Dipartimento di Scienze Agronomiche Agrochimiche e delle Produzioni Animali Sezione Scienze Agronomiche

Università degli Studi di Catania - ITALY

Scientific Responsible

Prof. Salvatore Foti

Biomass Production Chain and Growth Simulation Model for Kenaf

Kick-off Meeting, Athens 9th-10th April 2003

DACPA SEZIONE SCIENZE AGRONOMICHE **BIOKENAF**
UNCT Università degli Studi di Catania ITALY

Kick-off Meeting, Athens 9th-10th April 2003

WP2 Adaptability and Productivity Field Trials

Task 2.2 Effect of different sowing dates and plant popupaltions on biomass yield

Locality

Piana di Catania c.da Primosole (10 m. s. l.)

Studied factors

a) two sowing dates (1/5/2003; 1/6/2003)
b) two varieties (Tainung 2, Everglandes 41)
c) two plant densities (200,000, 300,000 plants ha^{-1})

Kick-off Meeting, Athens 9th-10th April 2003

WP2 Adaptability and Productivity Field Trials

Task 2.3 Effect of irrigation and nitrogen fertilization on biomass yields.

Locality

Piana di Catania c.da Primosole (10 m. s. l.)

Studied factors

a) water supply

I_1 = 30 % of PET;
I_2 = 60 % of PET;
I_3 = 100 % of PET)

b) nitrogen level

N_0 = control
N_1 = 50 kg ha^{-1} of N
N_2 = 100 kg ha^{-1} of N
N_3 = 150 kg ha^{-1} of N

Kick-off Meeting, Athens 9th-10th April 2003

Methodology

Experimental design	split-split-plot
No. of replicates	3
single plot dimension	6 m x 8 m (48 m^2)
irrigation system	drip irrigation

Measurements (*on both subtask 2.2 and 2.3*)

Meteorological

- minimum and maximum temperature
- air umidity
- rainfall
- global radiation
- PAR
- PAR within the canopy at soil level
- daily evapotranspiration by means of a class A evaporimetric pan

Soil measurements (before sowing)

- pH;
- soil particle size (by means of Andreasen instrument);
- soil water retention characteristics (by means of a pressure extractor);
- bulk density;
- organic matter content (Walkley Black)
- P-Olsen content (Olsen)

Phenology

Growth analysis

every 15 days on two meter row, beginning from the plant emergence

- **fresh and dry weight of each part of plant**
- **leaf area of all green leaves**

Agronomic

at plant emergence

- **number of plants m^{-2}**

at the end of the growing season

- **biomass production of the whole plot**
- **yield components**

Measurements on subtask 2.3

Physiological (periodically)

- water potential
- leaf transpiration
- stomatal resistance
- canopy temperature
- photosyntesis by means of gas analyzer

Soil water balance

In order to compute the soil water balance, at different depth, before sowing and at harvest soil water content will be measured

- by means gravimetric method
- by means gypsum blocks

Moreover will be measured

- **total nitrogen content of each single part of plant (by means Kjeldahl method)**
- **nitrates content**

  (on samples of the water solution collected by microlysimeters 30, 60, 90 cm deep located, by means of spectrophotometer method)

- **ammonia volatilisation from soil**

  (trapping the gas soil by means of hermetic cylinders inserted in the soil and provided of a polyfoam sorption pad satured with H_3PO_4 and glycerine)