Salty Agricultura Salina cultivates salicornia inside a salt pan in a totally sustainable way without requiring fresh water. | Photo source Salty Agricultura Salina

A STARTUP THAT GROWS PLANTS IN SALT-DEGRADED SOILS

AGRICULTURE & ENERGY

Rather than abandon land that has become too salty for conventional crops, a new business is focusing on growing food plants in very salty soil

Spotted: Salt is the enemy of farming. A high saline content leads to barren, lifeless land. In irrigated agricultural systems, salts build up over time. Plants absorb the irrigation water, or it evaporates into the atmosphere, but the salts in the water remain in the soil and build up, poisoning the soil. Rather than abandon this salty land, however, Brazilian oceanographer and marine biotechnologist Camila Reveles has another idea: cultivate salt-tolerant crops.

Reveles lives on some of the saltiest land on earth, the Praia Seca region of Brazil, the world's largest hypersaline lake. Her vision is to grow halophytes, or salt-loving plants. She has begun by focusing on the salt-tolerant salicornia, a crunchy, salty vegetable similar to samphire. Her company, Salty Agricultura Salina, cultivates salicornia inside a salt pan in a totally sustainable way, without requiring fresh water.

Once Reveles grows the demand for salicornia, she plans to use similar techniques to grow other halophytes. This type of salty farming may need to become more common in the future. The Food and Agriculture Organization of the United Nations (FAO) predicts that in order to meet the demands of a growing population, food production will have to increase by 70 per cent by 2050. At the same time, the amount of arable land is decreasing, along with supplies of fresh water.

Reveles describes her business not only as a way to grow food without fresh water, but also to highlight the biodiversity found in high-salt environments. She writes that, "salicornia was a love affair at first sight. For me, being able to work in the salt marshes, combining research with entrepreneurship is the realization of a dream." She adds that, "In doing something with ... this

abundant area, I'm trying to show another perspective. We do not have to sell this land. We can preserve it and make it profitable."

As the problems of salt-degraded land and water scarcity grow, so do the number of innovations aimed at finding a solution. Springwise has covered a number of these, including a farming tech company that has developed a method for growing produce in the desert, using seawater to provide cooling; and a mangrove-inspired synthetic tree that can purify water.

Written By: Lisa Magloff

Explore more: Food and Drink | Sustainability | Science

6th October 2021
Email: saltyagriculturasalina@gmail.com
Website: saltyagriculturasalina.com

Download PDF

Takeaway:

Reveles is not the only one to see agricultural opportunity in salty water. For example, Canadian start-up Agrisea is working with rice farmers in the Mekong Delta to develop strains of salt-loving rice. They are using CRISPR to insert a DNA sequence into the rice that turns on genes that enable the plants to thrive in saline environments. Start-up, Seawater Solutions is taking another approach. They aim to transform salt-degraded coastal farmland by planting it with naturally salt-tolerant herbs with market value, and allowing seawater to flood the area. As populations increase, and farmland degrades, it will become necessary for future farmers to grow crops on marginal land, such as land with a high salt content. Companies like Salty are paving the way for this.