WP6
Environmental Impact Assessment
and
Life Cycle Analysis of kenaf production and use

Partners

UniNOVA, Portugal (7)

INRA, France (11)

Start month: 12th – 1st March 2004

End month: 39th – 31st May 2006

Energy crops

+ Renewable Sources of Energy

+ Use of set aside land or derelict land

  → Limiting erosion risks

+ Positive Carbon Balance

  → Reduction of greenhouse gas emissions

+ Low sulphur content

  → Reduction of acidifying gas emissions

Land intensive (monoculture)

→ Water pollution (NO_3^-, PO_4^{3-}, pesticides)

→ Danger of reducing the Biodiversity

Aim of the Work:

To compare the ecological sustainability of production and use of kenaf in southern European regions

To compare the ecological sustainability of kenaf in southern European regions with the sustainability of other crops and of other energy sources

Milestones:

-Environmental impact assessment covering the whole production chain of kenaf

-Life cycle analysis considering the potential of kenaf as a biofuel for thermochemical conversion processes (combustion, gasification, pyrolisis). LFA considering other uses, can also be studied.

-Scenarios for alternative land use in agriculture regions of south EU.

Ecological criteria to be considered

- Net avoided use of fossil energy
- Net avoided emission of greenhouse gases
- Net emission of acidifying gases
- Emission of ozone depleting gases
- Emission of nitrogen and other nutrients/minerals to soil and water
- Emission of pesticides
- Erosion
- Groundwater depletion
- Use of resources
- Waste production and utilisation

Requirements to the consortium

Partners from WP2, Adaptability and Productivity Trials

Partners that should provide information:

- CRES, Greece
- UCTA, Italy
- UTHESSA, Greece,
- CETA, Italy
- INIA, Spain
- UNL, Portugal
- UBLG, Italy
- INRA, France

→ Each partner has to fill in an Excel file, for each type of field trial

example: one excel file for field $S_1V_1D_1$ (average results from the 3 fields). Another for $S_1V_1D_2$, etc...

→ This information should be provided, every year, after the final harvest.

→ The Excel file was already sent to every partner, but it will be send again with some changes

Information needed:

1) Name of the Participant

2) **Site details:**

- -Location
- -Latitute
- -Longitude
- -Altitude
- -Situation of experimental fields
- -Remarks:

If it is near a road, a motorway, in na urban, industrial or rural area, etc.

3)

Description of the field:

-N input (kg.ha^{-1})

-P input (kg.ha^{-1})

-K input (kg.ha^{-1})

} also, type of fertilizer used

-Pesticides (kg.ha^{-1})

amount per group (herbicides, fungicides, insecticides and other pesticides)

-Irrigation (%PET)

-Sowing date

-Harvest date

-Variety

-Density of plantation (plants.ha^{-1})

-Productivity (t.ha^{-1})

4)

Plants:

-% N in the whole plant

-% P in the whole plant

-% K in the whole plant

if possible

5)

Soils:

-% N in soil at harvest

-% P in soil at harvest

-% K in soil at harvest

if possible

6)

Meteorological data

total precipitation (mm) per month

Partners:

ATO, BTG

Utilisation of Kenaf for industrial products and energy

Provide information on waste products and by products formed during the conversion route.

The most important waste product is the ash that is left over after gasification or combustion

Provide information on

- **(-)** ← **disposal**
- **(+)** **reduction**, **recuperation**, **reuse**, **recycle**

of those waste and by-products