



**Seventh framework programme
Food, Agriculture and Fisheries, and Biotechnology**

Specific International Co-operation Actions
Small or medium scale focused research project



Sweet Sorghum an alternative energy Crop

Grant Agreement n° 227422

Deliverable 1.14:

*Several tens of experimental “sweet”
sorghum hybrids available for evaluation*



Composition of the consortium

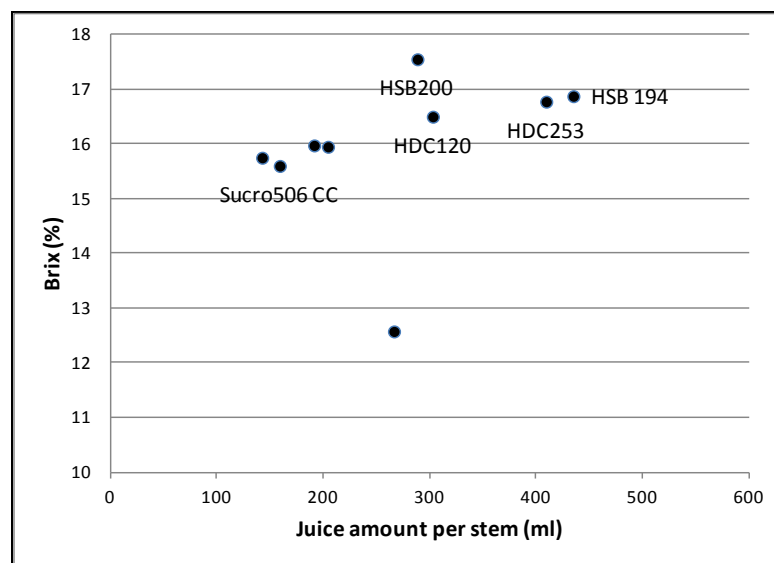
CIRAD
ICRISAT
EMBRAPA
KWS
IFEU
UniBO
UCSC
ARC-GCI
UANL
WIP

Results from CIRAD

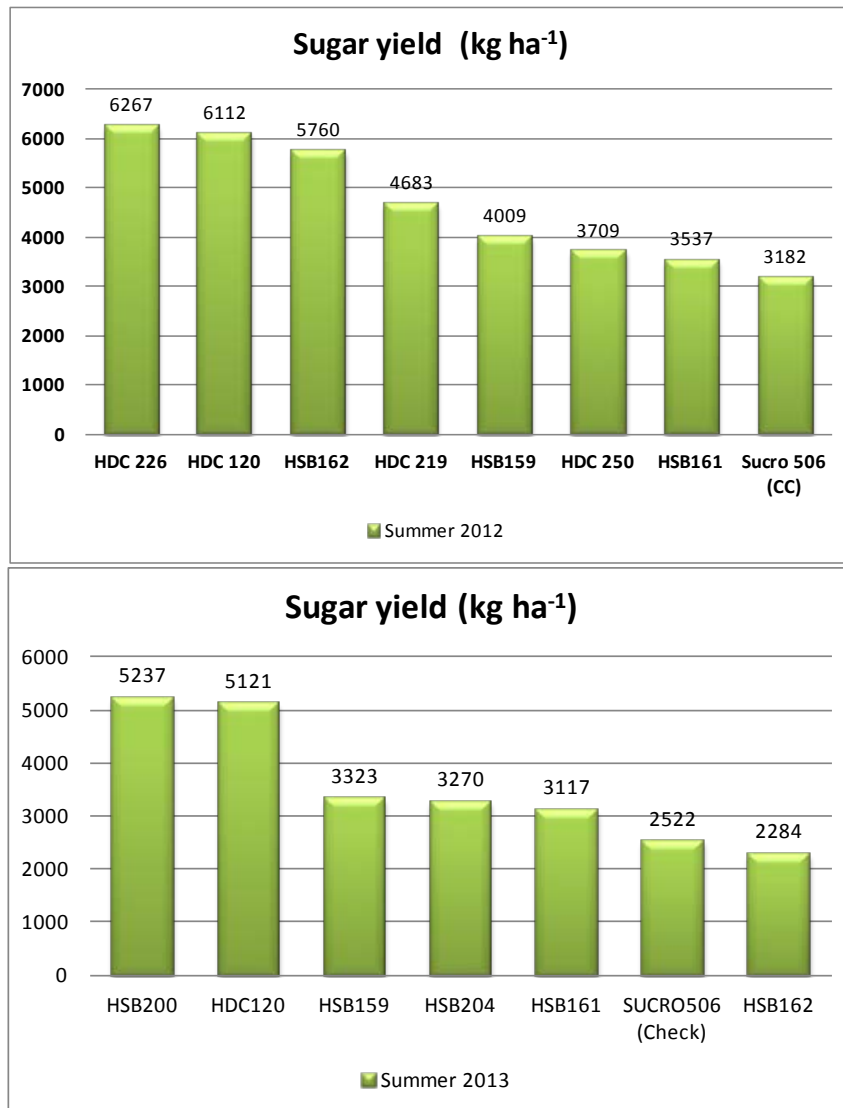
More of 30 experimental sweet sorghum hybrids were made and evaluated by Cirad during the project.

In summer 2013, 12 sweet sorghum hybrids, five yet evaluated in summer 2012 and seven new ones were evaluated in comparison with the commercial check Sucro506. The design was a randomized block design with two replicates. Each hybrid was planted in two-rows plots of 5 m long. Early growth vigour, date of 50% flowering, plant height, stem thickness, lodging at harvest and phenotypic desirability were assessed on full plots. For the most promising hybrids, ten plants per plot were harvested, 30 days after anthesis (dough grain stage) for the less photoperiod-sensitive hybrids and during the first week of October for the late hybrids, for assessing fresh stem weights, extractible juice volume per stem and brix degree. Based on an equation between brix and soluble sugars contents established in 2012, sugar yields per ha were calculated for each hybrid.

Because of cold temperatures in May and June, plant height, fresh stem yield and juice production were logically lower than observed in 2012 summer. However, even in these limiting conditions, four experimental hybrids gave brix values above 16 and extractible amount of juice per stem above or close to 300 ml (Graph 1). For the second variable, all four hybrids are significantly better than the commercial check Sucro506. HDC120 and HDC253 confirmed here good results obtained in 2012. Sugar yields varied from 5,3 to 2.3 t ha⁻¹ and 5 hybrids gave higher yields than the commercial check Sucro 506 (Graph 2). Among them, HDC200 and HSB120 showed significant superiority compared to Surcro506. Considering the results of the two years, HDC120 and at less extent HSB159 and HSB161, confirmed their good adaptation and high potential.



Graph 1: Brix degree (%) and juice amount per stem (ml) of 8 new sweet sorghum hybrids compared to a commercial check Sucro 506, Montpellier Summer 2013



Graph 2: Sugar yields of best promising sweet sorghum hybrids evaluated at Montpellier in comparison with to the commercial variety Sucro 506, respectively in summer 2012 (above) and summer 2013 (below).