Sustainable Farming for Our Future

Vincent Kimura, Smart Yields
Hawaii

Call to Action

Buy local. Get your hands in the dirt. Support small farmers with green businesses. Please visit smartyields.com or www.agrigro.com.

Values

- **Environmentalist**
- **Entrepreneur**
- **Sustainability**
- **Creativity**
- **Collaboration**

Lessons Learned

If we respect nature, we will reap more benefits than if we overexploit our resources. Respect leads to sustainable practices; overexploitation leads to the eventual depletion of resources.

You can find inspiration from the past, and knowledge for the future. When you obtain both you will be able to fulfill your dreams.

If we are to build a sustainable economy, economic progress should benefit the people, not exploit them.

Become involved with your community: your neighbors are an important source of knowledge that can help you grow both professionally and personally.

Vincent Kimura is a "serial entrepreneur" in sustainable agriculture and technology.

He strives to center the agricultural conversation as being sustainability-focused, but economically driven. Vincent is the CEO of Smart Yields, a globally recognized agricultural technology company that is revolutionizing the way small and medium-scale farms operate. He is involved in various green enterprises, including AgriGro and Inovi Green.

A main focus of his work is on supporting struggling farmers around the world, and repairing food systems using technology, data, and collaboration between the public, private, and nonprofit sectors.

Vincent is a trusted and inspiring mentor for young people who are seeking to find work and launch sustainable businesses. He runs numerous internship programs, and is a mentor for the Purple Prize, which helps mission-driven companies that use technology to amplify community and regenerate ecosystems. He was also a sponsor of Hawaii's first Agricultural Hackathon in 2018.

Language Arts

What does the term "food security" mean? Create a series of videos (no more than 10 minutes total) in which you explain what this term means; what the consequences are of lacking food security; who is most affected by food insecurity; and what sustainable alternatives are available to tackle this issue.

Vincent believes that "A small farmer struggling is a sign of an unsustainable community." Do you agree or disagree with him? Why? Write an argumentative essay explaining your views. Your essay must include counter arguments to your own point of view, as well as examples from secondary sources that support your opinion.

The years 2020 and 2021 have been a time of unrest for farmers in India. Research both the reasons for their protests and the consequences of them. Then do some research on farmers' protests in the US over the past century, and compare and contrast the two. With the information you collect, create a presentation in which you explain, as well as compare and contrast the protests by farmers in both of these countries.

How can technology help small farmers stay competitive and become more sustainable? Write an essay in which you analyze the role of modern technology in traditional family farms. Start by analyzing Edward Tuft's example from Vincent's story, and find a couple more examples of your own to mention in your essay.

STEM Activities

Over the course of his career, Vincent has focused his efforts on building a number of green businesses. Smart Yields, which gives farmers up-to-date access to their land use, is one of the most impactful. Create a mock-up of a farm with the crops you would hope to grow on a one- acre plot of land. Access the Smart Yields app and track the progress of your farm, or a similar farm in your community.

Family-owned farms are a major focus of Vincent's work, due to their rapid decline in the United States. Design an app that can assist farmers with weather trends, tracking temperature, farmer to farmer collaboration, and/or cattle management, or seeding. Explain to your classmates why you think this is important and how the app design works.

- Bonus: Develop the algorithm or code for your app and explain how this design could be useful to farmers.

Conduct a tour of a farm in your community, or participate in a virtual tour of a farming system. Create a chart highlighting the sustainable practices of the farm you visited, and identifying areas in which the farm could improve. Highlight various farming techniques that could be used, such as Recirculating Aquaculture[1], Environmental Monitoring[2], Crop Covering[3], and other sustainable practices.

Sustainability Innovations

Vincent understands that mentoring is vital for the maintenance and improvement of sustainable farming. The New Entry Sustainable Farming Project[4] is one of many programs that helps new farmers gain experience and get training from mentors, to maximize the success of their farms.

In addition to the standard issues facing farmers, they often spend extremely long hours surveying their crops, or struggle with weather issues. Drones in Agriculture[5] has become one successful use of advanced technologies to identify problems and maximize the use of farmers' time. Drones can help with issues such as mechanical failures in turbines, studying soil variations, fungal and pest problems, and irrigation issues, among many others.

Vincent funded Smart[6] Yields with Republic, a project to get "big data to small farms" in order to help "take the guesswork out of growing."

Farming is often a difficult for students to relate to because they have not been exposed to it. Design a project to teach students about apiary farming, aquaculture, and traditional farming. Assign students to one of these three groups and have them design a basic structure for conducting this farming technique.

- **Apiary farms:** How to Build a Hive [7]

- **Traditional Farming:** Build a Raised Garden [8]
- **Aquaculture**: Simple Backyard Aquaponics[9]

Sustainability Career Pathways

Sustainable Farmer. There is an increase in the number of young people who are being drawn to farming, as groups like The Greenhorns[10] 10 reveal. If you're interested in being a farmer, this 11introduction to the field of sustainable agriculture is a good place to start.[11]

Agricultural Scientist with a specialization in sustainability. If you're interested in making farming more productive, sustainable, and efficient, perhaps you would like to explore the field of agricultural science. Agricultural scientists study plant reproduction, soils, plant genetics, and more to find ways to improve farming techniques and yields while protecting the land. Learn more here[12].

Agricultural Entrepreneur (Agripreneur). Would you like to invent and draw in new technologies to help improve farming? Perhaps you'll be an agripreneur, like Vincent. Learn more about agricultural entrepreneurship here[13] . And you can draw inspiration from the efforts of 16 agripreneurs described here[14].

Extension Agent. Farmers have long been supported by both governmental and nongovernmental agricultural extension offices. (In fact in China, this practice goes back about 2,800 years![15]). Extension agents support farmers in their area, helping them to improve crop yields and practices. They can also play a role in cultivating the next generation of farmers, for example by supporting youth groups like 4H. If this sounds like the job for you, learn more here[16].

1 https://www.innovasea.com/land-based-aquaculture/ras-design/
2 https://www.innovasea.com/aquaculture-intelligence/environmental-monitoring/
3 https://organicgrowersschool.org/gardeners/library/basics-of-cover-cropping/
4 https://nesfp.org/agapprenticeship/mentor-training
5 https://www.grandviewresearch.com/blog/agriculture-drones-the-future-of-farming
6 https://republic.co/smartyields
7 https://www.dadant.com/learn/beehive-components-part-i-building-a-hive-from-the-ground-up/
8 https://www.homedepot.com/c/ah/how-to-build-raised-garden-beds/9ba683603be9fa5395fab90b41bb0da
9 https://inhabitat.com/diy-everything-you-need-to-know-to-build-a-simple-backyard-aquaponics-system/
10 https://greenhorns.org/
11 http://greencollarblog.org/sustainable-agriculture-jobs/
12 https://work.chron.com/food-chemistry-salaries-7195.html
13 https://101entrepreneurship.org/agricultural-entrepreneurship-agripreneur/
14 https://foodtank.com/news/2018/01/young-food-entrepreneurs/
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