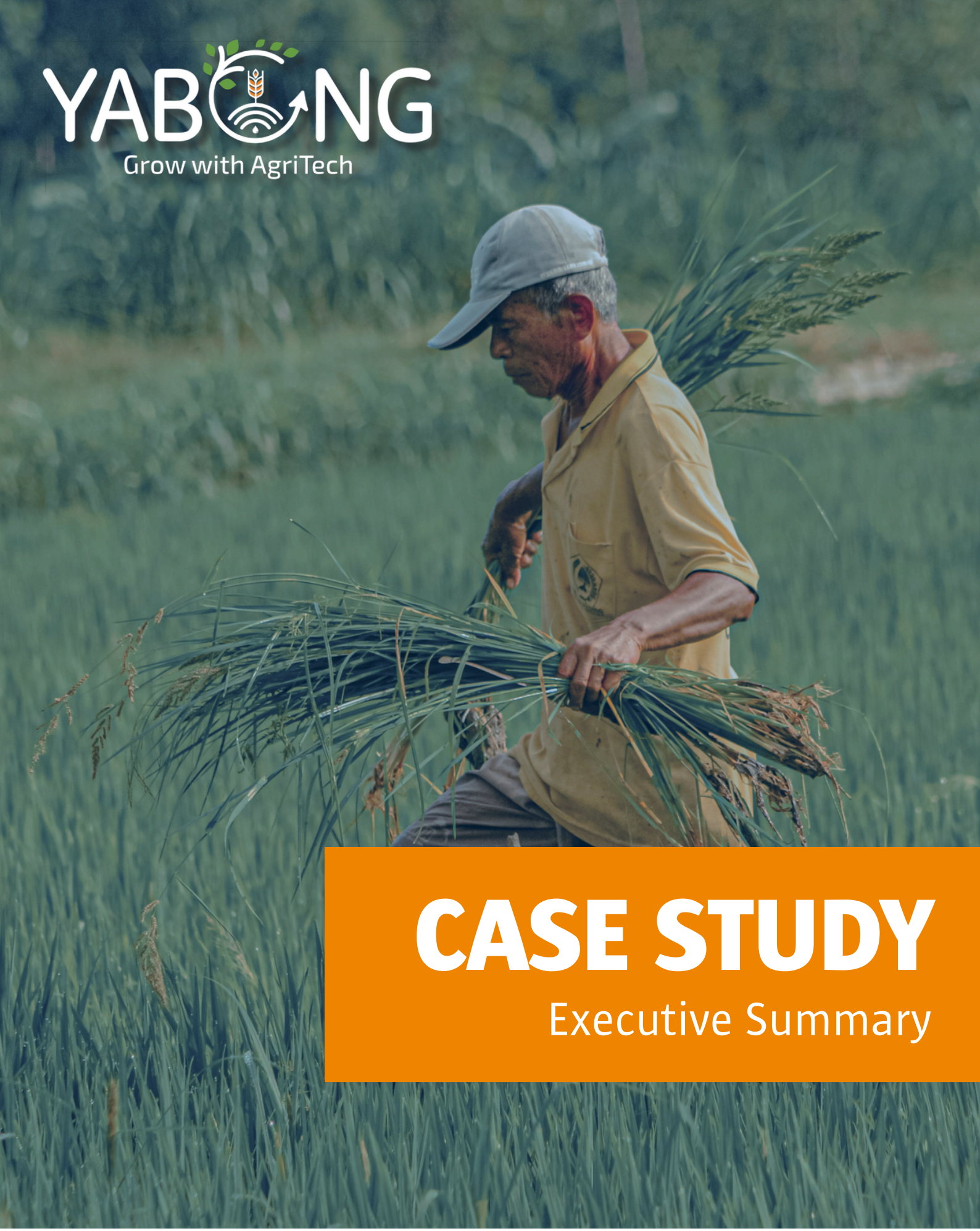
YABONG

Grow with AgriTech



CASE STUDY

Executive Summary

ROYAL Eijkelkamp

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ASSIST and Royal Eijkelkamp - Project YABONG

Case Study Executive Summary

Dr. Meriam F. Sulit, Dr. Nerilyn J. Victoria, and Mr. Emil Gulapa

Project YABONG: Grow with AgriTech – Soil and Water Monitoring and Management Project
central to the project is the deployment of advanced Royal Eijkelkamp technologies by installing agrometeorological stations with groundwater level metering across three demonstration farms in Malolos, Angat, and Norzagaray, and a specialized pF soil laboratory at Bulacan Agricultural State College (BASC). These systems automate the collection of critical environmental data ranging from real-time nutrient levels using handheld devices, and soil moisture to groundwater availability and agrometeorological conditions. By utilizing telemetric sensors for automatic data collection and handy field sensors for manual measurements, the project provides a comprehensive look at the chemical and physical status of the soil.

The Project Yabong integrated three components:

- The technological integration by utilizing Royal Eijkelkamp tools for hands-on diagnostics and technologies for soil and water monitoring and management
- The strategic partnerships: through tapping Local Government Unit- the Municipal Agriculture Offices and the lone Agricultural State College in Bulacan (BASC) in conducting the core of the intervention (Training of Trainers) ensuring that the knowledge remains within the community long after the initial workshops end
- Sustainable practices focusing on soil health, nutrient solution optimization and circular agriculture farmers practice.

The following case studies highlight the diverse impacts of this data-driven approach:

Case Study 1 Pointed-out Resource Efficiency & Input Reduction
Apolinario Surio from Malolos City

A cooperative member with 45 years of experience who used diagnostic tools to shift from an intensive "high-input" fertilization habit to a precision-based strategy with intensified multi-cropping system. This change directly reduced costs and waste while enhancing his awareness of water quality risks.

Case Study 2 Integrated Scientific Decision-Making
Michael Angelo Pascual from Norzagaray

A cooperative president who utilized the project's learning materials to optimize inputs for his 3.5-hectare farm. Despite the technicality of the equipment, he successfully integrated modern practices to improve his decision-making regarding soil and water management.

Case Study 3 Highlights Institutional Leadership & Multi-Crop Optimization
Filomeno Lopez Cruz from Angat

A 62-year-old Farmers' Association President who transitioned from traditional, high-volume fertilization to data-informed management. By gaining familiarity with soil test kits and agrometeorological stations, he improved his ability to make informed decisions for his 3.2-hectare farm.

By optimizing irrigation timing through soil moisture data and monitoring groundwater quality with specialized sensors, Project YABONG ensures that fertilizers are not rinsed away and that water quality remains sufficient for future use. Together, these cases demonstrate that by replacing agricultural "guesswork" with scientific data, Project YABONG fosters a more resilient, productive, and high-income farming community.

Project YABONG: Grow with AgriTech

Soil and Water Monitoring and Management Project Endline Result

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Abstract

Project YABONG: Grow with AgriTech Soil and Water Monitoring and Management Project was implemented to address the declining agricultural productivity in the Philippines caused by traditional farming practices and limited technological adoption. This study utilized a mixed-method research design to evaluate the project's effectiveness among 30 beneficiaries, including farmers, students, and local officials. Quantitative results revealed a significant improvement in knowledge and awareness regarding soil and water quality, with average knowledge scores increasing from 3.87 to 4.45 and 3.91 to 4.47, respectively. Participants reported high levels of engagement with project interventions, particularly praising the demonstration farms for their practical utility (M = 4.40). Cost and return analysis confirmed that all covered crops, including rice and various high-value vegetables, remained profitable under the project's frameworks, with rice achieving the highest return on investment at 116.54%. Qualitative feedback highlighted that while beneficiaries successfully integrated organic fertilization and proactive pest monitoring, they continued to face environmental challenges such as flooding and pest detection. Overall, the project successfully bridged the gap between technological innovation and practical application, fostering more sustainable and resilient agricultural practices within the community.

Keywords: Agricultural productivity; Demonstration farms; Knowledge management; Soil and water monitoring; Technology adoption

A total of 30 beneficiaries of Project YABONG, including farmers, cooperative members, students, and local officials, participated in the study. The results were presented in line with the study's objectives, focusing on the following:

Socio-demographic profiles

Knowledge and awareness of soil health and water quality

Exposure to and use of modern soil and water management technologies

Perceived effectiveness of project interventions

Benefits, challenges, and areas for improvement identified by the participants

The implementation of Project YABONG has proven to be a transformative intervention for agricultural stakeholders in San Ildefonso, Bulacan. The study concludes that structured capacity-building, when combined with hands-on demonstrations and digital monitoring tools, significantly elevates the technical competency of farmers. There was a statistically significant shift in how beneficiaries perceive and manage soil health and irrigation water, moving from general awareness to confident, data-driven decision-making.

The project effectively reached a diverse demographic, particularly engaging young adults, who are most likely to sustain these modern innovations. Furthermore, the economic data validates that adopting improved management practices does not compromise profitability; rather, it optimizes resource use and ensures stable returns even for high-input crops like ampalaya and string beans. Despite external challenges, such as climate variability and pest management issues, the overwhelming willingness of participants to continue and promote the project's practices underscores its success in fostering long-term behavioral change toward sustainable agriculture.

Recommendations

- **Expand Demonstration Plots:** Increase the number of physical demonstration sites to provide more farmers with localized, hands-on experience in using real-time soil and water sensors.
- **Extended Training and Mentorship:** Implement longer-duration training sessions with scheduled follow-up visits to help farmers troubleshoot real-world implementation errors in fertilization and pest control timing.
- **Provision of Durable Reference Materials:** Distribute comprehensive, easy-to-read manuals and printed guides that farmers can use as quick reference during field operations.
- **Enhanced Climate-Adaptive Infrastructure:** Integrate more robust strategies for water control and drainage to mitigate the impact of heavy rains and flooding on farm-level technology application.
- **Institutional Support and Scaling:** Local government units and cooperatives should establish a dedicated support fund or equipment-sharing program to reduce financial barriers associated with maintaining modern AgriTech tools.