

Prospects for combining high sucrose content with increased fibre to generate multi-purpose cane varieties

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**Changing circumstances
require Caribbean sugar
industries to diversify
their product**

**Variety breeding and selection must
change to accommodate this
diversification**

New varieties must be efficient producers of energy

Sources of energy are:

1. Sugar and molasses

- ethanol

2. Fibre (bagasse)

- electricity

**New varieties are to be
designated **Multi-purpose
Canes (MPC)****

**Current MPC varieties have
adequate fibre (25%) but low
sugar levels**

Question:

**can we combine high
fibre with high Brix in
the same genotype?**

Method

**Cross very high Brix population
with *Saccharum spontaneum*
(very high fibre) population**

**Evaluate progeny for combinations
of Brix and fibre**

CROSS NUMBER	FEMALE (High BRIX)	MALE (High Fibre)
46	WI96916	SES189
47	HQ3041	SES189
49	WI96911	SES189
50	WI96916	US56193
51	HQ3041	US56193
53	WI99911	US56193
74	WI99934	SES4A
75	WI99916	SES4A
76	WI96911	IK7672
89	WI96911	SES14
21	WI96903	WI81456

50 Seedlings per cross

**5-10 canes samples
analysed from each
seedling**

**Spectracane NIR Analyser
to generate data**

Results

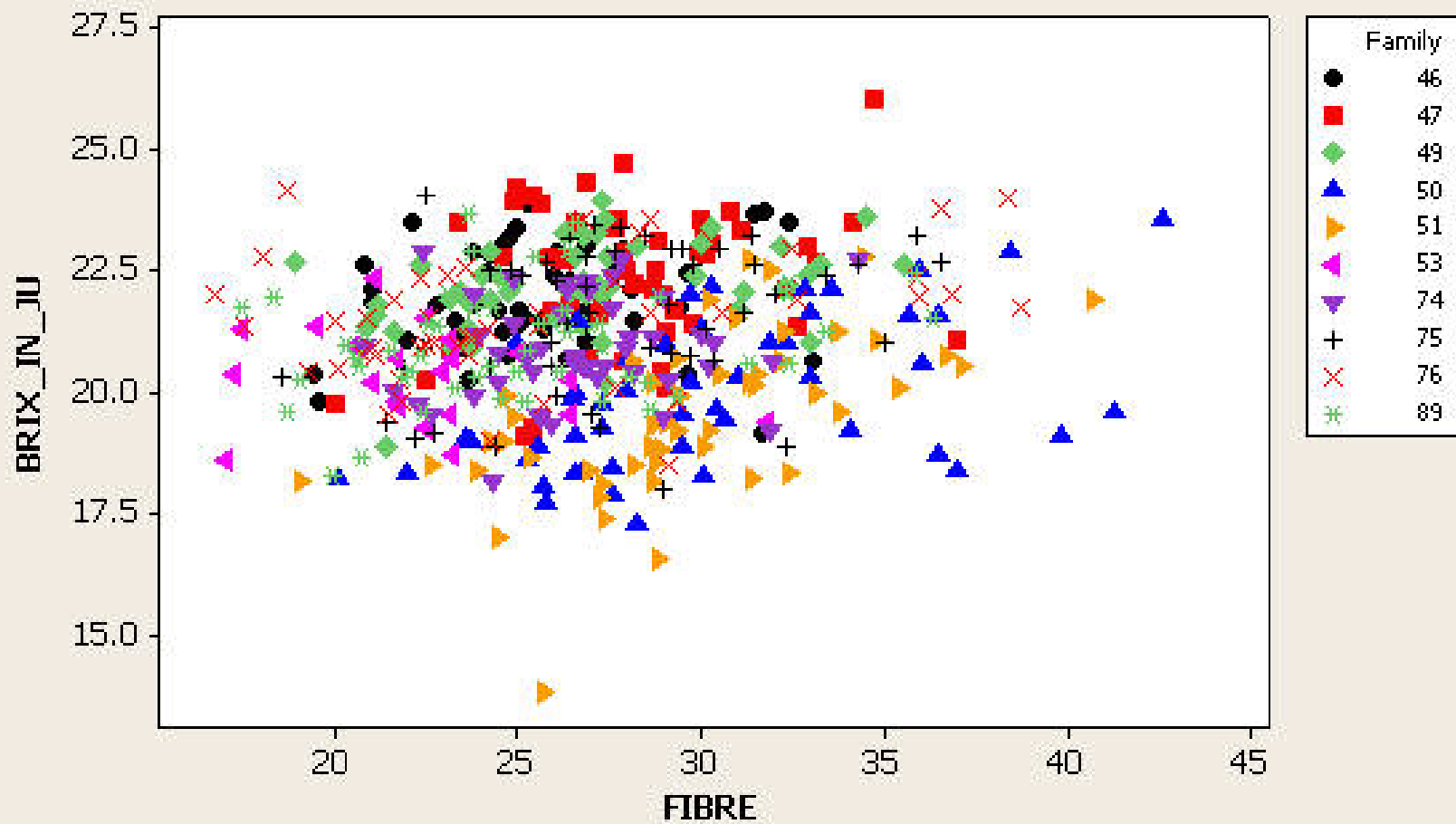
Brix Range: 13.8-26.7

Fibre Range: 16.7-42.6

**84% had Brix between 19.0
and 23.0 and fibre between
20.0 and 35.0**

BRIX IN JUICE vs FIBRE

HQ x Spontaneum Seedlings



Brix/Fibre correlation

$$**r = 0.058**$$

Conclusion

Brix and Fibre are uncorrelated

High fibre: High Brix varieties are possible

Varieties with very high dry matter with the potential to convert to fuel (ethanol) are a real possibility for the future

**Thank you for
your patient
attention**