

BIOKENAF

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Biomass Production Chain and Growth Simulation Model for Kenaf

INSTITUTO NACIONAL DE INVESTIGACIÓN Y
TECNOLOGÍA AGRARIA Y ALIMENTARIA (INIA)

DPTO. MEDIO AMBIENTE

ALCALA DE HENARES, MADRID, SPAIN

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Scientific Team

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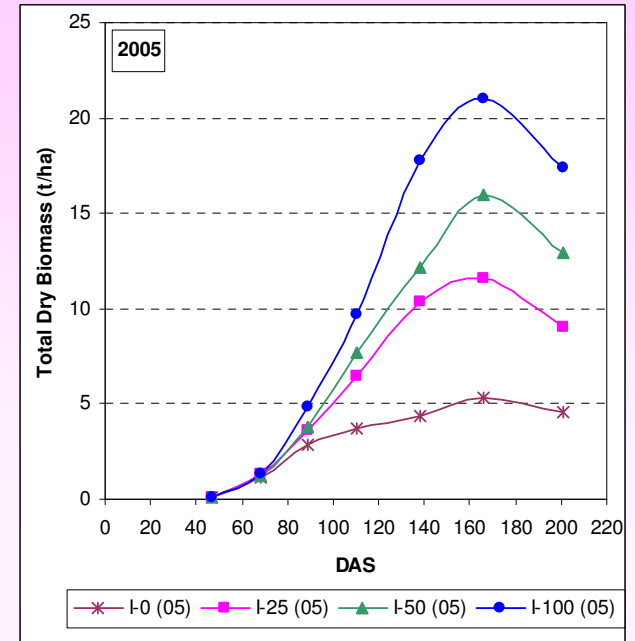
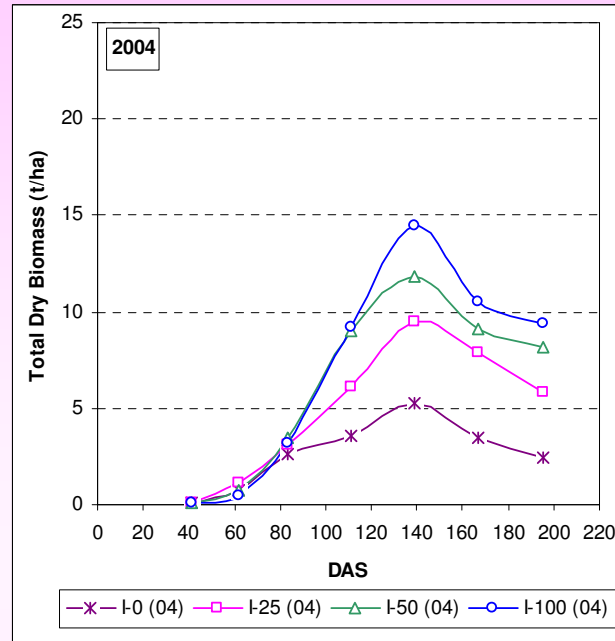
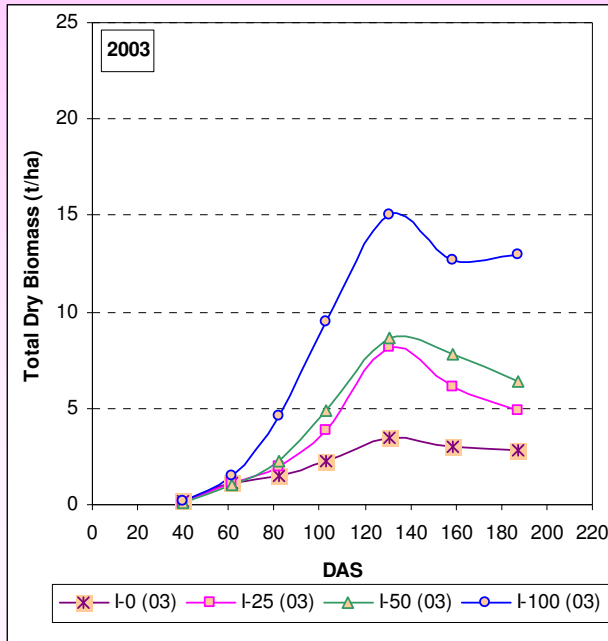
Task 2.3: Effect of irrigation and
nitrogen fertilization on biomass yields

SIDT

Junta de Extremadura
Finca "La Orden",
Guadajira, Badajoz

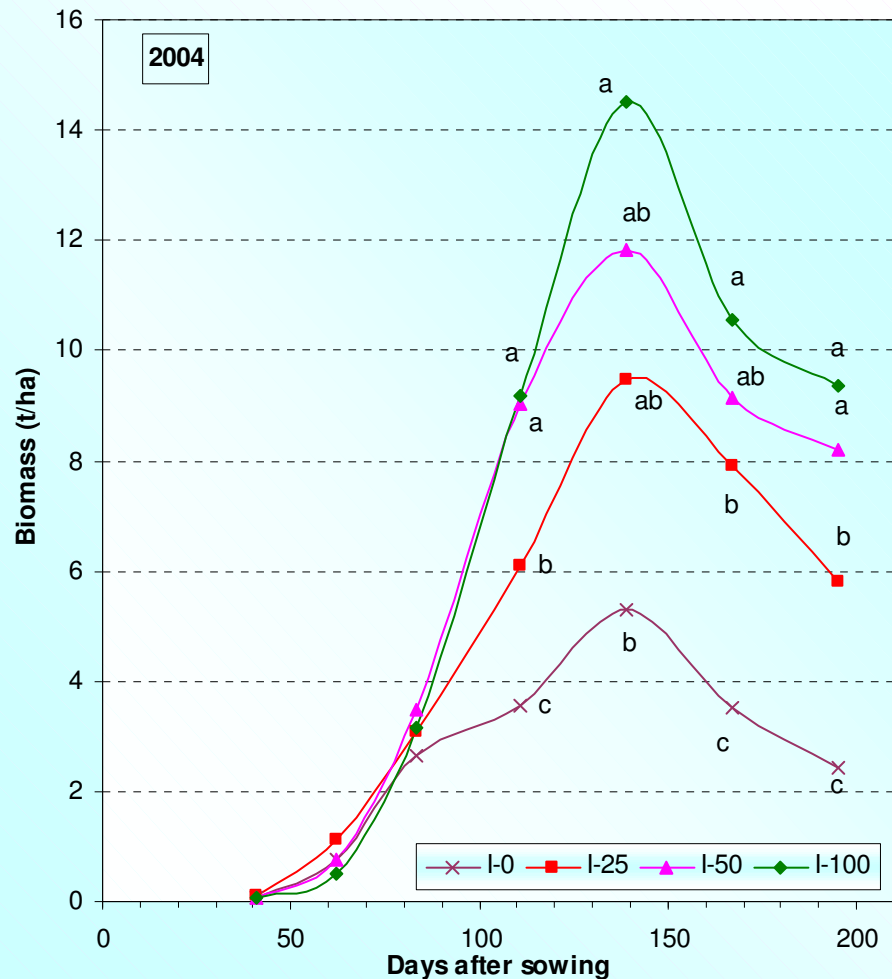
Task 2.2: Effect of different
sowing dates and plant population
on biomass yields

Results of three years (Alcalá de Henares, Madrid, Spain).

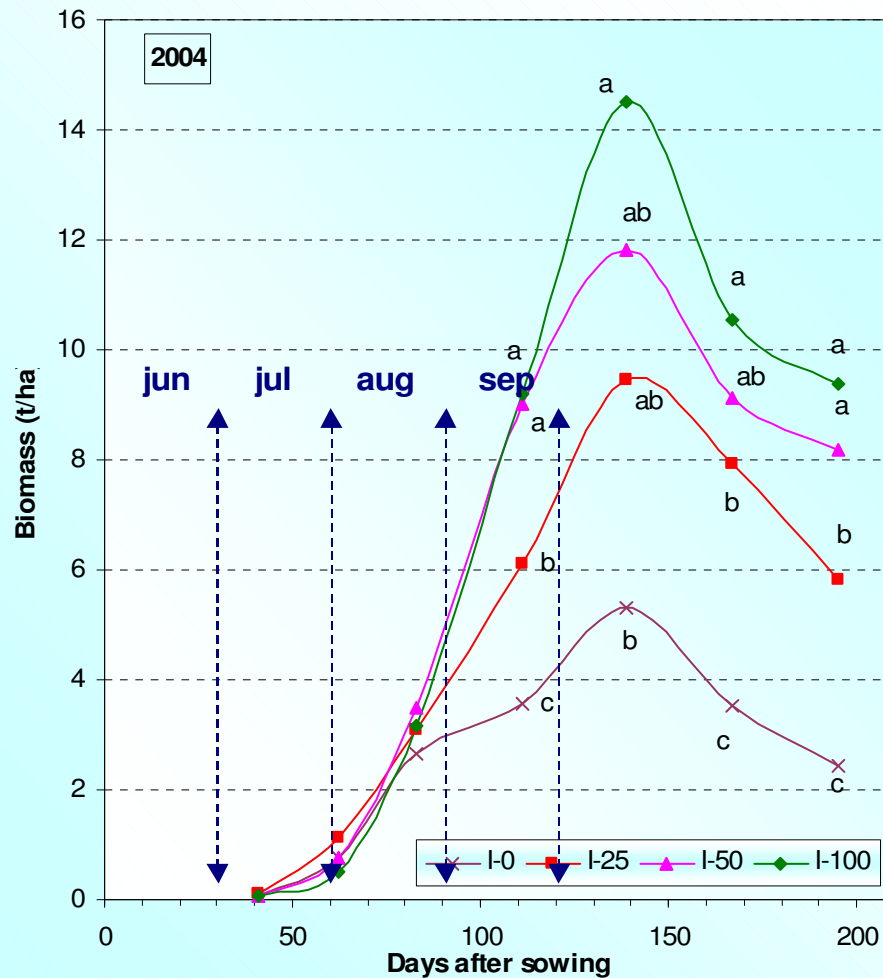


DAS: days after sowing.

- Kenaf dry yields of 15 t/ha in total biomass and 10 t/ha in stem biomass may be obtainable under normal conditions in central plateau of Spain, but in optimal conditions 21 t/ha in total biomass and 15 t/ha in stem biomass may be obtainable
- The maximum kenaf yield was obtained at the end of october (140-150 DAS in normal conditions and 170 DAS in optimal conditions).
- The irrigation treatment significantly affected to kenaf biomass production. The biomass production of kenaf was reduced significantly in I-0, I-25, and I-50 treatments, when compared with I-100 treatment.



- The reduction of water amount significantly decreased the production of plant kenaf biomass in our climatic conditions
- The kenaf production was highly employee of a great water consumption

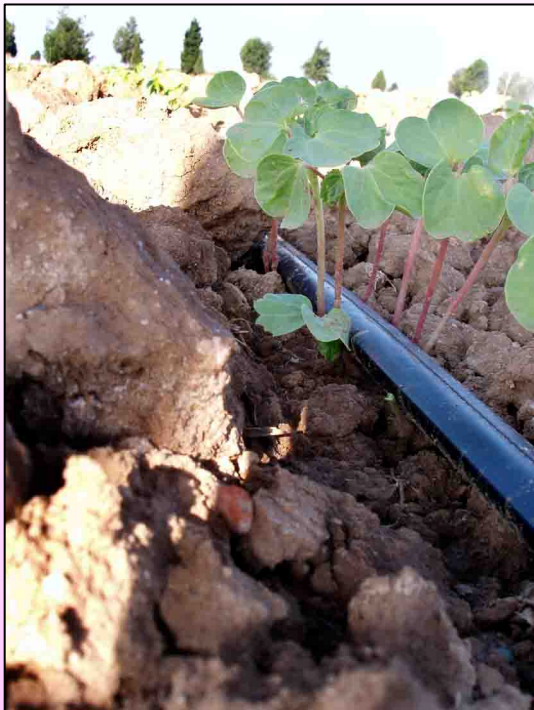


- The biomass production rate was different in diverse periods from the cycle of kenaf growth
- Thus, the use of regulated deficit irrigation strategies in specific growing periods of kenaf crop may be investigated in order to optimise the water inputs without to reduce the biomass production

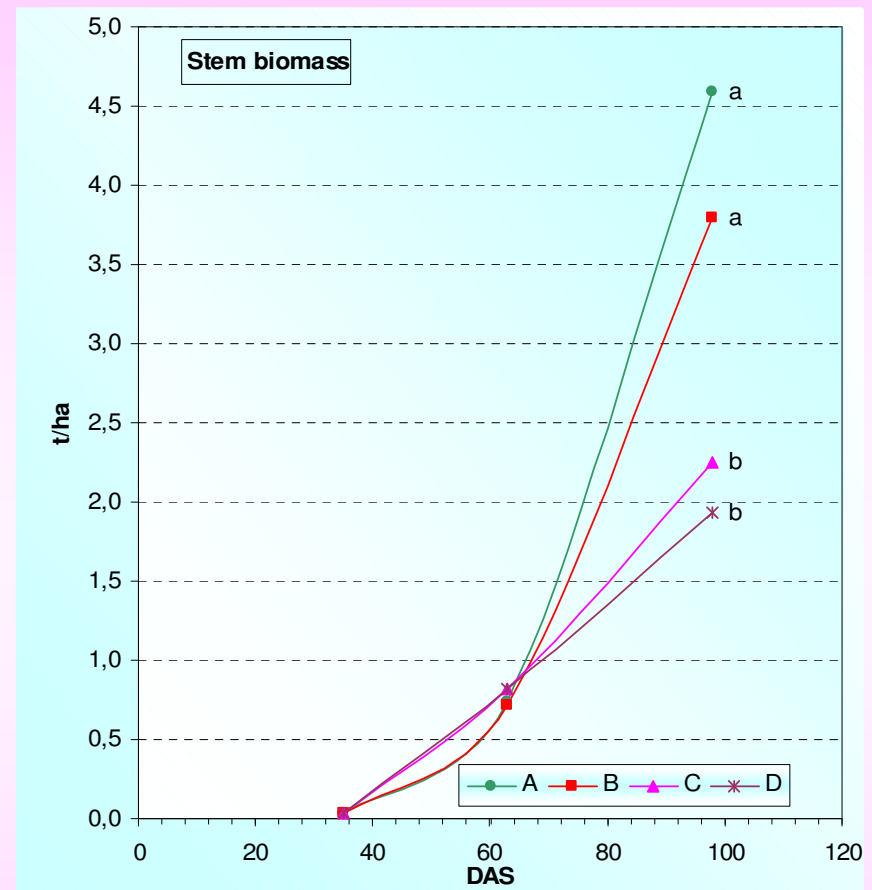
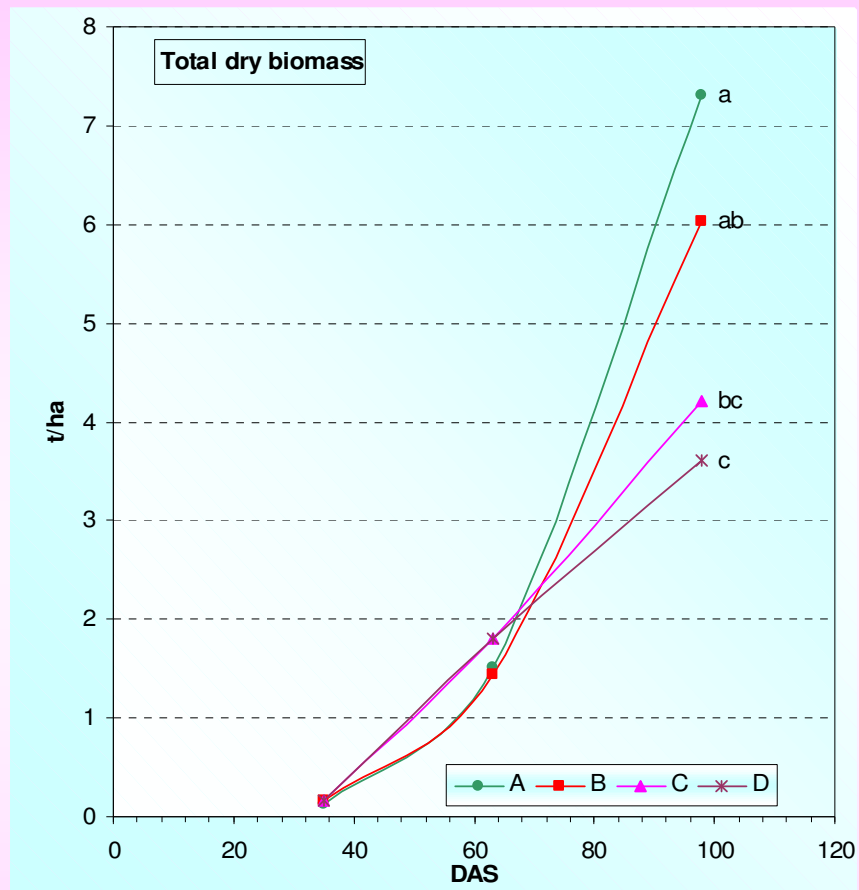
Essays in 2006: Deficit Irrigation

- kenaf variety: Tainung 2
- sowing date: 30/05/2006
- plant density: 200000 plants/ha

IRRIGATION TREATMENTS		JUN	JUL	AGO	SEP
A	100-100-100-100	100 % ETP	100 % ETP	100 % ETP	100 % ETP
B	25-50-100-100	25 % ETP	50 % ETP	100 % ETP	100 % ETP
C	25-25-50-100	25 % ETP	25 % ETP	50 % ETP	100 % ETP
D	25-25-25-100	25 % ETP	25 % ETP	25 % ETP	100 % ETP



IRRIGATION TREATMENTS		JUN	JUL	AGO	SEP
A	100-100-100-100	100 % ETP	100 % ETP	100 % ETP	100 % ETP
B	25-50-100-100	25 % ETP	50 % ETP	100 % ETP	100 % ETP
C	25-25-50-100	25 % ETP	25 % ETP	50 % ETP	100 % ETP
D	25-25-25-100	25 % ETP	25 % ETP	25 % ETP	100 % ETP



- In the A and B irrigation treatments the biomass production was similar, but with treatment B a saving of 36 % of used water was obtained

- Kenaf dry yields of 18-20 t/ha in stem biomass may be obtainable under normal conditions in Extremadura, Southwestern Spain.
 - The maximum kenaf yield was obtained at the end of october (140-150 DAS in normal conditions and 170 DAS in optimal conditions).
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- Kenaf field trials. The harvest tests carried out with a forage chopper and a baling machine have been satisfactory, allowing by means of this method to make a correct harvest of the kenaf stems.