



Water buffering with Waterpads

Smart Solution – Water Productivity

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Simon Chevalking (MetaMeta)
schevalking@metameta.nl

Water buffering...



Buffering water in landscapes - Road water harvesting in Amhara (Ethiopia)

Water buffering...



Buffering in soils – Rice husk mulching, Farmer Field School (Tanzania)



Buffering water in landscapes - Road water harvesting in Amhara (Ethiopia)

Water buffering...



Buffering in at root zone – Waterpads in open soil (Turkey)



Buffering in soils – Rice husk mulching, Farmer Field School (Tanzania)

Buffering water in landscapes - Road water harvesting in Amhara (Ethiopia)

Waterpads – a sandwich of hessian, polymers and paper

Components:



A fully biodegradable water and nutrient buffer for plants

Waterpads

Application:

- (drip)irrigated agriculture
- different growing media
- different crops: annual / perennial, ornamental / edible
- reusability

Previous results

- Roses (The Netherlands): 36% yield increase
- Tomatoes (Spain): 51% yield increase; 37% water application reduction
- Citrus saplings (Pakistan): 53 % higher rate of foliage growth; 31% water application reduction

Waterpads in pots



Green pepper, cocopeat in pots

Waterpads in open soil



Tomato in open soil

Waterpads in different substrates



Green pepper, eggplant, cucumber and tomato in cocopeat and perlite slabs

Waterpads

from innovation - to - smart solution

Green pepper	AVG Yield/Slab	
	Total weight	Yield increase/decrease
	grams	% of 100%
Cocopeat %100	1441	
Cocopeat W %100	1682	17%
Cocopeat %75	1433	
Cocopeat W %75	1542	7%
Cocopeat %50	1134	
Cocopeat W % 50	1192	-17%
Perlit %100	729	
Perlit W100	826	13%
Perlit %75	618	
Perlit W %75	811	11%
Perlit %50	545	
Perlit W % 50	522	-28%

Higher Yields

Break even point
after 2.5 seasons



Green pepper

Waterpads

from innovation - to - smart solution

Green pepper	Water application		Water savings
	Liters	% of total	Liter/slab
Cocopeat %100	438	100%	
Cocopeat W %100	438	100%	
Cocopeat %75	330	-25%	108
Cocopeat W %75	330	-25%	108
Cocopeat %50	221	-50%	217
Cocopeat W % 50	221	-50%	217
Perlit %100	282	100%	
Perlit W100	282	100%	
Perlit %75	210	-26%	72
Perlit W %75	210	-26%	72
Perlit %50	140	-50%	142
Perlit W % 50	140	-50%	142



Green pepper

Lower water requirements

Waterpads

from innovation - to - smart solution

Green pepper		AVG Yield/Slab	Yield	Water application		Water savings
		Total weight	increase/decrease			
		grams	% of 100%	Liters	% of total	Liter/slab
Cocopeat %100		1441		438	100%	
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Water productivity

Waterpads – Water productivity

Productivity:

- Water – Plant / Soil – Plant
 - Water can be as productive as its environment allows it to be (nutrients, micro-organisms, soil organic matter, micro-climate ,etc.)

Waterpads provide buffer for water and nutrients

- Farming practice and rational
 - Saving water
 - Saving land
 - Saving inputs

Roll out of a smart
solution

Co-creation of
knowledge and expertise

Farmer adaptation



Roll out of a smart solution 2017



Farmer adaptation



Roll out of a smart solution 2017

Research and development

1. Antep Pistachio Research Institute

2. Gap Agricultural Research Institute,
(Olive, Pistachio and Pine tree plantation)



Next steps for MetaMeta

- Further adapting and enhancing of innovation
 - Soil moisture directed irrigation
 - Reusing of polymers, polymers from organic waste
- Scaling up of smart solution
 - More demonstration trials (crops / acreage)
 - Securing first sales
 - Strengthening the production and marketing of product