



# AQUAMAT<sup>®</sup>

# AQUATHERMAT<sup>®</sup>

ROOT ZONE HEATING AND IRRIGATION SYSTEM

Better choices...  
For better business

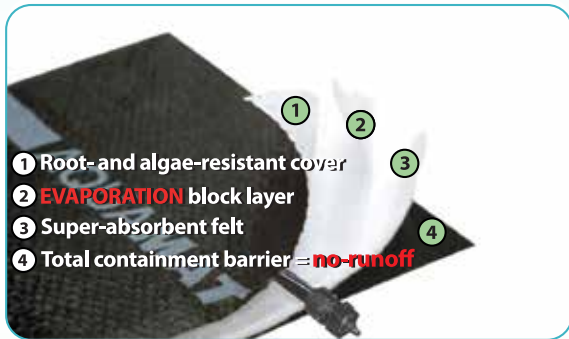




The most efficient solution to improve your profitability, save water and move toward sustainability.

## Benefits:

- Reduce labor costs
- Allows to place plants of different size and water requirement on the same Aquamat®
- Water savings by 80% compared with overhead watering systems
- Reduces by up to 80% fertilizer use
- Eliminate flower and foliage disease due to overhead watering
- Creates a stronger root system and accelerates plant growth



## Uses:

On benches or on the ground for:

- Greenhouses
- Nurseries
- Garden centres

## Conclusion

Results of tests conducted showed that Aquamat required less water than overhead irrigation and micro-irrigation, to produce 92% plants of marketable size. Moreover, production time was shortened considerably - four weeks or more - depending on the species.

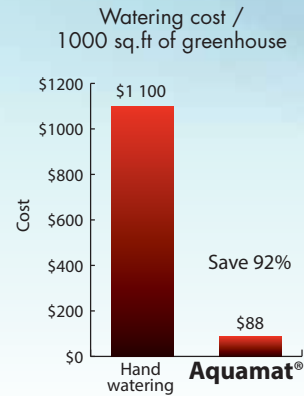
D Richard C. Beeson  
Mid-Florida Research & Education Center  
University of Florida, Apopka, FL

With Aquamat, I cut water use by 78% compared with a container drip-tube system. Total run-off control, faster uniform crops and labor savings was the icing. It follows the best management practices (BMPs) better than anything else I had been looking at!

Richard Carroll  
Carroll Brothers Nursery, Clearwater, FL

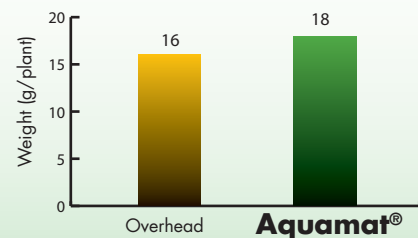
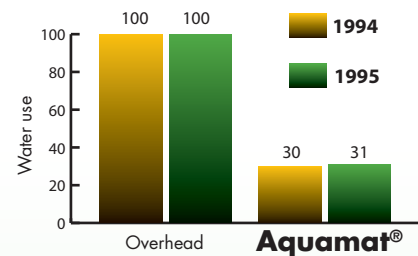
## Results :

### • Labor



### • Reduce water consumption and faster plant growth

Nursery comparative trials at Université Laval  
**Aquamat® vs overhead watering**



Several others trials have been conducted showing same or better results.

### • Flexibility

"One advantage of capillary mats is that plants of different size and water requirement can be placed on the same mat to meet different water needs". *HortiTechnology* April-June 2008. And Aquamat® capillary mats can be easily moved from one production site to another.





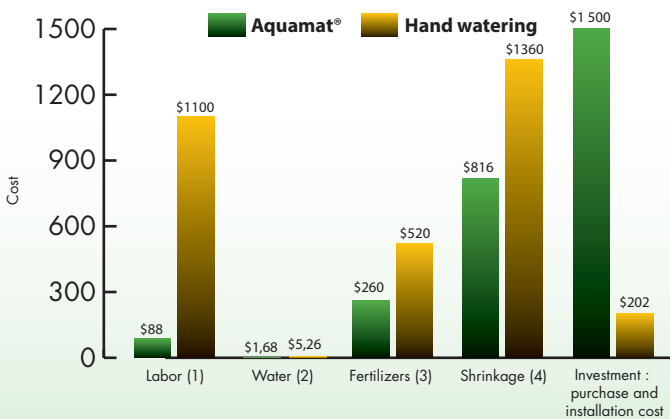
When energy cost savings encounter higher yields.

### Benefits:

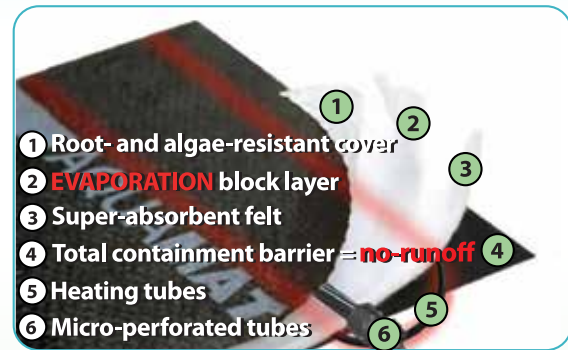
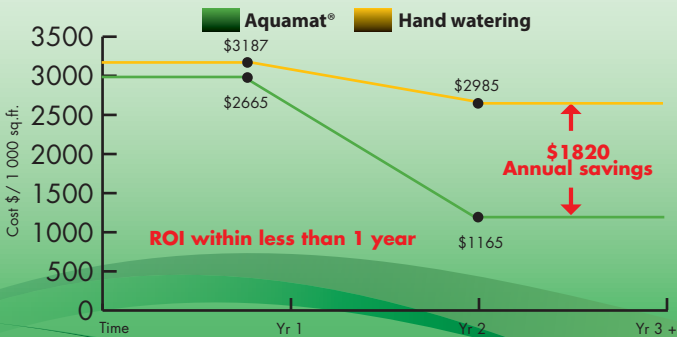
- Stimulates root formation and seed germination
- Cuts energy consumption by 45% or more
- Promotes greater crop uniformity and top-grade plants
- Allows you to start production later in the winter and avoid lowest outdoor temperature

AQUATHERMAT® heats substrate evenly where it counts, at roots level. Air temperature could be reduce in order to get shorter and thicker plants while reducing heating cost.

Costs chart (/1 000 sq.ft of greenhouse) for year-round production



Profitability chart (/ 1000 sq.ft of greenhouse)



### Conclusion

Tests undertaken by CIDES have demonstrated that the use of capillary heating mats in greenhouse production is cost-effective in terms of energy. By significantly reducing the cultivation period for obtaining market-ready plants, they optimize the use of greenhouse installations.

Gilles Cadette, agronomist,  
Director of experimental development  
CIDES (Centre d'information et de développement  
expérimental en serriculture) St-Hyacinthe, Qc

### Profitability

Comparing the economic feasibility of capillary mats versus others sub-irrigation system, overhead irrigation and microirrigation, showed capillary mats have the highest net return of the systems. (Haydu et al., 2004)

Aquamat® is a labor-saving alternative to hand watering in a retail nursery and will compensate for the higher initial investment within less than 1 year. HortTechnology April-June 2008.

\*Note that a shorter production cycle = heating, labor etc. additional savings. Costs above are partial and based on a 12 months production cycle using Aquamat®.

(1): Ref. Prof. Kimberley Williams KSU. June 2012. \$1,10/sq.ft/year. Labor for hand watering.  
 (2): CIDES. January 31, 2007. Experiment on rain water catchment. Average water consumption of 37,6li(9,95 us gal)/sq.ft/yr. Water savings of 68% as per Quebec Ministry of Agriculture and Food 2003. Cost of Water of \$70/1 M litre (264550 usgal)  
 (4) 5% shrinkage using hand watering versus 3% on Aquamat®. 8 pots/sq.ft @ \$1,70 each.



## Eight years of Research & Innovation

It started in 1991 with Jean Caron Ph.D, researcher from Université Laval, Quebec, Canada. His main objectives were to develop an efficient capillary mat system in order to reduce production costs in greenhouses and nurseries as well as protecting the environment by saving water and fertilizers consumption. Fundamental research on multi-layers capillary mat was the real beginning of Jean Caron project. Second step was to do some in vivo trials at Université Laval in 1994-1995. From these results, some modifications and trials were made on the mat between 1995 and 1998 and finalize the AQUAMAT® in 2001. The AQUATHERMAT® came on the market in 2007 to improve propagation success, % and time as well as reducing heating cost in greenhouses.

Widths (ft)	Lengths (ft)
3-4-5-6-7-8-11	5 to 300

To find out more information and where to purchase our products, contact us by calling 1-888-241-9600 or visiting:

[www.aquamatsystem.com](http://www.aquamatsystem.com)



### Irrigation system specifications for Aquamat® and Aquathermat®

Drip tape flow rate:  
1.35 gpm /100 feet  
Mat water holding cap.:  
2.1 gal. us / sq.yd

Equipment required:  
- 3/4" diameter polyethylene water header  
- Pressure regulator 12 psi  
- Mesh filter 120-200 mesh

### Heat system specifications for Aquathermat®

Temperature intake (max): 140 °F (60 °C)  
Pressure (max): 15 psi  
Flow rate: 0.006 GPM / sq.ft (0.017 LPM / sq. meter)  
To heat substrate one degree over ambient air:  
4.5 BTU/hr/sq. ft./°F      8 BTU /hr/sq. ft. /°C  
90 BTU/hr/sq.m /°C

Equipment required:  
- Recirculation pump  
- Pressure regulator 12 psi  
- Heat exchanger (for high temperature boilers)  
- Manometer thermostat per growth zone  
- Bottom insulation (styrofoam)

\*Pair of manifolds sold separately

#### Important notice:

Growing surface should be flat and leveled so as to prevent any water accumulation. Small quantities of water pulsed regularly are preferable to one long irrigation cycle (e.g. 3 cycles of 3 minutes rather than a single 9-minute cycle). Substrate should contain at least 50% of sphagnum peat or coco fibers.

**SOLENO**  
TEXTILES  
ISO 9001-2008

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