Innovating the Climate Control Landscape

Root-Zone Temperature Optimization Technology

Disruptive Innovation of AG Climate Control Landscape

Root-Zone Temperature Optimization Technology
What is RZTO technology?

Root temperatures influence all parameters of the plant's physiology. 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 environmentally 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 roots

Ambient temperature  Cooled roots  Uncooled roots

More than 6 C Degrees between the cooled and untreated roots
After 45 days the cooled (roots of) flowers were 40cm higher than the control
Cooled vs. untreated flowers
• Growth and cultivation of flowers with cooled roots started seven weeks earlier than control plants with non-cooled roots.

• This early blooming accounted for a 20 percent increase in production – the equivalent of 150,000 to 200,000 flowers per hectare.

• The extended growing season also allowed the farmer to obtain a premium price of more than double the standard rate for out of season flowers.