



KS SAYS ALOHA TO DR. CHUN

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WINDS OVER KAWAILOA

First Wind comes to Kamehameha's Kawailoa Plantation, bringing clean energy to Hawai'i and revenue to help improve the former Waialua Sugar lands now being used for diversified agriculture

On 'Ōpae'ula Ridge above Hale'iwa Town on O'ahu's North Shore, it is a bustling construction site.

Turbine blades and generator and tower components for 30 wind turbines started arriving in June, and are being moved into position for installation. The turbines, which will generate clean, renewable energy, signify a major step toward sustainability at Kamehameha Schools' Kawailoa Plantation.

The project is called Kawailoa Wind, and is being developed by First Wind, an independent wind energy company with 13 sites, primarily in the western continental U.S., and including wind farms in Hawai'i located at Kahuku on the North Shore and at Kaheawa Wind on Maui.

In 1996, Waialua Sugar Company shuttered its sugar operation and voluntarily surrendered the land to Kamehameha. For the first time in nearly a century, Kamehameha land managers were tasked with envisioning Kawailoa's future.

"We were post-plantation. We were dealing with old infrastructure, loss of a big lessee, and were trying to repurpose the plantation. And we were losing money," said Giorgio Caldarone, KS regional asset manager.

Kamehameha embarked on a new vision for Kawailoa centered on sustainability and food production. The company tapped land



manager **Kapu DeSilva Smith KSK'75** to manage the new plantation and recast the former sugar land as productive, food-bearing fields.

FROM MONO-CROP TO DIVERSIFIED AGRICULTURE

In the 16 years since Smith took over the diversified agricultural operation at Kawailoa, 2,500 acres are now in cultivation, with tenant farmers growing a variety of fruit and vegetable crops, as well as seed corn, plumeria and tuberose.

A cacao farmer recently signed a long-term agreement after a successful three-year trial run (see story on page 11), and a maile nursery is coming soon.

Smith, a personable and pragmatic woman who is now clearly comfortable in the fields, measures her success at diversification by imagining a well-balanced plate lunch.

"My plate is getting better," she said. "We have

Above, from left, KS regional asset manager Giorgio Caldarone, First Wind development manager Wren Westcoast KSK'86, KS land manager Kapu DeSilva Smith KSK'75 and First Wind director of external affairs Kekoa Kaluhiwa KSK'94 inspect some of the first turbines to arrive at Kawailoa Plantation. Below, Kaluhiwa, Caldarone, Smith and Westcoast discuss the issues of the day at First Wind's Kahuku wind farm.

papaya, asparagus and banana. We have lettuce. We have chocolate for dessert and sweet potato shochu coming soon. We can even wear a lei. But we don't have meat!"

It won't be much longer before Smith has some protein on her plate.

"Kamehameha is a perpetual land owner with no intention of selling this land or converting it to urban use, so having a balance of diversified agriculture and energy just makes sense."

– Giorgio Caldarone, KS Regional Asset Manager

Cattle is coming to Kawailoa. Kamehameha is setting aside 4,000 of Kawailoa's 11,000 acres for cattle. The grass-fed herds will graze under Kawailoa Wind's giant wind turbines.

With the addition of cattle, Kawailoa will be approximately 80 percent leased. In preparation for the cows, Kamehameha has spent \$1.4 million in fencing around the wind farm.

On selecting future ranching tenants, Smith said, "Our priority will be for the person who will provide food. No horses in this area. We don't want to do stabling or gentleman farming. We want to produce food."

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WINDS OVER KAWAIILOA



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THE WIND SOLUTION

The idea to have wind turbines and cattle share the land is an innovative solution, because for the first time since Kamehameha reclaimed management of Kawaiiloa in 1996, the plantation will soon be able to cover its expenses and turn a profit.

"We needed to look for a mix of uses that would help justify the enormous investments in water and road related infrastructure that was needed. And so energy works really well in that mix," Caldaroni said.

"We also went to the North Shore community with our North Shore Plan, and the work we are doing here with this wind farm is very much driven and aligned with that plan, which had substantial



community input," Caldaroni added.

"One of the biggest problems when we took over the plantation was the property taxes. We paid highest and best use taxes because the land was vacant," Smith said. "With the introduction of cattle, we would be getting closer to break-

Above: Melvin Matsuda and daughter Kylie Matsuda-Lum of Kahuku Farms have nearly 170 acres at Kawaiiloa growing papaya and bananas.

ing even because our tax burden is gone, but with the revenue from wind, you add another layer."

First Wind broke ground at Kawaiiloa in February 2012. The project has the capacity to generate 69 megawatts of clean, renewable energy – enough to power 14,500 O'ahu homes – and could supply as much as 5 to 10 percent of the island's electrical load.

Wind gusts turn the turbine blades, which causes a generator within the turbine to spin and create electricity. The turbines have technology that allows them to rotate in any direction the wind is blowing.

"The turbines will always

ing not only what was impacted, but adding more too," Kaluhiwa said.

"Wind energy provides a lot of the economic foundation, but not at the expense of agriculture," Caldaroni said. "It's very compatible with agriculture. It hardly takes up any acreage. You can put cattle underneath; you can farm right up to the turbine. It fits really well with all the other plantation uses.

"Plus, it contributes to the state's energy initiative and provides O'ahu-generated energy for O'ahu use. Kamehameha is a perpetual land owner with no intention of selling this land or converting it to urban use, so having

The project has the capacity to generate 69 megawatts of clean, renewable energy – enough to power 14,500 O'ahu homes – and could supply as much as 5 to 10 percent of the island's electrical load.

face into the wind," said **Kekoa Kaluhiwa KSK'94**, director of external affairs for First Wind. Kaluhiwa spent 11 years serving with the office of Sen. **Daniel Akaka KSK'42** before moving over to First Wind.

His coworker with the company is **Wren Westcoatt KSK'86**, who is the development manager for First Wind. Westcoatt is a former staff member with Kamehameha Schools, where he served in the communications department.

Installation of the 30 state-of-the-art Siemens turbines is expected to be completed by the end of September, with another two to three months necessary for testing and tying in to the electrical grid.

Kawaiiloa Wind will be Hawai'i's largest wind energy project yet – and the largest alternative energy project of any kind in the state.

First Wind is also contributing to the overall maintenance of the plantation.

The company has improved agricultural roads leading ma uka from Kamehameha Highway, and has also cleared invasive and fast-growing albezia trees.

First Wind is also replanting koa trees in the area. "We had to remove some koa, so we're replac-

a balance of diversified agriculture and energy just makes sense."

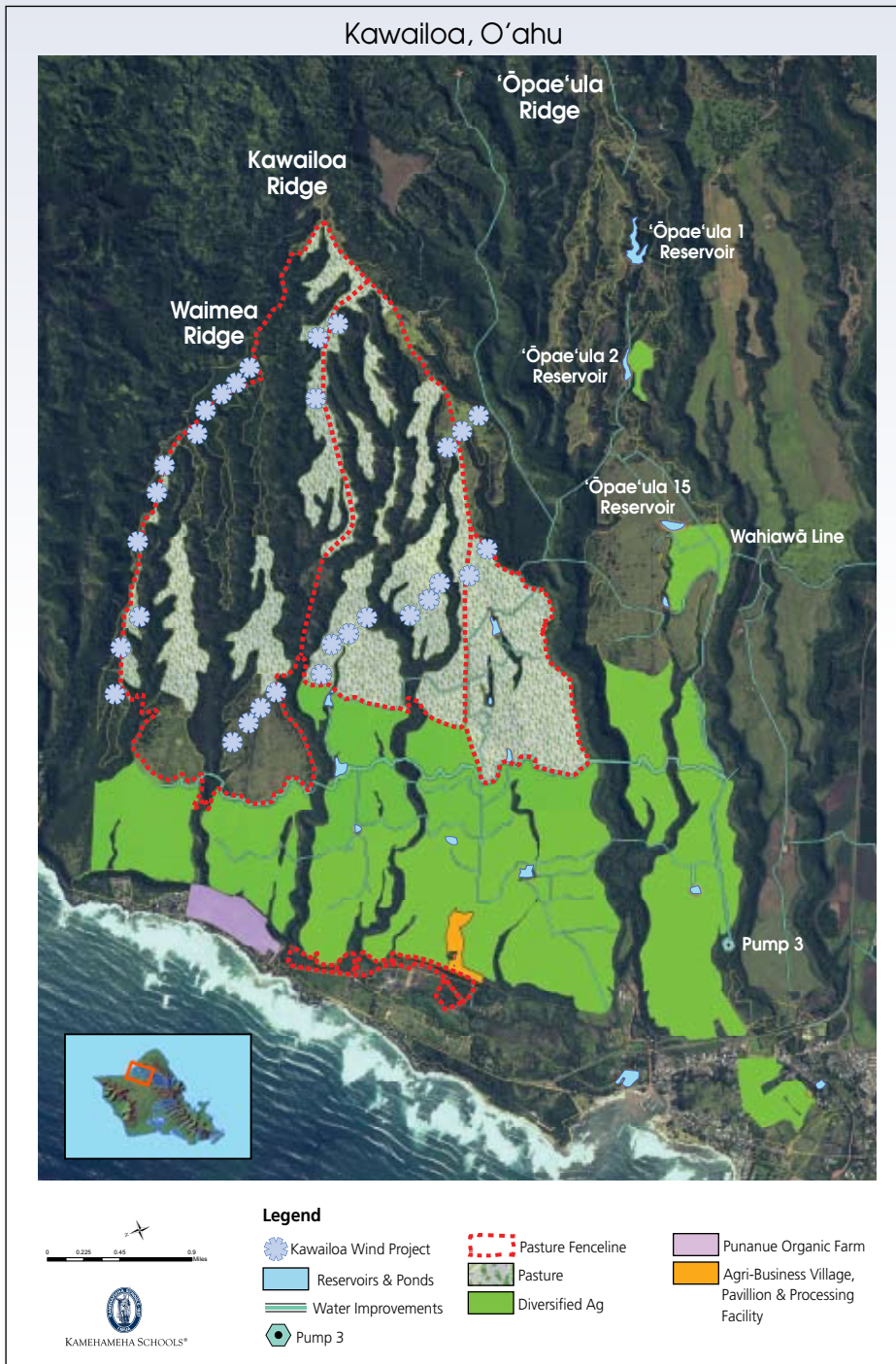
IMPROVING AVAILABLE WATER

There are three mountain ridges – 'Ōpae'ula, Waimea and Kawaiiloa – that make up the plantation. At 'Ōpae'ula, there are still another 400-500 productive acres that remain vacant.

Water is the main problem. When Waialua Sugar vacated, Kamehameha inherited aging remnants of plantation irrigation systems that were inefficient, unreliable and costly to maintain.

To solve this, Kamehameha invested \$10 million in water infrastructure improvements, and then delivered turnkey plots of land to tenant farmers. "We put in the upfront costs otherwise no water no agriculture," Smith said. "We funded the improvements, and then we add the cost (to lease rent) over 20 or 30 years, so that the cost becomes pretty nominal."

"We're basically underwriting the major investments, with the expectation that we'll gain more tenants, reduce annual operations and maintenance costs associated with a modern irrigation system, and recover the investment over the long term," Caldaroni added.



In the last five years, the water resources management team working for Kamehameha's Land Assets Division, led by Ka'eo Duarte and Imiola Lindsey, has redesigned and modernized water delivery systems. Irrigation ditches, that were losing water to evaporation and seepage and were at risk of collapse and blockage, have been replaced with pipes.

KS has also installed modern metering and control systems and repaired siphons.

Much of Kawaiiloa is currently irrigated with water coming from Lake Wilson in Wahiawā. Because of its quality – it is primary treated sewage water – only orchard crops, seed corn and flowers can be commercially grown there.

The decision to allow the production of seed corn at Kawaiiloa has led to some disagreements with those who believe it is an inappropriate use of the land.

Monsanto's cultivation of genetically modified (GM) seed corn on 400 acres at Kawaiiloa Plantation has stirred controversy. In response, Kamehameha Schools has: reviewed information published by government sources regarding the safety of the seed corn Monsanto cultivates at Kawaiiloa; validated their compliance with government regulations concerning use of chemical pesticides and herbicides; engaged in transparent dialogue with those concerned about this issue to promote education and understanding; and advocated that the state upgrade Lake Wilson water treatment facilities to enable a broader range of food to be cultivated on lands now occupied by Monsanto.

Because Kawaiiloa is the last user on the Lake Wilson line, Kamehameha has engineered a self-sustaining surface and groundwater system that is not dependent on Wahiawā. But pumping groundwater comes with high electricity costs.

That is why Kamehameha is

ON THE WEB

For more on Kawaiiloa Plantation (March 2005), Kamehameha's North Shore Plan (Fall 2008) and Kamehameha's Strategic Agricultural Plan (Spring 2010), please visit www.ksbe.edu and check out these past issues of I Mua.



I Mua – March 2005



I Mua – Fall 2008



I Mua – Spring 2010

also researching the feasibility of installing photovoltaic solar panels at Kawaiiloa. "We're going to look at solar pumping to reduce costs for irrigation. Theoretically, it should help us reduce our water costs and that will be a big benefit," Caldarone said.

Land manager Smith has her eye on those remaining 500 acres. If an affordable water solution can be worked out, she'd like to see vegetable crops on those Kawaiiloa and 'Ōpae'ula acres.

ADDED-VALUE AGRICULTURE

Harnessing wind power has allowed for the expansion and further diversification of Kawaiiloa Plantation. "What it does is allow us to do other things," Smith said. "One of the biggest points to make is that there's so much acreage. We can choose to do everything."

Kamehameha has dedicated just under 100 acres of land between Ashley Road and Punalau Street near Kamehameha Highway exclusively for organic farming. KS is currently in active discussions with a potential master lessee for the new Punanue Organic Farm who will partner with KS to educate and grow new organic farmers.

While the concept is still in development, this farm is envi-

sioned to provide lands that are irrigated and ready to farm. It would also offer a menu of additional resources to support marketing of specific produce and value-added opportunities as well as individual farmer operations – all things to make it easier for interested organic farmers to get started.

The Punanue Organic Farm is expected to be up and running in the next three years.

"It's not enough to just get them to grow food," Smith said. "I think what Kawaiiloa Plantation has introduced to KS is that if we function as an enabler, as opposed to just a passive land manager, then all our areas can go to the next added-value step. I think it's a unique approach right now in Hawai'i."

One of the main lessons Kamehameha has learned since taking over management of Kawaiiloa is the need to look at a range of uses for the land. "We need to get creative at how we're assembling the area," Caldarone said.

To this end, Kamehameha is looking at future plans for an agribusiness village – centrally located near actively cultivated farmland – that would provide food-safe processing facilities, warehouse space, field offices and other accessory uses to support farming operations.

Smith also envisions an agritourism pavilion that would be

accessible to the public – a place where people could meet the tenant farmers, see how their food is grown and learn more about agriculture.

THE AHUPUA'A MODEL IN ACTION

There is well-placed pride in the progress and transformation at Kawaiiloa.

"I think the framework is in. I think I've done what I was supposed to do," Smith said. "We thought we'd get there faster, but farming is not a fast-track undertaking."

The placement of orchard and vegetable crops, in combination with wind turbines and cattle, was more than strategic. It was a return to the ahupua'a model that Hawaiians used.

"They grew the right stuff on top, they all shared up and down the ahupua'a," Smith said. "It's actually what the plate lunch model is about. I see that ahupua'a picture in my mind all the time. It's what we were taught. It's not a new model, it's just that recognition that you can do the right thing and still make a profit."

For more information on Kamehameha's commitment to sustainable agriculture, visit www.ksbe.edu/ag.

CHOCOLATE THUNDER

Cacao farmer Seneca Klassen sets up shop at Kawaiiloa Plantation



If women love chocolate, they must be crazy about Seneca Klassen.

The California native, who opened two Bittersweet cafes celebrating chocolate in all its forms in Oakland, Calif., in the mid-2000s, is undertaking his first commercial agricultural project on 14 acres of choice Kawaiiloa Plantation land.

He is three years into his orchard crop cacao, which takes three to four years to bear fruit. The beans from the

cacao fruit are used to make chocolate.

By the time his trees are mature, about 10 years after planting, Klassen expects to be producing 6 to 7 metric tons of cacao at his location on 'Ōpae'ula ridge.

"I'm convinced that the North Shore of O'ahu represents some of the most interesting and dynamic conditions for cacao anywhere in Hawai'i," Klassen said.

"Given the breadth and diversity of Kamehameha's holdings at Kawaiiloa – including things like altitude and wind exposure – this is an ideal partnership for us, as my model is predicated on finding unique microclimates for farm development."

A true chocolate connoisseur, the products Klassen will begin with will be primarily dark chocolate, in the 70 percent cacao content range. He just signed a lease on a production space, and expects to be releasing bars by the end of 2012.

"Our long range goal is to develop a processing center and chocolate-making facility in Hale'iwa that can be a true North Shore agri-tourism destination. We're hoping to work with Kamehameha Schools on siting those aspects as well as future farm site expansions. Kamehameha has been unbelievably supportive."

And while the ladies may have their eye on Klassen, he's actually quite fond of Kawaiiloa Plantation land manager **Kapu DeSilva Smith KSK'75** of Kamehameha Schools.

"Kapu Smith has been a dream to work with," Klassen said. "I think it's fair to

say that not every Hawai'i land manager would be open to even meeting with some malihini who shows up with a crazy agricultural idea.

"She not only took the time to get to know us and understand our project, but she helped us negotiate the process of integrating ourselves at Kawaiiloa in ways too numerous to list.

"Her vision and commitment to agriculture in Hawai'i is incredibly admirable, especially considering the ongoing development pressures that continue to reduce O'ahu's prime agricultural capacity."

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– Seneca Klassen,
Kawaiiloa Plantation cacao farmer

