

ALTERNATIVE ANIMAL FEED AND SELF-MANAGEMENT CATALYZE THE SUCCESS AND COMPETITIVENESS OF INTEGRATED FARMS



CONTEXT

Food and Nutritional Security (FNS), understood as the availability and access to quality food, is fundamental for human development. The sustainability and progress of the agricultural sector are essential to maintain a food supply in quantity and quality. In the department of Córdoba, multidimensional poverty is twice as high for rural areas (51.9%) as compared to urban areas (23.3%). Thus, rural producers' role in boosting the local economy, contributing to generating jobs and FNS is essential.

Many of these producers are located in areas difficult to access, far from populated centers. Therefore, they face high costs in inputs and commercial animal feed diets, which end up increasing production costs.

Against this backdrop, the Ministry of National Education (MEN) University of Córdoba are collaborating to the increase competitiveness and success of "integrated farms." In this initiative, alternative plant feeds are used for animal production and thus contribute to the FNS, and agricultural products are optimized to, ultimately improve the quality of life of rural communities in four municipalities of the coastal subregion of the department of Cordoba.



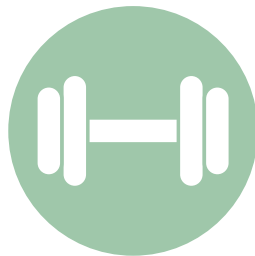
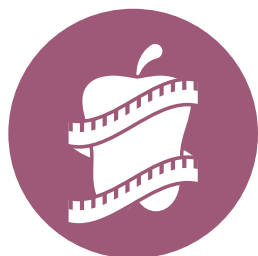
METHODOLOGICAL APPROACH

The general objective of the project is the installation and production of alternative feed for livestock to reduce costs and competitiveness of integrated farms in four municipalities of the department of Córdoba and is oriented with the following specific objectives:

- Implement an alternative plant-based diet in integrated farms to feed chickens, pigs and fish using local raw materials.
- Promote the reuse of agricultural waste in four integrated farms, as environmental and productive support.
- Develop entrepreneurial capacities and associative practices in four rural communities in the department of Córdoba.

The project was shared with the secretaries of Municipal Economic Development (SDE), Mayor's Offices, grassroots organizations of the four municipalities and the University of Córdoba. Four rural communities were selected according to established guidelines: land ownership, availability for associativity, conflict impacted (displaced/reintegrated) population, women, ethnic groups, availability of water, among others.

In the communities, surveys were carried out to establish a baseline, and key actor mapping was carried out with the purpose of establishing productive and commercial alliances. For the management of production processes and agricultural innovation, a curriculum was organized with a work plan adjusted to the particularities of the territory, and it was implemented through farmer field schools (FFS) and four (4) participatory research plots were established for rural youth. Finally, in each community an association was formed and formalized.



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STAKEHOLDERS AND TARGET AUDIENCE

The Ministry of National Education of Colombia (MEN) financed the project through a public call aimed at Afro-descendant and indigenous peasant communities, with efforts to include women and the population displaced/reintegrated by conflict. The rural families participating in the project were located in rural areas of 4 municipalities.

In total, we worked with 417 direct beneficiaries, focusing on two ethnic groups, of which 52% were women and 48% men. In the communities participating in the project, four associations were formalized: ASAVEMAP with 30 associates in Canalete, AGROGALIBE with 18 associates in Los Córdoba, ASOMUJERES with 28 associates in Puerto Escondido, and GARBELL with 27 associates in Moñitos, for a total of 102 people, represented by 56% women and 44% men.

The University of Córdoba and the MEN assumed the role of key actors for the development and implementation of this project while the Government of Córdoba with the Departmental Economic Development Secretariat (SDE) were actors that supported in awareness raising and sensitization. Local mayors were also important to engage for the formalization of bailments for the use of land and location for project implementation. Actors such as the National Aquaculture and Fisheries Authority (AUNAP), the Colombian Agricultural Institute (ICA), and the local Chamber of Commerce participated in the formalization of the associations, permits and sanitary control of the crops respectively.

Populations affected by discrimination with direct and indirect participation in the project

	INDIGENOUS	AFRO	BIRACIAL	CONFLICT-AFFECTED	YOUTH	TOTAL
Canalete	12	4	45	9	17	87
Los Córdoba	4	8	25	17	13	67
Puerto Escondido	1	27	78	10	46	162
Moñitos	13	70	0	8	10	101
TOTAL	30	109	148	44	86	417

RESULTS





In each community, four associations were formalized, each association opening four bank accounts. 120 people were instructed in literacy and 126 individuals participated in social mapping. With the support of local mayors, 5 hectares of land was contracted for 5 years' time to carry out and demonstrate chicken, pigs and fish production. During the time of the project intervention, in each municipality a compost bin, a shed for 300 chickens, a pigsty for 30 pigs and 6 ponds of 500 m² were built. Four hectares of crops were planted per municipality, called protein and carbohydrate banks, which provide the inputs used in the artisanal preparation of the alternative vegetable-based animal feed.


The transfer of the technological package was carried out through 40 FFSs in chicken, pork and fish production, preparation of alternative feed, biofertilizer production and composting. For the production of alternative feed, 8 unique innovations were developed resulting in the reduction of production costs per kg of alternative feed for fish and chicken, compared to the prices of commercial feeds.





LESSONS LEARNED


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The project team learned from the first work experience with indigenous communities in Tierralta Córdoba (from which this model emerged) that the process of developing knowledge with indigenous people must be participatory, inclusive in cultural and educational aspects, and the institutional framework must generate trust.
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By transferring the model to farming communities, who know the crops, the development of knowledge as well as understanding of the language accelerated, so the time of direct support is reduced.
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Integrating agricultural production systems makes it possible to reduce production costs, especially if communities are far from urban centers, and at the same time cooperation networks are enhanced that promote innovation and strengthen participatory governance.
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Even if the technological package is implemented in the same department (i.e. administrative region), as is the case in this Good Practice Note, the territorial approach is still important, meaning the package should be adapted to each unique location.
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Another aspect to consider before working in the territory is land ownership. As identified in these communities, some do not have access to it and so it is difficult to carry out agricultural activities.
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Also challenging is the difficulty in accessing water, whether for domestic or consumer use.

RECOMMENDATIONS



The model has proven to be sustainable, but to achieve success, issues of land tenure and formalization as well as access to water and electricity must also be resolved.



The transfer of knowledge is recommended through the FFS model since this allows for mutual sharing of knowledge that also highlights that of the communities. To do this, a curriculum must be put together first and those who have advanced must graduate.



In the event that the community is not organized, help in the formalization process, encourage participation and self-management with the support of a multidisciplinary team that addresses the technical, organizational and financial aspects.



The use of alternative feeds for fish, chickens and pigs and agronomic management have been proven to enhance the sustainability of the entire farm.



It is recommended that the projects, or at least the technical component of the project, remain for some time after the financing ends, for example, through extension or alliances with local actors to ensure support in the closing of the process.



REPLICABILITY, SCALABILITY AND SUSTAINABILITY

This project was born from the Aquaculture Extension and Promotion Unit of the Aquaculture program, University of Córdoba, where for more than 10 years work has been done on an alternative feed for the feeding and production of the white cachama fish (*Piaractus brachipomus*), chickens and pigs.

In a first experience, the technological package was implemented and adjusted in an indigenous community of the upper Sinú, in Tuis, Tierralta, Córdoba. With the success of this experience, the replica described in this Note arose, with Afro-descendant peasant communities in the coastal subregion of the department of Córdoba.

For the implementation of the actions and technical support, 11 extension agents were linked for 12 months and continue with the support of each Municipal Economic Development Secretariat, with the University as guarantor.

In 2022 and 2023, the fish farming component has been scaled to 325 productive units (UPAs) in 13 municipalities in the department of Córdoba, where the alternative plant diet was focused on the cultivation of white cachama.



TESTIMONIES



Since 2013 I have worked as an extension agent, since then I know the work carried out with alternative feed, initially used to produce white cachama. Here I have learned how to make biopreparations, I have learned the methodology to teach adults in ECAs. I can attest that fish, pigs and chickens grow adequately on the diet and that up to 30% of costs are saved compared to commercial feed.

Luis Eduardo Rodríguez Vargas

At first I did not understand anything that the professors at the University wanted to teach us, when the translator of the Embera language arrived, everything was easier, over time we began to trust the professors and ask questions.

José Nerio Domicó Domicó
 Presidente asociación ASINGRATUIS



Watch a Testimonial
 video [here](#)



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For more information, see:
www.fao.org/in-action/tap-ais
www.twitter.com/TAP_G20

Good Practice Note Series

The Food and Agriculture Organization (FAO) of the United Nations, the Tropical Agriculture Platform (TAP) and the DeSIRA (Development Smart Innovation through Research in Agriculture) initiative, together with the Inter-American Institute for Cooperation on Agriculture (IICA) and the Latin American Network of Rural Extension Services (RELASER), are committed to strengthening national agricultural innovation systems (AIS) for their transformation towards sustainable food systems in Latin America and the Caribbean.

In 2020, a Joint Rapid Assessment on Strengthening Agricultural Innovation Systems in Africa, Asia and Latin America was conducted to analyze the innovation environment to identify and document initiatives to strengthen AIS, in the context of the TAP-AIS project funded by the European Union through the DeSIRA initiative.

The report presents challenges and opportunities for innovation, especially through the improvement of functional capacities and the ways in which regional, global and national organizations can support the strengthening of AIS using the approaches and tools of the Tropical Agriculture Platform (TAP).

The publication of this series of Good Practice Notes is a contribution by RELASER and IICA to documenting cases that have contributed to the development of an effective AIS by addressing relevant challenges in Latin America.

The same effort was made in the Asia Pacific region, whose good practice notes can be found [here](#)