GREENGROWING

GREENHOUSE ENERGY SAVING | *programme for the North Sea Region*

ENERGY EFFICIENT HORTICULTURE

GOOD FOR YOUR BUSINESS AND EVEN BETTER FOR THE ENVIRONMENT

Easy and advanced solutions to reduce energy consumption in greenhouses by **at least 10%**.

Start now with the energy saving essentials and then really make the difference through innovation.

For more information, visit www.pcsierteelt.be or call us on +32 (0)9 353 94 94.

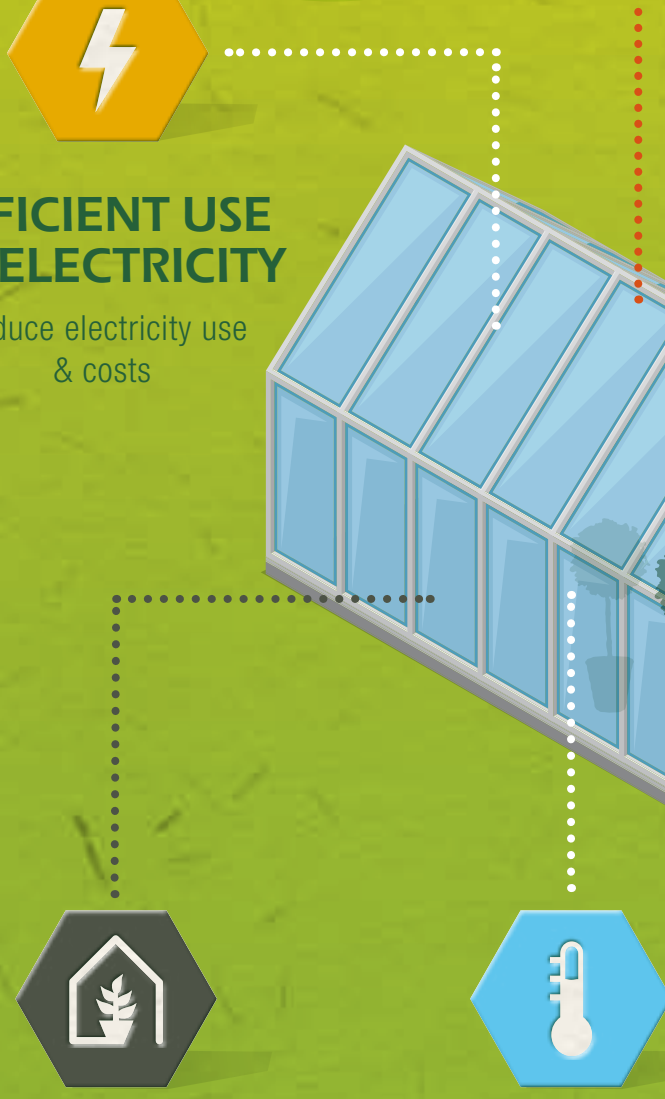
AARHUS UNIVERSITY · AgroTech · Hochschule Osnabrück University of Applied Sciences · Landwirtschaftskammer Niedersachsen · Bioforsk · pcg · PCS · SLU · TNO · The Interreg IVB North Sea Region Programme · EUROPEAN REGIONAL DEVELOPMENT FUND

GREENGROWING

GREENHOUSE ENERGY SAVING | *programme for the North Sea Region*

REDUCE ENERGY COSTS IN GREENHOUSE HORTICULTURE

Optimize your production by shifting towards a more closed greenhouse environment with sustainable energy use.



EFFICIENT USE OF ELECTRICITY

Reduce electricity use & costs

EFFICIENT HEATING

Temperature integration and sustainable heating options

ENERGY EFFICIENT GREENHOUSES

Existing and innovative greenhouse concepts

GREENHOUSE CLIMATE REGULATION

Innovation from monitoring to regulation

PLANTS FOR A GREEN FUTURE

Less temperature and light demanding, suited to more closed greenhouse sytems

For more information, visit www.pcsierteelt.be or call us on +32 (0)9 353 94 94.

PCS

The Interreg IVB North Sea Region Programme

EUROPEAN REGIONAL DEVELOPMENT FUND

GREENGROWING

GREENHOUSE ENERGY SAVING | programme for the North Sea Region

EFFICIENT USE OF ELECTRICITY

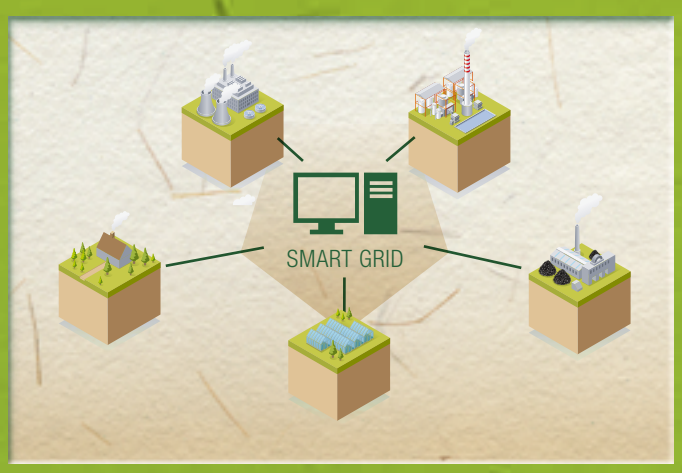
Reduce electricity use and costs

- ELECTRICITY USE -

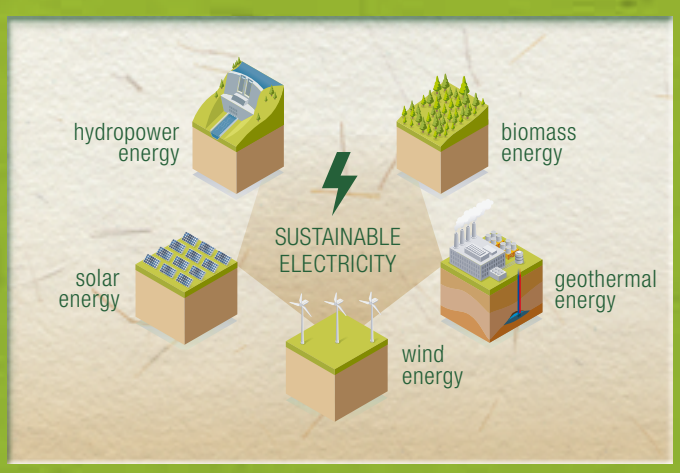
DYNAMIC REGULATION OF SUPPLEMENTAL LIGHT

PROMISING APPLICATIONS OF LED'S

- ELECTRICITY COSTS -



STIMULATE THE USE OF OFF-PEAK LOADS OF ELECTRICITY (smart grids)



INCREASE THE USE OF SUSTAINABLE ENERGY

PCS

The Interreg IVB North Sea Region Programme

EUROPEAN REGIONAL DEVELOPMENT FUND

GREENGROWING

GREENHOUSE ENERGY SAVING | programme for the North Sea Region

EFFICIENT HEATING

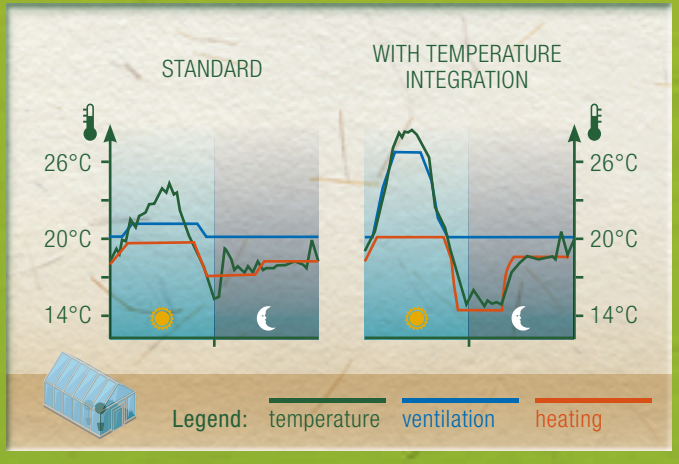
Temperature integration and sustainable heating options

- HEATING SYSTEM -

Before the start of the cold season you should check the heating sytem for:

- Good insulation (infrared camera)
- Necessary maintenance and optimal working

- TEMPERATURE INTEGRATION -



- Average temperature set points instead of fix day and night temperatures
- Greater temperature fluctuations during the day
- Cold periods will be compensated with warm periods and vice versa in order to achieve the desired average temperature

- SUSTAINABLE HEATING SYSTEMS -

- Cogeneration (CHP): combined production of heat and power
- Geothermal energy and underground thermal energy storage
- Heat pump
- Biomass and waste valorization
- Biogas
- Wind and solar energy

PCS

The Interreg IVB North Sea Region Programme

EUROPEAN REGIONAL DEVELOPMENT FUND

GREENGROWING

GREENHOUSE ENERGY SAVING | *programme for the North Sea Region*

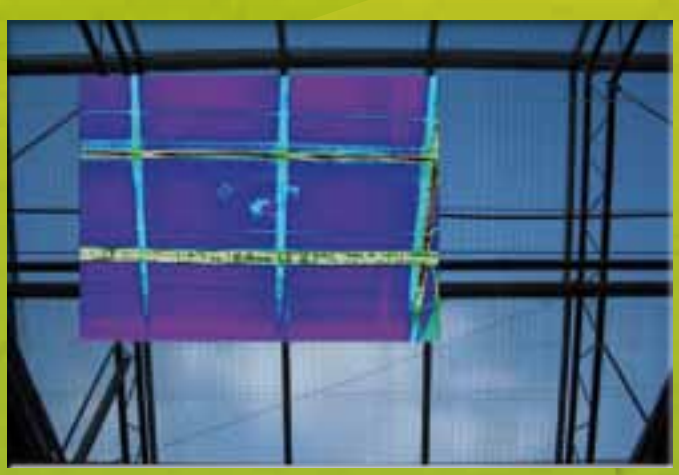
ENERGY EFFICIENT GREENHOUSES

Existing and innovative greenhouse concepts

- GREENHOUSE INSULATION -

SCREENS & COVERING MATERIALS

- High light transmission
- Diffuse materials



GOOD ENERGY PRACTICES

- Prevention of heat losses
- Maintenance of climate sensors
- Detection en repair of heat leakages

- INNOVATIVE CONSTRUCTIONS -

MULTI-LAYERING SYSTEM

extra logo's nog verwijderen

SEMI-CLOSED GREENHOUSE

HEAT EXCHANGERS

DEHUMIDIFICATION SYSTEMS

PCS

The Interreg IVB North Sea Region Programme

EUROPEAN REGIONAL DEVELOPMENT FUND

GREENGROWING

GREENHOUSE ENERGY SAVING | programme for the North Sea Region

GREENHOUSE CLIMATE REGULATION

Innovation from monitoring to regulation

- SPEAKING PLANT CONCEPT -

Monitoring through VPD, opening of stomata, leaf temperature, sap flow, root pressure, stem diameter, irradiation, light, temperature and relative humidity

- CLIMATE REGULATION -

PARAMETERS:

- Screening
- Ventilation
- (De-)humidification
- Low temperature network
- CO_2 concentration
- Climate and plant sensors
- Supplemental light
- Weather forecast

PCS

The Interreg IVB North Sea Region Programme

EUROPEAN REGIONAL DEVELOPMENT FUND

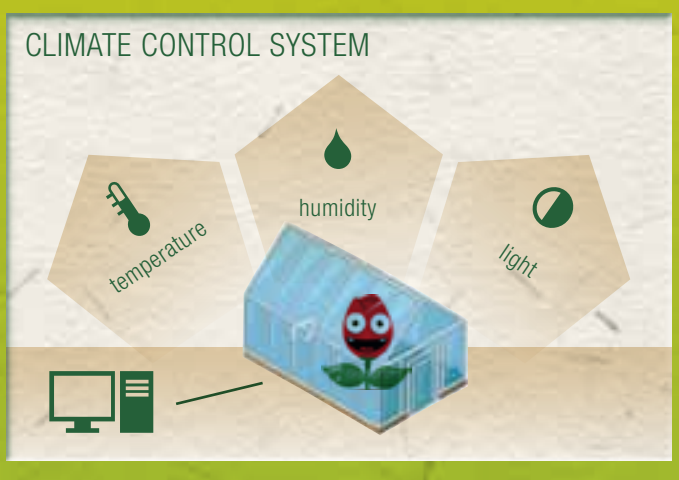
GREENGROWING

GREENHOUSE ENERGY SAVING | *programme for the North Sea Region*

PLANTS FOR A GREEN FUTURE

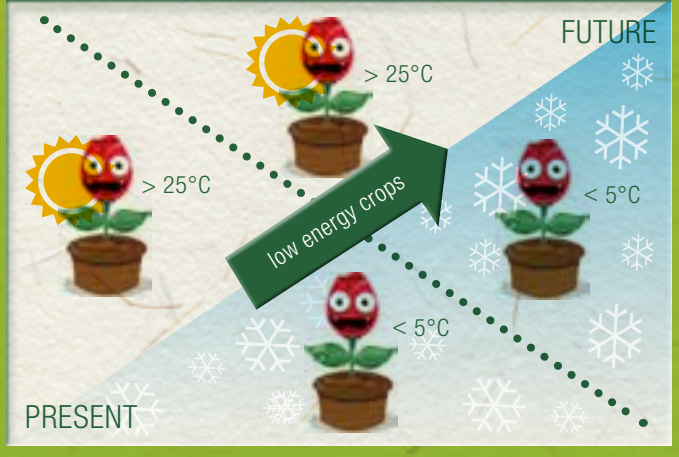
Less temperature and light demanding, suited to more closed greenhouse sytems

- PLANT STRESS RESEARCH -



- Determination of plant stress tolerance (temperature, humidity and light extremes) and its buffer zones for economically relevant cultures
- This data will be used in more integrated climate control systems for semi-closed or highly insulated greenhouses

- LOW ENERGY CROPS -



Identify species and cultivars with:

- Increased tolerance to fluctuating greenhouse climate
- Lower energy use
- Potential for growing in multilayer systems

nog verder te bewerken

PCS

The Interreg IVB North Sea Region Programme

EUROPEAN REGIONAL DEVELOPMENT FUND