



Digital and experimental model to validate regenerative agriculture

COSTA RICA, ARGENTINA, PARAGUAY, ALEMANIA, ARGENTINA, PERÚ, CHILE

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Technological solution

The technological solution is a model for validating, monitoring, and scaling regenerative agriculture based on pilot plots, standardized protocols, verifiable indicators, and digital tools for data capture. Its purpose is to test, under real production conditions, whether regenerative practices can maintain or increase yields with lower input use, improve soil fertility and structure, increase soil organic carbon, reduce the carbon footprint, and enhance functional biodiversity. To achieve this, the project will establish baselines for each pilot site, select regenerative practices adapted to each context, compare treatments against controls, generate open and standardized databases, and prepare recommendations for producers, technicians, and policymakers. It will also combine scientific evidence, capacity building, and communication to transform the knowledge generated into concrete action in the field.



Technological description

The technological solution consists of designing and implementing regenerative agriculture pilot areas in Argentina and Paraguay, where a portfolio of agronomic practices adapted to local agroecological, historical, productive, and socioeconomic conditions will be validated. In each country, at least two pilot sites will be implemented and, in each site, at least two treatments will be evaluated: one control and other treatments including regenerative practices. The portfolio may include crop diversification and rotation, cover crops, no-tillage or minimum soil disturbance, permanent soil cover, integrated soil fertility management, and integrated pest, disease, and weed management. The evaluation will be conducted through experimental design, monitoring of productive, environmental, and sustainability indicators, statistical analysis, and the use of Bayer's Field-View software for field data capture. The results will allow comparisons between regenerative and conventional systems.



Impacts and results

The project is expected to implement regenerative agriculture pilot areas in Argentina and Paraguay to evaluate impacts on agronomic, economic, environmental, and sustainability indicators. It will generate geolocated and characterized baselines by country, experimental design and monitoring protocols, country-level databases with indicators for each pilot site and annual updates, progress reports, a final technical note with results and discussion for both countries, a draft scientific publication, and policy recommendations for scaling the model. The project is also expected to strengthen regional capacities through workshops, BayGAP training with Bayer, open-access materials, guides, videos, social media content, field days, and a web portal within FONTAGRO.

