Biomass Production Chain and Growth Simulation Model for Kenaf

QLK5-CT-2002-01729

acronym: BIOKENAF

University of Thessaly (UTH)

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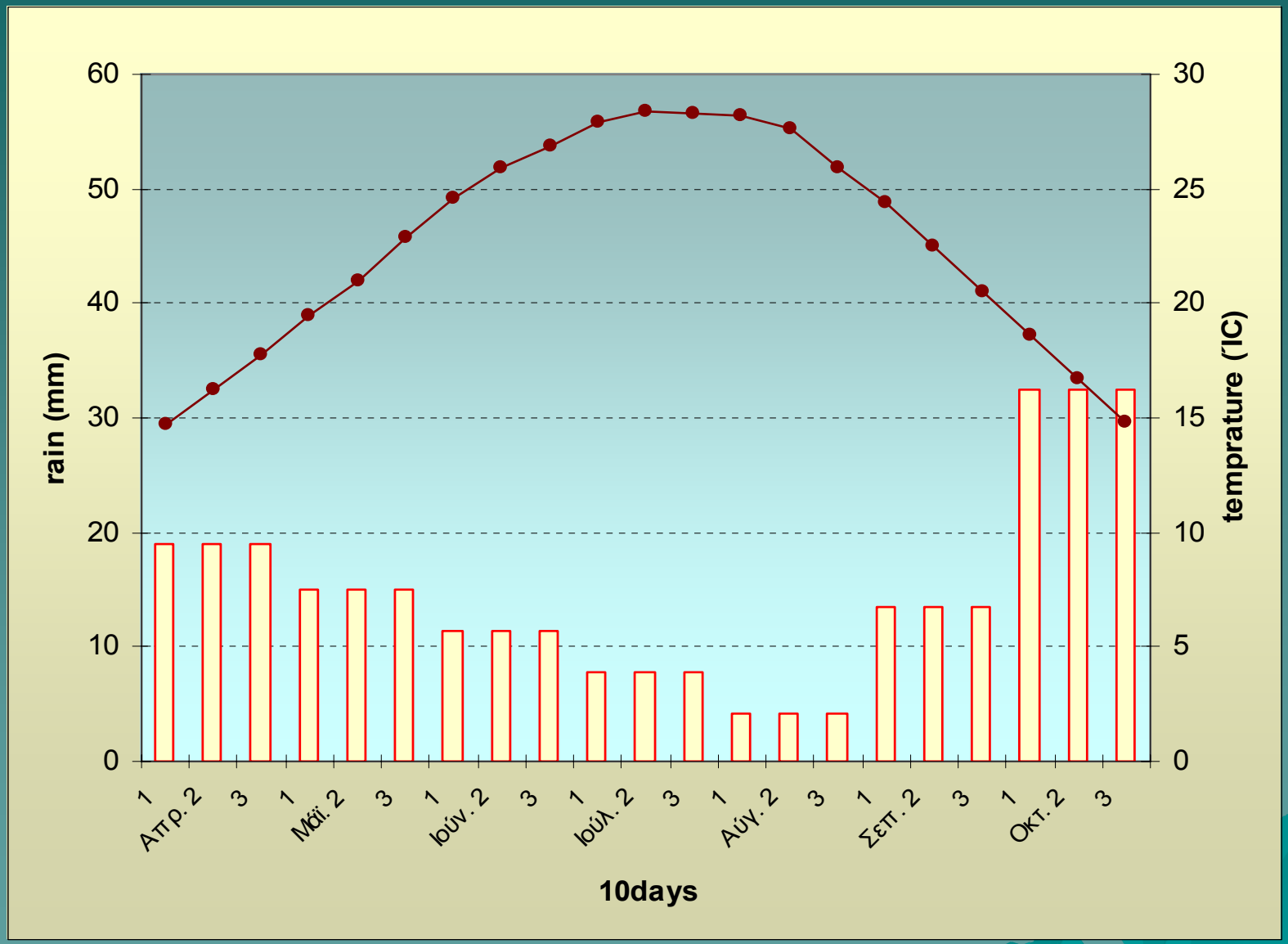
field experiments

tasks 2.2 & 2.3


ΚΟΖΑΝΗ
Κοζάνη
ΠΙΕΡΙΑ
Κατερίνη
ΜΑΚΕΔΟΝΙΑ
Γρεβενά
ΓΡΕΒΕΝΑ
ΛΑΡΙΣΑ
ΤΡΙΚΑΛΑ
Λάρισα
Τρίκαλα
ΘΕΣΣΑΛΙΑ
ΚΑΡΔΙΤΣΑ
Βόλος
Καρδίτσα
ΑΡΤΑ
ΜΑΓΝΗΣΙΑ
ΕΥΡΥΤΑΝΙΑ
ΣΤΕΡΕΑ ΕΛΛΑΔΑ
ΦΘΙΩΤΙΔΑ
Καρπενήσι
Λαμία
ΕΥΒΟΙΑ
ΑΙΤΩΛΟΑΚΑΡΝΑΝΙΑ
ΦΩΚΙΔΑ

KARDITSA PREFECTURE

Climatic conditions



Experiment I

- factorial 3 x 4 split-plot design in 3 blocks
- plot size: 6 m x 8 m (48 m^2)

Factors :

3 irrigations:

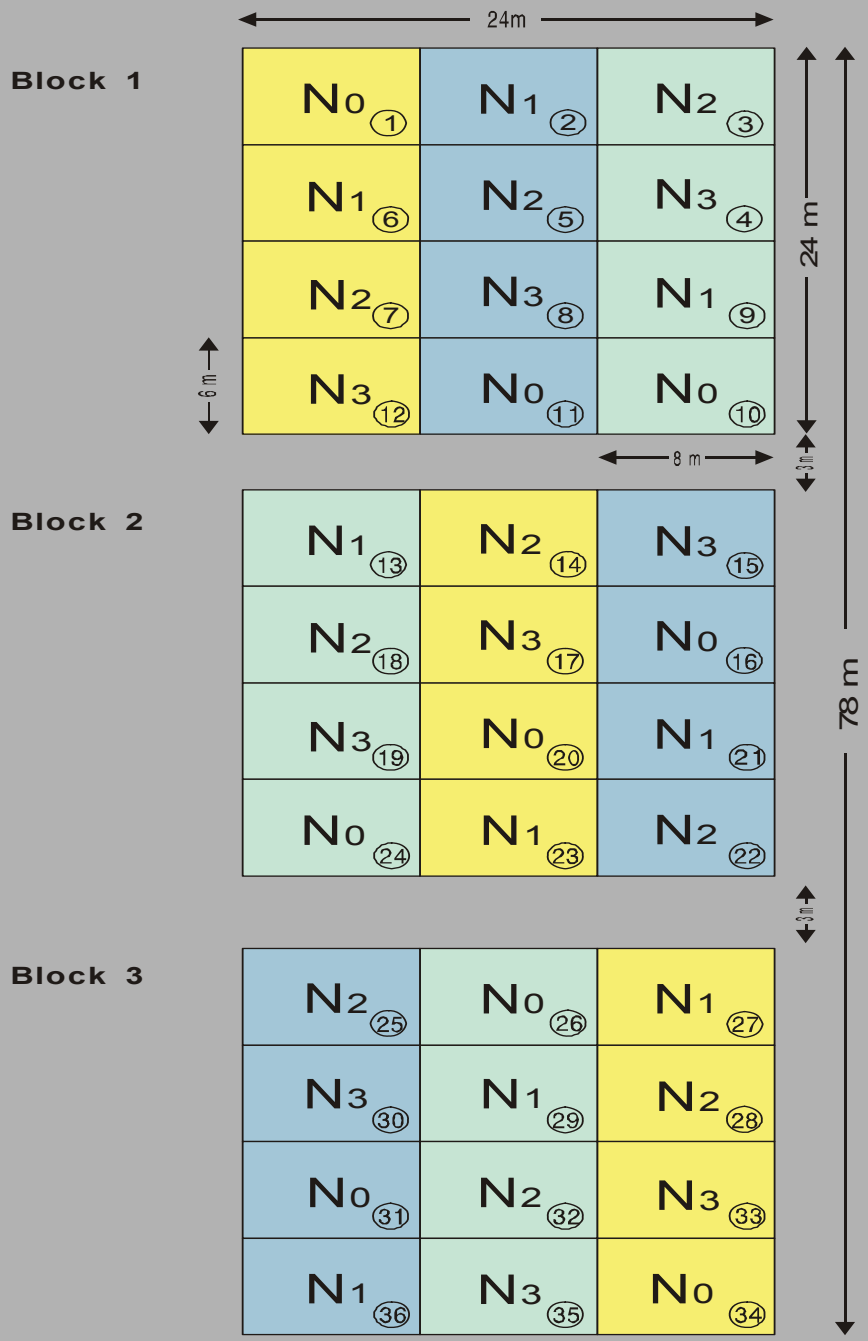
I_1: 1/3 of PET
I_2: 2/3 of PET
I_3: 3/3 of PET

4 fertilizations:

N_o: 0 N-fertilization
N_1: 50 kg N / ha
N_2: 100 kg N /ha
N_3: 150 kg N / ha

Analysis of variance table

Source	Degrees of freedom
Replication	2
Irrigation	2
Error 1	4
Fertilization	3
F * I	6
Error	18
Total	35



I3 = 3/3 of PET

I2 = 2/3 of PET

I1 = 1/3 of PET

N0 = no fertilization

N1 = 50 kg N/ha

N2 = 100 kg N/ha

N3 = 150 kg N/ha

Experiment II

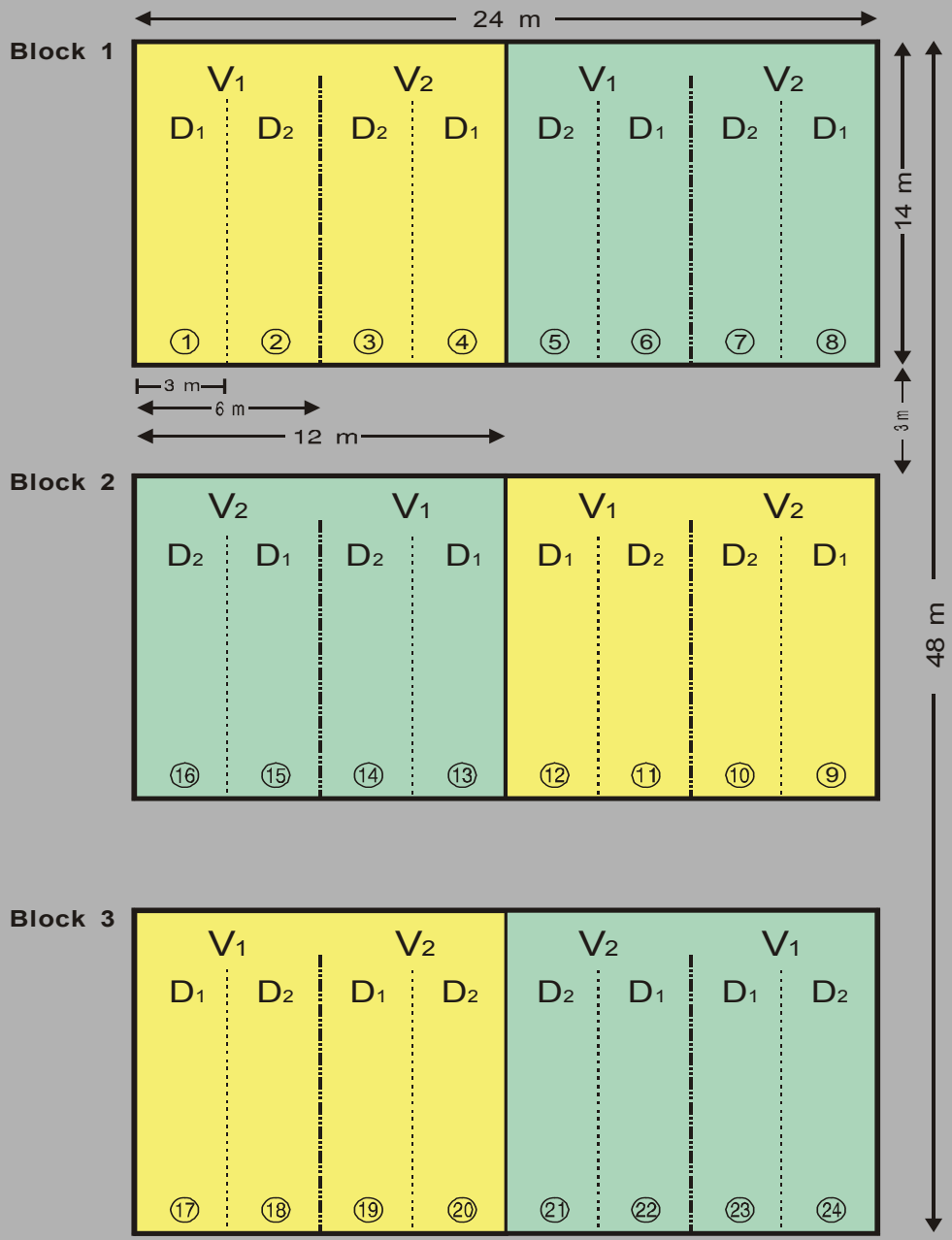
- factorial 2 x 2 x 2 split-split-plot design in 3 blocks
- Plot size: 3 m x 14 m (42 m^2)

Factors:

- 2 sowing dates 15/5
  15/6
- 2 varieties V_1: Tainung 2
  V_2: Everglades 41
- 2 densities D_1: 200,000 pl/ha
  D_2: 400,000 pl/ha

Analysis of variance table

Source	Degrees of freedom
Replication	2
Planting	1
Error 1	2
Variety	1
P * V	1
Error 2	4
density	1
D * P	1
D * V	1
D * V * P	1
Error 3	8
Total	23



S_1 = 15/5

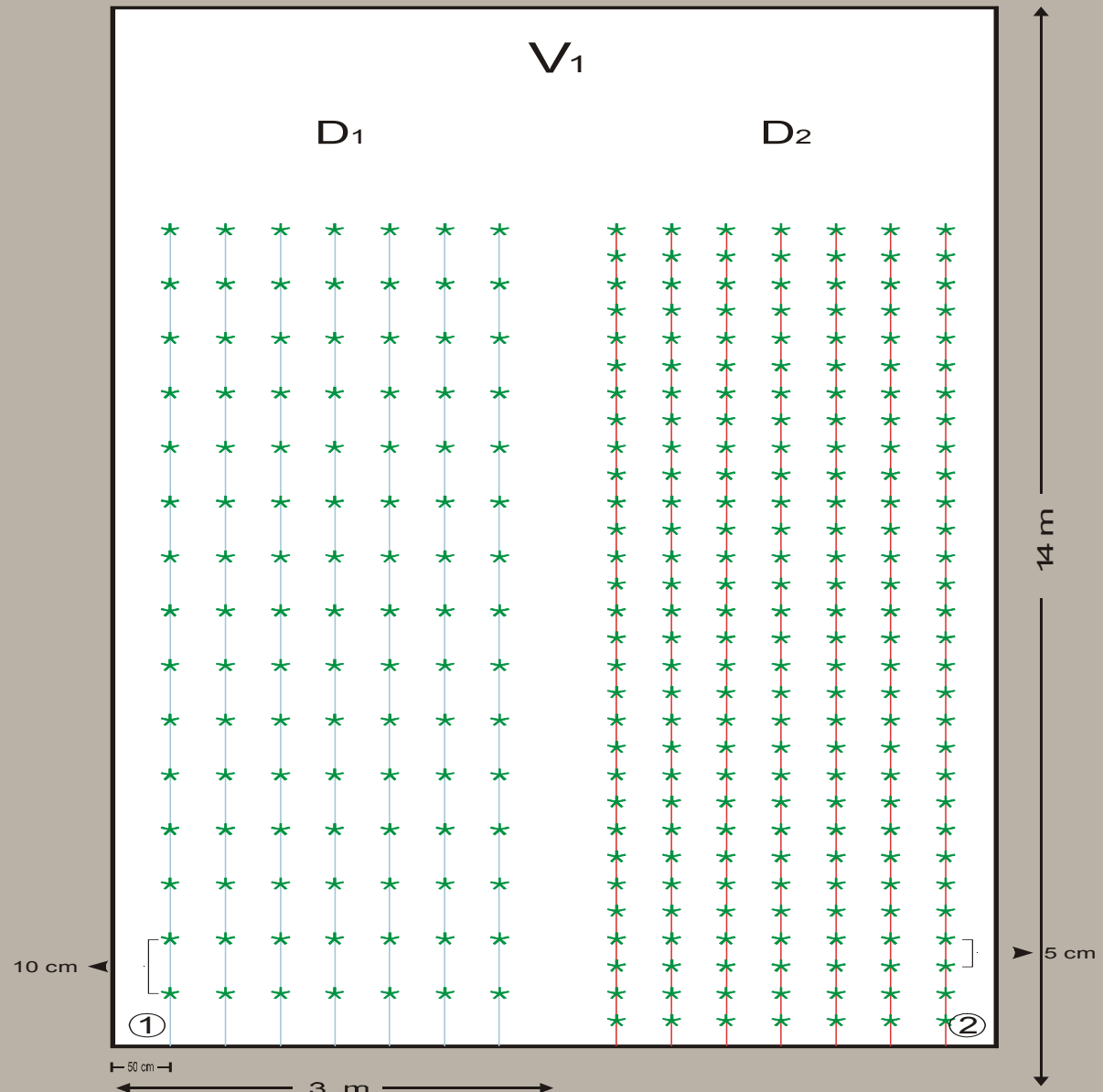
S_2 = 15/6

V_1 = Tainung 2

V_2 = Everglades 41

D_1 = 200,000 pl/ha

D_2 = 400,000 pl/ha


V1
D1
D2
14 m
10 cm
5 cm
1
2
50 cm
3 m
6 m

Measurements

Every 3 weeks

- plant height
- base stem diameter
- fresh weight per plant organ
- dry weight per plant organ
- leaf area index (LAI)
- specific leaf area (SLA, m^2/kg)

totally 8-9 distructing samplings

area sampled: 2 rows x 2 m = 2 m^2

Every day

- Evaporation
- Leaf temperature
- Soil moishure content (not yet)

Every hour

- Temperature ^{O}C
- Radiation w/m^2
- Windspeed m/s
- Rainfall mm
- Humidity %

2-3 times a year

- Soil analysis
- Plant analysis (N,P,K)
- Leaf photosynthesis (not yet)

Other measurements

- 50% emergence
- 50% flowering
- 50% maturation