



The Tree T-PEE: Revolutionizing Agricultural Water Conservation

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ABSTRACT

The Tree T-PEE is an innovative water conservation technology designed to enhance agricultural efficiency by significantly reducing water usage in tree farming. This conical device, made from durable recycled plastic, is placed around the base of young trees, creating a micro-environment that conserves water, promotes root growth, and protects against frost. By funnelling water directly to the root zone and reducing evaporation, the Tree T-PEE has demonstrated its potential to lower water consumption by up to 90% compared to traditional irrigation methods. Additionally, the device helps minimise nutrient runoff and enhance tree growth, making it a valuable tool for sustainable agriculture. This paper explores the Tree T-PEE's design, benefits, and impact on modern agricultural practices, highlighting its role in addressing water scarcity challenges and promoting environmental sustainability.

INTRODUCTION

In a world where water scarcity and climate change increasingly threaten agricultural productivity, the Tree T-PEE

emerges as a beacon of hope and ingenuity. This remarkable device, crafted from a deep understanding of farming needs, offers an



innovative solution to enhance water conservation, tree growth, and sustainability. Created by Johnny Georges, a Florida citrus farmer, the Tree T-PEE has evolved into a symbol of efficient water use and environmental stewardship. This article explores the origins, design, impact, and prospects of the Tree T-PEE, highlighting its transformative role in modern agriculture.

The Genesis of Tree T-PEE

The tree T-PEE is a product of GSI Supply, Inc. GSI was established on March 2, 2005, by John G. Georges (Johnny) and his father, Rick Georges, who recognized the escalating challenges faced by farmers in Florida's citrus industry and first developed the tree T-PEE for frost protection. Water scarcity, rising irrigation costs, and the need for effective tree protection were becoming significant concerns. Rick Georges, an inventor and passionate advocate for farming efficiency, envisioned a simple yet effective device to address these issues.

The idea originated while banking trees—a labour-intensive method where dirt is piled around young trees each night to keep them warm, then removed the next day. One day, while banking trees, Johnny Georges remarked that there must be an easier way. Inspired, Rick designed a small cone to shield the trees from frost, and it worked. However, this cone still needed to be manually installed and removed with every frost warning, which was time-consuming. This initial success laid the foundation for the modern Tree T-PEE, which has since evolved to offer efficient, permanent protection and water conservation for young trees (tree T PEE portal). Johnny Georges inherited his father's innovative spirit and dedication to farming. After Rick's passing, Johnny refined his father's original concept into what is now known as the Tree T-PEE. His goal was to create a practical, affordable, and scalable solution that would

revolutionize water use in agriculture while promoting the health and growth of young trees.

Design and Functionality

The Tree T-PEE is a conical, reusable shield made from recycled plastic, designed to fit snugly around the base of young trees. Its design, while simple, serves multiple crucial functions that collectively contribute to its effectiveness:

- 1. Water Conservation:** The primary function of the Tree T-PEE is to conserve water. By directing irrigation water directly to the root zone of the tree, it minimizes water evaporation and runoff. This precision irrigation method significantly reduces water usage—by up to 90% compared to traditional watering techniques—making it especially valuable in regions facing water scarcity. The Tree T-PEE's design ensures that every drop of water is used efficiently, providing young trees with the moisture they need to thrive.
- 2. Nutrient Retention:** The Tree T-PEE creates a micro-climate around the tree base, helping to retain moisture and nutrients within the root zone. This environment promotes better absorption of water and nutrients, preventing them from leaching away into the surrounding soil. This enhanced nutrient retention fosters stronger, healthier tree growth and reduces the need for additional fertilizers. The fertilizer savings were just as dramatic with farmers using 75% less because they were only putting it where it was needed.
- 3. Frost Protection:** The Tree T-PEE conical shape also protects against frost. Creating a barrier that shields the young tree trunk from cold winds and trapping warmth from the ground, helps prevent frost damage. This is particularly

beneficial for farmers in regions with temperate climates, where unexpected frost can devastate young orchards and plantations (Morgan and Stephen, 2016).

4. **Weed Suppression:** The Tree T-PEE serves as a physical barrier against weeds, reducing competition for water and nutrients. This suppression minimizes the need for chemical herbicides, contributing to more sustainable farming practices and reducing environmental impact.

5. **Growth Acceleration:** By providing a controlled environment that optimizes water and nutrient delivery, the Tree T-PEE accelerates the growth of young trees. Farmers often observe quicker establishment and earlier fruiting, leading to improved crop yields and faster returns on investment.



Fig 1: Tree T Pee (Black) containment system tree T-PEE (source: tree T-PEE website)

Impact on Farming Practices

The adoption of the Tree T-PEE has led to profound changes in agricultural practices and outcomes:

1. **Cost Efficiency:** One of the most significant benefits of the Tree T-PEE is the reduction in water usage, leading to substantial savings on irrigation costs. This is especially critical in areas where water is not only scarce but also expensive. Farmers can reallocate saved resources towards other essential aspects of their operations, enhancing overall farm profitability. The tree T-PEE is a
2. **Environmental Sustainability:** The Tree T-PEE aligns perfectly with global efforts to promote sustainable agriculture. Its water-saving capabilities directly reduce the strain on local water resources, contributing to the conservation of this vital commodity. Additionally, by reducing the need for chemical herbicides and fertilizers, it minimizes environmental pollution and promotes healthier ecosystems as it is made up of and made in the U.S. from 100% recycled plastics.
3. **Enhanced Tree Survival and Growth:** Farmers using the Tree T-PEE report higher survival rates for young trees, as well as improved growth and fruit production. This leads to quicker establishment of orchards and plantations, shorter timeframes to profitability, and more robust agricultural production overall. The cumulative effect of these benefits strengthens food security and supports the livelihoods of farming communities.
4. **Reduction in Labor Costs:** With the Tree T-PEE's ability to target water delivery and reduce weed growth, farmers can spend less time on manual irrigation and weed control. This efficiency translates into lower labour costs and allows farmers to focus on other critical aspects of their operations.
5. **Scalability and Versatility:** The Tree T-PEE's design makes it suitable for a wide range of tree species and agricultural environments. Whether used in large-scale commercial orchards or small family farms, the Tree T-PEE adapts easily to various settings, making it a versatile tool for diverse agricultural needs.



Real-world Success Stories

The success of the Tree T-PEE is best illustrated through the stories of farmers who have embraced its use. In Florida, citrus growers have reported healthier trees and increased fruit yields, even amidst challenging conditions such as droughts and diseases like citrus greening. The Tree T-PEE's water-saving properties have allowed these farmers to maintain productivity while conserving precious water resources.

In California, almond and walnut farmers have also reaped the benefits of the Tree T-PEE. Facing ongoing drought conditions, these farmers have found that the Tree T-PEE's efficiency in water usage enables them to sustain their orchards and reduce the impact of water restrictions. The device's ability to target water delivery to the root zone has proven invaluable in maintaining tree health and productivity in water-stressed regions. Small-scale growers and home gardeners have similarly reported positive outcomes, using the Tree T-PEE to nurture their young trees with minimal water and effort. The Tree T-PEE's ease of use and effectiveness make it an appealing option for anyone looking to support tree growth sustainably.

Recognition and Awards

The Tree T-PEE gained national recognition when Johnny Georges presented it on the television show "Shark Tank" in 2013. His heartfelt pitch, underscored by a deep connection to his farming roots and a genuine desire to help fellow farmers, resonated with the show's investors. Johnny secured a partnership with John Paul DeJoria, co-founder of Paul Mitchell Systems and Patron Tequila, who shared his vision for sustainable agricultural solutions (ABC News, 2014).

Following its "Shark Tank" debut, the Tree T-PEE received widespread acclaim, including various awards for innovation in water

conservation and sustainable agriculture. Industry experts and environmental organizations have lauded the device for its simplicity, effectiveness, and potential to address critical challenges in farming.

Future Prospects

As the world continues to grapple with the effects of climate change and water scarcity, the Tree T-PEE's relevance and impact are set to grow. Research and development efforts are focused on adapting the Tree T-PEE for a broader range of crops and geographical conditions, ensuring that its benefits can be extended to more farmers worldwide. Expanding the Tree T-PEE's reach internationally is also a key goal. Many regions, particularly those facing acute water shortages and environmental challenges, stand to benefit immensely from the Tree T-PEE's water-saving capabilities. Efforts are underway to collaborate with agricultural organizations, governments, and NGOs to introduce the Tree T-PEE to farmers globally, fostering sustainable farming practices on a wider scale.

CONCLUSION

The Tree T-PEE exemplifies the power of innovation to address pressing agricultural challenges. Its ability to conserve water, enhance nutrient retention, protect against frost, and suppress weeds makes it an indispensable tool for modern farmers. By promoting healthier tree growth, reducing costs, and contributing to environmental sustainability, the Tree T-PEE is not just a product but a movement towards a more efficient and responsible approach to agriculture. As the farming community continues to adapt to changing conditions, the Tree T-PEE stands out as a beacon of hope, innovation, and sustainability in the quest for a resilient and productive agricultural future.



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