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Råhavegård

Grønt Center briefly

Increase income and full employment in agriculture and industry

Private foundation

domicile Råhavegård in Holeby:

- ✓ R&D tasks concerning agri-, aquaculture and the processing industry (soil to table)
- ✓ Rural development via clusters and networking
- ✓ Services





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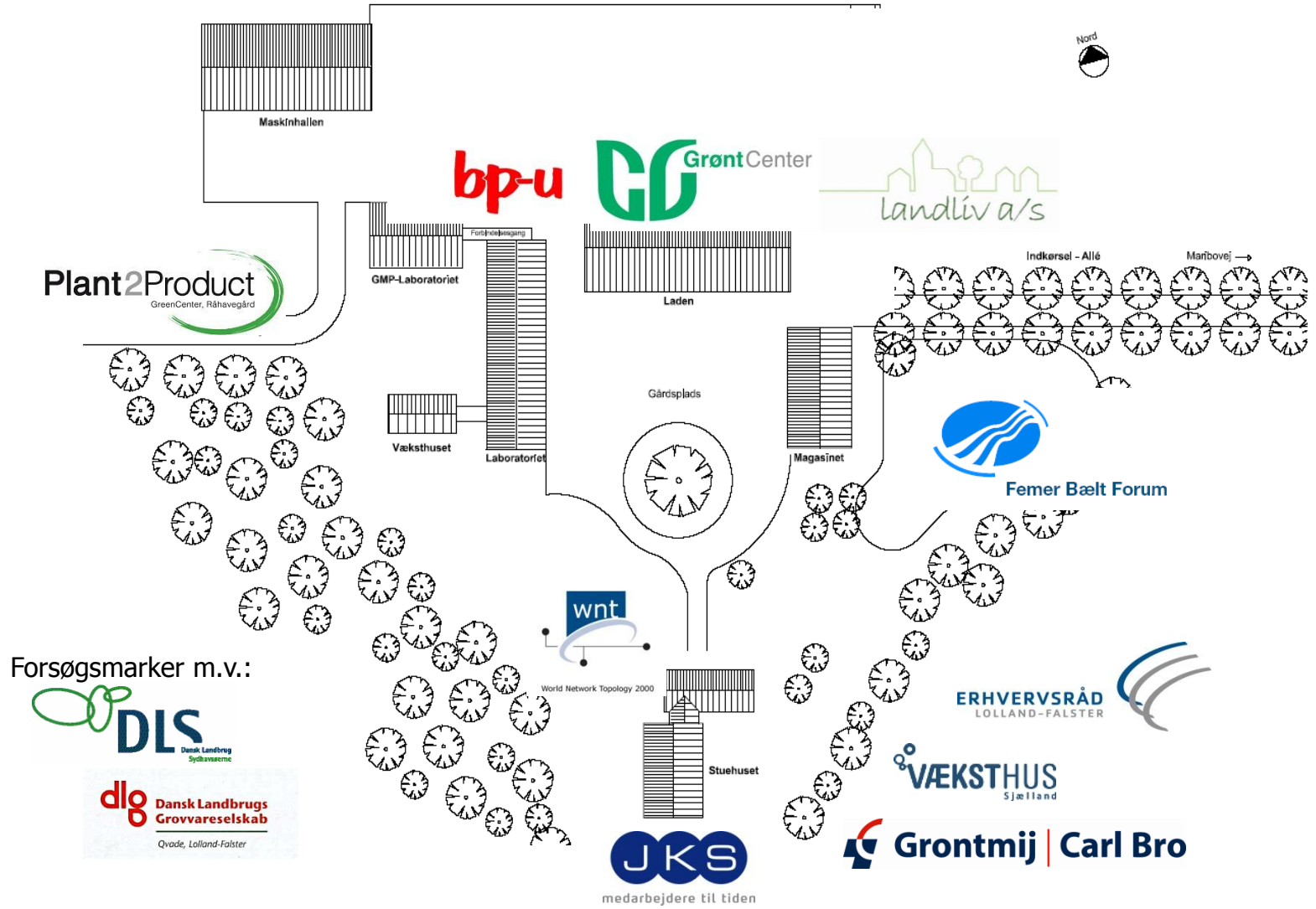

R&D activities on GC

- ✓ New trends
- ✓ New science
- ✓ New technology
- ✓ New biology
- ✓ New ideas
- ✓ Product development

Entrepreneur & Economic life

Network

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Process and application

External competence

Society

BUSINESS DEVELOPMENT





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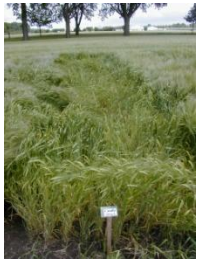
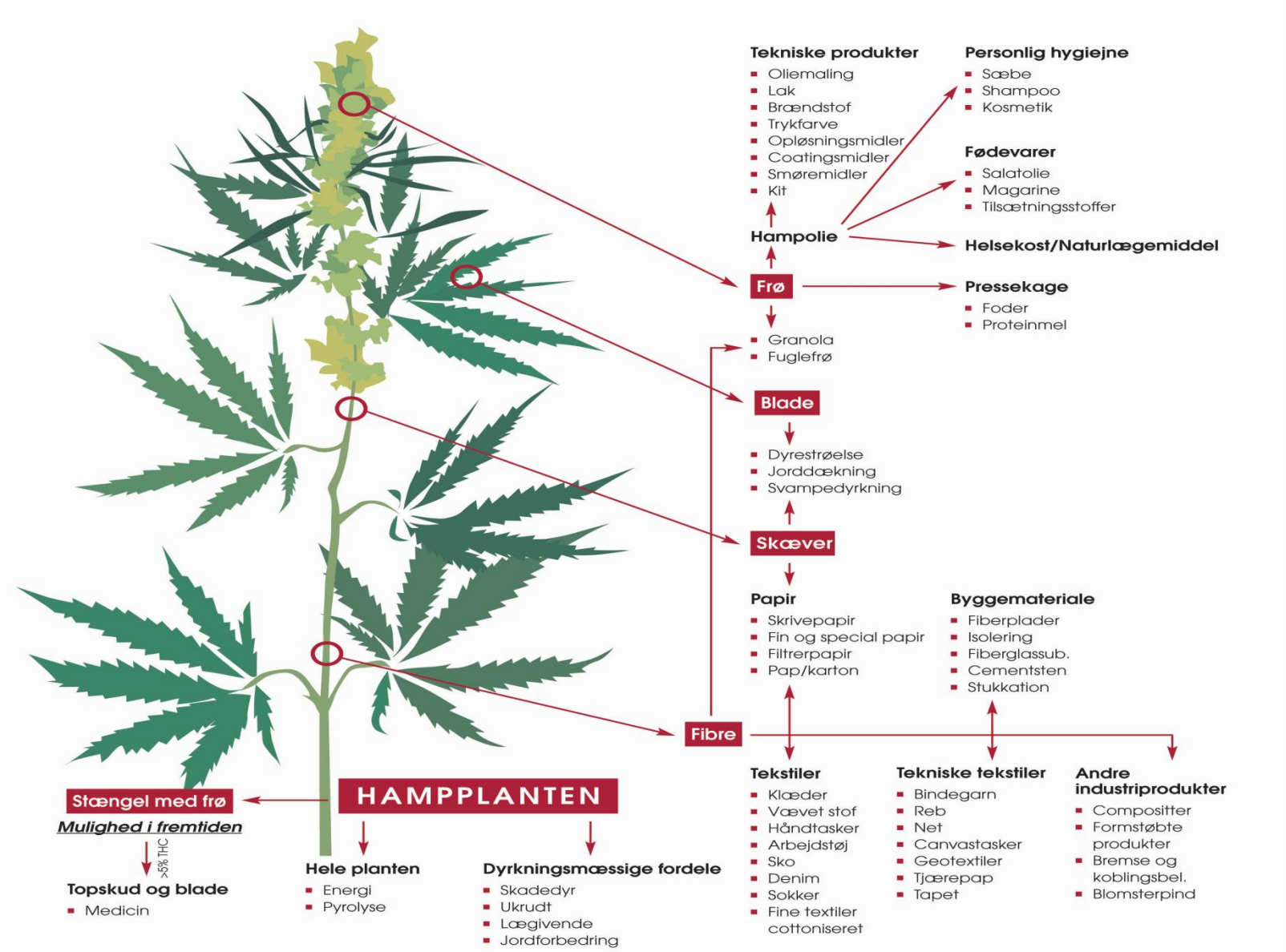
R&D tasks – new productions and cultivation methods

- ✓ Soybeans
- ✓ White Wheat
- ✓ Spelt
- ✓ Waxy barley
- ✓ Ecology(organic) – Rotation cultivation, pests
- ✓ Ginseng and medicinalplants
- ✓ Cluster development
- ✓ Energy crops
- ✓ Environment friendly crops
- ✓ Crops for industrial processing







HAMPPLANTEN
Stængel med frø
Mulighed i fremtiden
>5% THC
Topskud og blade
Medicin
Hele planten
Energi
Pyrolyse
Dyrkningsmæssige fordele
Skadedyr
Ukrudt
Lægivende
Jordforbedring
Frø
Granola
Fuglefrø
Hampolie
Tekniske produkter
Oliemaling
Lak
Brændstof
Trykfarve
Opløsningsmidler
Coatingsmidler
Smøremidler
Kit
Personlig hygiejne
Sæbe
Shampoo
Kosmetik
Fødevarer
Salatolie
Magarine
Tilsætningsstoffer
Helsekost/Naturlægemiddel
Pressekage
Foder
Proteinmel
Blade
Dyrestrøelse
Jorddækning
Svampedyrkning
Skæver
Papir
Skrivepapir
Fin og special papir
Filtrerpapir
Pap/karton
Byggemateriale
Fiberplader
Isolering
Fiberglassub.
Cementsten
Stukkation
Fibre
Tekstiler
Klæder
Vævet stof
Håndtasker
Arbejdstøj
Sko
Denim
Sokker
Fine textiler cottoniseret
Tekniske tekstiler
Bindegarn
Reb
Net
Canvastasker
Geotextiler
Tjærepap
Tapet
Andre industriprodukter
Compositter
Formstøbte produkter
Bremse og koblingsbel.
Blomsterpind

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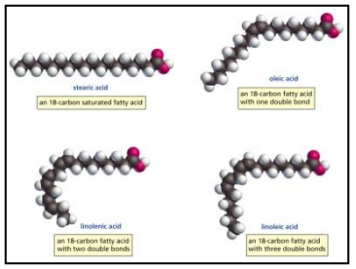
Optimized utilization:

Oilplants

Oil

Biodiesel



Specific fatty acids

Presscake

Bioactive-components

Optimized fodder

Oilpressing

Milling and separation

Filtration

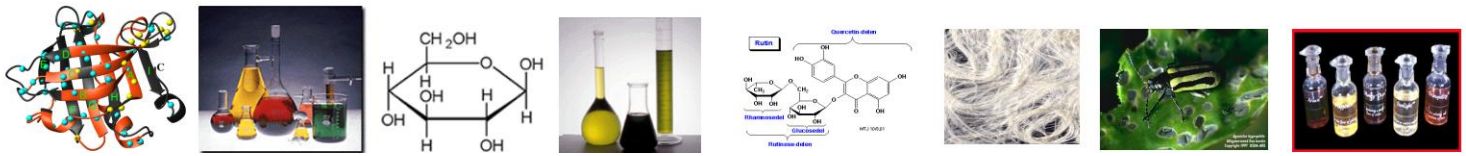
Pilot Plant

Enzymatic modification

Chromatografic separation

Steam extr.

Spray drying



Protein | Dyes | Carbohydrates | Oils | Low molecular constituents | Fiber | Plant protection | Aroma

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We offer R&D tasks for our customers and participation in projects

- ✓ Pilot plant
  - Botanical fractionation and processing of plants for industrial application (protein, oil, aroma, colour etc.)
- ✓ GMP-laboratory
  - Test productions for clinical testing
- ✓ Biorefinery
  - Total plant utilization
- ✓ Chemical analysis





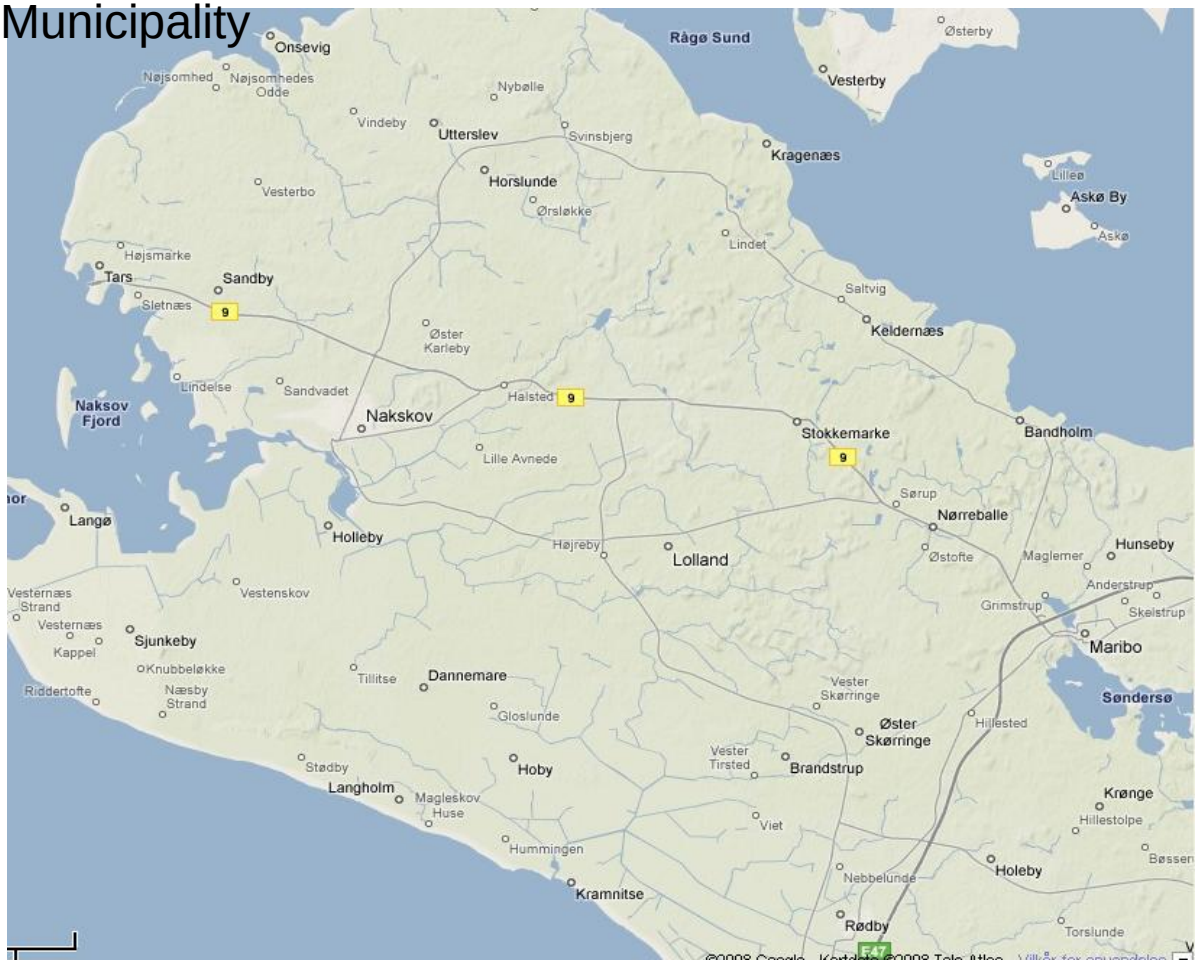

Energy crops

- Cultivation (intensive/extensive)
- Environment /new climate (lysimeter)
- Public demands (CO_2, recreation)
- Aquatic crops (fresh and saline)
- Economy (energy gain)





Natural rivers/streams and coastline in Lolland Municipality



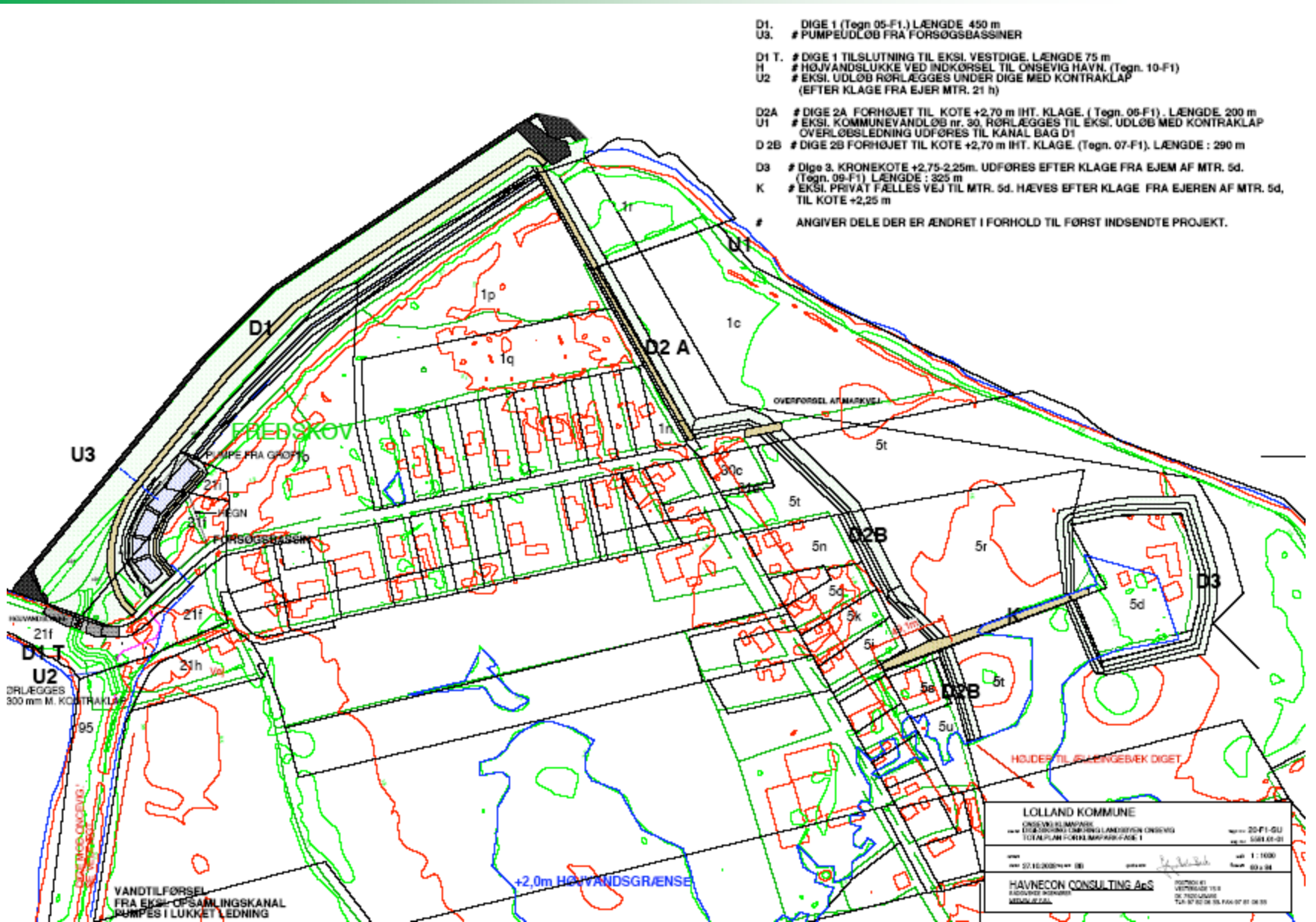
Purpose

- Water
- Energy
- Environment
- CO2
- Nature

Algae utilization

- Medicin
- Health and nutrition
- Food and feeds
- Technical application
- Energy

Onsevig


D1. DIGE 1 (Tegn 05-F1.) LÆNGDE 450 m
U3. # PUMPEUDLØB FRA FORSØGSBASSINER
D1 T. # DIGE 1 TILSLUTNING TIL EKSI. VESTDIGE. LÆNGDE 75 m
H # HØJVANDSLUKKE VED INDKØRSEL TIL ONSEVIG HAVN. (Tegn. 10-F1)
U2 # EKSI. UDLØB RØRLÆGGES UNDER DIGE MED KONTRAKLAP (EFTER KLAGE FRA EJER MTR. 21 h)
D2A # DIGE 2A FORHØJET TIL KOTE +2,70 m IHT. KLAGE. (Tegn. 06-F1) . LÆNGDE 200 m
U1 # EKSI. KOMMUNEVANDLØB nr. 30. RØRLÆGGES TIL EKSI. UDLØB MED KONTRAKLAP OVERLØBSLEDNING UDFØRES TIL KANAL BAG D1
D 2B # DIGE 2B FORHØJET TIL KOTE +2,70 m IHT. KLAGE. (Tegn. 07-F1). LÆNGDE : 290 m
D3 # Dige 3. KRONEKOTE +2,75-2,25m. UDFØRES EFTER KLAGE FRA EJEM AF MTR. 5d. (Tegn. 09-F1) LÆNGDE : 325 m
K # EKSI. PRIVAT FÆLLES VEJ TIL MTR. 5d. HÆVES EFTER KLAGE FRA EJEREN AF MTR. 5d, TIL KOTE +2,25 m
ANGIVER DELE DER ER ÆNDRET I FORHOLD TIL FØRST INDSENDTE PROJEKT.
D1
D2 A
U1
U3
D1 T
U2
D2B
D3
FREDSKOV
FORSØGSBASSIN
+2,0m HØJVANDSGRÆNSE
VANDTILFØRSEL FRA EKSI. OPSAMLINGSKANAL PUMPES I LUKKET LEDNING
LOLLAND KOMMUNE
HAVNECON CONSULTING ApS

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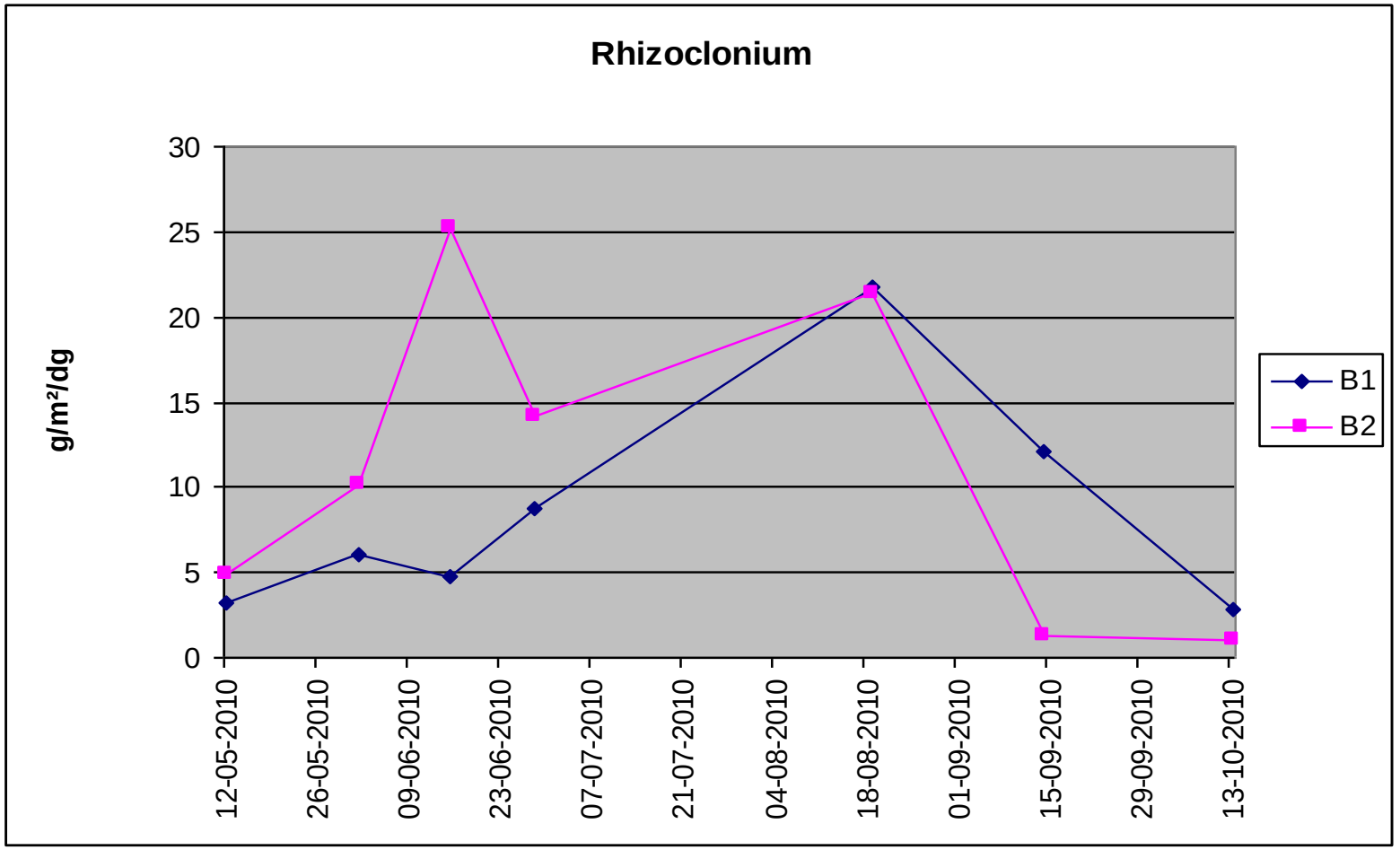
Onsevig

- Algae identification
- Algae cultivation
- Algae harvest
- Algae utilization


Rhizoclonium
g/m²/dg
30
25
20
15
10
5
0
12-05-2010
26-05-2010
09-06-2010
23-06-2010
07-07-2010
21-07-2010
04-08-2010
18-08-2010
01-09-2010
15-09-2010
29-09-2010
13-10-2010
B1
B2

N capture in drainage water

100 mgN/dg/m²

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Biogas production

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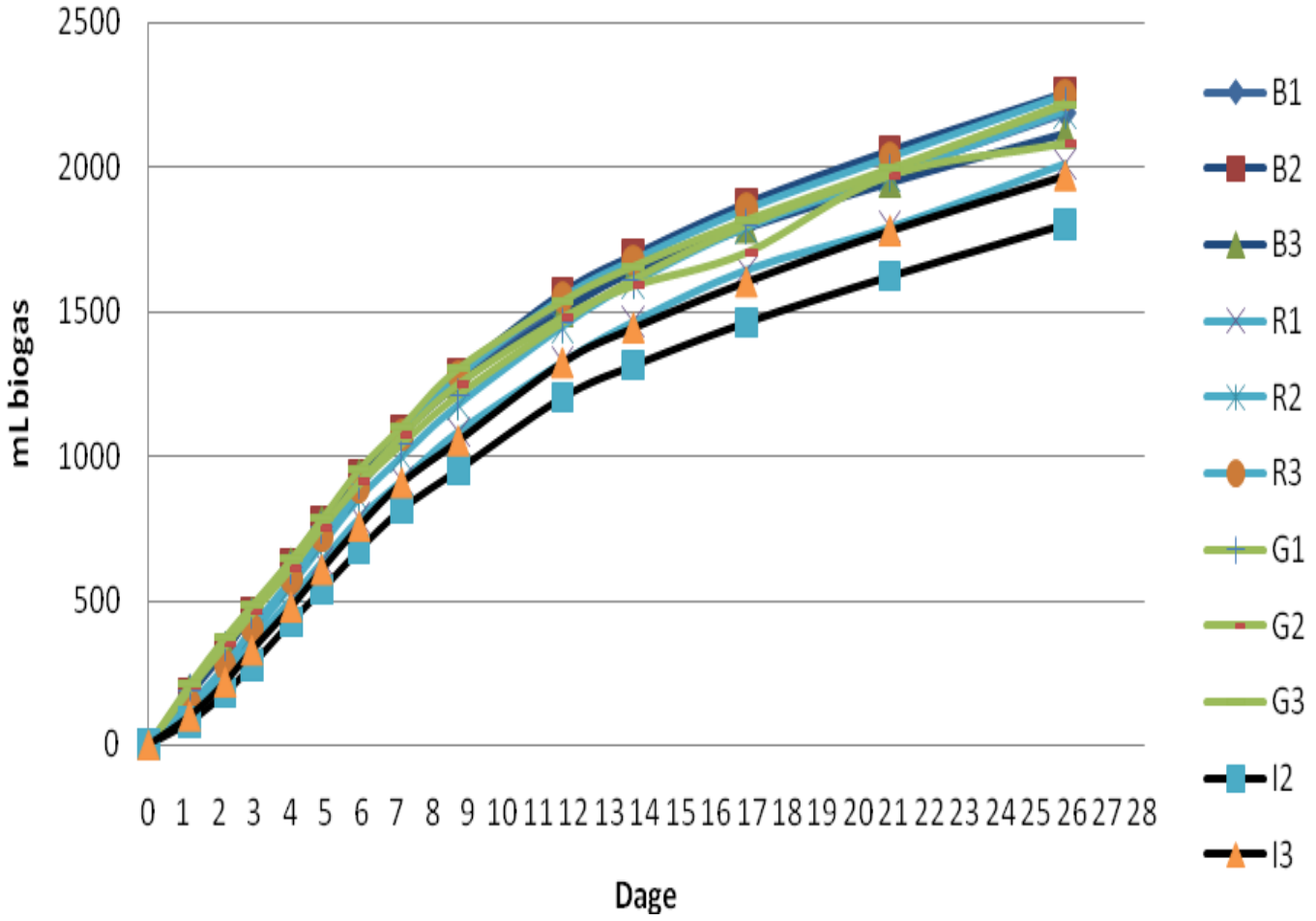
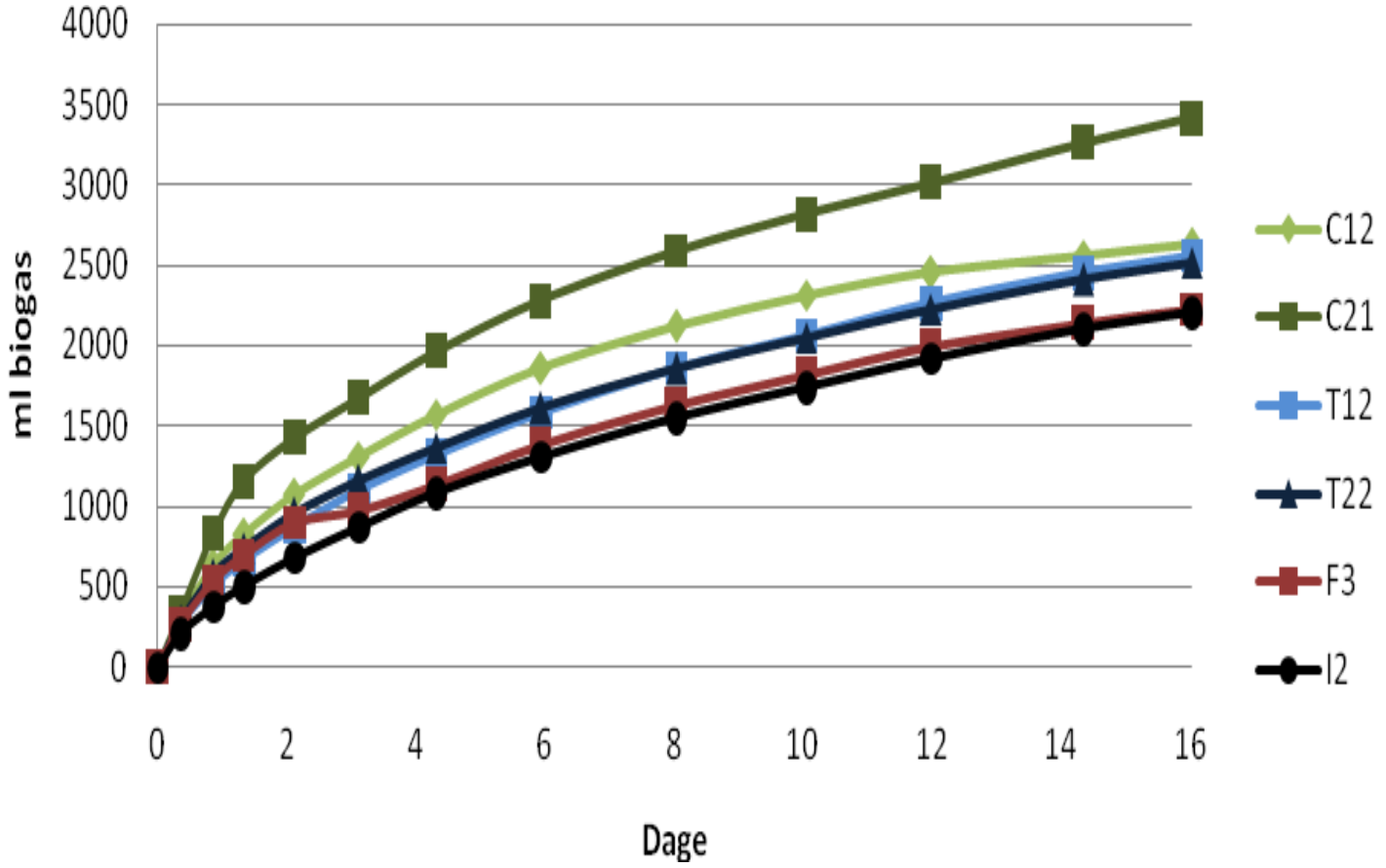


Råhavegård


4000
3500
3000
2500
2000
1500
1000
500
0
ml biogas
0
2
4
6
8
10
12
14
16
Dage
C12
C21
T12
T22
F3
I2

Søllested

- **Wastewater/sewage**
- **CO2**
- **Algae cultivation**

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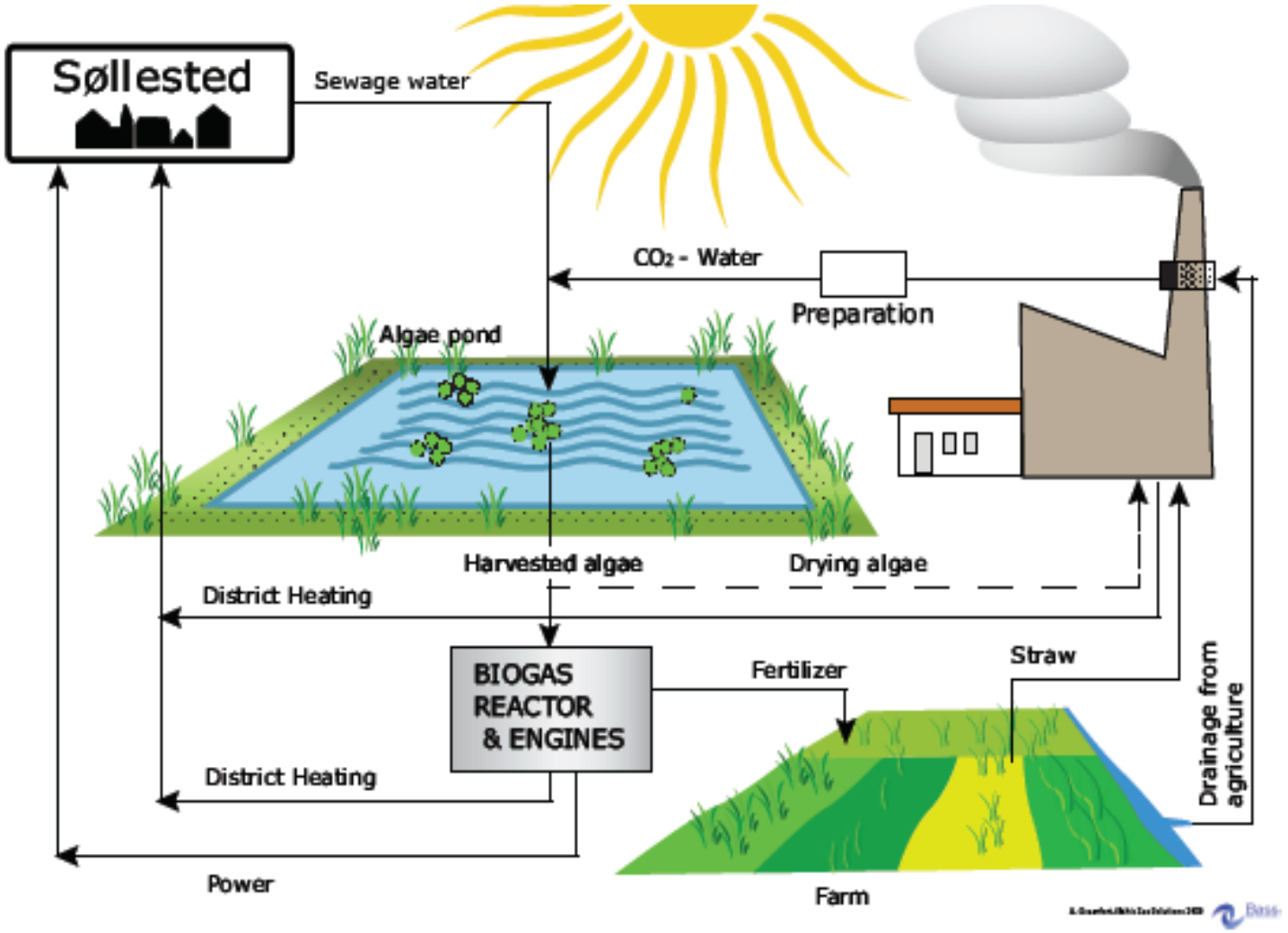

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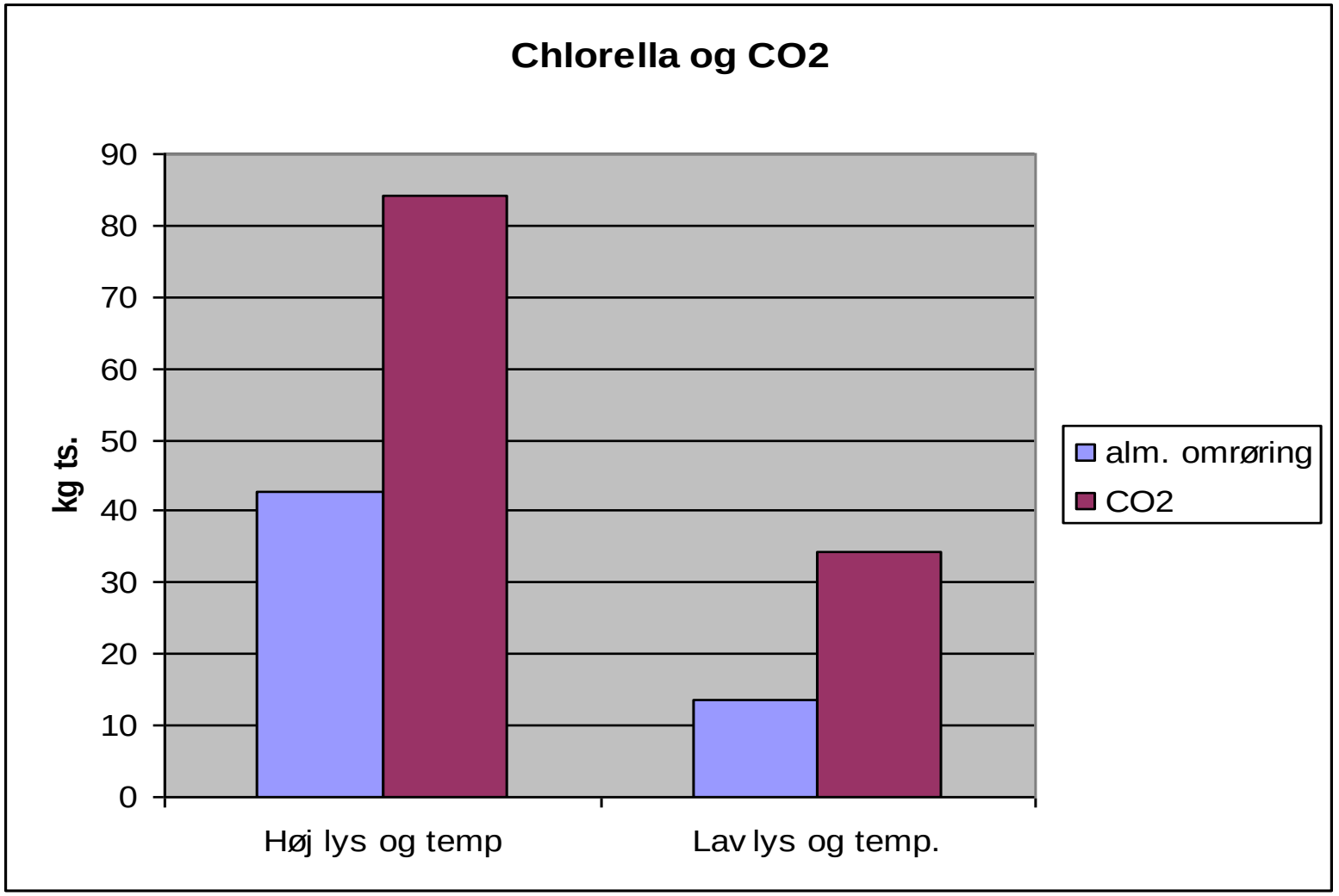
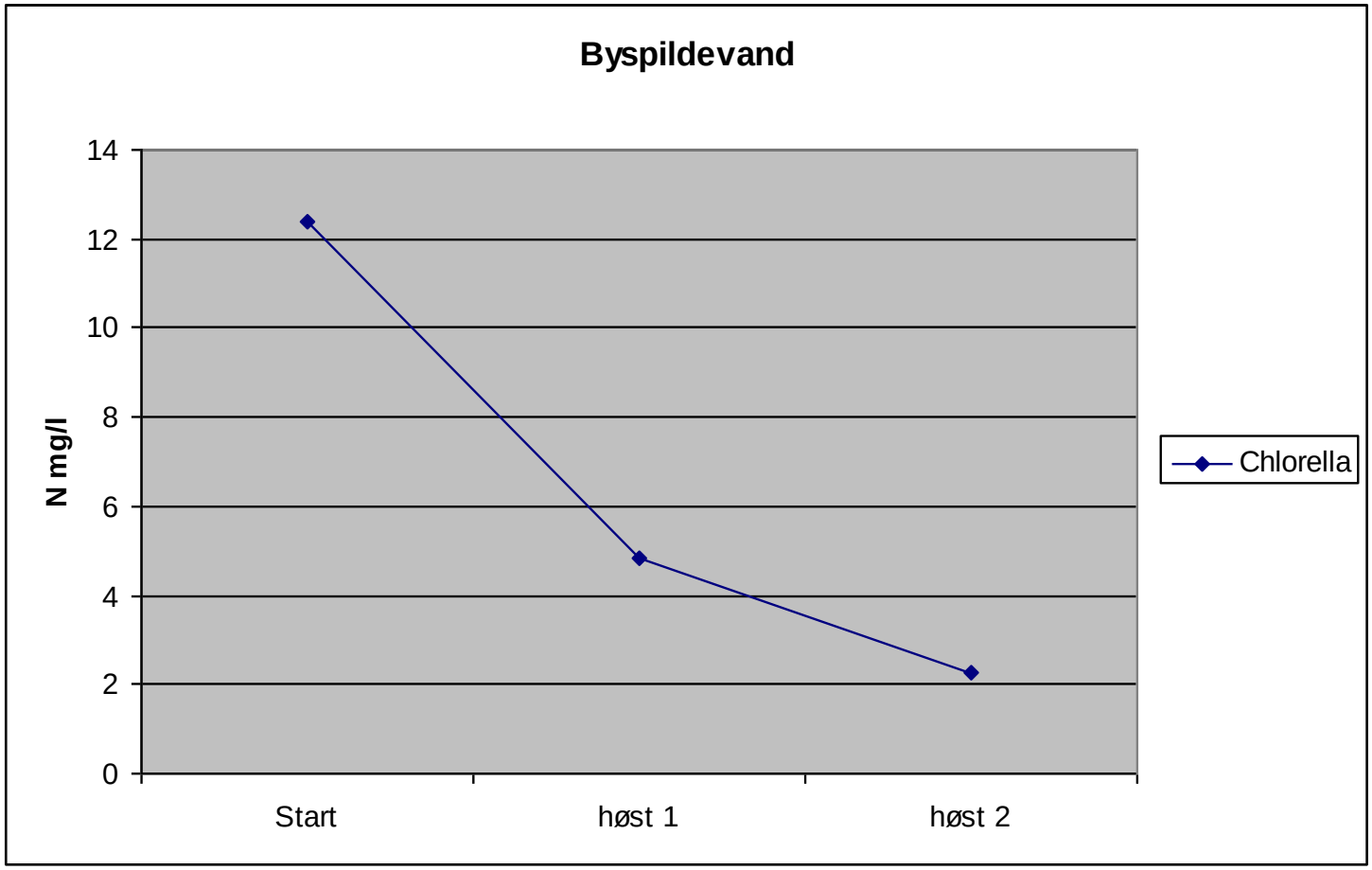
CLP
100


Chlorella og CO2
kg ts.
90
80
70
60
50
40
30
20
10
0
Høj lys og temp
Lav lys og temp.
alm. omrøring
CO2


Byspildevand
N mg/l
14
12
10
8
6
4
2
0
Start
høst 1
høst 2
Chlorella

- **Cultivation plant**
- **Biomass production**
- **Water management**
- **Higher added value products**
- **Nutrients/fertilizer allocation**

Table 6-1 Elemental Analysis of the Stem, Leaves, Cob, and Grain of a Mature Maize Plant ("Pride of Saline"), Based on Average Values for Five Plants[a]

Element	Weight (g)	Percentage of Total Dry Weight
Carbon	364.19	43.569
Oxygen	371.42	44.431
Hydrogen	52.17	6.244
Nitrogen	12.19	1.459
Sulfur	1.416	0.167
Phosphorus	1.697	0.203
Calcium	1.893	0.227
Potassium	7.679	0.921
Magnesium	1.525	0.179
Iron	0.714	0.083
Manganese	0.269	0.035
Silicon	9.756	1.172
Aluminum	0.894	0.107
Chlorine	1.216	0.143
Undetermined	7.8	0.933

[a]Data of Latshaw and Miller, 1924, Journal of Agricultural Research 27:854.

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Sustainabillity

- Energy (save, generate and allocate)
- Substitution (oil based chemicals)
- Surplus biomass
- Hollistic approach

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