

ENTERPRISE

RUGGED COMPUTING DRIVES VALUE IN PRECISION LIVESTOCK FARMING

/ Overview /

Precision livestock farming (PLF) or “smart farming” involves a set of practices that rely on advanced digital technologies to deliver better results and increase consumer confidence in the supply chain from farm to table. Today, automated real-time animal monitoring to improve welfare, environmental impact, and production are bringing about the “Fourth Industrial Revolution”¹ in farming and agriculture.

In the pork industry, one exceptional company leading the AgTech herd—FarrPro, based in Iowa City, Iowa—is making significant strides in changing the way the world grows pork. Amos Petersen, the Founder and CEO of FarrPro, has made it clear that “livestock farmers are stewards and caregivers who can use modern technology to efficiently solve the challenges and problems with pork production.” Recently nominated by Data Magazine as one of the top bioinformatics companies in the US, FarrPro is providing pig producers and breeders with advanced farrowing technologies and PLF tools that move individual animal care and welfare to the next level while increasing production, sustainability, and profits.

To that end, FarrPro has concentrated its efforts on developing a PLF technology platform—the FarrPro Sentry System—that allows livestock farmers to produce more viable piglets, reduce piglet mortality rate, improve sustainability, and increase profits. The complete FarrPro Sentry System of smart tags, software, and hardware is designed to turn data—human, animal, and environmental—into powerful intelligence that can be used proactively. The cornerstone of this solution is the unprecedented FarrPro Sentry custom Getac ZX70 tablet, a handheld computing device that is fully rugged, certified, and tailored specifically for the pork industry.

¹The Fourth Industrial Revolution—sometimes referred to as “Industry 4.0”—represents a fundamental change in human development enabled by extraordinary technological advances commensurate with those of the first, second, and third industrial revolutions.

As a pork industry technologist and inventor, Amos Petersen and FarrPro develop specific solutions that include tracking critical data for boars, sows, and piglets; consistently monitoring animal health and welfare; automating environmental controls; and streamlining daily task management in the barn system.

Incorporating FarrPro solution technologies into daily life - creates a holistic or “unified production system” that is essential for the future of pork production. Because FarrPro believes that “humans and animals are in this together,” their technologies reflect those ideals while also having a synergistic effect to create a safer, healthier, and life-affirming experience for livestock farming.

As a result of FarrPro’s visionary efforts—along with modern tracking and traceability of the supply chain—consumer differentiation and confidence in purchasing pork products according to specific preferences are substantially improved. In other words, consumers feel assured through the process and verifiable information that the pork products they purchase have been raised in accordance with strict industry practices.

/ Challenge /

The physical challenges of working in rugged barn conditions combined with the need to have easy digital connectivity for the employees prompted FarrPro to scrutinize the effectiveness and quality of the devices they were using in the barns.

In the past, barn workers suffered through many broken iPads with flimsy antennas that would not properly connect with “smart tags” on the ears of the pigs. These tags include near-field communications (NFC) and radio frequent identification (RFID) technology. They even had a brief experiment using digital watches to no avail. After much trial and error, FarrPro believed there must be a better way. Ultimately, they wanted to develop their own solution incorporating a military-grade rugged tablet that would include all the necessary features, but still be able to withstand harsh conditions.

Near this time, FarrPro connected with Affinity Enterprises. Affinity, an authorized business partner and platinum reseller of Getac products, specializes in providing complete rugged computing solutions to an array of organizations that require rugged computing devices to get critical work done in extreme environments.

Amy Palka, CEO of Affinity, said “FarrPro was specifically looking to partner with a company that could offer the pork industry a tailored solution to align perfectly with its needs,” she further added that, “they wanted to do a proof-of-concept pilot program with a rugged tablet designed and configured exactly for use in the barn workflow.”



/ Solution /

With the expert guidance and support of Affinity Enterprises, FarrPro chose to co-brand and partner with Getac to implement its custom solution for the pork industry. FarrPro chose the Getac ZX70 tablet for their pilot program.

The Getac ZX70 is a fully rugged Android™ tablet with an ergonomic design making it easy for barn workers to hold in just one hand. This tablet would be the hardware foundation upon which a full pork industry solution would be built for FarrPro customers.

The ZX70 provides the best battery run time performance in its class for mission-critical field operations. It has a 7" display that is sunlight readable and glove-enabled for the touchscreen interface. To make it even easier for barn workers, the ZX70 fully rugged tablet comes equipped with a waterproof/non-permeable holster that is easily cleaned and disinfected multiple times per day. The holster with tablet can be worn around the waist or attached to a shoulder strap.

The pilot began in January 2021 for approximately a three-month period. The FarrPro Sentry custom Getac ZX70 tablet was configured exactly to the business requirements specified by FarrPro. It was considered a new product solution for monitoring the entire life cycle of pigs in several different barn types: farrowing, gestation, and nursery. With its durable NFC high frequency antennas, cameras, global positioning systems (GPS), and sensors the FarrPro Sentry custom Getac ZX70 was immediately placed in the hands of the farm workers as the "tablet that doesn't break," according to Amy Palka.

As a robust pork industry solution, the rugged tablets were installed with specific applications for the real-time management of livestock driven by barn workflows. The sensors in the tablets worked seamlessly with the tags in the pigs' ears to read data.

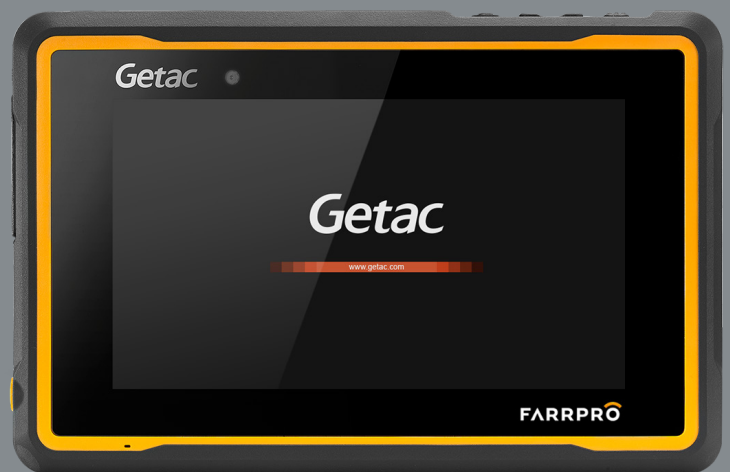
In an almost futuristic scenario, the cameras in the FarrPro Sentry solution could readily identify specific animals in the barn and place a color-coded "bounding box" around the pig while displaying critical information on the display screen to help determine whether that animal required immediate attention by the worker.

There were also applications making it easy to capture data about the animals and aggregate that information for reports.

The whole process of using this pork industry solution is data intensive. Farm management software regularly records many data points from rugged surroundings such as weight, temperature, air speed, ventilation, and litter mortalities, among others. The data is also used to track conditions in the barn to prevent the outbreak of disease.

Another important use for the FarrPro Sentry System is to record genetic information for the purposes of breeding animals for certain characteristics and desirable traits expected by the end-consumer and marketplace. One prominent genetics company, Acuity Swine, a customer of FarrPro, participated in the FarrPro Sentry pilot program using the fully rugged and customized Getac ZX70 tablets.

Lacey Knodle, a genetics supervisor in charge of data research and mating decisions at Acuity Swine, said "The durability of the FarrPro Sentry tablet has been nothing less than great for the company's goal of raising pure-bred animals. Our workers even enjoy listening to music on it!"



Getac ZX70
Fully Rugged Tablet

/ Result and Benefits /

At the conclusion of the pilot, Amos Petersen of FarrPro said “The FarrPro Sentry custom Getac ZX70 tablet is the cornerstone of the digital revolution in the barn. There are no more broken tablets or issues with connectivity as there had previously been.” With the pilot being a success, FarrPro plans to fully partner with and co-brand the custom Getac ZX70 tablet as the FarrPro Sentry™ tablet.

Working closely with customers, FarrPro further hopes to change how farmers think about handheld computing devices and inspire new industry standards. As Amos Petersen put it, “With the right device in hand, like the FarrPro Sentry™ tablet, you can take the technology directly to the source of greatest value—the animals.”

Going forward, FarrPro will market the FarrPro Sentry solution to their customers with a full monthly subscription plan for hardware and software. It will also work seamlessly with FarrPro’s Haven Sentry tag to locate and monitor the condition of animals at swine farms.

The base Getac ZX70 rugged tablet provides significant value and the total cost of ownership (TCO) over the life of the tablet is low compared to consumer-grade products. Industry statistics show that there is a 30% failure rate with the iPad that was in previous use by FarrPro. The Getac tablet has a break/failure rate of less than 3%. It is also designed to last up to 5 years in extreme environments. The lifespan of a typical consumer tablet, however, may be measured in months, not years, when used in those same harsh conditions. Moreover, Getac provides a 3-year “bumper-to-bumper” warranty on all hardware. In the unlikely event something goes wrong, FarrPro and its customers will be able to get a new rugged device quickly from Getac.

The built-to-last design and negligible failure rate will ultimately save FarrPro and its customers on replacement costs as well as the disruption to the workflow process that is costly due to slow down on labor and productivity. This also includes backend IT costs saved from failures or broken tablets. Amy Palka of Affinity Enterprises said, “If you consider TCO, as described in studies by VDC research and others, and apply it to the demanding work requirements in a pig barn, using consumer tablets can cost up to 200% more than certified rugged tablets over a 5-year period.”

Now that validation and piloting are complete for the FarrPro Sentry solution, FarrPro is looking forward to future deployment and go-to-market with Getac as a rugged partner standing by its side.

/ Getac /

As one of the leading rugged computer providers, Getac offers extensive rugged computing product lines including laptops, tablets, and computers.

We serve a wide range of vertical markets including military and defense, law enforcement, public safety, emergency services, utility, natural resources, oil and gas, telecommunications, transportation, and industrial manufacturing.

Getac is one of the key subsidiaries of the MiTAC-Synnex Group, the third-largest computing group in Taiwan, with US \$41.3 billion in revenues (2020). Our products have passed stringent international rugged testing standards for rough handling and outdoor mobility.

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