

## EXPLOITABLE FOREGROUND

### Perspectives for farmers to harvest and in-field store sweet sorghum juice and bagasse

#### Explanation and Purpose

The definition of appropriate harvesting methods and storage techniques for maximizing ethanol production directly from sweet sorghum juice or from structural sugars has the potential to ensure economic benefits to sweet sorghum farmers.

Currently, however, the development of such technologies in European temperate climates, where sweet sorghum is a relatively new crop, is limited. Determining low cost and efficient processing systems would allow to harvest and store directly within the farm installations sweet sorghum juice as un-distilled ethanol and the remaining bagasse as ensiled material for further processing.

It was demonstrated that harvesting around the hard dough stage and defoliating the plants before juice extraction result in higher ethanol yields. Moreover, the use of fructophilic yeast types allows maximizing un-distilled ethanol yields and storing it for about one year without spoilage damages. Finally, the energetic conservation properties of ensiled bagasse can be improved by inoculation with a mixture of lactobacillus bacteria.

#### Exploitation Strategy

The extrapolation of these results to real farmers' conditions could further increase the potential expansion of sweet sorghum cultivation into non-traditional areas.

#### Further Research

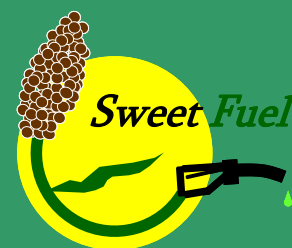
Further research is needed on more efficient ways of extracting the juice, on triggering the yeast fermentation of sugars without any process control into ethanol immediately after the harvest, and on storing the remaining bagasse.

#### Impact of Exploitation

Small/medium scale farmers could easily apply these simplified harvest and storage methods without the need of specialized knowledge and/or costly equipment.

## SWEETFUEL

### Sweet Sorghum: an alternative energy crop



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