

# **The important energy crop in China will be sweet sorghum**

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**As bio-fuel, the important crops is stalk-sugar crop (sugar cane and sweet sorghum), I think.**

**The development and utilization of ethanol from sugarcane, there are a lot of experiences in Brazil. These experiences can be used and extend in the countries which located in tropical and sub-tropical zone. In the countries located in temperature zone, sweet sorghum can be used to produce ethanol as bio-fuel.**

I come from south China, I like sugarcane very much. I introduce early cultivars and growing it in Beijing (the year average temperature is 11.6 °C). However, the result is not promising: the plant height is only 150 cm and the Brix in juice is 14% to 18%. While the plant height of sweet sorghum can reach 450 cm and the Brix in juice ranged 14% to 28%.

We would like to develop sugar cane in south China, for example, in Guangdong Province. However, where the land area is only 0.045 ha/per capita on an average. This land is used mainly to grow vegetables and tropical fruits, building highway. That why the output of sugarcane in Guangdong Province decreases from 50% to 16% account for the total sugar in China. While in north China for example, in Inner Mongolia, where the land area is 0.34 ha/per capita on an average. It is 7.7 times more then Guangdong Province.

**The yield of sugarcane on an average in China is equal to the yield of the world. The yield of sugar beet is only a half of the world. However, the yield of sorghum is 2.9 times on an average more than that of the world. Sweet sorghum is similar to to grain sorghum. That why we would like to develop sweet sorghum.**

## **China needs an alternative energy**

**Since 1993, China has become a net oil-imported country. The reserves of underground mineral oil will be only enough exploited for 17 years. About 70 million tons petroleum were imported from abroad in 2000 in China.**

Sweet Sorghum belongs to C<sub>4</sub> crop. It has a high photosynthetic efficiency. It grows fast, the cultivar 'Wray' grows as high as 12 cm/day on an average in Beijing, China during July 20-26. Sweet sorghum is a crop with tolerance to drought, water logging and salt-alkali.

I introduced many cultivars from North America, Africa, Asia and Australia during 70's and 80's. Since 90's, some new cultivars were bred by our Institute.

There is a large diversity in sweet sorghum. The plant height ranged from 80 cm to 500 cm, the Brix in juice ranged from 7% to 28%. I would like to use the newest bio-technology to breed a new cultivar, which the sugar content in juice is higher than that of sugarcane and sugar beet. In this case, the ethanol production efficiency will be much higher than that of present sweet sorghum cultivars.

### **Sweet sorghum have some unique characters**

- 1. The growing season of sweet sorghum is short. It can be harvested 1-3 times a year.**
- 2. Sugarcane is propagated with stem, needs 4500-6000 kg/ha of stem sown, while sweet sorghum is sown with seed, 7 kg/ha is enough with machine.**
- 3. The quantity of water needed by sweet sorghum is only 1/3 of that by sugarcane.**
- 4. A crop with tolerance to drought, waterlogging and salt-alkali.**

**I think, sweet sorghum will have a bright future. Herewith attached are several pictures for your reference.**

**The  
Panicle of  
sweet  
sorghum**



**Sweet  
sorghum  
grows  
Vigorously  
in the  
field**



**Sweet  
sorghum  
grown in our  
experimental  
field,  
the plant  
height is  
450 cm**



**Sweet  
sorghum  
in a large  
scale  
production  
in Beijing**



**Sweet  
sorghum  
grows  
Vigorously  
in the  
field**





**A single  
stem of  
sweet  
sorghum  
(one  
section is  
50 cm)**



**Sweet sorghum grown in a hill without  
irrigation (it is maize in front)**



**The End**

**Thank you !**