Strengthening the 21st Century Ahupua‘a: Smart Yields at the Kohala Institute

On the Island of Hawaii’s rural North Kohala coast, the nonprofit Kohala Institute encompasses 2,400 acres of pristine land known as the historic ahupua‘a of ‘Iole.

The ahupua‘a, a traditional land division in Hawaii that stretches from the mountains to the ocean, contains the many important resources needed for the communities within. Smart Yields has designated the Kohala Institute as its first Center of Excellence – a long-term partner for technology deployment and testing in various environments and conditions.

Smart Yields draws inspiration from the ahupua‘a as a model for agricultural health that can be applied throughout the world, enhancing the ways we work together to provide food security, sustainability and profitability for each unique and local environment.

The Kohala Institute offers opportunities to connect with the lands at ‘Iole, collaborating with partners as it draws from Hawaiian cultural principles and land-based practices. Smart Yields technologies are installed throughout the ahupua‘a to test everything from water use to soil health.

Situation

The Kohala Institute’s varied conditions over its 2,400 acres call for versatile solutions to monitor everything from water use to soil health.

Solution

Smart Yields brings together a range of technologies that can be used seamlessly with traditional resource management practices.

Water Use

Smart Yields water sensors are integral to better understanding the Kohala Institute's complex legacy water system, which has supported the agricultural activities within the ahupua'a from the pre-contact period to the post-plantation era. The water system now supports a six-building campus, multiple lo'i kalo (taro patches), macadamia nut orchards, ranching, farming, permaculture and a fish farm.

Soil Monitoring

Smart Yields sensors are placed throughout the ahupua'a to test for soil moisture, which helps identify optimal growing conditions and maximize water use. A monitoring station on the Kohala Institute's GRACE Center helps wirelessly collect data so partners and communities can work together on solutions.

Pest Management

Smart Yields has adapted collar technology used for cattle to help track and sustainably manage wild pigs, which are a destructive pest for macadamia nut growers on the Island of Hawaii. These collars will allow farmers to track the patterns of pigs and target humane and community-friendly management practices, such as fence-building and trapping. It is estimated that wild pigs destroy up to 20 percent of macadamia nut crops in Hawaii each year. Ultimately, this pest may serve as a value-added food product.

Crop Experimentation

Smart Yields technology will be used to help grow the Kohala Institute's 5-acre pilot farm into a planned 30-acre facility to showcase successful and sustainable methods of growing food to meet Hawaii's food security needs. This includes experimentation with high-value, underserved Hawaii crops such as broccoli.

"Smart Yields technology has many applications for our resource management. As a Smart Yields Center of Excellence, our ahupua'a offers the perfect place to develop and deploy those technologies in a variety of conditions, benefitting partners ranging from businesses to leaders in education."

D. Noelani Kalipi,
Executive Director of the Kohala Institute

Impact

The Kohala Institute serves as an ideal testing ground for Smart Yields technology, helping multiple partners work together on resource management solutions.

SmartYields.com
1050 Queen Street
Honolulu, HI 96814
support@smartyields.com

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