Innovating the Climate Control Landscape

Root-Zone Temperature Optimization Technology
What is RZTO technology?

Root temperatures influence all parameters of the plant's physiology and an optimum RZT range is essential for a plant's robust growth, productivity and quality.

The RZTO technology is a closed loop system exchanging heat in water flowing between underground inserted coils and root zone area.

Leveraging the principle of Ground Source Heat Exchange (GSHE), up to 10 degrees Celsius heating and cooling of root zone is achieved by the system in a very cost-effective and environmental friendly ways.

The results of RZT optimization: significant yield increase (10-60% in most cases), better quality, shorter growing cycles, off season planting, reduction in air climate control expenditures, low environmental signature.

NOTE: At times, a hybrid system with GSHE coils and efficient heat pump is used in conjunction.
Temp. comparison: Cooled vs. Untreated

Up to 5 degrees difference between Cooled roots and uncooled roots
The average weight of cooled chives was more than two-time higher (257%) compare with uncooled plants.
Field plant size comparison: 25 days from planting

Cooled

Control
Plant Height comparison: 35 days from planting

Untreated  Cooled
Summary

• Chives plants are a heat sensitive species which suffer from high temperatures during the summer, following major decrease in harvested production and quality.
• RZTO system can extend the growing of chives to the summer, by cooling the RZT alone and without any need to control of the ambient conditions of the greenhouse.
• The performance of harvested chives is higher with thicker leaves and dark-green color.
• The cooled chives plants showed a dramatic increase - over 250%.
• The growing cycle was extended. The cooled chive plants continued to grow for 55 days, while the control crop virtually stopped growing after four weeks.