

CASE STUDY

Nokia enables Solis Telecom Tower to transform operations and connect the agricultural landscape at Vera Cruz do Xingu Farm

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SOLIS



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At Solis, we believe rural industries deserve the same access to digital tools as any urban enterprise. Our partnership with Nokia to deploy private LTE at Vera Cruz do Xingu is proof of that belief in action. We've created a scalable, sustainable model that empowers farmers with live operational insights, enhances worker wellbeing and drives measurable gains in productivity. This has created a foundation for smarter, more inclusive growth in Brazil's agricultural heartland.”

Marcus Mendes
CEO, Solis Telecom Tower



Solis Tower Telecom do Brasil is a private mobile LTE NB-IoT operator focused on supporting Brazil's agribusiness sector. With only 34% of agricultural land in Brazil currently covered by 4G or 5G networks, Solis set out to change that, offering private LTE through an OPEX model to bring scalable connectivity to underserved farms. Their approach is powered by Nokia's AirScale technology, which supports high-capacity data exchange and dependable infrastructure tailored to the needs of remote, enterprise-scale operations. This approach also directly supports Brazil's national ambition to modernize agriculture, a sector that contributes nearly 25% of the country's GDP.

One such operation is Vera Cruz do Xingu, a 43,000-hectare farm in Canarã, Mato Grosso, with 17,000 hectares under cultivation. Managed by Henrique Carneiro Gonçalves, whose family has owned the land for over 46 years, the farm sits more than 800 kilometers from his home in Goiânia. Until recently, it faced persistent communication challenges, relying on amateur and satellite radio. The arrival of Solis' private LTE network marked a turning point, enabling the farm to modernize operations and adopt digital tools previously out of reach due to its geographic isolation.

OBJECTIVE

Transform agricultural operations at Vera Cruz do Xingu Farm

The project set out to transform operations at Vera Cruz do Xingu Farm by introducing reliable, high-performance connectivity across the entire site. The primary objective was to improve operational efficiency and enable precision farming through real-time data exchange and machine connectivity. With coverage extending up to 20 kilometers from the farm's headquarters, the network allows seamless communication between remote areas of the property.

A key goal was to enhance employee well-being and safety by providing digital connectivity to all areas of the farm. This access empowers workers to manage personal tasks, stay in contact with family and respond effectively to emergencies, significantly improving

quality of life and safety in a geographically isolated environment.

In parallel, the project aimed to support sustainability initiatives by enabling more accurate monitoring of fuel and chemical use. With real-time visibility into equipment and supply consumption, the farm can implement more environmentally responsible practices and reduce unnecessary waste.

This digital foundation delivers measurable gains in productivity, more environmentally sustainable operations and a more connected workforce, setting the stage for a new era of connected, data-driven agriculture in Brazil's rural regions.



SOLUTION

Deploy a private LTE network to enhance precision farming and resource management

The private LTE network enabled by Nokia's AirScale technology on an OPEX model allowed Vera Cruz do Xingu Farm to access advanced infrastructure without upfront costs, ensuring long-term value. By using cellular LTE, the farm benefits from secure, wide-area, high-capacity connectivity that reaches across even the most remote fields. This enables real-time monitoring, automated equipment and data-driven decision-making, laying the foundation for more precise, efficient and sustainable agricultural operations.

The resulting LTE network supports up to 200 simultaneous connections, enabling seamless telemetry, real-time machinery diagnostics, over-the-air software updates and instant team communication.

Crucially, the network is fully integrated with the farm's IoT systems. This supports continuous data monitoring across key operational parameters, including fuel consumption, seed counts, product application rates and idle machinery status. The availability of this data in real time enhances precision farming and resource management.

In addition, the network allows for remote diagnostics and firmware updates from equipment suppliers such as John Deere. Operators can now manage and streamline machinery performance using centralized dashboards and mobile applications, reducing downtime, increasing productivity and enabling more informed decision-making. The solution represents a major step forward in transforming agriculture through dependable coverage in even the most remote environments.

RESULTS

Increased productivity, efficiency and workforce engagement at scale

Following the deployment of the private LTE network, Vera Cruz do Xingu Farm has achieved measurable improvements in productivity, efficiency and workforce engagement. The network enabled a 3–5% reduction in fuel consumption, an 8–10% reduction in the costs of displacing outsourced technicians for maintenance and a large decrease in unproductive time. The farm also saw a significant reduction in employee turnover, alongside enhanced staff well-being, with workers reporting better work-life balance and greater job satisfaction.

Connectivity also had a significant impact on employee satisfaction and retention. Workers can now stay in touch with family, manage finances and handle essential tasks without needing to

leave the field, enhancing quality of life and reducing turnover in a traditionally isolated environment.

Operational workflows were streamlined, with emergency response times reduced and less need for office-based management. Farm managers can now work directly in the field while remaining fully connected to systems and teams.

The network also delivered direct cost savings, particularly through reduced reliance on travel for equipment maintenance. With remote diagnostics and updates, each avoided technician visit, costing approximately R\$2,500 (~\$450 USD) each time, translates into meaningful savings and greater operational flexibility. The result is a more efficient, connected and resilient farming operation.

GLOBAL PERSPECTIVE

Private wireless unlocks the next leap in smart agriculture, helping bridge the digital divide in rural areas

The partnership between Solis and Nokia demonstrates the transformative potential of private wireless networks in remote, underserved regions. While the initial focus is agribusiness, the model is highly scalable, offering a blueprint for digital transformation across rural industries.

In Brazil, where only a small percentage of farmland currently has access to 4G or 5G connectivity, this project highlights a powerful solution to bridging the digital divide. At Vera Cruz do Xingu Farm, private LTE has proven its value not only in boosting output, but also in supporting sustainability and inclusion. The network enables smarter logistics,

reducing unnecessary travel and fuel consumption, and allowing for more efficient use of agricultural machinery, delivering environmental benefits that far outweigh the energy used by the LTE infrastructure itself.

This deployment exemplifies how private networks can deliver secure, reliable infrastructure at scale, empowering enterprises to optimize resources, adopt precision technologies and improve quality of life for remote workers. It reflects a broader trend toward smarter, more connected industries, and showcases what's possible when innovation is tailored to local realities. To learn more about the benefits of private wireless, visit our [website](#).

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At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs, which is celebrating 100 years of innovation.

With truly open architectures that seamlessly integrate into any ecosystem, our high-performance networks create new opportunities for monetization and scale. Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

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