



REGENERATIVE FARMING AT SCALE

A Washington family of producers shows how upcycling waste cuts production costs



AUSTIN ALLRED

At Royal Family Farms, the Allred family blends tradition with innovation, practicing regenerative farming on 6,000 acres in Washington state's Royal Slope

By Deborah Huso

AUSTIN ALLRED'S FAMILY has been farming the Royal Slope region of Washington state between Seattle and Spokane for three generations. He and his two brothers, Derek and Tyson, farm a combined 6,000 acres. They grow potatoes, cherry and apple trees and produce honey, while also running 10,000 beef cattle and milking about 6,000 dairy cows. The family also recently added a worm farm and a beef processing facility.

Like many producers with combined operations, Royal Family

Farms focuses on finding a purpose for every acre and every byproduct. In fact, the Allreds have been practicing regenerative farming before it really had its own term.

"My dad was no-tilling before it was billed as regenerative," Allred explains. "He was doing it to reduce diesel usage. He was also very conscientious about planting woodstock in corners of fields."

Allred and his siblings took the same approach as they expanded the farm operations. "I accelerated and defined [what Dad was doing] and put some strategy to it," Allred says,

with the goals of building organic matter in the soil, sequestering carbon and cleaning wastewater.

EXTENDED CROP ROTATIONS AND GRAZING

Allred recognizes the kind of stress agricultural production can put on the land, hence the many inputs required in traditional farming. But Royal Family Farms has demonstrated that not only do regenerative practices work, but one can accomplish them at scale.

"Anytime you're growing a crop that a human can digest, you're

going to put a lot of pressure on soil,” Allred says. “It’s really hard to do a total no-till strategy. You can’t plant weeds with your wheat.”

Allred says potatoes are the least regenerative crop the farm grows, but says they counteract it by working cattle into a long crop rotation for added soil fertilization.

“If 20% of the ground is in potatoes, that land doesn’t come back online for another six to seven years. And during those years, we do a lot

of composting,” he says. “Other years we do cover cropping and planting multi-species crops to grow microbial activity.”

Allred grazes his beef cattle on the cover crops, which

“We try to upcycle every byproduct into something of more value.”

provides feed while simultaneously adding more soil amendments, such as nitrogen (N) and phosphorus (P).

UPCYCLING EVERYTHING

Nothing goes to waste at Royal Family Farms. The Allreds work with all the processors who clean and box their apples and turn their potatoes into French fries to retrieve all of the products that don’t qualify for human consumption to be upcycled into protein, as Allred explains it, providing food for their cattle in the form of potato culls or damaged fruit or nutrient-rich compost for their fields. Meanwhile any wood chips produced when the Allreds retire a cherry or apple orchard is either turned into cattle bedding, used for the worm farm or processed into biochar, a carbon-rich byproduct.

The Allreds’ interest in biochar, a charcoal-like substance derived from organic waste, developed out of a desire to bring more carbon into agricultural systems. And for the past few months, Royal Family Farms has used four machines to burn wood chips into charcoal that, when mixed with compost, recharges carbon in the soil.

“As farmers, we are selling off carbon, whether it’s beef, milk or cherries,” Allred says. “Seventy to 80% of retired apple, cherry and pear trees in Washington were getting burned at the end of their effective life. Biochar was a way to bring in more carbon and upcycle and compost it.”

“We try to upcycle every byproduct into something of value,” Allred says. “Eventually it all becomes a soil amendment. It’s only a loss if we let that carbon into the air.”

REUSING WASTEWATER WITH WORMS

Water is a critical part of any farming operation, and Royal Family Farms sought out a better way to filter wastewater from their dairy >



From upcycling byproducts into cattle feed and compost to using worms to filter wastewater, every acre is optimized for sustainability.

operations and reuse it. What was their regenerative solution? Worms.

“We started investing in what is now the biggest worm farm in the world about eight years ago,” Allred says.

Working with a company called BioFiltro headquartered in Santiago, Chile, the Allreds’ worm farm includes eight acres of what looks like 5’-deep swimming pools. These pools are able to serve as the home for about 50 million worms at any one time.

“Wood chips make up the medium they live in, and that’s also the filter for the dirty water,” Allred explains. “The dairy is designed to flow to a low spot, where we have two 5,000-gallon vacuums that bring the wastewater to the worms.”

The worms digest the wastewater, removing heavy metals and other contaminants. The waste matter the worms produce is rich in microbials, and the Allreds take the worm castings and mix them with compost to produce nutrient-dense soil.

ELIMINATING WASTE AND NEED FOR INPUTS

Allred says engaging in regenerative practices large-scale required careful consideration of how everything could work together.

“We started integrating vegetable, fruit, protein and bees to get to the next generation of regeneration,” he explains. Allred points out that the digestive systems of cattle along with biochar create compost. “It’s all about upcycling ‘waste’ products.”



The result of instituting these practices is dramatically reduced reliance on inputs.

“This year we used no phosphorus and potassium and had equal to or greater yields without it,” Allred remarks. “And across the board, we have better quality.”

He adds the farm’s greatest payout is not having to input synthetics.

“The more natural systems we have in play, the more nutrients we keep in the loop, the less we have to go get inputs,” he says.

Allred acknowledges farmers can filter water through mechanical or chemical systems, but says natural systems are typically cheaper to implement.

“Natural investments are always going to have a long-term return on investment,” Allred says. “The problem is producers often don’t have the margin to always be investing in long-term ROI.”

Royal Family Farms’ regenerative farming practices offer payoffs 10 to 15 years out, Allred estimates.

“We’ve bridged that gap with carbon credits and vertically integrating to pick up those margins,” he says.

This year Royal Family Farms is starting to see its regenerative operations pay off in a big way.

“We purchased 90% less phosphorus and potassium [K] than we have in the past and significantly less nitrogen,” Allred says. “We’re working on nitrogen for the next five years because ruminants make P and K.”

“Regenerative farming starts to gobble up the biggest expenses any farm is going to pay — your fertilizer bill and your chemical bill,” he says. “On the cattle side, your feed bill is your biggest expense. Regenerative farming gives you higher-quality, local food.” **TP**

