

## Canadian Sweet Sorghum Hybrid (CSSH 45)

### Characteristics of CSSH 45:

- Recommended for one time harvesting to make silage or green chop for dairy and beef.
- Forage dry matter yield of 12-16 t/ha and 7000 liters of juice with 18-20 brix rate (%)
- The leaf width ranges from 8-10.5 cm and leaf length ranges from 89-94 cm which is comparable to corn leaf. It has 12-14 leaves and takes 80-95 days to 50 % flowering.
- This hybrid has very high potential for its juice for production of ethanol, biodiesel and alcoholic beverages such as Baijiu (Chinese white liquor), Whiskey, Vodka and sorghum beer without using barley malt.
- Frost sensitive with safe prussic acid level
- This hybrid is exceptional in phenotypic traits and can be grown in semi-arid tropics for the replacement of sugarcane as well as for silage production after juice extraction.



### Sorghum compared to corn:

**Better water utilisation efficiency-** Sorghum has two-fold bigger root system and half the leaf transpiring area compare to corn. It requires 30 to 50% less water than corn to produce per unit of dry matter.

**Dormancy-** Sorghum stays dormant during drought stress and recovers with rain, whereas this recovery is not found in corn.

**Better grain filling–** Sorghum stays green and sheds more pollen to assure seed set under high temperature. Corn shed less pollen and creates silk delay resulting in partial grain fill.

**Low-cost feed-** Silage sorghum requires 70% of corn fertilizer program, no insect control and can be harvested with camper head forage harvester.

**Feed quality-** Nutritive value is comparable to corn. Harvesting at 120 days after planting will optimize nutritive value of sorghum silage (Table 1).

**Assured feed supply-** Perennial forage grasses and silage corn production in Ontario and Quebec is frequently affected by drought. Sorghum being an excellent drought and heat tolerant crop will ensure feed supply even in dry years.

**Table 1: FORAGE DRY MATTER YIELD AND QUALITY OF CSSH 45**

Parameter	CSSH 45	Silage Corn
Plant height (cm)	260	180
DMY (kg/ha)	13,580	9,732
CP (% dm)	9.0	8.0
ADF (% dm)	27.7	21.5
NDF (% dm)	49.9	45.3
IVDMD (% dm)	81.1	86.7
NEL (Mcal/kg)	1.54	1.72
TDN (% dm)	67.6	72.8
Ca (% dm)	0.15	0.09
P (% dm)	0.38	0.42

**CROP MANAGEMENT GUIDE- CSSH 45 SWEET SORGHUM (For Ethanol And Silage)**

<b>Planting date</b>	Plant in 3 <sup>rd</sup> week of May, when soil temperature is above 12°C with no risk of frost. (Warm soil is needed for rapid emergence and growth).
<b>Spacing</b>	Between rows 15-24 inches and 2 to 3 inches apart within the row.
<b>Seed rate</b>	4 kg/acre (10 lbs/acre) or 10 kg/hectare. (CSSH 45 has 40,000 - 45,000 seeds/kg).
<b>Planting depth</b>	Plant shallow at 1 to 1.5 inch in good seed bed.
<b>Population</b>	Target population 100,000 to 120,000 plants/acre or 250,000 plants/ha.
<b>Planting equipment</b>	Use a grain drill with cereal box or vacuum seeder. Most corn planters need special sorghum plates.
<b>Fertilizer</b>	Use 70% of silage corn fertilizer based on soil test. Apply 120 lbs N, 30 lbs P and 75 lbs K per acre at planting. Side dress N after 4 to 5 weeks after planting is also an option.
<b>Soil pH</b>	Optimum soil pH 5.5 – 7.5.
<b>Grass weed control</b>	If grass weeds are heavy use Roundup before planting. Cultivation is also an effective option. In addition, if seed is treated with Concep III, apply Dual II magnum as per recommendation (Follow labels and guide to weed control).
<b>Broad leaf weed control</b>	Following herbicides are registered for broad leaf control in Ontario. 1) PEAK 75WG plus BANVEL-280, 2) BASAGRAN Forte, 3) 2,4-D 0.5-1.0 L/ha. Herbicide should be used at 4-6 leaves stage. (Follow labels and guide to weed control).
<b>Harvesting</b>	Ready for harvesting at 120 days after planting. Very leafy and takes 95 to 110 days to reach to high moisture grain (45-60% moisture). Harvest at the correct plant moisture with brix rate of 18-20 %. Extract the juice and fill the silo as quickly as possible and pack the silage well. When you are extracting juice, the ideal chop length is at 1/4 to 3/8 inch.