FONTAGROTECH

Iron-rich beans for family farming in Latin America and the Caribbean

PANAMA, COLOMBIA, HONDURAS, NICARAGUA, DOMINICAN REPUBLIC

Webstory

Technological solution

This initiative supported by FONTAGRO brings together agriculture and nutrition to close knowledge gaps between producers and consumers in Panama, Honduras, Colombia, Nicaragua, and the Dominican Republic. The technological solution optimized the biofortified bean value chain through four integrated pillars. First, it designed baselines and scientific evaluations rooted in the producer's vision to overcome agro-food system challenges. Second, it adapted seed multiplication under strict traceability and monitoring protocols to guarantee iron content from the source. Third, it reinforced genetic improvement by selecting climate-adapted materials and analyzed the market to consolidate a differentiated agribusiness. Lastly, it validated communication strategies for social change and participatory governance, connecting scientific findings with the final consumer to ensure the sustainability of the regional network.

Technological description

Anemia is a critical public health problem in Central America, the Dominican Republic, and Colombia, to which agriculture offers a sustainable response through biofortified iron-rich beans. This regional initiative strengthened the value chain from the demand side and accelerated the adoption of these varieties through a solid network of strategic allies that brought together NIIAs (National Agricultural Research Institutes), producers, and marketers. During its execution, the project transformed goals into realities: it implemented the proposed nutritional traceability protocols for seed multiplication and validated adapted materials in the field. Guided by a communication approach for social change, it successfully reversed market information asymmetry and empowered local communities and ethnic groups. Today, the key challenge is to permanently consolidate and finance the technology transfer pathway to expand the impact of this regional public good across the territories.

Impacts and results

This initiative supported by FONTAGRO successfully exceeded its original goals in the region. The initial plan to benefit 1,200 producers and 200 technicians multiplied to train ,3286 key actors through 118 local events, achieving 41% female participation and the inclusion of 8 ethnic groups. In the environmental and productive dimension, the objective to reduce agrochemical use and integrate sustainable practices was consolidated by reaching an excellent agroecological transition (from 0.81 to >3.12 on the TAPE-FAO scale). This generated a yield increase of +46.3 kg/ha without raising production costs. Finally, nutritional marketing strategies reversed the market gap, elevating the preference for iron-rich beans from 28% to 65%. The technology adoption goal translated into an increase of up to 14.5 tons of basic seed planted across 48 commercial hectares and the validation of the promising line RD-JN-MN-23 in the Dominican Republic.

11
Varieties and a selected line of iron-rich beans available

~ 48 ha
Seed Production Area

14.8 ton
Iron-rich bean seed for the project

+ 275 %
Progress in Agroecological Transition, score from 0.83 to 3.12

+ 71.3 %
Adoption Persistence

93.4 %
Commercial Acceptability, rated 4.67 out of 5.00

2
Bachelor's and Master's Theses

1
Seed protocol incorporating traceability and nutritional quality

MAIN DONORS

FONTAGRO

PARTICIPATING ORGANIZATIONS

idiap INTA AGROSAVIA