INTERVIEW · ARTIFICIAL INTELLIGENCE IN CATTLE BREEDING

“900 Cows Before Lunch”

A New Zealand sharemilker uses a $30 subscription service to create breeding plans that used to take months to develop. What he’s doing wouldn’t be possible on a German farm today—and it’s not because of the technology.

Interview: Helmut Demmelhuber

Matthew Zonderop, a 50:50 sharemilker, manages a herd of about 400 KiwiCross cows near Matamata in New Zealand’s Waikato region. The farm belongs to someone else; the cows and the work belong to him, and they split the milk check. He doesn’t know how to program. He gets by with Excel, like most people.

Ever since one night in the spring—two weeks before the start of the breeding season—when a spreadsheet he’d been building for over five weeks crashed, he’s been developing an AI-powered mating system that’s now in use on several New Zealand farms. The New Zealand trade press has reported on it extensively; at Fieldays 2025, he was a finalist in the Innovation Awards.

For German readers, what’s interesting about this story isn’t so much the technology as a framework that’s missing here. We’ll talk about that at the end.

“It was just cow data”

Mr. Zonderop, the story of how you got started is now well known. What part of it is most often misrepresented?

That it was part of a plan. It was Friday night, 10:30 p.m., after five weeks of work on spreadsheets, and the entire workbook was highlighted in red. I’d heard about ChatGPT and thought: I have nothing to lose—this isn’t personal data, it’s just cow data. A typo was the cause. Found and corrected in seconds.

And then?

Then came the prompt asking if I wanted the file to be analyzed further. I clicked “Yes.” Over the next three hours, the system drew connections on its own—sorted lactation data, broken down cell counts, and separated fat and protein. Then it detected the bull data from another spreadsheet and, without being asked, offered to compare the two. That’s when I paused. In thirty seconds, it had completed what had taken me five weeks. My second thought was more unsettling: I had just awakened something that every breeding operation in the world has been guarding for decades.

How long did it take to turn that into a usable system?

Six months. YouTube tutorials after evening milking, podcasts in the car while herding, copying phrases, rewriting them, and re-entering them. At some point, I asked the system itself: Can you help me ask you better questions? That was the turning point. With AI, you don’t have to write any program code—it does that for you. What it lacks is what isn’t written down anywhere.

For example?

Why an American Holstein bull mated to a KiwiCross cow leads straight into a barn full of expensive, oversized disappointments. Why the guidelines you set on a pure pasture farm can ruin a farm with partial TMR. I had that in my bones. The only thing I was missing was a tool that could keep track of everything at once. And no human can do that: 400 cows times 26 traits times eight generations of pedigree times a dozen bulls in working memory—you don't fail at that because of laziness, but because of physics.

How a project unfolds

Describe a specific case.

A farm calls—let's say 900 cows on the South Island. The farmer logs into MINDA, the central herd database, and exports a CSV file. It contains everything: phenotypic data, the complete genomic profile, production history, health data, live weights, every case of mastitis, every case of uterine inflammation, every day of lameness, every lactation curve going back to the cow's birth. One file. Standardized. Ready for download.

And then the system does the calculations?

First, I talk to him on the phone for twenty or thirty minutes. More nutrients? Better rebreeding? Lower cell count? Shorten gestation? Protect longevity? After that, the system matches the cow data against the bull catalogs, calculates over 26 traits per animal, and generates the mating report. My own 400 cows: about half an hour. The 900 from the South Island: done before lunch.

And back in the day?

Months. I know—I've done it. And at the end of those months, there was always a quiet voice asking whether any of it was really right. If you have 400 cows and try to do this yourself, you'll spend months on it—and are you ever truly satisfied with the answers you've come up with? For the first time in my professional life, that voice is silent.

Seven kilos, not thirty-five

What's the most important rule in your system?

That you can't go backward with it. People come to me and say, "I want bigger cows." Then we look at their data, their system, their location, and how much feed they actually buy in. And we ask, "Will that really work for your farm?" Most of the time, the answer is no. In New Zealand, bigger cows don't automatically mean more milk. We farm out in the open.

And that translates to a number?

Seven kilograms of live weight in a season. Not thirty-five. Breeding works both ways—you can correct or enhance traits. But the system is designed so that you don't go backward. Anyone who chases thirty-five kilograms in a single generation breaks something they didn't realize was essential.

That sounds like the opposite of what you hear from AI providers.

Today, we have exceptionally high-performing and valuable animals. From calving to full lactation in six weeks, and then on, year after year, in our environment. We can no longer treat them like a commodity. We must ensure that the data we get from them is accurate—because their offspring influence the next generation. And the one after that.

Looking Back

The first offspring group from your own matings is out in the pasture. What did you do with them?

Something that would have been unthinkable two years ago. Before the calves went to the rearing pasture, I pulled the genomic data for all the animals and linked it to the complete life history of each mother—size, paternal lineage, lactation history, every health event, calving data, first inseminations, every case of mastitis, every instance of lameness—I cross-referenced the sire IDs and asked the system to tell me, in retrospect, how my breeding program actually performed.

How long?

Half an hour. And the result was a conclusion that no human consultant could have delivered in a month: This mating worked. That one was a flop. Don't use that bull again. This sire corrected a weakness that ran three generations deep on the maternal side.

What do the numbers say?

Stay cautious. The evaluation of farms working with our matings shows higher nutrient content and better fertility without a corresponding increase in milk yield. In a pasture-based system where every additional liter of feed costs money, that's the right combination. But I treat the figures circulating in the trade press—twelve percent faster breeding progress, eighteen percent fewer stillbirths—with caution, and everyone should do the same. These are preliminary figures. I don't know if they will stand up to independent scrutiny. The long-term traits—mastitis resistance and functional survival rate—won't tell their full story for another five to eight years.

When the Competition Sat at the Kitchen Table

You're developing a tool that competes with the national breeding organization's mating program. How did they react?

You'd expect lawyers. Instead, I got an email: The CEO wanted to visit the company. He brought the entire management team with him—the head of genetics, the scientific management, the engineering department, and the people who actually develop the MINDA dashboard. They sat at my kitchen table.

So?

I said to one of them: You've spent your entire career doing research and experiments in genetics—I just did that in five minutes. That could have ended the conversation. It didn't. They were thrilled. And then came the question I wasn't prepared for at all: What can we do to help? I'm not an entrepreneur. I'm a dairy farmer who wants to breed the perfect cow.

What came of it?

They provide me with additional bull data and check the kinship of the proposed bull teams against the national pedigree database. This check is fast, accurate, and based on the national pedigree database—there would be no reason to replicate it. Their own mating tool offered eight weightable traits. We calculate over 26.

What is your biggest risk?

It's not the farmer and his breeding efforts. It's the separate platforms—the exits off the genetics highway.

Context: Which of these would work in Germany?

That very last sentence is precisely why this discussion is relevant for German farms. Because what Matthew Zonderop is doing doesn't fail here due to technology, but rather because of three framework conditions.

First: the file. The key advantage isn't the model, but the MINDA export—a standardized, downloadable file that contains everything about every animal. According to industry figures, the database covers around 93 percent of all dairy cattle in New Zealand. In Germany, genomic results are primarily provided to farmers as individual PDF data sheets from the vit or Netrind systems, with one animal per file; for home-bred breeding bulls, complete exports are sometimes not available at all. A farm with 300 genotyped animals has one table there, but 300 documents here. Anyone who wants to analyze these documents spends most of their time not on breeding, but on typing.

Second: the trait framework. Zonderop uses BW, PW, and TOP and bases its economic evaluation on DairyNZ metrics. These metrics cannot be directly applied to RZG and the German partial breeding values; added to this are differing reference bases and base conversions on both sides. A model that does not account for such differences compares figures that have nothing to do with one another—and presents the result in flawless sentences. A flawed Excel spreadsheet looks flawed. A flawed AI response looks like expert advice.

Third: the production system. The KiwiCross weighs around 450 kilograms and accounts for about 60 percent of New Zealand's dairy cow population of approximately 5.91 million animals. It is a crossbreed of Holstein-Friesian and Jersey that has been systematically selected since the 1950s. The farm practices block calving, and the selection threshold is strict and consistently applied. An index optimized for this has little in common with a German robotic dairy farm.

What is, **however**, **very much transferable** are three approaches—and they cost nothing:

Prioritize weighting over bull selection. Zonderop's twenty-minute goal-setting discussion before the first calculation is the real crux of the matter. Anyone who starts with the bull list is answering a question they've never asked.

Make incremental adjustments instead of taking a leap. The seven-kilo rule isn't a New Zealand peculiarity, but simply breeding discipline. It can be applied to any trait a German farm is currently pursuing.

Check backward. Comparing your own offspring to the mating decisions made four years ago is feasible here as well, using milk performance testing and herd management data—and it's the only method from which you can truly learn.

One demand remains that is as unspectacular as it is persistent: structured, machine-readable exports of a farm's own herd data, for every farm, at no additional cost. Not as a concession, but as a matter of course—it is the data on their own animals. Whoever solves this will make more of a difference over the next five years than any new algorithm.

Boxes related to this article

Box 1 · About the Person

Matthew Zonderop, Matamata, Waikato, New Zealand. A 50:50 sharemilker with about 400 KiwiCross cows: The farm owner provides the land, Zonderop provides the cows and labor, and the milk revenue is split—a form of farm management unknown in Germany that opens the door to owning their own farm for many New Zealand farmers.

Founder of **Perfect Cow Breeding Solutions**. The system generates farm-specific mating plans at the herd and individual animal levels, calculated based on 26 traits per animal. Data sources: the farm's MINDA export, RAS lists from the NZAEL, the breeding values for BW, PW, and TOP, and economic indicators from DairyNZ. The kinship analysis for the bull teams is conducted via the LIC's national pedigree database.

Finalist in the Innovation Awards at Fieldays 2025.

Box 2 · New Zealand Terms

MINDA – the central herd database of the Livestock Improvement Corporation (LIC), which, according to industry figures, covers approximately 93 percent of all dairy cattle in New Zealand. Farmers export a standardized CSV file from this database themselves.

BW – Breeding Worth – Overall breeding value, weighted according to the expected economic contribution of the offspring in a pasture-based system.

PW – Production Worth – An assessment of an individual animal's performance to date, serving as the basis for selection and culling decisions.

TOP – Traits Other than Production – Conformation and functional traits.

RAS List – NZAEL's "Ranking of Active Sires," the national bull ranking list.

System 1 to 5 – Classification based on feeding intensity, ranging from pure pasture grazing without supplemental feed to partial TMR feeding.

KiwiCross – A cross between Holstein-Friesian and Jersey, systematically selected since the 1950s and recognized as a breed by the LIC in 2005. Approximately 450 kilograms, accounting for about 60 percent of the national dairy cow population of roughly 5.91 million animals.

Sharemilking – A farming arrangement in which the land and herd are owned by different parties and the milk revenue is divided according to an agreed-upon formula.

Box 3 · What's Missing in Germany

| | New Zealand | Germany |

|---|---|---|

| Data access | A standardized CSV file from MINDA | Individual PDF data sheets from vit/Netrind, one animal per file |

| Coverage | Approximately 93 percent of all dairy cattle in a single database | Distributed among breeding organizations, state control associations, herd programs, milking equipment suppliers, and veterinarians |

| Effort for 300 animals | one download | 300 documents, to be manually consolidated |

The technical capability for AI-supported analysis of entire herds exists on both sides. The difference lies not in the model, but in access.

Box 4 · Three Things That Are All Called "AI"

In cattle breeding, "AI" traditionally stands for **artificial insemination**. In this article, it refers to artificial intelligence. Within this context, it is worth making a distinction:

Statistical learning methods—the basis for breeding value estimation. Mature, proven, with established reliability.

Machine learning and neural networks—pattern recognition in images, sensor data, and spectra. Partially ready for practical use in trait assessment.

Language models – process text, synthesize sources, and explain relationships. Useful for data processing and advisory services, but unsuitable for estimating breeding values; without validation, they are prone to plausible-sounding errors.

About the Authors

Helmut Demmelhuber is a management consultant based in Tübingen, Baden-Württemberg, and an expert in the application of artificial intelligence in cattle breeding. He grew up on a Bavarian dairy farm and has been actively involved in Holstein breeding again since 2025. He advises breeders and breeding organizations on the practical integration of AI into cattle breeding.
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Matthew Zonderop, as a 50:50 sharemiller, manages a herd of about 400 KiwiCross cows near Matamata in New Zealand's Waikato region and is the founder of Perfect Cow Breeding Solutions. He grew up on a New Zealand pasture-based farm and, drawing on his own on-farm experience with " ," developed an AI-supported mating system that is now used on several New Zealand farms. He creates farm-specific mating plans based on 26 traits per animal and was a finalist in the Fieldays Innovation Awards in 2025.
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