The Future CEO... for Farming?

BY SHANNON SIMS

A critical industry has an array of high-tech options, but needs leaders to see the field of dreams.

ON a farm in northern Vermont, 40-something Mateo Kehler was stressed about bacteria. At Jasper Hill Farm, one of the country's top cheese-making operations, Kehler and his brother, Andy, were trying to run an all-natural business. Their cows were grass-fed, their water was recycled, and their employees were largely local. And yet, when it came to their cheese cultures—the starter kit of bacteria required to catalyze any cheese-making process—they had to order samples over the internet from an industrial supplier across the country. Kehler saw a challenge: What if they used new technology and developing genome science to isolate local microbiomes in the DNA of northern Vermont's land, and make their own hyper-local cultures? It was a high-tech solution to an age-old practice—farming, hacked.

THE PROBLEM: The agriculture business still has a "Chinese wall" between old- and new-school farmers.

WHY WORRY: With the shrinking number of farms, only technology can keep production growing as fast as it needs to.

THE SOLUTION: Farm firms of the future must bring in teams more skilled in science and engineering.

The innovative experiment at Jasper Hill could well open up a brand new horizon for cheese making in the US. But it is not just cheese makers who are taking agriculture to new, innovative dimensions. Thanks to the introduction of digitization and advanced mathematical tools, this once old-school industry is going through of a host of little-noticed but critical changes, with plaid-shirted tractor-bound farmers teaming up in a very real sense with nerdy Silicon Valley alums, yielding exciting results. Indeed, from flower farmers in Vietnam to salt farmers in Chile to rice farmers in Louisiana, a young, tech-savvy generation has arrived, in search of CEOs for next-gen farming.

Kehler and his Jasper Hill Farm are, in fact, just a minuscule slice of what American farming looks like now. The US Department of Agriculture estimates that today there are about 2.1 million farms in operation, a third fewer than in the post-Depression era, but each of those farms is nearly three times larger. More importantly, they're more productive: Farming output has more than doubled since the mid-20th century. And without a doubt, technology is driving a lot of this. In Kehler's case, he's used it to solve his own problem, eliminating the cost of buying from an outside supplier, and investing that cost in his business' longevity instead. It's a strategy being employed across the industry, as leaders of agribusinesses see that to survive and grow during difficult economic and environmental times, they'll need a hand from new technology.

This shift is welcomed by none other than the man who coined the term "agribusiness" so many years ago. Ray Goldberg is a professor emeritus at Harvard University, but he is best known for being one of the fathers of agribusiness. Decades ago, he predicted many of today's high-tech farming changes, and in an interview tells us, "I have never been more excited about the future of agribusiness." But there is a challenge: With food, nutrition and world health in

the balance, he says agriculture now relies on a unique collaboration between engineers, social scientists, agronomists, economists and environmental scientists—and that future leaders of the sector will need multidisciplinary backgrounds, such as engineers with a specialization in food science, or business graduates with a focus on environmental systems. To which some observers must ask—are they out there?

IN the past, being an agriculture pro meant building experience on the land over years, and even generations. It meant getting your hands dirty, knowing the ins and outs of seed production, and being able to sense in your joints when it was about to rain before any clouds had gathered. To develop the perfect crop demanded hyper-attention to detail, in order to create a masterful product. “It was kind of a secret sauce,” says Pablo Golfari, the Korn Ferry Futurestep sector leader for Agribusiness, about farming of the past. “You’re the chef in the kitchen, putting a little this, a little that, and all of a sudden you have a wonderful recipe that you can replicate.” But in agriculture, there are always unexpected, force majeure challenges. Weather, pests or some other unforeseeable circumstance could make that secret sauce dry up overnight. So, historically, farmers learned to adjust, and usually that learning came from within the family. “Experience was passed from generation to generation,” says Golfari.

Today, of course, the game has changed—and keeps changing. Now you can draw data from everything from lab samples to satellite pictures to help you dodge those oncoming obstacles. That influx of data and tech could be a boon to both large and small farms in a variety of ways. Big agribusinesses can further maximize crop yields across huge swaths of land. At the same time, small farms can afford many of the new techniques and tools, giving them ways to improve their own profits.

But the key to the modern farm of the future, Golfari believes, is linking those two worlds: generational farming knowledge and high tech. He says new farms need people to make

TWO WORLDS COLLIDING ON THE FARM: THE TECH GUYS SEEING FARMERS AS BACKWARD; FARMERS SEEING THE TECH GUYS AS ARROGANT.

sense of and manage all the data: ex-Googlers, climate-change technology startup founders, IBMers. But they'll need to partner with that boots-in-the-dirt person who knows farming better than anyone: the agronomists, the fifth-generation landowner, the tractor driver.

Getting those two sides to partner together is no small task. In a paper by Golfari and Silvia Sigaud, global leader for Korn Ferry's Agribusiness practice, the two went so far as to call this gap between tech knowledge and farm knowledge a "Chinese wall": The two worlds don't speak to each other. And even more problematically, they sometimes don't even particularly like each other. The tech guys see the farmers as backward; the farmers see the tech guys as arrogant. On the modern farm of the future, that's why you need a third group: the businesspeople, the leaders. "The model we felt was most efficient," says Golfari, "was that of the large farm featuring more professionalization and being run more like a business, with folks with a finance background."

Moreover, the Korn Ferry study found that the sweet spot of a future leader in agriculture is someone with that business background, who also can handle the IT issues that come with running a major, complex, ever-changing operation. "You need someone who is open to tech and agile, but someone who is also good at bringing groups of people together," says Sigaud. And, optimally, that person won't cringe at the idea of throwing on a pair of overalls and getting his or her shoes muddy. The best leaders for the future of agriculture will need to have some long-term involvement with the industry in order to lend an air of authenticity and convince the farmers that they're at least a little bit like them. That doesn't mean the next-gen ag leader can't come from Silicon Valley, says Golfari, "but it does mean they'll have to pay their dues" by spending time on the farm, or at least in the industry. It's why one industry executive told Sigaud that the ideal modern farming leader would be "a hacker plus an agronomist."

Though changing quickly in many ways, the technology surrounding agriculture is still a long-term play, as inventors rush to find new solutions to the shifting sands of climate change and new nutritional demands. And as farmers embrace the shifts, experts believe the full adoption curve is one that will take 15 years, because of the cost and the ongoing dilemma of integrating modern technology into an old-fashioned farm. For the millennial executive accustomed to waking up with an app idea on Monday and seeing it roll out on Friday, a 15-year wait might as well be forever.

15 Years

TIME IT MAY TAKE FOR FARMING TO FULLY ADOPT MANY NEW TECHNOLOGIES

Still, demographics suggest a true opportunity for future CEOs who move into farming. The average age of farmers these days is 55, and many of those in charge aren't tech-savvy, but retirement-focused. That 15-year adoption cycle means that the technology of today will be locking in right around the time that 55-year-old farm leader is ready to step aside and hand over the keys to the tractor to the next generation.

Mateo Kehler is part of that next generation. Though he grew up near Jasper Hill Farm, he never imagined returning to Vermont to work in agriculture. "I wasn't raised breeding livestock or working the land or anything like that," he says. Instead, Kehler and his brother, Andy, saw how their tiny little town was going broke as small-scale farms were forced to close shop due to diminishing margins. Even though he isn't the younger generation of a farming family—his dad was a consultant in Colombia, South America, where Mateo was born—he still had a soft spot for his town's farming community and its traditions. Fresh out of his 20s, and aided by all the tech savvy that comes with being that young, Kehler decided to head back to Vermont and start a little cheese business, which meant buying a little land and feeding a few cows.

Farming's "Chinese Wall"

Korn Ferry experts found a disconnect between two elements that make for a successful executive in the agriculture sector today: farming knowledge and technical knowledge.

FARMING	*TECH*
knows the land	knows computers and systems
knowledge passed down through generations	knowledge gained in schooling and office experience
gets hands dirty	works from the computer
adjusts depending on land conditions	adjusts depending on innovation
experience as important as formal education	boasts an advanced degree

But Kehler was thinking bigger: He brought in hyper-digitalized processes, and built out cheese-aging caves, calibrated for humidity and temperature to microaccuracy. He hired a combination of local farmers and outside technical specialists. Many of his cheese experts come from around the country, and his microbiologist is Greek. Today, Jasper Hill Farm is considered a model cheese-making operation for both its sanitary standards—a major challenge for cheese makers—and its holistic, community-driven approach to agriculture and farming. While he's already proven himself as an authentic, boots-on-the-ground insider, Kehler doesn't hide his love of technology. As he talks about the latest developments in DNA sequencing, he gestures broadly with his hands. Because he is so often digging his hands into soil, he doesn't wear his wedding ring, and he's got dirt beneath his nails.

It won't be just new leaders that will transform agriculture—a cultural shift is critical, too. But a new generation won't hurt. "The challenges with working with living products and living species will never end," Kehler says. "The real challenge will be being open-minded enough to be willing to harness all that science and technology to make the best product possible for consumers."