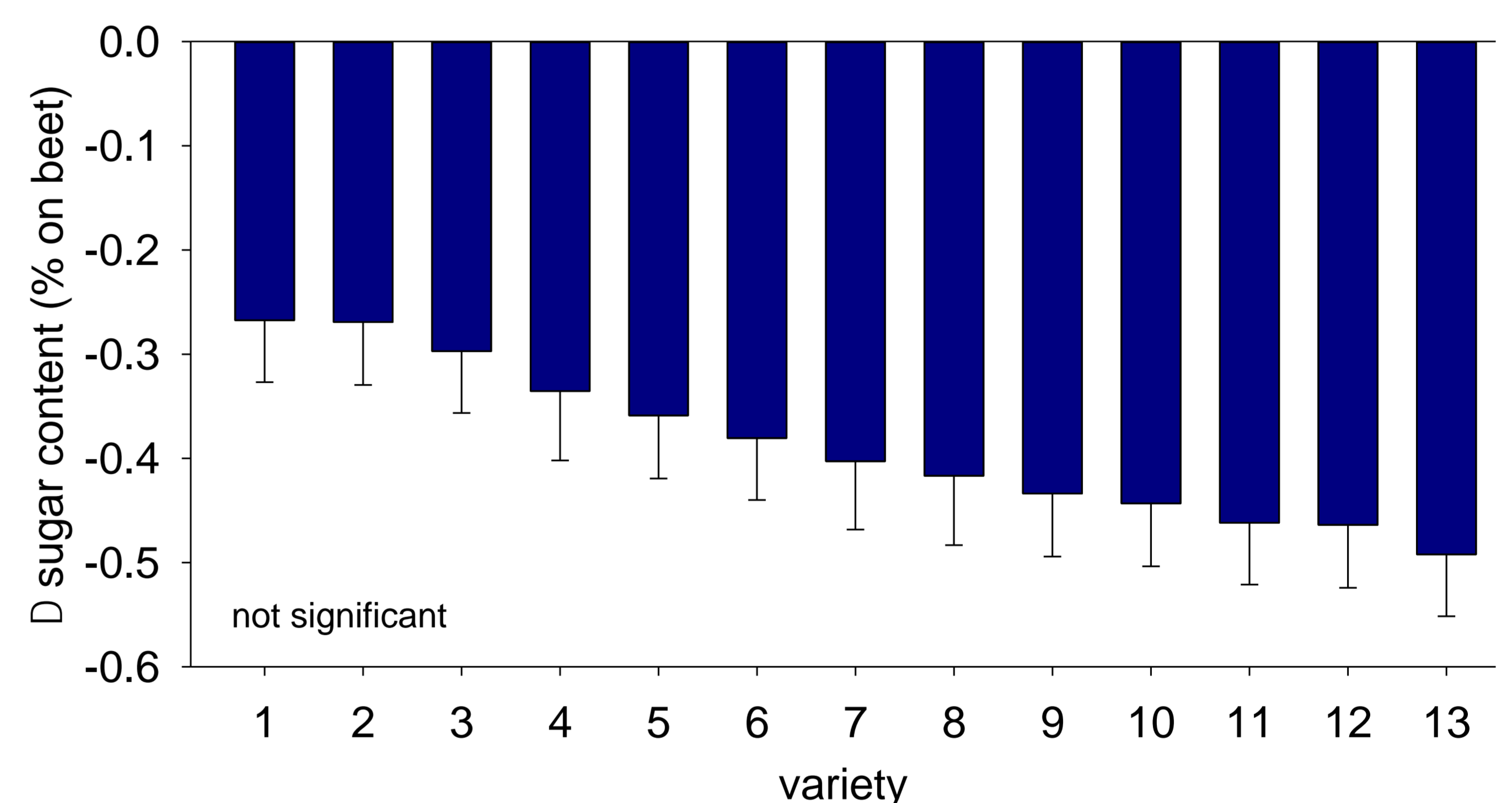


Figure 1: Changes in sugar content of 13 varieties during storage, mean of eight environments 2016-2018

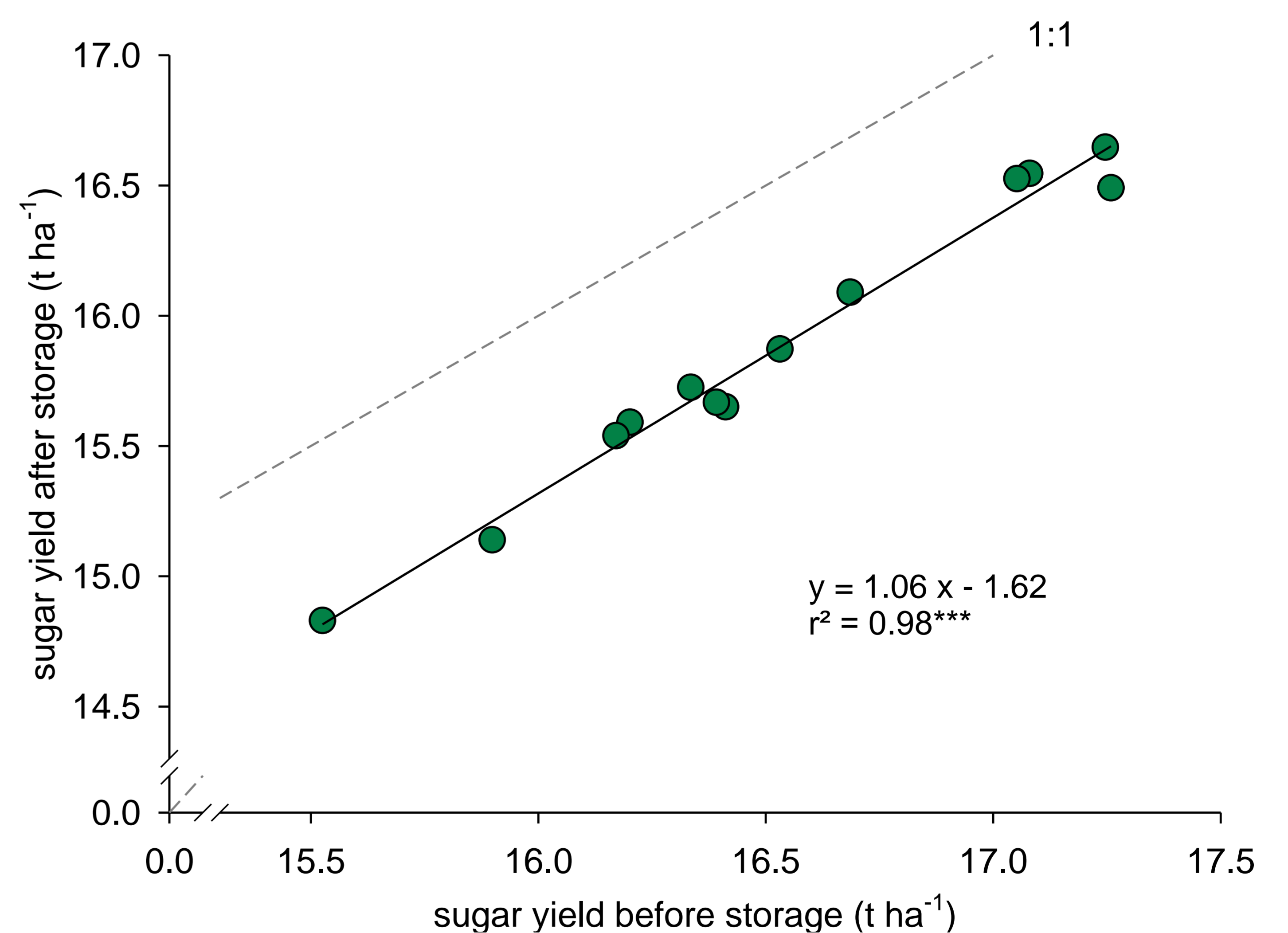


Figure 3: Sugar yield of 13 varieties before and after storage, mean of eight environments 2016-2018

Conclusions:

- Growing environment had a much greater effect on sugar loss than variety.
- No correlation between marc content and storage losses.
- Close linear relation between sugar yield at start and after storage; currently no variety recommendations possible.