

Dairy farmers are turning to Ida, an AI system, to track their cows' health

Required Annotations	Student-Created Annotations	Summary / Questions / Reflection
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WAYNESBORO, Georgia — In the two months since Richard Watson strapped 200 remote-control-sized transmitters around his cows' necks, an artificial intelligence (AI) system named Ida has **pinged** his phone with helpful alerts. They tell him when his cows are eating, when they're feeling sick and when they're ready to breed.

"There may be 10 animals out there that have a real problem, but could you pick them?" he said one morning. He stood among a grazing herd of dairy cattle wearing what he calls "cow Fitbits," after the devices people wear to track their health.

"I Can't Draw, Paint Or Anything Else, But I Can Watch Cows"

On the neighboring pastures in rural Georgia, though, other farmers say they aren't impressed.

"I can spot a cow across a room that don't feel great just by looking in her eyes," said Mark Rodgers, a fourth-generation dairy farmer in Dearing, Georgia, whose dad still drives a tractor at age 82. "The good Lord said, 'This is what you can do.' I can't draw, paint or anything else, but I can watch cows."

Sophisticated AI technologies are helping reinvent how Americans work. AI offers powerful software that can read and react to mountains of information and saves people time and stress.

However, the technology's rollout is also sparking tensions in workplaces as old-fashioned as the dairy farm. That down-home resistance raises a question farmers might be tackling before most of the workforce: Can new technology ever beat old **intuition**?

Tracking A Cow's Tiniest Movements

The AI that Watson's farm uses — called Ida, for "The Intelligent Dairy Farmer's Assistant" — tracks his cows' tiniest movements through their collars. Those "real-time cattle analytics" are then used by the AI to assess diet and movement and predict health issues. For example, **lameness** or udder infections.

This level of intricate maximum optimization may sound silly. Cows spend much of the day staring blankly or relieving themselves. Yet Watson said it could mean the difference between a cow's healthy milking or early death — and this could translate into hundreds of thousands of dollars in savings every year.

The Ida AI has sparked some early interest among farmers eager to compete in an industry in which low milk prices and farm layoffs have everyone on edge. Farmers say they need all the help they can get after years of too few young people getting into farming.

Connecterra, a development team based in the Netherlands, built Ida with help from TensorFlow. TensorFlow is the giant AI toolbox Google created for its own apps and opened to the public in 2015.

Spotting Potential Health Problems

Standing one March morning among his cows at Seven Oaks Dairy, one of three farms he runs as part of his Hart Agriculture brand, Watson pulls out his iPhone to show off his Ida app. The AI says he has three "potential health problems to be checked" among his herd: Cow #14433 is eating less, while cows #10172 and #3522 are chewing less, a sign they may feel ill. The number

of cows ready to breed is zero, as signified by a reassuring green check mark.

At 6-foot-4, the New Zealand-born Watson, age 46, looks like a rugby player — which he was, playing in the late 1990s for a semiprofessional team called the Hurricanes. Afterward, he moved to lead a cattle-grazing research program at the University of Georgia, where he taught and advocated the increasingly rare craft of letting cows **amble** aimlessly on a pasture, eating as they go.

That makes tracking their free-range eating and movement harder than at the average American "confinement" dairy. These cows are kept in **stalls** and fattened on corn and grains.

Spotting problems the old way required closely watching the herd day and night. "Unless it's really obvious — you know, she's walking or limping or there are buzzards flying overhead," Watson said.

Packed With "600 Years Of Cow Data"

Yasir Khokhar is the co-founder of Connecterra. He said the Ida AI was first trained to comprehend cow behavior via thousands of hours of video and sensor inputs, as well as simpler approaches, including Khokhar mimicking cow movement with a sensor in his pocket. ("I was the first cow," he said.) The AI, Khokhar estimates, has processed about "600 cow years of data," and is gaining about eight years of new cow data every day.

The AI now logs seven distinct cow behaviors: walking, standing, lying down, eating, chewing, drinking and idling.

Khokhar said he conceived the AI idea while living on a Dutch dairy farm. He launched his start-up in late 2016 and now counts a few thousand cow monthly "subscriptions" across farms in seven countries, including Spain and Pakistan. Farmers' prices start at about \$3 a month per cow, plus a \$79.99-per-cow start-up fee. Watson estimates he has invested about \$17,000 on the system so far.

Tech Companies Want To Revamp Farming

Agriculture has long been one of Big Tech's juiciest target industries. Revamping the way farmers feed the planet, in the face of crises such as food shortages and climate change, would be revolutionary and highly profitable. Start-ups and farmers are now using camera-equipped robots to pick apples and sort cucumbers, running driverless tractors to harvest grain and flying scanner drones to survey livestock.

Rodgers, who runs his "daddy-daughter" family dairy farm in Dearing, Georgia, said he's not opposed to farm technology. His "super-system" features cow-tracking devices and, soon, a DeLaval VMS, which milks cows with lasers and robot arms and is advertised as the "ultimate automatic milking machine."

His system, unlike Ida, doesn't track chewing or use AI to tell him which cows to watch or what to do.

"There's no substitute for watching your animals. It's an art and a science, and I hope my daughter and nephew get better at it than I am," he said. The cattle, he added, don't care much about evolving with the times.

Questions

1. Read the two details from the article:

"There may be 10 animals out there that have a real problem, but could you pick them?" he said one morning. 'There's no substitute for watching your animals. It's an art and a science, and I hope my daughter and nephew get better at it than I am,' he said.

How do these details develop a CENTRAL idea of the article?

- a) They indicate the methods used by farmers to keep track of and care for their cows.
 - b) They emphasize the different methods used by farmers on large and small dairy farms.
 - c) They explain the health ailments that most commonly affect cows on free-range dairy farms.
 - d) They present arguments for and against the use of AI to identify health problems in cows.
2. Which statement would be MOST important to include in an objective summary of the article?
 - a) The debate among farmers over whether or not to use Ida to support their work will likely never be resolved.
 - b) The benefit of systems like Ida does not outweigh the relatively high cost of the monthly subscription.
 - c) The use of AI in farming has increased significantly with the invention of new technology.
 - d) The decision to graze or confine cattle has a significant and obvious impact upon the health of the herd.
 3. Read the list of words from the section "I Can't Draw, Paint Or Anything Else, But I Can Watch Cows."

tensions
resistance
question
tackling

How do these words contribute to the tone of the article?

- a) They convey the differing viewpoints farmers hold in regard to the use of AI technology.
 - b) They convey the uncertainty farmers feel about the accuracy of the Ida system.
 - c) They convey the stress and struggles that farmers endure in an ever-changing economy.
 - d) They convey the hard work AI developers have put into the creation of Ida.
4. Read the sentence from the section "Tracking A Cow's Tiniest Movements."

The Ida AI has sparked some early interest among farmers eager to compete in an industry in which low milk prices and farm layoffs have everyone on edge.

What is the meaning of the phrase "on edge" as it is used in the sentence above?

- a) angry and fearful
- b) tense and nervous
- c) in danger of falling
- d) unaware of the future