



Bioleft

Participatory seed innovation



Photo: Manuel Correa for Bioleft

Objectives

Overall goal

Build an open seed network for its conservation, exchange and breeding to offer alternative solutions to current and future agricultural challenges, based on collective intelligence, open knowledge, local know-how and scientific knowledge.

Specific goals

- Create technological and legal tools to guarantee the ongoing exchange of germplasm for personal use, research, and development purposes, with the aim of strengthening farmers' roles in seed conservation and breeding.
- Increase the availability of resilient and biodiverse seeds as a commons; this will promote food and technological sovereignty, as well as biological, cultural, and economic diversity.
- Enhance collaborative and/or participatory breeding, where seed exchanges are tracked and mapped, combining technology with collective knowledge through an ongoing co-designed digital platform.

Description of citizen participation

Bioleft is a community for the conservation, exchange, and breeding of open seeds that offers alternative solutions to the challenges of agriculture, through the co-design of tools for conservation, dissemination and open and collaborative seed breeding. The licenses and the digital platform are co-designed with multiple stakeholders, and they are constantly reviewed and improved based on their contributions.

The project involves agricultural producers using different farming practices (from organic production to family farming), who innovate in the seeds they produce, specialists in plant breeding, research teams from public institutions (such as the School of Agricultural Studies at the University of Buenos Aires and the National Institute of Agricultural Technology) and activists of Citizen Science and free software.

Based on the needs shared by these stakeholders, a digital platform is designed for the following purposes:

- Identify and connect sustainable agriculture actors through the "community" section.
- Record, map and transfer seeds.
- Monitor seed circulation through different stakeholders of the agricultural sector.
- Collect valuable information through a "field notebook".
- Promote knowledge sharing and participatory and/or collaborative improvement.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

The project was created by the Research Center for Transformation (CENIT, in Spanish)/ National University of San Martín (UNSAM, in Spanish) together with the STEPS Centre (UK), within the framework of the global project on Transformative Pathways to Sustainability. Currently, it receives financial support from the Conservation Food and Health Foundation.

The project is conducted in collaboration with the following organizations:

- School of Agricultural Studies, University of Buenos Aires (FAUBA).
- Argentinean Organic Agriculture Movement (MAPO).
- Argentine Association for Biodynamic Agriculture (AABDA).
- National Network of Municipalities and Communities that Promote Agroecology of Argentina (RENAMA).
- National Laboratory of Sustainability Sciences of the National Autonomous University of Mexico (LANCIS - UNAM).
- National Institute of Agricultural Technology in Pergamino.
- National University of the South.
- National University of La Plata.
- National University of Río Cuarto.
- SemillAR program.

It is a member of Global Open Source Seed Initiatives (GOSSI).

Status. In progress.

Time frame. 2016 - N/A

Frequency of project execution. Permanently.

Participation period. On a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. At a territorial level (in terms of seed circulation and experimentation), the project stretches across Argentina, while at a conceptual level it has global reach, through networks of open seed initiatives and projects that drive transitions to sustainability. Besides, the platform and licenses are not geographically bound.

Project development members. It has been developed with the collaboration of members of the transdisciplinary scientific community (namely, professionals specialized in innovation, economics, agronomy and psychology), practitioners, software developers, extension agents, and participants with expertise in agriculture.

Number of participants. Over 1001.

Action/s involving citizen participation Problem identification. Data collection. Data analysis. Phenomenon monitoring. Solution design. Solution implementation. Citizens are involved in the entire process.

Technological device/tool required. Cell phones (with internet access). Computer (with internet access).

Recruitment methods. Through existing participants, by holding face-to-face and online workshops, etc. Dissemination through communication pieces (audiovisual and written).

Replicability. By means of a knowledge transfer process funded by The Conservation, Food and Health Foundation and The Global Consortium for Sustainable Outcomes, the project contributed to the setup of Bioleft Mexico, led by LANCIS - UNAM. The project leader of this initiative is Ana Escalante. Period: 2019 -2020.

Scalability. The scalability strategy is designed in three stages:

- First, the project is protected from the demands of agriculture and commercial seeds. We identified two protection strategies: the provision of non-reimbursable funds and market protection, through the creation of a critical mass of users.
- In the second stage, networks are being consolidated and diversified to include new networks of farmers and new crops, groups of female farmers and breeders

(who are underrepresented in current organizations), developers of new technology, legal activists, and artists.

- The third stage entails interaction and communication with participants in the traditional agricultural system and efforts related to it that are carried out outside the agrifood system and/or the area in which they are currently being implemented (replicability).

Open access to data. There are three types of data:

- Seed-related agronomic data: Access to these data is granted to those interested in implementing and promoting an open source seed logic. Requests for data are being documented and access is only granted to users who have requested it.
- Informative data related to the records displayed on the platform: It is feared that they might be "viewed" by companies intending to profit from this information, and consequently, exclude communities. For this reason, only users who have signed up and share their own data may access the data displayed on the platform.
- Data on platform design and process: They are available at gitlab <https://gitlab.com/bioleft/bioleft> and <https://gitlab.com/bioleft/organizacion/bioleft>, respectively.

Feedback. The communities we worked with are part of the team, so we receive constant feedback. The process is shared during the different meetings that take place during the Bioleft project. As regards the workshops related to the networks of experiments on corn and tomato, informal meetings are held after their development to receive feedback on the design and progress of these workshops.

Linkage with state agency/government.

- SemillAR program - Ministry of Agriculture, Livestock and Fishery (MAGyP)
- National Institute of Agricultural Technology (INTA) in Argentina
- Argentine Ministry of Science, Technology, and Innovation (MINTYT)
- National Institute of Seeds (INASE) in Argentina.

Institutional funds.

Two main sources: **National public institutions:** the project is executed within the framework of CENIT- UNSAM, which provide infrastructure and research assistants; the National Scientific and Technical Research Council (CONICET, in Spanish), some members of the research team are CONICET's researchers; and FAUBA, part of the research and extension team is based in its facilities, where trials are conducted, seeds are multiplied, etc. **International organizations:** the third cycle of grants awarded by The Conservation Food and Health Foundation is starting.

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Biological Sciences
AGRICULTURAL SCIENCES / Agriculture, Forestry, and Fisheries
SOCIAL SCIENCES / Economics and Business

Project leaders.

- Antoine Patalano, School of Exact, Physical and Natural Sciences (FCEFYN), National University of Córdoba (UNC) and the National Scientific and Technical Research Council (CONICET) in Argentina
- Leandro Masso, FCEFYN/UNC and CONICET
- Carlos Marcelo García Rodríguez, FCEFYN/UNC and CONICET

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