Effect of Healthy Seedcane Planting on some Agronomic Characters in Several New Sugarcane Varieties

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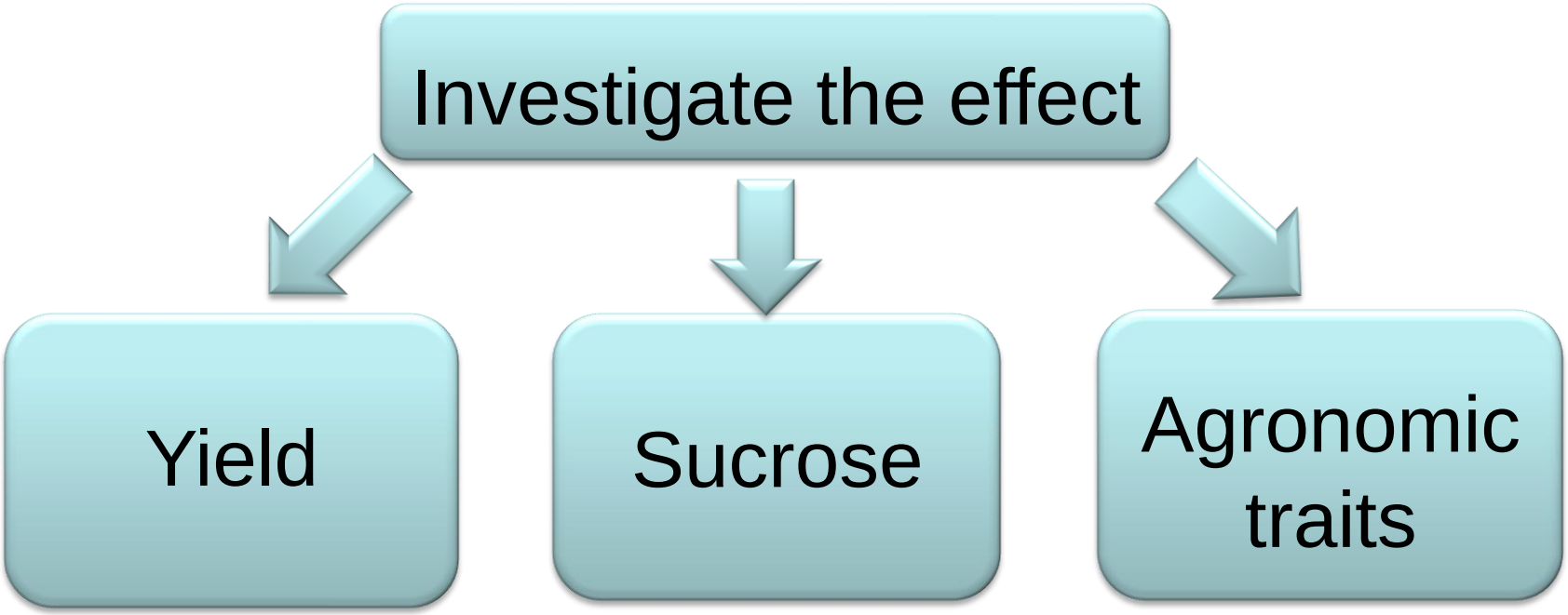
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  - Agronomic characteristics
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  - Effects on different sugarcane varieties with healthy seedcane
  - Effect on sucrose content
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Introduction

- During 2006-2008
- Comparative plant and ratoon trial
- Healthy and normal seedcanes of 6 varieties



Material and methods

Before planting

Common seedcanes

Carbendazim

Healthy seedcanes

50° C warm water for 2h

The normal field management and cultural operations were performed throughout the crop stand.

Results





- Agronomic characteristics
- Cane and sugar yield
- Effects on different sugarcane varieties with healthy seedcane
- Effect on sucrose content

Agronomic characters

- Tillering rate
- Plant height
- Stalk diameter
- Number of milable stalks



HS planted crop

VS

CS planted crop

Different varieties differed in their performance.

Agronomic characters of sugarcane plants cultivated using healthy seedcanes

Variety	Treatment	Emergence rate (%)	Shooting of ratoon (%)	Borer rate (%)	Smut rate (%)	Tillering (%)	Height (cm)	Diameter (cm)	Millable stalks (×1000/ha)
GT21	HS	72.8	147.5	6.5	1.5	72.3	239	2.40	72.2
	CS	76.4	161.0	9.2	0.4	29.7	219	2.39	64.1
GT26	HS	63.5	170.3	4.7	1.3	55.7	252	2.46	68.3
	CS	72.7	178.1	3.3	0.9	21.0	245	2.42	67.5
GT27	HS	77.3	131.7	3.9	0.9	48.9	250	2.47	70.8
	CS	81.0	131.5	3.7	2.1	43.9	248	2.51	70.4
GT28	HS	80.2	173.5	8.0	0.0	46.2	276	2.35	74.9
	CS	62.2	178.4	4.5	0.0	32.5	225	2.38	66.3
ROC16	HS	74.7	121.5	10.6	0.1	27.0	236	2.32	71.7
	CS	71.9	136.0	7.8	0.3	52.9	230	2.16	71.6
ROC22	HS	73.7	105.7	8.5	1.0	39.1	235	2.36	72.7
	CS	66.8	147.9	11.3	0.8	33.6	222	2.26	66.6
Mean	HS	73.7	141.7	7.0	0.8	48.2	248	2.39	71.8
	CS	71.8	155.5	6.6	0.8	35.6	232	2.35	67.8

Cane and sugar yield

Cane yield

Sugar yield

HS plantations

VS

CS plantations

Significantly HIGHER!

Plant performance

Ratoon cane performance

HS plantations

VS

CS plantations

SIMILAR

Comparison of cane and sugar yield in plant cane of different varieties

Variety	Treatment	Cane yield (t/ha)			Sugar yield (t/ha)		
		LSD_{05}=798.6, LSD_{01}=1082.2			LSD_{05}=120.6, LSD_{01}=163.5		
		Mean	5%	1%	Mean	5%	1%
GT21	HS	76.1	a	A	10.3	a	A
	CS	53.8	b	B	7.5	b	B
GT26	HS	75.9	a	A	10.4	a	A
	CS	63.3	b	A	8.7	a	A
GT27	HS	77.9	a	A	11.3	a	A
	CS	76.1	a	A	10.5	a	A
GT28	HS	81.2	a	A	13.1	a	A
	CS	53.1	b	B	8.5	b	B
ROC16	HS	67.1	a	A	9.6	a	A
	CS	67.1	a	A	9.6	a	A
ROC22	HS	67.7	a	A	10.2	a	A
	CS	59.2	a	A	8.8	a	A

Comparison of cane and sugar yield in ratoon cane of different varieties

Variety	Treatment	Cane yield (t/ha)			Sugar yield (t/ha)		
		LSD_{05}=798.6, LSD_{01}=1082.2			LSD_{05}=120.6, LSD_{01}=163.5		
		Mean	5%	1%	Mean	5%	1%
GT21	HS	85.1	a	A	12.1	a	A
	CS	75.6	a	A	11.1	a	A
GT26	HS	90.9	a	A	13.0	a	A
	CS	83.6	a	A	12.1	a	A
GT27	HS	94.6	a	A	12.9	a	A
	CS	83.2	a	A	12.0	a	A
GT28	HS	101.3	a	A	17.6	a	A
	CS	76.6	b	B	12.8	b	B
ROC16	HS	88.6	a	A	13.8	a	A
	CS	79.5	a	A	12.2	a	A
ROC22	HS	84.8	a	A	13.2	a	A
	CS	77.0	a	A	11.9	a	A

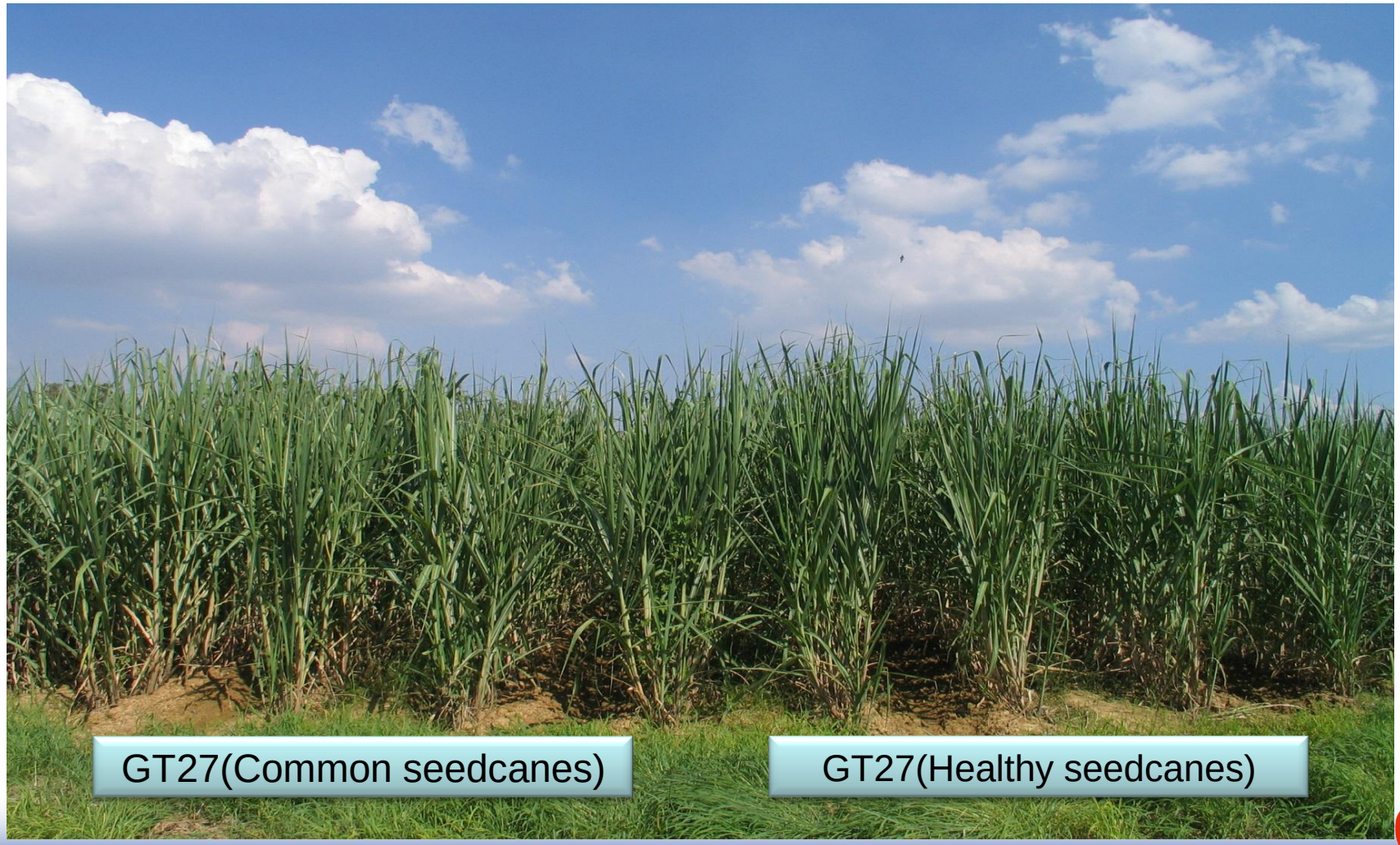
Performance of crops from healthy and common seedcanes of sugarcane variety GT21



Performance of crops from healthy and common seedcanes of sugarcane variety GT26



Performance of crops from healthy and common seedcanes of sugarcane variety GT27

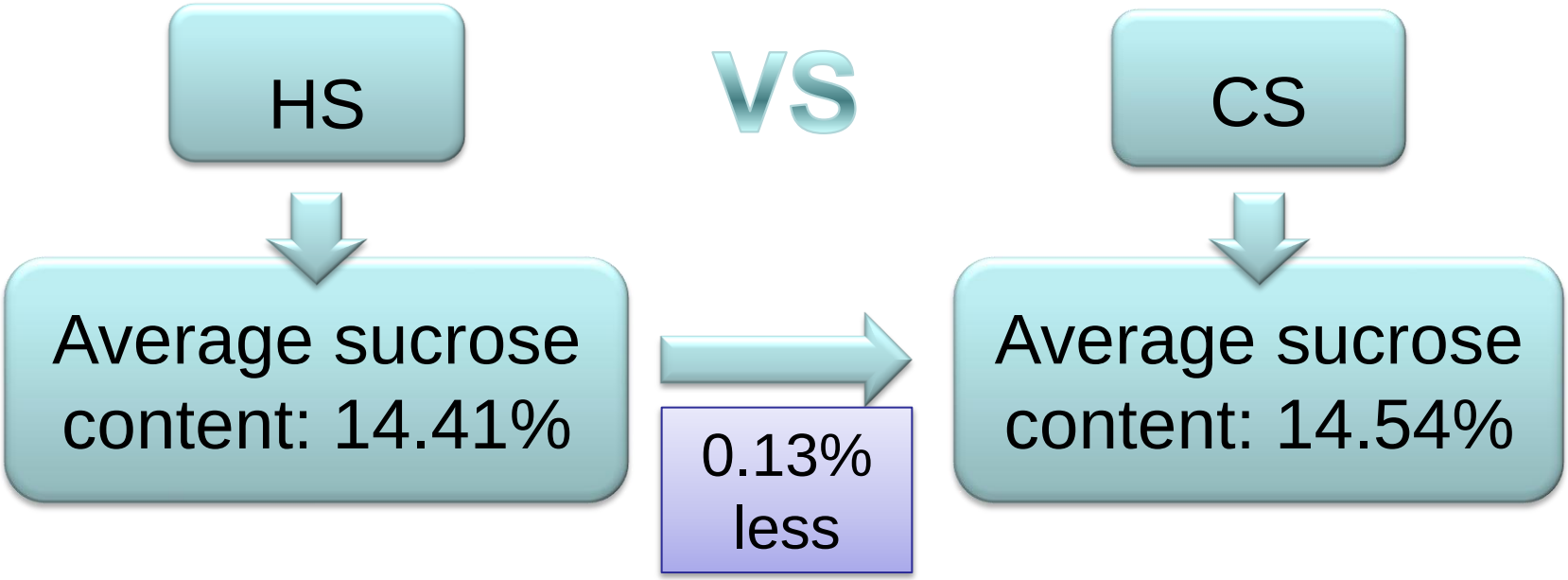


Performance of crops from healthy and common seedcanes of sugarcane variety GT28



Effect on sucrose content

- The sucrose content of HS planted crop was not affected significantly.



- However, the differences were non significant.

Conclusions

- Healthy seedcane (HS) could effectively control ratoon stunting disease (RSD) in sugarcane.
- Application of HS could result in high productivity of cane and sugar.
- It is recommended the healthy seedcane should be extended in commercial sugarcane production.

Thank you !