

## SUGAR CANE

### *Saccharum sp*

Six species of perennial grasses all of which originated in old world. Of these six two are occurring in a wild state. They are *S.spontaneum* with a wide distribution from North East Africa thro' Asia to pacific. *S.robustum* confined to New Guinea and neighbouring islands. The other four species are cultigens

1. *S.officinarum* - Noble cane of New guinea.
2. *S.barberi* - North Indian canes
3. *S.sinensis* - Chinese cane.
4. *S.edule* - Melenesian cane.

### Systematics, origin and distribution

#### 1. *Saccharum spontaneum* (2n = 40 - 128)

A perennial grass, free tillering, often with Rhizomes. *S.spontaneum* represents a polyploid series. Forms with the smallest chromosome numbers are found in North India which is probably the centre of origin. Natural hybridization with *S.officinarum* would have produced *S.barberi* and *S.sinense*

*S.spontaneum* is widely used in breeding of modern commercial hybrids by a process of nobilisation with *S.officinarum*. *Spontaneum* provides vigour, hardiness and resistance against diseases.

#### 2. *Saccharum robustum* : (2n = 60 - 194)

Origin New guinea vigorous perennial. *robustum* would have given rise to *S.officinarum* with which it is interfertile. *S.robustum* is highly susceptible to mosaic virus and leaf scale and because of this its use in breeding programme is very much limited.

#### 3. *Saccharum officinarum* (2n = 80)

Origin : South pacific.

Chewing cane.

Noble cane

This cane is suited to tropical conditions and requires favourable soil and climate for its performance. The stems are stout thick high in sucrose, low in fibre and with soft rind. The noble canes are susceptible to most of the diseases. Some of the earlier cultivars are Bourbon, Cheribon, noble canes.

#### 4. *S. barberi* 2n = 82 - 124

*S.barberi* is short medium to slender in thickness, with high fibre content, medium sucrose content and poor yielder.

#### 5. *S.sinense* : (2n = 18)

Chinese cane. Tall vigorous, slender, high fibre content. Poor juice quality.

#### 6. *S.edule* : Polynesian cane (2n = 118)

Slender, weed like form. Seeds are edible. Not much used.

### **Nobilisation in Sugar cane.**

Nobilisation is crossing the noble cane *S. officinatum* with *S. barberi*, *S. spontaneum* and infusing disease and pest resistance in the noble cane. The first successful use of nobilisation was made and variety cheribon was crossed with *S. barberi* variety and progenies having resistance to *sereh* disease were evolved. But they were susceptible to mosaic and inferior in sucrose content. By subsequent crossing with *S. officinatum* i.e. second and third nobilisation good varieties like POJ 2878 were evolved.

In India, nobilisation of local *spontaneum* was begun by Barber and Venkata raman in 1912 at SBI Coimbatore. At coimbatore crosses were initially made between local strains of *S. barberi* (Which is unproductive but adapted to climates of North India) and tropical noble cane (thick soft stem, high sucrose content but unsuited to climates of North India). Later on by crossing these resultant hybrid with wild cane *S. spontaneum* canes with high sucrose content suitable for North India were evolved. In this way a large number of tri hybrid canes were developed.

### **Breeding objectives.**

#### **1. Breeding varieties suitable for Jaggery making.**

Co 853, Co 62175, CoC67

#### **2. Breeding varieties for factory purposes - high Brix value and recovery %.**

Co 658, Co 772, Coc 8001

#### **3. Breeding varieties suitable for all the three seasons**

Early - Dec - Jan

Mid - Feb - March

Late - April - May.

#### **4. Breeding varieties resistant to shoot borer.**

#### **5. Breeding varieties resistance to disease** shoot disease, Rust, Brown spot.

#### **6. Breeding varieties with high ratooning ability.**

#### **7. Breeding varieties with drought resistance.**

#### **8. Breeding varieties with more number of productive tillers.**

#### **9. Varieties with shorter duration without yield less.**

COC 671

### **Sugar cane varieties for Coimbatore :**

	<b>Early</b>		<b>Mid</b>		<b>Late</b>		<b>Special</b>
	Factory	Jaggery	Factory	Jaggery	Factory	Jaggery	COC 90063
COC 91061	COC 91061		COC 776	COC 774	Co 740	Co 8201	Co 8021
Latest variety	COC 99061						
		(Co 6806 x Co 740)					
	Suitable for mid and late season.						