Economics of input reducing options in greenhouse production (EU-project Euphoros)

Workshop "Efficient water and fertilizer use in greenhouse tomato production"

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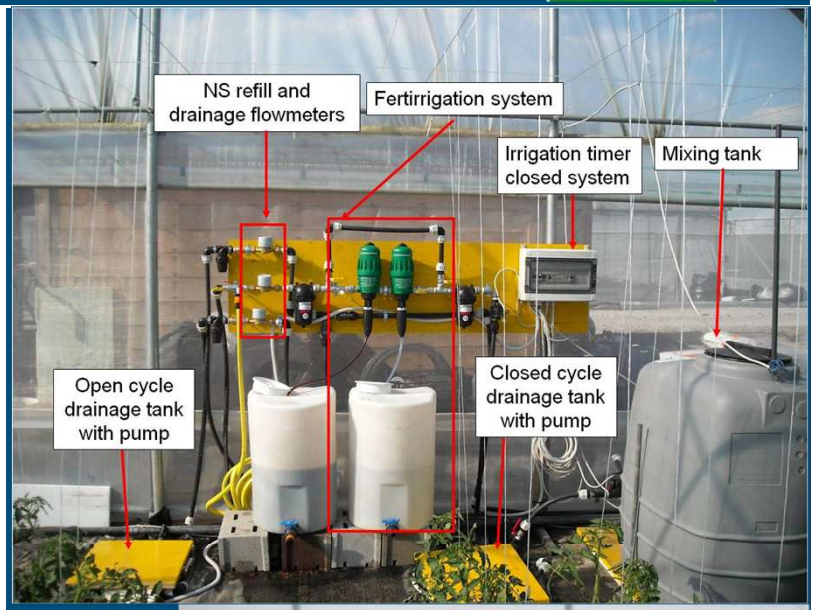
Closing growing system for tomato crop

Investment and yearly cost of closing growing/cultivation system (€)

Input reducing option	Closed system Chem analysis by LAB		Closed system Chem analysis by Quick test UV filtration (disinfestation)	
System component	*Invest-ment*	*yearly costs per ha*	*Invest-ment*	*yearly costs per ha*
Fixed costs				
Slow sandfilter	2500	250		
Hydraulic components	5000	500		
UV filtration			17500	2625
Rough sand filter + add hydr			5000	500
Quick test (Reflectoquant))			800	160
Maintenance costs (5%)		375		1165
Interest (2,5%)		190		580
Sub total		1315		5030
Variable costs				
Frequent chem anal (12x/2x)		600		160
DNA scan		600		600
Reagents for quick analysis				50
Sub total		1200		810
Total costs		**2515**		**5840**
Saving water + fertilizers		**4650**		**4650**
Financial result		**2135**		**-1190**
Pay-back period (years)		**2.4**		**8.7**

Source: UNIPI, Italy; Quantitative Information Greenhouse Horticulture 2010, 2010



Photos: UNIPI, Italy

- Test site: Pistoia, Italy
- Farm scale: 1 ha

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Reduced volume & increased life span of growing media

Savings of reduced volume and increased life span substrate (€)

Substrate bags (perlite)	*Reference 3 yrs life span*	*Option 1: 25% volume reduction*	*Option 2: 4 yrs life span*
Units of bags per ha	4650	4650	4650
Investment (€/unit)	1.80	1.42	1.80
Investment (€ total)	8370	6591	8370
Depreciation (%)	33.3	33.3	25.0
Maintenance+interest (%)	7.5	7.5	7.5
Costs (€/ha)	**3418**	**2691**	**2720**
Savings (€/ha)	**-**	**726**	**698**

Source: EEFC, Almeria, Spain

Perlite bag after 3 year cultivation

Photos: Perlite Italiana, Milano, Italy

- Scenario: Multi-tunnel greenhouse, Spain
- Tomato crop
- Farm scale: 1 ha

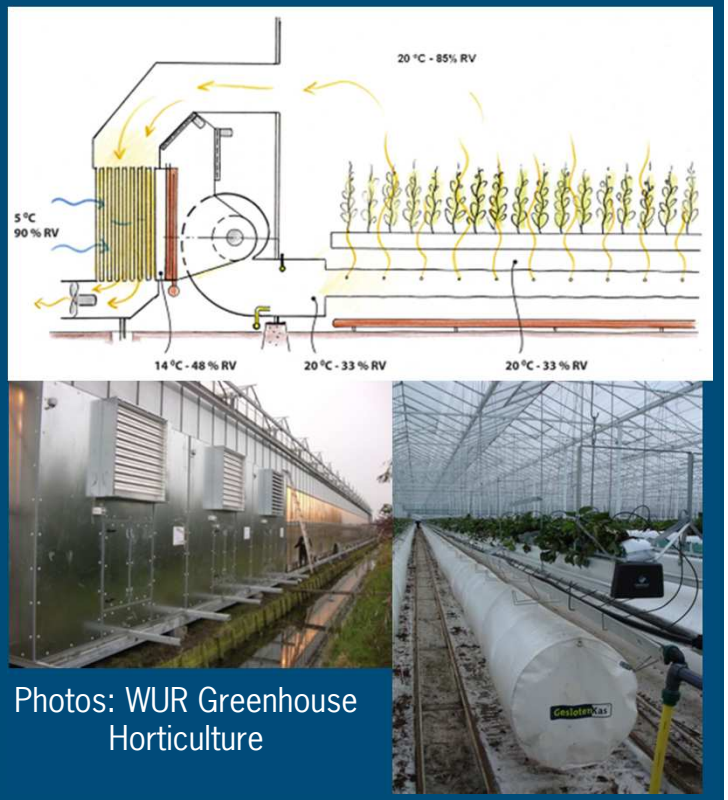
New energy saving cultivation method

- Device to suck in external air
- Heat exchanger
- Extra energy screen

Effects of new energy saving cultivation method (€)

New cultivation method	*€/ha*
Extra investment	11800
Extra costs investment: depreciation	1074
maintenance	59
Extra costs of energy: gas	-54000
capacity	-5600
electricity	
Extra costs of CO2	1600
Extra yield	0
Extra other output (sales of electr.)	-62310
Balance of benefts and costs	-5443

Source: Quantitative Information Greenhouse Horticulture 2010; Vegetables–Cutflowers–Potplants, 2010



Photos: WUR Greenhouse Horticulture

- Reduction of gas consumption and gas capacity: 35%
- Lower electricity sales by CHP to public grid: 30% (CHP: combined heat power)

- Scenario: Venlo greenhouse, Holland
- Tomato crop
- Farm scale: 4 ha

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Thank for your attention

Are there any questions?

For more information:

- www.glastuinbouw.wur.nl
- www.lei.wur.nl

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