

# **BIOKENAF**

## **WP7 - Economic Analysis of the Crop Production Chain**

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# Bio-Renewables Ltd

## Key areas of activity

- Commercial energy cropping (SRC & grasses)
- Research (applied & strategic)
- Consultancy & feasibility studies
- Heat & power unit project development
- Crop breeding
- Propagule supply

# Objectives

1. **Economic assessment of the whole production chain from establishment, maintenance through to harvest and delivery**
2. **Compare Kenaf to conventional crops in the south EU region**

# Methodology

- As described by Bullard in *'Miscanthus for energy and fibre'*
- Discounted net and gross margins expressed as Net Present Value (NPV) and Annual Equivalent Value (AEV)
- Break-even costs determined (price needed to offset production costs amortised over life span of the crop)

# Methodology

- Average farm fixed costs taken from EU data for each member state for an 'average' size farm.
- Determine if farm fixed costs change with the production of Kenaf
  - e.g. general labour, overheads, rent
- Calculated annually for a period of 20 years
- Country by country basis
- Excel spreadsheet model

# Inputs

## Kenaf

### Determine variable and fixed costs of production

- establishment
- maintenance
- harvesting

### Revenue streams

- industrial end-uses
- biofuels
- subsidies

**Comparison with traditional crops in the region**  
**e.g. cotton, corn, sunflower**

# Costs of Production (1)

## Establishment (WP2):

- seed
- land preparation (ploughing/harrowing)
- herbicide
- fertilisation (sewage sludge?)
- irrigation
- weed control
- sowing

# Costs of Production (2)

## Annual Husbandry(WP2)

- fertilisation
- irrigation
- weed control?

## Harvesting (WP4):

- harvesting method
- transport (fuel/tyres/repairs)
- storage



# Classification of costs

## Production category:

- land
- labour
- machinery
- variable expenses

## Cropping practices:

- establishment
- maintenance
- harvest
- storage
- utilisation

# Revenue

**Identify existing and potential markets, their location and transport costs and revenue (WP5/6)**

- Industrial products
- Biofuels:
  - large scale electricity generator (relate price to that for oil and coal)
  - farm based smaller generating capacity

## **Subsidies:**

- Area payments
- Planting grants
- Tax credits

# Outputs

- **Classify costs by production category and cropping practice**
- **Income at field and factory gate**
- **Gross and net AEV and NPV per ha (EUR)**
- **Income per ton (EUR)**
- **Break even costs**

# Sensitivities

- **Examine opportunities for reducing crop production costs (WP2 and WP3)**
  - e.g. sewage sludge fertiliser
- **Yield per hectare (WP2 and WP3)**
- **Transport distances (WP4,5,6)**
- **Income per tonne (WP5 and WP6)**
- **Labour costs (WP2,4,5,6)**
- **Discount rate**
- **Subsidies**

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