



# LOS ALPES AGROECOLOGICAL SCHOOL

A management approach for technological innovation and sustainable production in Nicaragua



## CONTEXT

Nicaragua is the largest country in Central America, and agriculture is one of the engines of economic and social development. The agricultural sector contributes 16.1% of the Gross Domestic Product (GDP), 33% of formal employment and the food security of the population. There are 260,000 producers involved in agricultural production.

The present experience has been developed in Cantagallo, in the municipality of Condega, in the department of Estelí, which has been declared an Ecological Park by the Mayor's Office. Agricultural production in Cantagallo is focused on small livestock, vegetables, high-altitude coffee, basic grains, potatoes, and others. The school model is based on the experience developed by the Organic Agriculture Movement of Nicaragua (MAONIC), in which agroecological technological innovations are promoted through a "learning by doing" approach and is being developed in the Municipal Climate Change Platform, an entity led by the Mayor's Office of Condega, with the participation of public and private actors.



## METHODOLOGICAL APPROACH

The objective of the school is to provide producers with knowledge and skills in agroecological production, in order to achieve the transition from conventional production with practices that affect the environment, to a sustainable production system based on agroecology with inputs mostly coming from the farms. Regarding specific objectives, the following were formulated:

- Ensure that participants understand the regulatory framework for organic agriculture.
- Farm planning.
- Apply practices based on agroecological principles in agricultural production.

The school developed a curriculum that was covered in four one-day sessions held on weekends at a farm that provided the conditions for theoretical and practical activities where all topics were covered. Forty percent of the time was devoted to theory and 60% to practice.

The curriculum's topics were legal framework, climate change, soil quality assessment, farm planning, general agroecology, soil cover, biopesticides, pest management, compost use and local fertilizers. The experience included coordination to manage the curriculum with allies, ensure completion of activities, and monitor participants, which was limited and made difficult by the pandemic.



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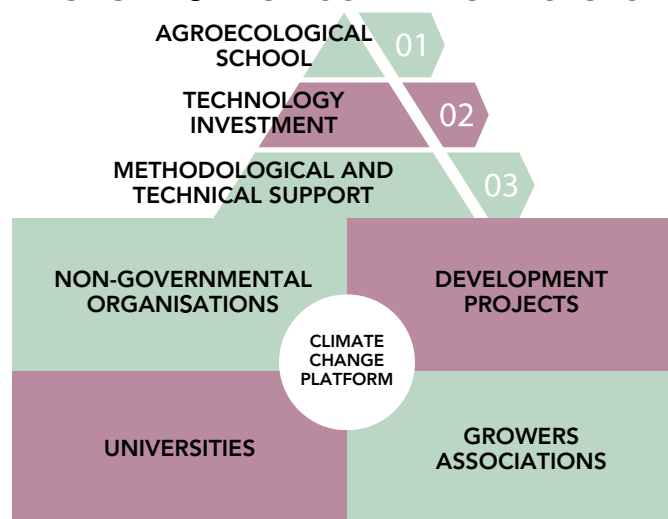
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## STAKEHOLDERS AND TARGET AUDIENCE

Participants from the experience include actors representing NGOs, universities, development projects, and producer organisations that make up the Climate Change Platform, led by the Mayor's Office of Condega. The Platform is a space promoted by the Mayor's Office to address environmental and climate change issues. Each of the actors has been integrated into the school's activities, playing a specific role according to their mission and competencies: NGOs such as MAONIC and the Nicaraguan Association for Social Development (ASDENIC) provided specialists on specific topics, support materials and knowledge management in agroecological technologies; the National Agrarian University and the Francisco Luis Espinoza University provided specialists for the development of the activities; producer organisations in the area involved producers from their organisation in the learning process; and, finally, the development projects carried out by the Tropical Agricultural Research and Teaching Center (CATIE-water harvest) and the Foundation for Agricultural and Forestry Technological Development of Nicaragua-FUNICA provided knowledge and investment.

### ORGANISATION SCHEME OF ACTORS



### RESULTS



During the period of operation of the school, the development of two cycles of learning has been achieved with the participation of 80 producers. With the support of MAONIC, a technical manual on agroecology, a manual on the identification of soil characteristics and brochures on agroecology have been distributed. It is clear that through the school it has been possible to generate a greater awareness among the participants of the need to preserve the environment, which has led to changes in attitudes and the incorporation of practices in their productive itineraries and routines.

The consolidation of the already existing Climate Change Platform as a space of participation of local actors was another result obtained during the implementation of the Agroecological School. Thus, in this first phase, the integration of efforts has been achieved with the aim of developing social innovations, such as the Agroecological School, that facilitate the adoption of environmentally friendly technologies adapted to climate variability and agroecological production. In addition, the platform provided professionals who participated as instructors during the learning cycles. On the other hand, the contribution of the development projects facilitated the integration of complementary technologies such as water harvesting, stubble management and living barriers, which would probably not have been achieved with the school's own resources.



## LESSONS LEARNED

- ✓ For the agroecological school experience to be replicated, it is essential that there are local platforms for consultation between public, producer, and development actors that facilitate articulation and complementarity in learning cycles.
- ✓ The existence of local governments interested in environmental protection and adaptation to climate change is an important condition for the development and continuity of the experience.
- ✓ It is necessary that in the first phases of the formation of the school, a methodological, formal and structured design is made, to define the expected products, curriculum, intermediate, and final effects.
- ✓ The learning-by-doing model and learning plots, in the teaching cycles, improve the use and adoption of knowledge and technologies. To improve the adoption of technologies in producers with limited investment capacity, it is necessary to make small investments to achieve the use of technologies in production systems and recurrent learning processes.
- ✓ Practices that require the least resources and are available on farms are the most widely adopted. For example, non-burning, stubble use, and living barriers were the most used practices.



## REPLICABILITY, SCALABILITY AND SUSTAINABILITY

The agroecological school, as a model to achieve unlearning from conventional production to one that is more environmentally friendly and resilient to climate variability, is replicable in other contexts. It is a model that requires a production area representative of the territory, few resources, sources of agricultural inputs, and a space for public and private actors that add value to the model by integrating themes, resources, and knowledge.

The model is in the process of being scaled up nationally through MAONIC, which is developing other schools in different areas of the country in different production areas such as basic grains, vegetables, cocoa, coffee, among others. The existence of manuals and technical guides has allowed us to establish the knowledge base to expand the experience.

Economic sustainability is not fully guaranteed. There are two limiting factors: the first is that education in this context is a public good with limitations in terms of cost recovery, and the second is the ability of producers to contribute due to their socio-economic condition.

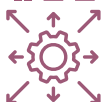
## RECOMENDATIONS



When planning learning cycles, it is recommended to consider the specific needs of participating producers, and establish performance indicators and evidence of change at the participant level, including attitudinal change.



Communicate the results obtained to influence local actors. This will facilitate the continuity of the experience.



Local spaces or consultation platforms need group facilitation to have the support of actors in all school development processes. It is recommended that public actors in the area develop the role of articulation.



## TESTIMONIES

The exchange of experiences and the seminars on the preparation of fungicides, pesticides, fertilizers and mycorrhizal treatments were left to the producers. The support of the projects has allowed the alliance between knowledge and application of technologies, building the learning path. Now the producers are not migrating, they are creating jobs.

**Julio Muñoz**  
School Coordinator

The mayor is willing to support actions to conserve natural resources, to guarantee healthy food security, with the idea of spreading the experience to other areas of the municipality, regardless of the characteristics of the area.

**Julio Rodríguez**  
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## The TAP-AIS project

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For more information, see:  
[www.fao.org/in-action/tap-ais](http://www.fao.org/in-action/tap-ais)  
[www.twitter.com/TAP\\_G20](https://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 analyse 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 organisations 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](#)