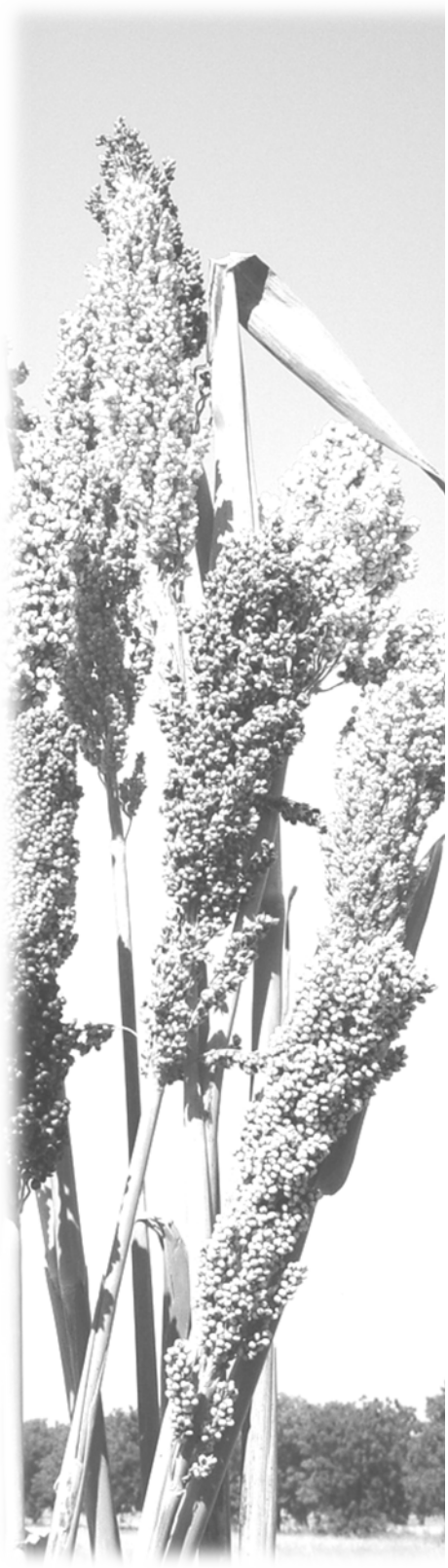
**Seventh framework programme**
**Food, Agriculture and Fisheries, and Biotechnology**

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

Sweet Fuel

# Sweet Sorghum
# an alternative energy Crop



**Grant Agreement n° 227422**

## WP3
## Deliverable 3.8:

*Ten sweet sorghum varieties (R-lines) with Al tolerance identified for use as varieties or in hybrid production*

Composition of the consortium

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

The seven sorghum R-lines listed in the following table are potential cultivars or male parents (R-lines) of experimental hybrids with tolerance to Al toxicity.

We also expect that 50% of the R-lines being developed from crosses with Brandes will also be Al tolerant. We plan to phenotype 225 RILs (Brandes x Wray) for tolerance to Al toxicity in 2012.

We conducted an experiment in the 2010/2011 rainy season at the Al Phenotyping Site for performance at 40% Al saturation with 10 sweet sorghum cultivars contrasting for Al tolerance. However, there was heavy rainfall at the end of the cycle, which caused great environmental effect and prevented the collection of data. This experiment is being conducted again this rainy season 2011/2012 at two levels of Al saturation (0 to 40%).

**Table 1. Seedling root growth at 27 µM Al of seven sweet sorghum R-lines**

| Pedigree | Average daily growth* 1-3 days | Average daily growth* 3-5 days | Average daily growth* 5-7 days | Average growth 1-5 days | Average growth 1-7 days | Average relative** growth 1-5d | Média relative** growth 1-7d |
|---|---|---|---|---|---|---|---|
| **CMSXS647** | 12,3 | 14,2 | 11,2 | 65,4 | 87,8 | 249,4 | 332,8 |
| **CMSXS 604** | 5,6 | 3,9 | 10,0 | 24,7 | 44,7 | 48,9 | 91,8 |
| **BRANDES** | 8,9 | 10,3 | 8,3 | 47,3 | 63,9 | 85,8 | 115,5 |
| **CMSXS639** | 3,8 | 3,1 | 1,4 | 17,6 | 20,4 | 101,7 | 112,0 |
| **CMSXS646** | 4,1 | 4,9 | 1,3 | 22,0 | 24,5 | 83,2 | 92,2 |
| **CMSXS626** | 2,0 | 2,5 | 1,2 | 11,0 | 13,4 | 23,5 | 28,3 |
| **BR 503 (Theis)** | **NA** | | | | | | |
| **Tolerant Control** | **5,2** | **5,8** | **5,1** | **27,3** | **37,4** | **65,2** | **88,9** |
| **Susceptible Control** | **1,5** | **0,4** | **0,5** | **5,4** | **6,3** | **18,3** | **21,5** |

* growth mm ** Growth relative to initial root length day zero