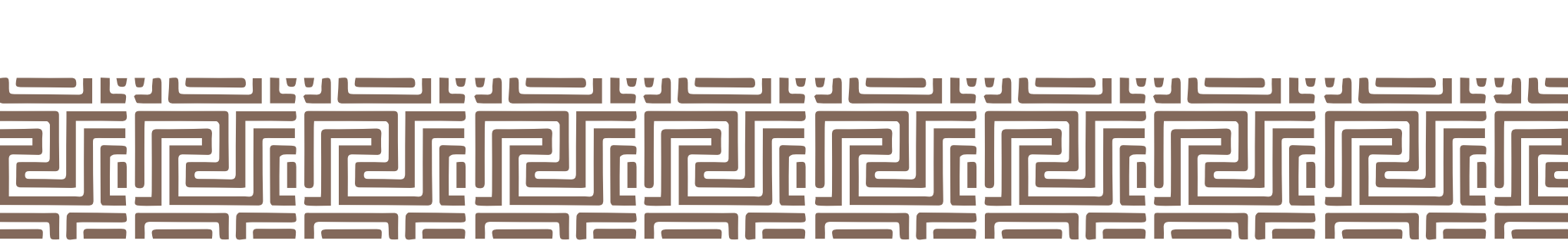


**Description of the ancestral processes for
the recognition by the Arhuaco people
of the biofortified beans Agrosavia Rojo 43**

AGROSAVIA
EDITORIAL







Description of the ancestral processes for the recognition by the Arhuaco people of the biofortified beans Agrosavia Rojo 43

Azi kinki kawi wazwenno kunsamu nunaba ta ichu Ziti jwasi zweykwa nundi Iku'se nunaba ta

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Presentation

The proposal for the exchange of knowledge between the western vision regarding agricultural development and the ancestral worldview of the Arawak people, settled in the Sierra Nevada de Santa Marta in Colombia, corresponds to an exercise promoted by the Colombian Corporation for Agricultural Research (AGROSAVIA). Its objective is to join efforts with the Arhuaco people so that, in a participatory and consensual way, they approach innovative agricultural practices without altering their worldview or culture.

From this document, it is intended to strengthen its pedagogical-technical model through two strategies: strengthen the tools used by the community in its technical pedagogical model and reinforce the IKU ancestral tradition around the spiritual notion. Likewise, it seeks to disseminate among its children and young people the role of AGROSAVIA in accompanying ethnic communities to promote agricultural practices that protect the environment and reduce negative impacts on forests, soil, water and atmosphere during the production of their own food. In this way, the harmonization process that biofortified beans have undergone is presented as a case study. Agrosavia Rojo 43, an improved variety that is grown in the sacred territory today. This seeks to show that openness to innovation is possible, without implying the loss of ethnicity.

Thus, it is about combining the intimate relationship that the members of this community have with the nature of which they are a part, living and non-living beings, their ancestors, the cosmos and the universe, and the western vision of good agroecological practices in the production of food for consumption and surpluses for sale. It also seeks to increase communication skills, both institutional agents that transmit agricultural innovation, and of those responsible, within the reservation, for the transmission of knowledge. This allows children to be part of an autonomous dynamic of appropriation of innovation for good living.

A fundamental aspect for the success in the exchange of knowledge is the fulfillment of the following premise: the new intercultural knowledge is only achieved in this community through the healthy exchange of knowledge, taking into account the Law of Origin and the Safeguard Plan that govern the path towards good living and autonomy and independence in the management of the reservation, respectively.

In addition, it is intended that this message of changing the relationship with the planet by the guardians of the world —as the Arhuacos call themselves— can be disseminated among children and young people in multiple countries. Therefore, this brochure is presented in four languages (Spanish, English, French, and Arhuaco). Moreover, the latter not only has its own version but is also included in important sections of the other language versions so that this message resonates with its own voice and enhances its effect in shaping a new generation that cools the planet.







Chwizunha'kumungwa. (presentation in arhuaco)

The presentation of this brochure was prepared jointly with representatives of the Arhuaco people; it integrates their viewpoint and the way the Iku people wish to present themselves to the world, in this cosmic stage or global historical moment that allows the dissemination of these principles of balance and harmony between production and conservation for all humanity. Below, these words are presented in their original language.

niwí niwigúnsí uzwéykwá okurígay zanusín unki'tasi ka'se anikún
nuga' jina anúgwe rigày ikusé uzweykwá nuna'bá niwi ùmuke
unkágesi riwiukwábá nuna'barí, ema akùmey wazoya awun gwasíri
corporation colombia neykáse izátàsi ka'se anisi uweyka agrosavia
zakinuga'sé nikamu-unkurewesún nuga ni.
ema juna u'kuma awíza kuzúneykari zugùro pówru nunéykasin dikín
kumàmú-unkúsa aukwási. ikusé

nuna'ba tá chwízunhasì ka'se a'nikukwéykári emi kawìn a'chukwèy
nanungwási, kunsamununa'ba kízági keywu-au nari, emi wánisi
na'kunugeykári ingiti duzakukuméy nun'nigéri unkuríwi zweykwéy niku
nunno íku-nunába mowga juna chuna'nukò.

ingwi nunéykári powrusé bema juna azi káwi gun wazwéynugá nánundi uya
juná uzoyámu; awámu-kawnunno unkuríwi zwéykwéy nánungwasi.

mowga juna néykári mánunka mígunkwuyá neyka gumúsínusin unkuríbásamu-
kawnunno ka'se anikuya emi kawin a'chwungwási.

Ka'se kwéy uwéyka wínchwungwási hey undí emi zári nákunugéykári a'yuna
awnunno a'chwunnusí

kunkúnu, je, awiri inu-ki'nzúmé zaríku zamu-kía du kawunno mézanungwási.
Ema jwasí wasáykwa núndi zugúro neykasín réno'kwamu-gúnamusín
powru'zunay, ka'se kwéy uweykasín chukà azuna, azanu neykasin
sa'nusiunkéku-zánusín ti'kurí gay in'gwi ka'gumu-imína, o'kurigáy zanusín
wínchwi rizweynu'gasín unkurígumsi zarikamu-riwi zamu-dukáwi ani'ka
awundí mánunka gungwa mika'múkánagwi iwa su'mú-mi ká'chonundi
ungéykukwéy nisi zwey nánuko, ey awi emi a'táku nugèykari rimásay

unísi aukwéyka ka'wunká'si ingwetí bema nenánunki nikámu-winu-kunári
nakun'nuga, ga'wínyún nu géyka,

ingwi jna tanu-mézanu-kwéku-kínkumukwèykári niwerigunsi zoyeika
unku-básamu-gugín uzwéykwa ku-jununno kunsamusin, ká chwi heyméku-
takuchu-ka'gumuri unku-jwási reni'kwuyun mezari sakúku gunamu-sín
unkuri'gunkukwa na'nunno ey awun gùn re'nosi aukwéyka niku nunno
du'mézari kwukwéy mikunári wáni'kuya chwiza'ni si zweynunno.







Introduction

The traditional resistance of the ancestral peoples of Latin America to successfully implement agricultural technological innovation strategies, in accordance with the Western development model, clashes with the high levels of shortages of their own food and with the malnutrition, morbidity and mortality that this generates in their territories. There are, therefore, differences between the western model of development, which seeks an optimal quality of life for the majority of society, and the cosmogony of ancestral peoples who, based on the worldview of their native peoples, advocate a good life, a good life or a good life for their entire ancestral community. The case of the Arhuaco people, from the Sierra Nevada de Santa Marta (and hereafter SNSM) in Colombia, makes it possible to identify by consensus those meeting points that facilitate the approach to a hybrid methodology for the implementation of agricultural innovation strategies, without undermining the way of feeling, thinking and acting of this community (López López, Tofiño Rivera et al., 2022).

A similar process is manifested in the indigenous educational system itself of the Arhuaco people, which seeks to comply with the criteria and indicators of the Ministry of National Education and with the cultural and spiritual strengthening of the new generation of Arhuacos. In this regard, it is recommended to reinforce their own knowledge such as their community identity, their values and their livelihoods to think well, feel good and act well before introducing foreign concepts to children and young people (García Pinilla, 2010).

These young people are responsible for the conservation of the biosphere reserve and the heritage of humanity (United Nations Educational, Scientific and Cultural Organization [Unesco], 1979), based on the guidelines of the indigenous knowledge of the SNSM (Ministry of Culture, 2016; Unesco, 2022).

However, there is tension between the process of producing enough food for the survival of the Arhuaco people and the conservation of the ecosystem in the scenario of an environmental crisis, which limits the availability of water and increases the vulnerability of agricultural soils. This problem is accentuated because the rate of population increase has increased between 2005 and 2018. In the case of the Arhuaco people, there are 34,711 people living in the SNSM. Although in Colombia the number of people self-recognized as indigenous in 2018 amounted to 1,905,617, for the same year the population of the four towns in the Sierra Nevada reached 85,719 inhabitants. This reflects a population increase of 56.6% compared to the last measurement made (Velásquez Agudelo et al., 2016; National Administrative Department of Statistics [DANE], 2021; Ministry of Culture, 2016).

Compliance with the Law of Origin summons each Arhuaco to take care of their environment and teach the bonachi or younger brother to recognize that humans belong to Mother Earth and not vice versa. Given that the Arhuaco economy revolves around agricultural production, different subjects that promote work in the orchards are presented throughout basic primary and secondary education, in which beans, as a traditional crop, are present. This scenario of food production for the new generations requires the development of new didactic tools for ethnic schools that disseminate the role of AGROSAVIA in the management of technical knowledge integrated into the worldview of native peoples, without this implying the loss of their identity and the notion of their territory of life. This hybrid notion is achieved from the co-creation that has been carried out in workshops with ethnic teachers.

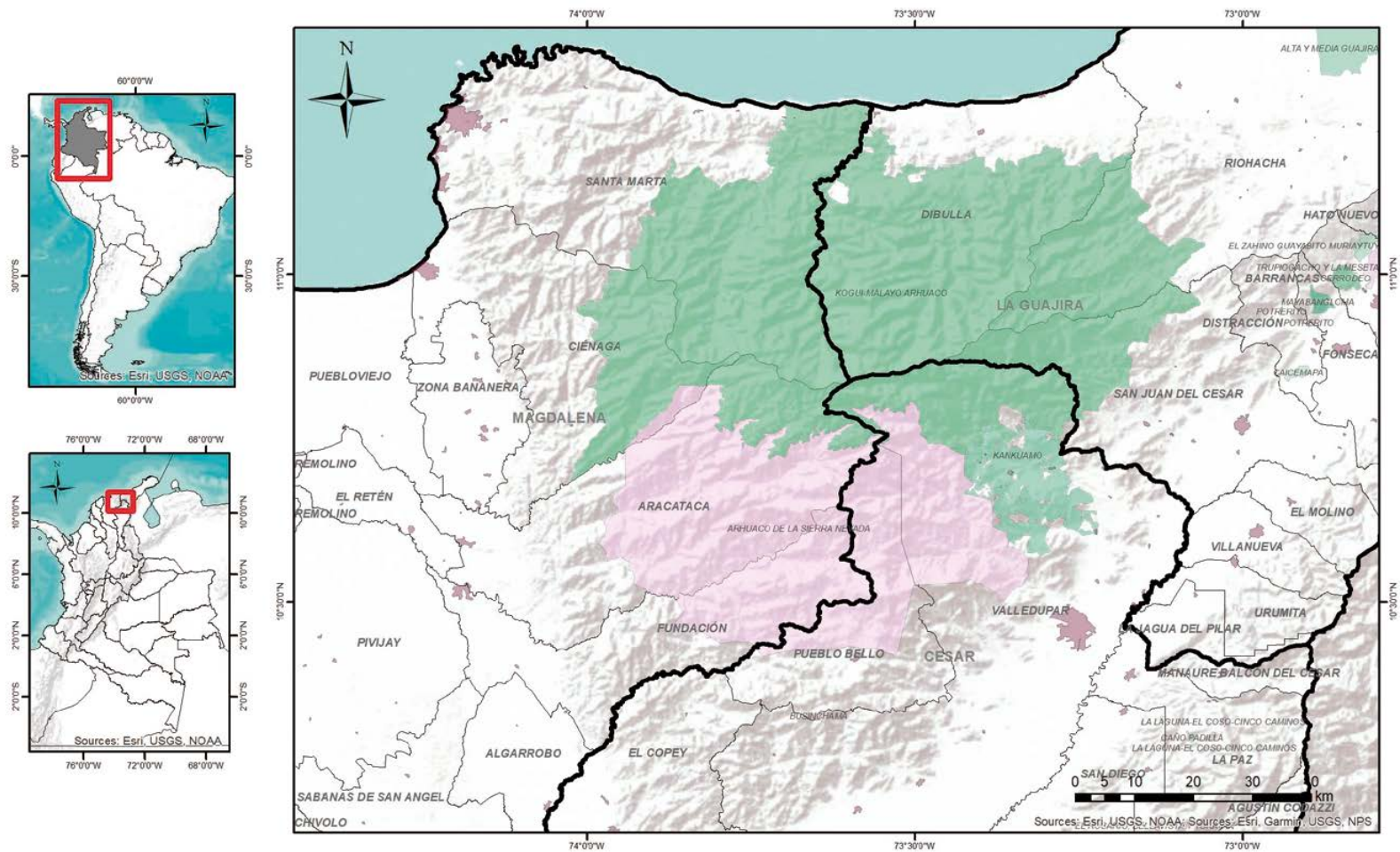
This booklet is made up of sixteen sections that include the material and immaterial practices of bean cultivation for the Arhuaco people. Thus, it is sought that these practices are a tool for intercultural teaching, so that, around the problematic approach of the environmental crisis that the Sierra Nevada is going through and the actions that the guardians of the universe must follow to preserve their living space, ethnicity is reinforced and at the same time progress is made in the themes of biology, Spanish and English courses.





Methodology

The Sierra Nevada de Santa Marta (SNSM) is located in the Caribbean region of Colombia, covering approximately 573,312 hectares. It features a mountainous system encompassing all thermal floors (from warm coastal to perpetual snow). The SNSM is the settlement area for the indigenous Kogui, Arhuaco, Wiwa, and Kakuamo peoples, who inhabit the Kogui-Malayo-Arhuaco, Arhuaco de la Sierra, and Kankuamo indigenous reserves (Figure 1)



▲ **Figure 1.** Map of the Sierra Nevada de Santa Marta (SNSM)

Source: self made.

The construction of this booklet had a participatory approach, through the exchange of knowledge, since the co-researchers not only limited themselves to asking questions, but also to exposing and contributing to the topics chosen to carry out the central purpose of the research (Sánchez Riaño & Mora, 2019).

The work methodology included holding three workshops with a mamo or spiritual authority, teachers from the ethnic school of the Arhuaca Ikarwa community to develop content, a focus group with young people from the Arhuaca Umuriwa community in their environment, and another outside the reservation at the offices of the Association of Indigenous Agroecological Producers and Peasants of the Sierra Nevada de Santa Marta and the Serranía del Perijá (Asoanei), in Valledupar. This whole process was accompanied by the head of culture of the municipality of Valledupar, co-author of this text.

Scenarios for the “circle of the word” were set up, understood as a meeting between peers in front of the fire, where the voice acquires a “sacred” dimension when pronouncing the words from the feeling, frequently with the use of plants such as the ayu leaf; This is also called mambear, which means the action of chewing the leaf while looking at the thought (Sánchez Riaño & Mora, 2019).

One of the main recommendations of the community is that in the representation of each step that is carried out in the management of the bean crop, the Arhuacos manage to recognize each moment without having to read the text of the description or interpretation. In accordance with the above and taking into account the level of detail of the iconography related to each ritual involved in the immaterial and material practices of bean cultivation, it was necessary to elaborate the figures through the fusion of photographs and animated images, to achieve the surreal composition that is lived in moments like these. These images were built in real time in face-to-face and virtual spaces with the Arhuaco teachers from Ikarwa and Sabana Crespo who participated in the workshops, until the effect requested by them was achieved.

In this process, a step-by-step narrative was obtained detailing how biofortified beans Agrosavia Rojo 43 and the work of the Corporation's technical team were able to adhere to the worldview of the Arhuaco people, especially the Law of Origin, to facilitate the process of acceptance and dissemination of the variety among the different Arhuaco communities. The consolidated step by step constitutes a didactic document for primary and secondary education in ethnic schools, in which relevant concepts for the promotion of bean varieties are disseminated; likewise, it facilitates its application for technicians AGROSAVIA who wish to work with Arhuaco communities.

Figures 2 to 7 show the workshops and meetings in which the construction and validation of the ancestral processes for the recognition of biofortified beans were carried out. Agrosavia Rojo 43 by the Arhuaco people.



Photo: John Zaratungumuu Torres

▲ **Figure 2.** Construction and validation workshop 1 with authorities.

Note: This workshop was held at the Culture Office, Casa de la Cultura, in the municipality of Valledupar, within the framework of the Drought Beans KolFACI project.



Photo: Adriana Patricia Tofino Rivera

▲ **Figure 3.** Construction and validation workshop 2 with authorities.

Note: This workshop was held at the culture house, in the municipality of Valledupar, within the framework of the KolFACE Drought Beans project.



Photo: Adriana Patricia Tofino Rivera

▲ **Figure 4.** Workshop 3 of construction and validation with authorities.

Note: This workshop was held at the culture house, in the municipality of Valledupar, within the framework of the Drought Beans KolFACI project.



Photo: Yanine Rozo Leguizamón

▲ **Figure 5.** Content validation workshop 4 with authorities in Valledupar.



Photos: Adriana Patricia Tofino Rivera

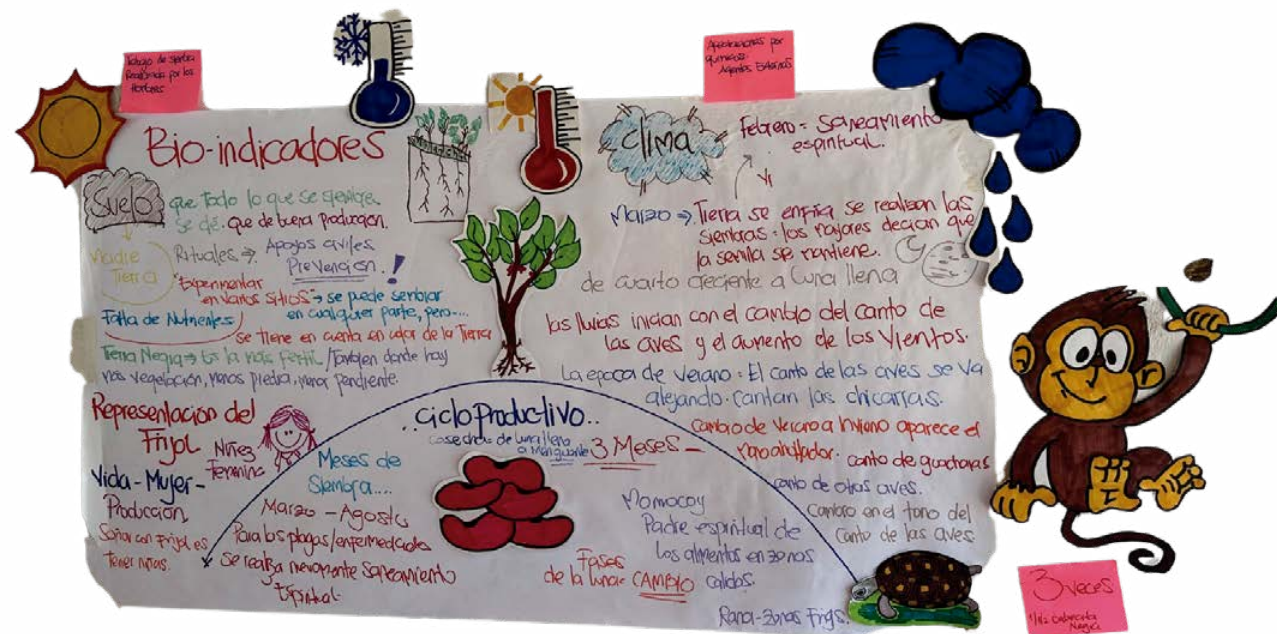
▲ **Figure 6.** Focus group of young people and authority of the Arhuaca Umuriwa community, carried out within the framework of the AgriLAC Resilient Cesar initiative.



Photos: Adriana Patricia Tofino Rivera

▲ **Figure 7.** Focus group of young people from the Arhuaca Umuriwa community, at the Asoanei offices in Valledupar, developed within the framework of the AgriLAC Resilient Cesar initiative.

Were also carried out workshops for the development of skills in agroclimatic risk management with indigenous communities, as part of the strategy to reduce the gaps between technical knowledge derived from obtaining improved varieties, such as biofortified ones, and ancestral knowledge. Talking maps were also made to collect information about bioindicators and the meaning they give them to cultural practices (figure 8).



▲ **Figure 8.** Talking map built in the framework of the participatory workshop in Ikarwa.

Source: self-made





Conceptual framework

This primer is based on the fundamentals described in the ancestral knowledge system of the four peoples of the SNSM and in the Safeguard Plan of the Arhuaco people (CIT, 2016; Ministry of Culture, 2016), especially in the following concepts:

Just as the invisible cell of life of an integral plant is found in the interior space of a seed, or just as the invisible cell of an integral bird is found inside an egg protected from the shell and other substances, likewise the Ancestral Knowledge System is the life of the culture of indigenous thought while the territory is the protective wrapping of the life of this Knowledge. (Ministry of Culture, 2016, p. 14)

emey anawi ingu apa zunaba iniki a zarina neika naba ri, ajua kanuzey anugwe chuka azuna ey kwuya ni. Webu nari jawi andin anisi a gakun gumu iyu nari nari kawi, ikuse kanikwuyaba ta, jwai winawun nuga ikunha winukanikwuyaba ta neika, awugwe winikwuya nanun nuga chow chwi.

According to the Mamos, education contributed, as long as the young people who study are in defense of culture and territory (Ministry of Culture, 2016).

The indigenous reservations settled in the SNSM they occupy an area of more than 600,000 hectares that belong, for the most part, to spaces in the high areas of the mountainous massif. It is an area smaller than what is recognized as demarcated or limited ancestral territory, for which reason it is called “Black Line”, which corresponds to an integral and traditional space of ancestral peoples, recognized and registered in Resolution 0837 of 1995 (Cabildo Arhuaco de la Sierra Nevada, 2015). These towns are governed by the so-called Law of Origin, which guides the daily actions of its inhabitants towards what the original peoples of pre-Hispanic America call the permanent and continuous search for good living, a search that is transmitted from generation to generation through the conservation of the ways of life of their pre-Hispanic ancestors, the original peoples of America.

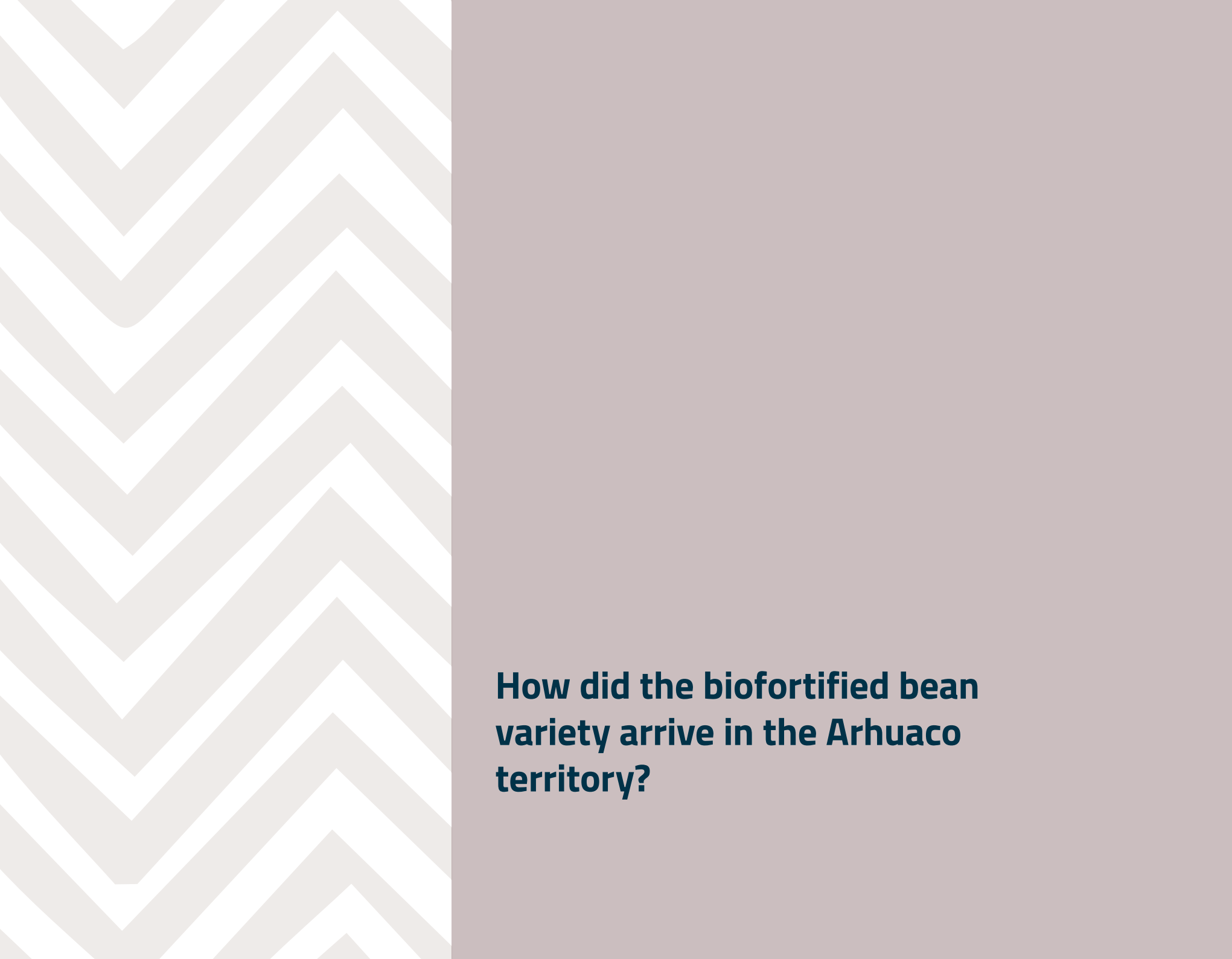
Unlike the evolution of Western thought, for Arhuaco thought there is no paradox of the human duality between the being and its environment, because the Law of Origin gives fluidity to the individual-collective-nature-universe continuum, in which there is no predominance of any of these environments, since all are essential to ensure the permanence of their ethnic group. This notion materializes in the individual when he fulfills the Marunsama or mission, and in the collective when he fulfills the Ezwama as a principle for the use, management and care of the territory (material-spiritual), including rituals, dances and songs; Likewise, in

the relationship with nature through the books Shishi and Punkusa, in which the functions of each living being are described and the way in which each spiritual father (payment) and with the universe are repaid, based on their worldview. According to the latter, the Serankwa or organizing principle deposits in Seynekun (the fertile land) the seed to organize everything that exists on earth and the fulfillment of its responsibility as guardian of the balance of the world (Valderrama González, 2016).

The development plan of the Arhuaco and Kankuamo peoples (Safeguard Plan) has been recognized by the Ministry of the Interior of Colombia since 2015 as a blog for the endogenous development of these peoples, in a term of 100 years; this confronts local, regional and national institutional development plans.

As part of the decolonial approach carried out by TO AGROSAVIA To the Arhuaco people, concepts such as an ecological paradigm are considered, which is the one that leads towards what, from the West, is recognized as sustainable development, understood as socially just and responsible with the nature that sustains it (Galván Martínez et al., 2016). Likewise, agricultural technological innovation, which moves away from the traditional concept that privileges the improvement of productive practices aimed at increasing agricultural productivity, to give way to an orientation of interaction and collective construction of strategies and innovation in processes that are beyond those related to productivity and production (Organization for Economic Cooperation and Development [OECD], 2005).

It also moves away from the traditional concept of technology transfer, which means the transfer or transfer of knowledge from a transmitter that possesses knowledge to a receiver that lacks it, to go towards a process of interaction between interested parties that provide feedback to each other, in the process of solving agricultural problems in a given context (Battista et al., 2014). Lastly, there is the concept of territory, which is understood as the space that a specific social group appropriates to ensure the construction, reproduction, and satisfaction of their vital needs (Raffestin, 2011).



**How did the biofortified bean
variety arrive in the Arhuaco
territory?**



▲ **Figure 9.** Strategy in phases for the development and technological linkage of biofortified beans from AGROSAVIA.

Source: self made.

The biofortified beans reached the Arhuaco people based on a strategy based on phases, which began in 2008 based on a request from the Government of Cesar related to the development of crops with higher nutritional content to respond to the problems of malnutrition of the ethnic population of the department. In the period 2010-2012, the first phase began; In this, sectorial tables and regional forums were held to raise awareness regarding the impact of biofortified crops, nutritional measurements of biofortified, agronomic and agro-industrial. In the second phase, between 2013 and 2018, all the regulatory processes leading to the registration and release of the biofortified bean varieties Corpoica Rojo 39 and Agrosavia Rojo 43. A sustainable bean production model for the Caribbean was also published. In the third phase, from 2018 to 2019, the biofortified beans arrived at the Arhuaco reservation. In 2018, the first baptism of the bean was carried out by an Arhuaco mamo, since during the liberation the seed was delivered to the Association of Tairona Authorities (ASOCIT). This association delivered first to ten families from different areas such as Nabusimake, Gunarwn, among others. Asocit's actions led to the fourth phase, from 2020 to date; This corresponds to the harmonization, acceptance, and diffusion of beans in different Arhuaco communities (figure 9). In this regard, Asocit, in 2019, sold two tons of beans produced by the same communities to the state food program pae. In this context, there are also the financiers of the dissemination activities of the varieties with the ethnic group, such as AgriLAC Resilient Cesar, the Regional Fund for Agricultural Technology (Fontagro) (high iron beans) and the Cooperation Initiative for Food and Agriculture between Korea and Latin America (KolFACI) (drought beans) (figures 10).



Fotos: Griselda Gómez y Julio Ramos

▲ **Figure 10.** Biofortified beans Agrosavia Rojo 43. a. Development of the grain in the pod until maturity; b. Bean plant in the La Lucha community farm of the Arhuaca Umuriwa community, Valledupar municipality.



Description of fertilization in a bean flower

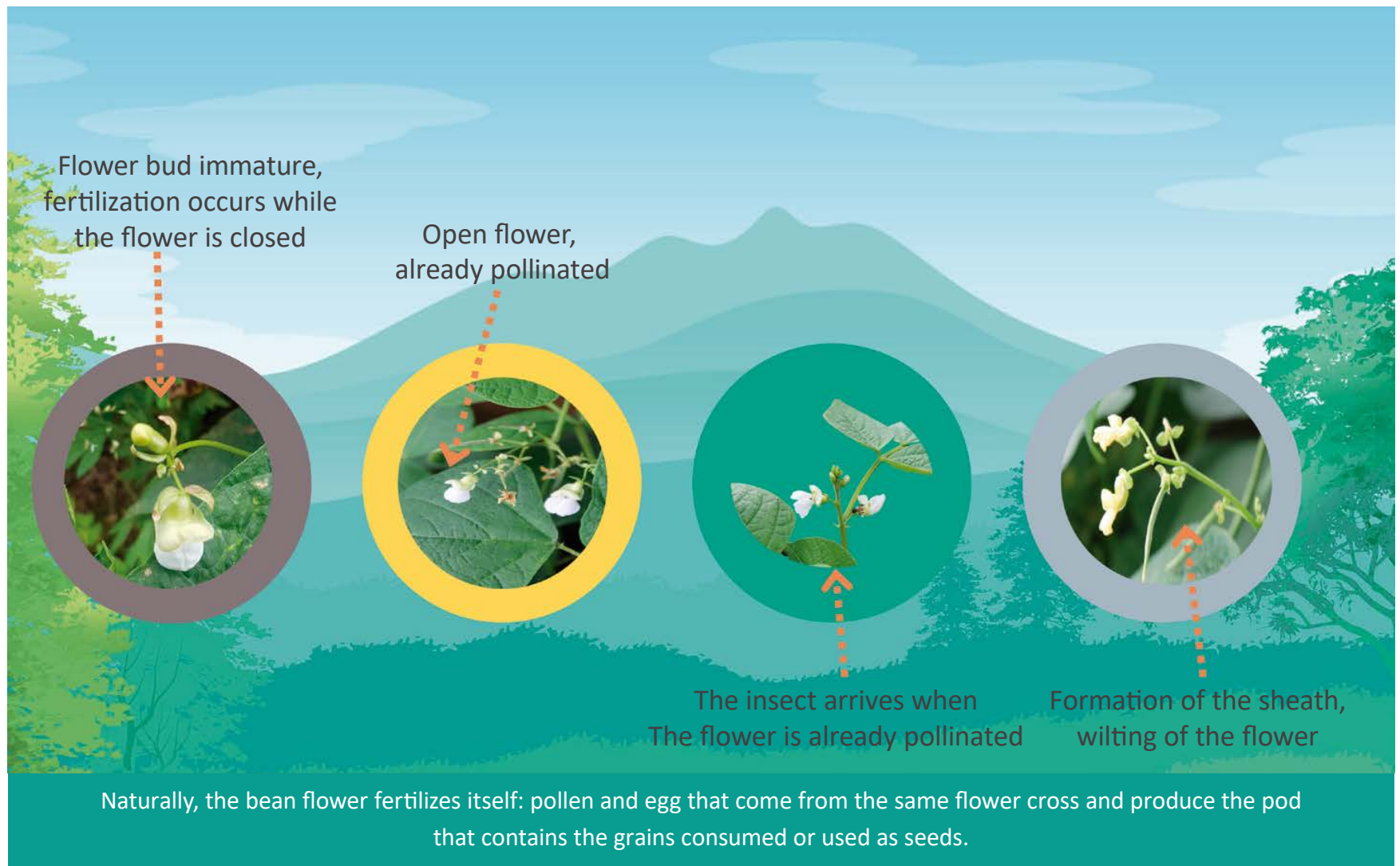
Given that beans are an autogamous plant or that fertilizes itself, it is necessary to include in this booklet a brief description of the floral biology of beans to explain how, through plant genetic improvement strategies, it is possible to develop crosses in the field to obtain new varieties with important characteristics; for example, higher grain production, tolerance to sanitary problems and adverse environmental conditions, and higher nutritional content.

In the bean plant, obligatory self-fertilization is observed, because when the pollen (male seed) and the ovule (female seed) are mature, the flower remains closed, so the chances of fertilization by pollen from other flowers are very low. When the flower bud is formed, it looks like a modified leaf, since it remains green, and when the flower structures are mature, the flower bud changes color and turns white or yellow (figure 12) but remains closed. The petals wrap up to ten anthers and one pistil. When the flower opens its petals, pollination or fertilization has already occurred and the wilting process begins, which gives rise to the formation and growth of the pod (Fernández de C. et al., 1986).



Photo: Yanine Roza Leguizamón

▲ **Figure 11.** Biofortified bean flower.



▲ **Figure 12.** Description of fertilization in a bean flower.
Source: self made

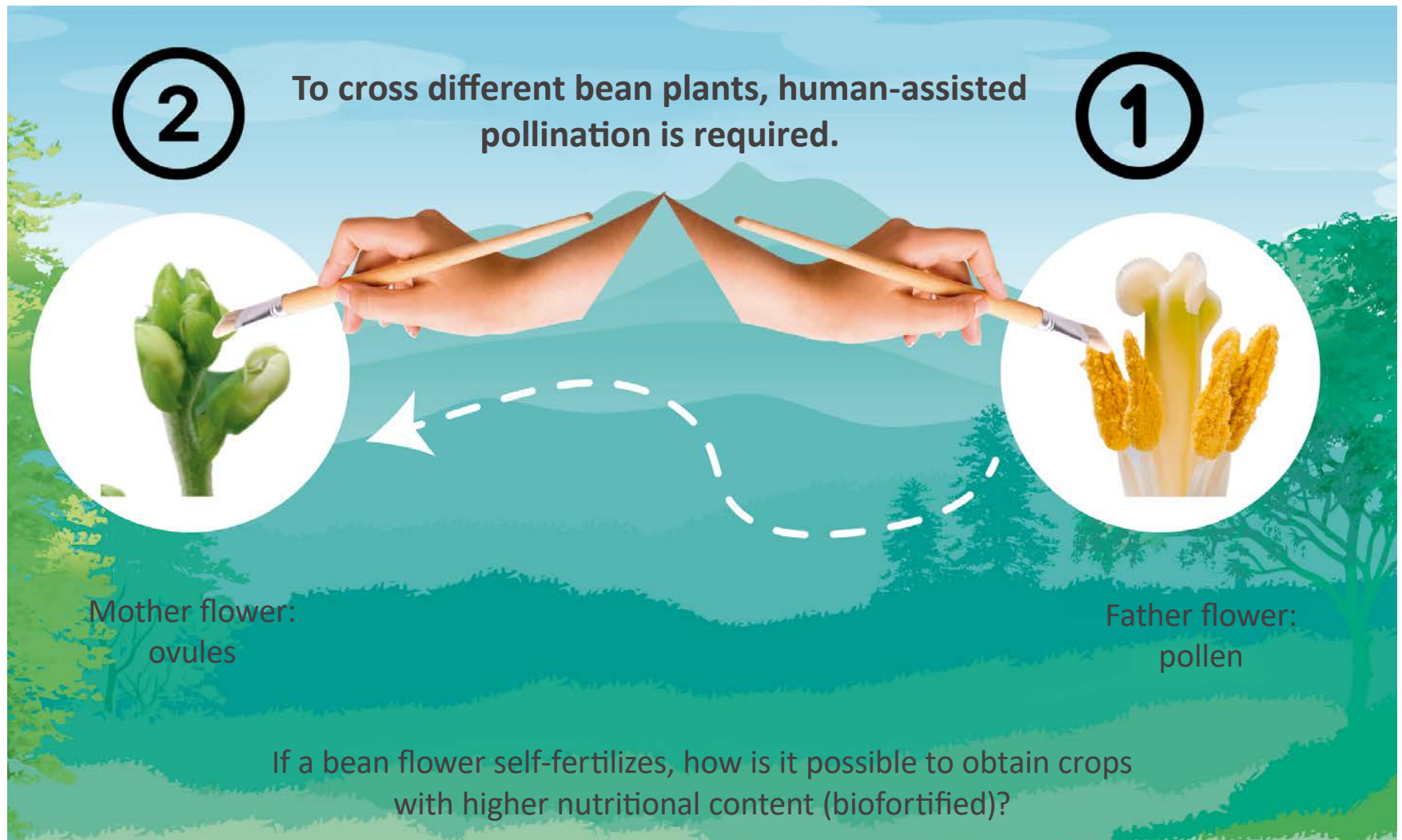




How do you cross different bean plants to get more nutritious beans and more drought tolerant plants?

In this section, it is briefly described what the process of crossing between bean plants consists of to obtain materials with better characteristics and adaptation to the conditions of the SNSM.

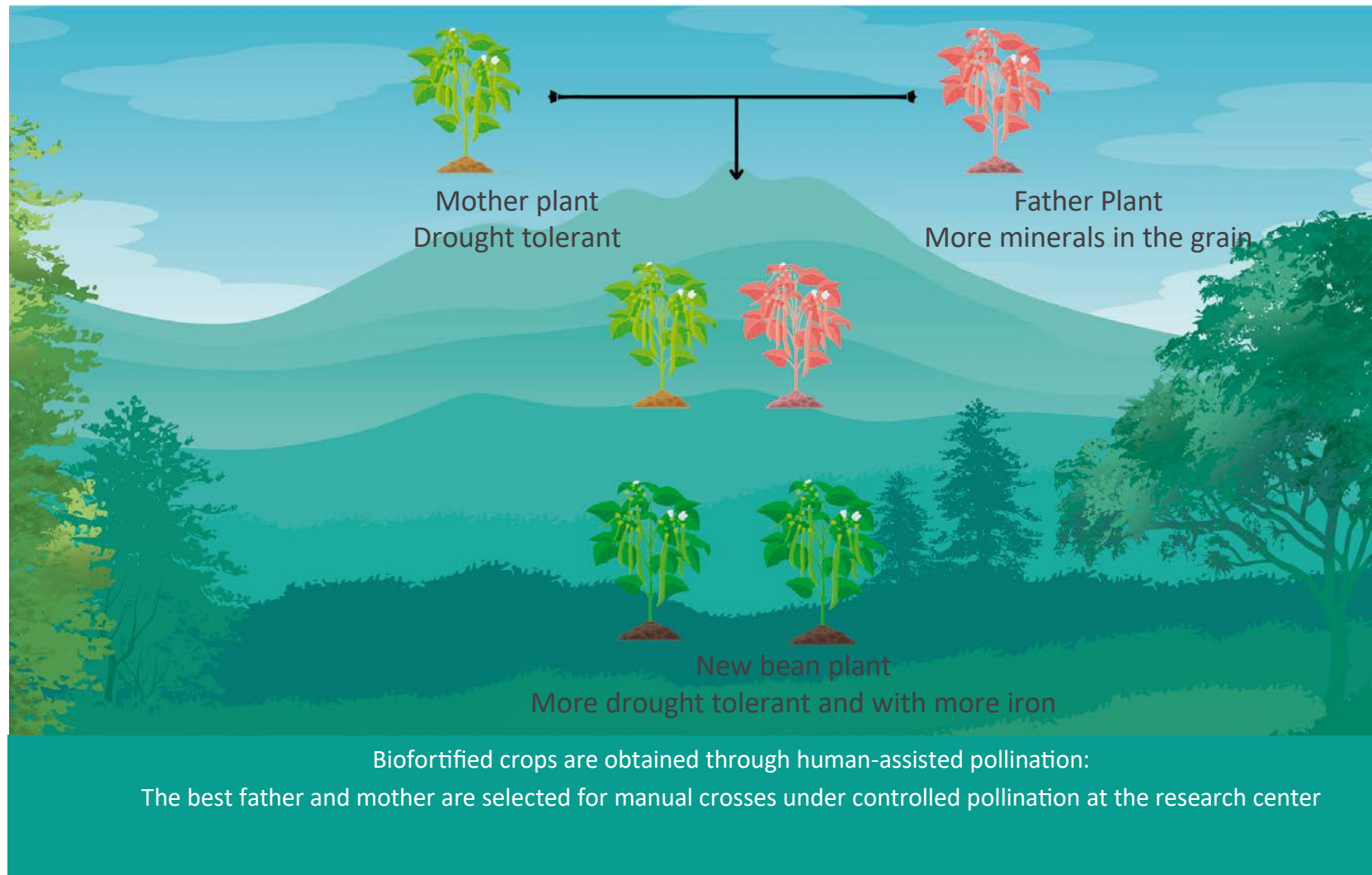
The planned increase in mineral content in bean grains (biofortification) is carried out by technical personnel in research centers, based on manual fertilization between bean plants with superior characteristics of iron content in the grain and tolerant to drought. On the plant, which acts as a mother, flowers with completely closed buds are selected, whose petals are opened with tweezers and a brush full of pollen from the plant is passed to them, which acts as a father; once the pollen and the ovule unite, the bean grain is generated (Mayor-Durán et al., 2016) (figure 13).



▲ **Figure 13.** Artificial crossing of bean flowers to obtain biofortified beans varieties.
Source: self made

In this way, daughter plants are generated that can present the two characteristics of the father and the mother (more iron and more tolerance to lack of water). In the bean plant, because it presents self-pollinating flowers, that is, its fertilization occurs while the flower is closed, the pollen and the ovule belong to the same flower. The wind and the pollinators that affect the flower when it opens, even if they carry pollen from other non-biofortified plants, fail to fertilize the ovule, since it is already fertilized before the petals open.

This makes it easier for Arhuaco families to maintain their varieties through seed storage, thus preserving their purity through the years. However, it is appropriate to request new seed from AGROSAVIA every five years (Rochel Ortega et al., 2022).



▲ **Figure 14.** How do you cross different bean plants to get more nutritious beans and more drought tolerant plants?

Source: self made



Description of the process for obtaining biofortified beans

This section presents the procedure carried out in research centers to obtain new varieties for peasant, family, and community agriculture. Emphasis is placed on improving the mineral content of the grain, such as iron and zinc, which are essential for the control of anemia and malnutrition.

The biofortification process manages to increase nutrient levels enough to improve human nutrition without reducing yield; it also allows the inclusion of other characteristics such as the tolerance of the crop to periods with little rain or dry years. After carrying out the directed fertilization process between bean plants selected as father and mother, the selection process of the daughter plants that mixed the desirable characteristics of their parents begins. In this way, daughter plants are produced that can present the two characteristics of the father and the mother (more iron and more tolerance to lack of water). The selection of the improved daughter plants requires, in some cases, several crop cycles for their analysis of grain production in the field and nutritional evaluation in the AGROSAVIA laboratory. It has two registered varieties of biofortified beans (Agrosavia Rojo 43 and Corpoica Rojo 39) for planting in the dry Caribbean. These varieties were obtained by evaluating them in 12 harvest cycles to verify their good production and high iron grain content, and the value of other varieties in the region doubled (Tofiño-Rivera et al., 2016). Since 2018, seed delivery campaigns have been carried out to the Arhuaco communities through Asocit, and since 2022, through Asoanei (López López et al., 2022).



Proposal for knowledge exchange for the management of the vegetable garden with red beans,
in accordance with the world vision of the Arhuaco people



Zakŭnchosi niwi kunsŭkŭnŭ Ŭnki'tasi ichŭ
zarisi chwi awkwasi ikŭ zu'kunsamusé tá

Based on the results of the workshops and focus groups, a step-by-step of the immaterial and material tasks related to bean cultivation was built, in which the spiritual actions required for a variety of its own are differentiated from an improved variety, such as biofortified beans. Agrosavia Rojo 43. In the narrative of the participants, it was possible to identify four steps associated with the spiritual cleansing of the socola. In general, in what has to do with the seed, a maximum of two spiritual steps depending on its origin are identified. Because the improved variety is not native to the SNSM, prior to planting—in addition to the general payments—a baptism rite is required (figure 15). In addition, the sanitation of native and foreign seeds is carried out, which are not stored together. Likewise, the technical team must do at least one cleaning step before stepping on the sacred territory, and in the sowing process, spiritual precepts are followed. The eight steps that refer to aspects of ancestral culture are enriched with some comments. based on the experience of the communities in the cultivation of biofortified beans in the SNSM. Finally, some aspects of floral biology, plant breeding and nutrition are exposed in a simple way, which account for the development and impact that is expected to be achieved with the biofortified varieties in the Arhuaco people. The step by step that was obtained in this research with the community is presented below.



Photo: Adriana Tofiño.

▲ **Figure 15.** Baptism of seeds of sorghum varieties of AGROSAVIA.

Note: This baptism was carried out by the mamó and the women in the Arhuaca Umuriwa community during the socialization of the results of the AgriLAC Resilient Cesar initiative.

Identification of the terrain



Spiritual Healing

Component: spiritual sanitation/cultivation plot selection

According to the information generated in the conversations with the community, the choice of the crop plot to which the spiritual sanitation is carried out must have the approval of the mamo, to avoid working in a possible sacred site. This perception of sacred trees, places and stones is proper to the hands, and the Law of Origin is transgressed when these elements are moved or disturbed. Thus, tradition indicates that spiritual healing is applied due to the following story transmitted by the elders orally from generation to generation.

ema ankunikumey rimaseykumana neika naba tari, inu zarika awun me juri nanundi ka mamuse du kawin azari se kunariza nani,, kwa nanu nundi azuna naba chey gow neki awaki nukukwa name, atinkunu neki anugaba, murundwa anugaba neki gow awaki nukukwa name amu se awkwey zunnin azari waka uwaba zun gawkwey nariza ni. Emey anawi gun rimaseykuma ayey ankeykumana neika nanungwa nari.

According to the mandate of Mother Earth, the identity materialization is composed of two consummation horizons: intimate and external. The internal precept requires us to take the ancestral responsibility from Sein Zare, understood as an intrinsic commitment of each indigenous individual according to his identity. This indicates compliance with the Law of Origin and compliance with the recommendations of the mamos to maintain the balance between the individual, the community and nature.

Ema zakuse gwa uweykari, iniki emi kwey uwari mowga naba renikwa uwa ni. Andin awiri okaku, ema andin zanu keiwu neikari sein zare keiwu zunna aukwa kawiza na ni, ema gun nunay kawi aukwey ka nanundi anikwuyaba ta, mamuse gwugaba ta, jumu zanamu mikunari kagumusin renusi.

In accordance with the above, before beginning the sowing process and the identification of the place where the plot will be located, a process of spiritual sanitation is carried out by the community, in which women, children and men participate, through a ceremony in which permission is requested from Mother Earth and

apologies are offered for the use of the territory for the establishment of crops. The ceremony seeks to achieve a spiritual alignment that guarantees the harvest of healthy grains for the benefit of the community.

The proper management of spiritual restoration in advance of any material or practical activity that affects Mother Earth is mandatory. These spiritual actions imply conversation with spiritual fathers and mothers (of the mountains and mountains, of native plants and fauna, of water and rain, fire, wind, clouds, stars and planets), so that they know and ratify that the emptiness that will be caused has already been restored, and that the injuries that will be caused have been healed in advance (for example, cutting down a tree or a vine) (Ministry of Culture, 2016).

Ema dumusi aukwa nunay kawi narizuna ri, bbemaneki awkwey kwa neikari,
in une nun ne awuki kase wamu sa awkwey kawa neika ri, ingu emey kwa gun
anugwe si warunhamu kawa gun nundi, kunkuna, jirigaka, kanu anugay pranta
anusi, nunay, jewu, je, gey, buntikunu,, muññu, birakoku, awiiri aju kagumu
nanun nuga., aroma zuna ko regawi awkwa...

[...] the young women interviewed state that living well, living well, and the good life lie in the balance they have with Mother Nature—which has given them everything they need to live—, solidarity among indigenous peoples, there is respect for Due to the nature and absolute clarity that all actions have consequences, it is therefore important to make the “payments” to Mother Earth to access her at all moment, mainly when sowings are carried out. (Personal communication, Kares Zapata, 2022)

Iwa arukun nuga winazasikumey uweri du me zari kwukari, dume zari kwey awiri azi me zanu nari nanukwari ema kagumusin ema zakusin dikin renusi, be a gun yow niwekawaki un kundi yow inu iku pinna kwey uwa du arunkwa neikari, kagumu chow achwi nari keiwuri in une nun ne awunki meza sisa aukwa kuchu na ni. Emey uwame aburu angawi aukwari sumu kujuna neika ni. Binzari neki zeyzey kagumu a zanungwasi, uman kinki neikari em ainu anzarisi unge, bona angwasi...

For young men

The Law of Origin entails a respect for nature in two ways, compatibility with the community. For men, the responsibilities are focused on providing food at home and having children that will increase the indigenous population in their communities. (Personal communication, Betsy Carrillo, 2022)



Spiritual Healing Component



1st component: Socola (cutting of trees and plants)

Component: spiritual sanitation / identification of the place for planting

After the harmonization of the site designated as a plot by the mamo, the site within the plot that will be for planting is selected.

The mamos guide the spiritual process in the company of women, who are mainly called to carry out the activity. In compliance with these ancestral guidelines, when a family is given a chagra, what they must do there is established, they are shown where they are allowed or not allowed to sow, raise animals, etc. (Personal communication, Adalberto Torres, 2022).

Mamu neikari amia winnaba nikamu awi igunamusuya neika ni, amia jinase gun uman du kawi nikamu awiza nari gun neri, ayei kawi anchunhey igwety nunay iniki awekuma uweri be zarikukwey mikunanunno keykumey uwa ni, ananugwa kwa.

The guidelines that are considered to select the planting site are based on the aspects described in the following tradition.

This is our Traditional Property Management System, where the original precept of protecting the cultural heritage is carried out during the development of the socola, the area and its surroundings are cleaned, as when the products are cultivated and harvested, the specific traditional work is done (Ministerio de Cultura, 2016).

ema gun niwi andumari aukwa kutu abunna na nunno, chwey angawi unge chow achwi, bunsu ki zakusa awiri atugeku nenun kapin awi, chey anbori, chey anisi awiri uya ananika awi neri nunai kawi nikamu ankawi ukumuya.

In this same sense, the Arhuaca oral tradition indicates that:

The sea was the mother of all that would be later. All that exists materially, the Mother possessed in her womb. Then he saw material life necessary and that was how with strong rays from Bunkwakukwi everything took on color, shape, size, spirit, in accordance with the law that the mother determined for each being.

The mother saw it necessary to establish laws for food, so she created edible plants, establishing laws for their utility according to the moment, place, ceremonial, community, family, and individual act. The plants were brought by a mamo named Najunna (Barros, 2001, p 135).

Jiwu ri iwa iniki kwuya tosukwey kwa za zaku nunna ni, emey awi anugwe umuta kwey aukwa kujunin azunna ni, emey anawi jwi zu jwi timbiro kumu anisi kwakuma awi nareri, yow inu antakua una ni, kaweyka, awun kwa ingu kweika, emey awi ingwety zamu nunay du kawi aukwa kujunin ingwety diwun diwun dumusukwey kawi azari zoyana ni. emey anawi keiwu zamu neika pranta gow awi a kanikwuyaba ta nari gugu awekumey nanungwa nari chokumey zoyana ni, pranta neikari zakuse najunna se unana ni.

Spiritual Healing Component



2nd component: burning

Component: spiritual healing/burning after the socola

According to the narrative compiled in the workshops and in the conversations with the community, after choosing the planting place, the fallow or vegetable cover is cut through controlled burning. This is done by a spiritual leader of the community, in the company of the hands.

The fire in the Iku village represents the cycle of death and regeneration that balances the universe (personal communication, 2023).

Gey nanun nugeykari ema iku neikase ri, ema awicha angwa nari awiri eygwi
renisi zweykwa ni wingwa ni.

However, the representatives of the communities indicate that there has been a change in this practice, since it is no longer carried out extensively in the orchard and is applied only ceremonially in the socola, which is done by clearing it with a machete, leaving the fallow on the ground.

The negative environmental impact of burning for weed control on indigenous cultures in general has been recorded. The use of fire as part of the process of creating and destroying nature is common in various ancestral peoples. The Arhuacos recognize different types of fire. In some communities in Brazil, for example, the use of fire by the original Krahô people favors an integral functioning (forest-pasture) of the savannah through controlled fire. Additionally, managing burns not only prevents the damage caused by large fires, but also increases biodiversity. However, the negative material effects of burning on animals, the survival of some plants and the quality of water cannot be ignored, due to the fall of ash (Huertas Herrera et al., 2019).



Spiritual healing component after socola and burning



General healing – Living and non-living things affected by deforestation and burning

Component: spiritual healing/general healing. Living and non-living beings affected by deforestation and burning

The general spiritual sanitation that is carried out before sowing includes the “payment” to Mother Earth for all the living and mineral elements that are disturbed during the preparation of the socola. Likewise, the damage caused to organisms visible to the naked eye and microscopic ones that live in the soil and to the soil itself is recognized.

Aburu anugwe jinasin angawi jwi rekupasi ukumuyari ema anzasari ukumuya ni, ema kagumuse, yow inu pinna kwey uwa sirigun, chey angow unge, emey awi kase winkuya jina nenun mamu isa akwa name tikun rigay izasana ukumuya ni.

A basic aspect in the Arhuaco culture is the recognition of the immaterial essence of the living and non-living elements that make up nature, in which they all play an equally important role in the balance of the universe. In accordance with the above, the elders of the community indicate that the Arhuaco people, as a living entity, wisdom and society, it coexists and subsists materially and spiritually because, both internally and externally, it forms or participates in the same biosphere that surrounds us all; of the planet, the rocks, the coal, the gold, the hydrocarbon, the copper... of all the minerals!; of the storm clouds, the forests, the herbaceous plants, the water, the atmosphere, the animals, the mantles of the earth; of the nuances of weather and climate, the candlelight, the lightning, the tremors, the drizzle, the temperature; in short, of all the components that make up the natural environment. "For us, nature is as human as what is human is nature; we are a single expression of existence with the same right and duty to remain in time" (ICT, 2016, p. 125).

Sanusí andimasay anukumun nunari umante azuna powruse zanu iku neika, agunkuya, bemay neki renosi zori andin kwa okaku dikin regow uwa ni, niwi niwimukuma awaki nuga, kagumu, kun, je, buntikunu, ananuga, kagumu, zari zuna, gey, kwimagwe, camasa, jewu zu buru,, wiwi zaniga, pinna zari uwa yow, ema kagumuse kununna. Niwi ema kagumuri niwi nari kawi chuka azuna neika ni, dikin iniki awkwey niwi kunari. inune nun ne awunki.

In relation to the spiritual harmonization prior to sowing, the participants of the workshops complemented the following: “After the socola and burning, a general spiritual sanitation is carried out. This contemplates the act of offering forgiveness to nature for the affectation of the living and non-living affected by deforestation and burning of the environment” (personal communication, Adalberto Torres, 2022).

The origin of the spiritual works that are described in the steps 1, 2, 3 and 4, and which took place in the socola, are based on the following story:

Najunna during his trip to the afterlife in search of his wife who had died, the spiritual parents told him that to take her back he had to do work such as cutting firewood, clearing land, and building houses. However, when hitting the trees she heard loud cries of pain, for which he understood that these works should not be done materially but in spirit. So he did so. (Barros, 2001, p. 135).

najunna neikari peiku amia kiwichana takun zoyana, kaku anugwe neikaseri kun
bia ankeiwu eigwi annasizani kuyana, ema kun bi, kanu abeisi, uraku gawi, ey
anuyeki kun bin nuseri de azuna ai keiwu nokwana emey anawi keiwu umuta neki
nanu nari anugwe nari aukwey nariza ni azri keiwu arunhana ni.

Component according to planting schedule



Lunar Phases – Waning quarter
May

Component: seeding/moon phases. Last Quarter: May and October

After carrying out the steps indicated for spiritual healing in the socola, the sowing process can be advanced; however, it is the mamo that indicates the appropriate time for each planting season, according to the lunar phases. In this regard, both peasant communities and ancestral peoples refer to the importance of following the lunar phases for a successful planting. In general, the Arhuacos who participated in the workshops, regardless of their age or gender, indicated that both the planting and all the tasks carried out are programmed considering the changes in the phases of the moon.

In agricultural production, the moon has a significant and variable influence on the type of crop, since only some benefit from lunar phases, such as corn, while others are affected, such as beans, which are more exposed to pests. For sowing, one must wait for the lunar phase of the waning quarter, in May and October, in order to give the crop more strength, that is, to obtain greater grain production. Sowing is done in May and October to obtain two harvests in the year. In the waning quarter, the intensity of the lunar rays begins to decrease, which promotes the growth of the roots of the plant with respect to a lesser development of the aerial part. The adequate development, from the beginning, of the root guarantees the establishment and general development of the plant, there is a better utilization of soil nutrients (Mera Andrade et al., 2017).

The men are in charge of the crops in their communities. They make their payments at the beginning of each agricultural activity. As for happiness for them, it is based on being married, having children, having their own crops and livestock, and being at peace with the community. (Personal communication, Duguan Torres, 2022)

cherwa jina neika zarisi neikasirigun aukwa kawa ni. Ingwety nikamu uwai aburu angawi niga ni., ikunha zeyzey wnazunar, jwa angowna nari, gumusinusin, chwei azey kunari, paka kinusi awiri powrusin ingwikin riwari kwukwa zeyzey winazuna ni.



Healing of biofortified red bean seeds



Biofortified bean seed sanitation

In the case of the biofortified bean seed, a baptism was necessary to deliver it to the communities of the Sierra Nevada. According to the workshop participants, the baptism generates an energetic link that facilitates the recognition of the seed by the Sierra Nevada. This process is only carried out once, and then, at the beginning of each crop cycle, another procedure is carried out: sanitation, which is also done for traditional or proprietary seeds.

The sanitation of the seed is carried out by the mamo. This spiritual sanitation prevents the appearance of pests and diseases, and the crop is protected from any problem in production. Biofortified bean varieties Agrosavia Rojo 43 and Corpoica Rojo 39 received their baptism in 2017, through the mamo Luis Guillermo Izquierdo, and since then they have been recognized by the Sierra Nevada (Corpoica, 2017). However, every time a seed of this variety is brought to the communities, which has not been produced in the ancestral territory or under the mandate of the Law of Origin, it must be baptized, while the one harvested in the sacred territory only requires sanitation.

Zamu pinna juna neikari mamuse keywu mamu aniga ni,ema anugwe siaburu aganigari wamu neki ikumu nanungwasi kwa inikise neki ga niku nungwasi, emey anawi nunge gun bema neki anika awiza no.pinna juna ichu du uumana neikari agrosavia neika ni zi kawa 43 awiri corpoica zi kawa 39 2017 se jwa kwukumey neika ipunna ni, mamu Luis Guillermo zaki nuga, emey anawi imi pari kagumuse jwasuya ni, corpoica 2017, ey anuweki, binzari neki iniki bona uwa neikari ikuse kibunna nanu neikari jwa kusukwa zun kawa ni, iwa ki uyaba anina neikari ingu du kukusa nukin zun aukwa kawa ni.

Traditional sanitation compensates for the benefits received from Mother Earth; It is also mandatory to compensate the parents who own the elements and natural manifestations so that they favor the life of all nations. Because the mamo is the receptacle of primal knowledge, he has the knowledge and ability to interpret the Law of Origin, and in this way, he clarifies the precept of spiritual fathers and mothers who are kept in sacred places. Women also achieve this spiritual articulation, by becoming sagas, as women capable of understanding the spiritual world in a similar way to hands are called. One of their tasks is to support and accompany the mamo in traditional tasks and in payments. Although there are tasks and processes that they carry out together, some are specific to men or women. In some cases, the mamo asks the saga for advice and exchanges materials to carry out the work, since she has specific materials that she shares with the mamo.

mamo.aburu angawi aukwari niwi kagumusin diki ankuriwari neika ni, awiri kaku niiwi iniki niwi kununa ankazasari, niwi kamukana angwa kumu asun gwasi, emey anawi kwakumey azoyai jumamu kwasi zwein gwasi, emey awi gun mamuri tikun zunasin renusi migakunamu ankuzakusuya neika ni emey anawi ingwi yow annusi nari, anugwe zaku anugwe kaku zey neika ingwi aukwa kawa neikari mamu igunamusi nikamu naba aburu ukumey naba, ingwi aburu neikari amia nukin kwa cherwa nukin nari aukwa kawa ni,, iwa imunu ri kwimagwe nenun azasisuya ni azi nikukwey kaho azari neika ni.

The knowledge acquired by the mamo allows him to connect with all the natural elements; Thanks to this, he achieves a full understanding of the ancestral word natural, which indicates the embodiment of specific knowledge. Through the Zhátukua¹, authorization is requested to our Mother Law; This is the traditional autochthonous knowledge that is handled from the beginning (Ministry of Culture, 2016).

Mamuse aburu asisana neikari yow ingwi kasugusin rimasey awiza ni, ema zeynari kawi ingwi yow renoka aukwa kawin, iniku du kawi ankurimasey kwey niga, ema zhatukua niwi zazakuse ey u niwikeiza kujunin, birin pari ayei wasey nuga.

1 Zhátukua: consultation carried out by the mamos to the spiritual parents of the universe.



Harmonization of AGROSAVIA's technical team to facilitate its recognition by Mother Earth



Harmonization of the technical team of AGROSAVIA to facilitate their recognition by mother earth

According to one of the workshop participants:

[...] In a similar way to a seed that is not typical of the Sierra Nevada requires a baptism, all bonachi [non-indigenous], who enter the sacred territory and, especially, who expect to carry out actions of relation with the community, must carry out spiritual harmonization. With this, the recognition of each individual by Mother Earth is achieved, since the bonachi do not have their placenta buried in a sacred tree, and that is why she does not recognize them. It is also expected that all that negative energy will be cleaned so that it does not reach the community. When a bonachi arrives and does not comply with the harmonization, negative things happen in the community. (Personal communication, Zaratummu Torres, 2022).

ingu ayeygwi kawi zarikukweyna ikuzey nanu neika porwu zey, nanu neika kinkri
jwa kusi aukwa kawa ni, buachu neika niwi powruse chuna, uya bunachu neikari
aburu angawiza na ni, ema awun nukan gwin kasin ingwi annusi jwasi za nanundi,
be bunachu kinkri kunsin renokwuya nanu namegun kase jwasu nundi, emey
anawi yowkuchu eima iniki wamu kawa ankawin gun sinna, powruse kinkumun
nanungwasi, ingwi bunachu powruse kinkuma awi aburu angaw nanundi azi ki zun
awiza ni.

This action is part of the call of the Law of Origin, as indicated in the Safeguard Plan of the Arhuaco people (figure 16):

The sequence of the Law of Origin is transmitted through history and tradition and is implicit in the patterns of traditional work and in the actions of the community on a day-to-day basis, which determine the way of life of our peoples. This knowledge, knowledge and manifestations are materialized, for example, in their own languages, in the way of sowing and harvesting, in baptisms for both people and crops, in the construction system of our houses and ceremonial houses, in the knowledge of traditional medicine and in carrying out mortuary processes, among others. The Law of Origin establishes the procedures to be able to strip people, objects and spaces of those polluting energies that are undesirable, For them, there is a certain space to do the exercises to dispossess said energy and spaces to nourish the subjects with the positive energies required for the return to balance. Such handling is part of the ancestral knowledge, to which the mamos access through processes of reading and interpreting the Law of Origin (Ministry of Culture, 2016).

ema neikari ingwety zunai neika se pari chwizinhakumuyin, anugwe naba pari unisi zweikweyka sin ingwi ankunari. Emey uwa gun kwey akweykwachwizari zoya ni ema jwasukwakawagun niwi gakunamusin, zarisi, tasi akweku, ankazey, neika jumu ankasi. Iku naba pari zamusiku, uraku gawi akwaba pari, uyazey nenun pranta jwasi akwasirigun ... awiri ajua nenun nanun nuga. Niwi umuke neika niwi gakunamu niwi jumaku kumu isi aukwa neika ni. Emey awi dwun zanisi zoya nenun du kukusi zori kumu ankasi aukwa niwi anugwe iyazey nenun in apa ka mikapunsi, kadukwun emey neika gun niwi jumamu niwizey naki no ingwi mamusin nunaba ta.



Photos: Adriana Tofiño Rivera.

▲ **Figure 16.** Spiritual healing carried out by the technical team of AGROSAVIA in the Arhuaco communities Umuriwa and Ikarwa. a. Washing hands in the process of spiritual cleansing. b. Word circle around the fire in spiritual cleansing in the Ikarwa community.

Harmonized and biofortified clean seed conservation



Conservation of own harmonized and biofortified seed

According to the workshop participants, the seed has a special meaning for the Arhuaco people, and its conservation is associated with different rites and procedures.

After the harvest it is collected and it is baptized in a jar; it is distributed among the technicians, mamo and the people to generate a union through the seed, thus indicating that the productive model is agreed upon. The mamo invites the entire community to transmit to the seed of the biofortified beans their acceptance and accompaniment. He looks for a pumpkin and they wash their hands. The seed is given to the mamo to keep it for the community. He keeps her in a gourd with spiritual healing. (Personal communication, Jesús Torres, 2022).

zamu anika awaki nungeri antaka ukumeyri, jwa kusa ukumuya ni,
jweruse awi keiwu mamusin ingwi gumanusin ankubasa ukumuya
ni, ingwi yow annusi nanungwasi, awi mamuri iku ingwi powru yow
nakow kuya ni, ichu jwa kusi nari. Pinnasin ankipana awungwasi. So
ataka awi guna anchukwa ukumuya ni, emey awi zarikukwey kawari
mamuse awe ukumuya ni kunanungwasi, awi sose casa neika ni.

The sanitized grain is kept in a house (figure 17) and, as required, the one needed in the planting lot is taken from there. The own seeds are conserved in different and differentiated places from the improved seeds to maintain the purity of their identity. The technicians of the institutions and the ethnic groups should receive the advice of the mamo from the Zathúkua. The most used elements for conservation. They are the gourds that are hung in the highest parts of the house in ventilated places. Beans from different origins are kept in separate courgettes.

Iniki agruna neika du kukumana neikari urakuse du ukuma uwa ni,, ingu niwikujunay kuzunge eimi pari agukuya ni, zarikungwa nari, uya kuchu nanun nuga aykunu niwikununa ni, ey awun gun kumu anikuyari kunari zoriza ni, emey anawi gun awamu kawari mamuse pari keiwu emey nariza ni kuzari zoya ni, uman zamu du kawa birin du ukuma uwa neikari ammu urakuse warin kuja ukumuya ni, iwa ichu neikari ajway du ukumuya ni.

The grains are kept until the next planting season in accordance with the traditional calendars and the permanent recommendations offered by the hands, considering that the climate has had great variations that have also affected the sacred territory. (Personal communication, Jesús Torres, 2022).

niwi kanikwuyaba ta nari bema ne nanunki iwa zarina neika ingwi kugise eygwi zarikungwa nari du awa ukumuya ni, eygwi uya timase zarikumungwasi, awi mamuse gwanaba ta nari, emey anawi uman diwun anzanisi anzori nabari niwi chow ankachukweku nenun ingu wau kumey zuna ni.



Photo: Alejandra Izquierdo

▲ **Figure 17.** Seed conservation house.

Importance of seeds



Woman: Red bean (fertility of mother earth) - Man: Corn

Importance of seeds

The seed constitutes the guarantee of food production, and the food autonomy of the peoples depends on its conservation. Global human nutrition is supported by no more than 30 plant species (Bernal López & Amaya Castaño, 2023);. However, ancestral peoples have a more varied use of the available biodiversity for their diet and attribute an immaterial value to it, indicating that these also nourish the spirit and, therefore, humans are also considered seeds by Kuka Zerankua (God).

According to one of the workshops:

[...] each material entity has a reflection in the spiritual world and from there it is derived that the Arhuaca man and woman have different representations, and according to their qualities, such as corn takes more nutrients and is more resistant, it is related to man, while beans deliver fertility benefits to the earth and require more care, and that is why it is related to women. (Personal communication, Jesus Torres, 2022).

Ingwety iniki nunay in une nanunki tikun di ayeigwi kawi chwizunna ni, emey anawi cherwakwa amia neikari emey diwun kawi chwizuni auga ni, emey anawi in naba ta anugwe kinusi nari du kawi inuya ni, be ichu neikari niwi kujuri uwa niwewe gun andi awiri uman chow chukwa gun nikundi emey uwame ichuri amianani.

This representation also acquires a premonitory meaning regarding the sex of the unborn children, since it indicates that when the pregnant woman or the father of the child dreams of corn, a boy will be born and if they dream of beans, it will be a girl. (Personal communication, Aty Gundiwa Arroyo, 2022).

Ingwety iniki nunay in une nanunki tikun di ayeigwi kawi chwizunna ni,, emey anawi cherwakwa amia neikari emey diwun kawi chwizuni auga ni, emey anawi in naba ta anugwe kinusi nari du kawi inuya ni, be ichu neikari niwi kujuri uwa niwewe gun andi awiri uman chow chukwa gun nikundi emey uwame ichuri amianani.

In this regard, the Arhuaco worldview contemplates that symbolically the woman represents Mother Earth (Seynekun), and just as she is our mother Seynekun, life originates from her and the existence of all the elements of nature is guaranteed, such as mountains or snow-capped peaks where the waters originate. This same interpretation and manifestation is found in the woman, who is the bearer of life and mother of humanity. In this sense, the man represents the tree (murundwa), which is supported by the earth, which means that the murundwa depends on the mother Seynekun; likewise, in human beings, the woman supports and gives strength to the man (Ministry of Culture, 2016).

ema iku wakuyaba tari, amia nanun nugari zaku kagumu ni aya ni, seynekun eimari niwi angwe bonuyun, awi keiwu iniki bori awiza kwey akweyka mikunari akwari eimi ni winachwana ni. Jirigaka, jun je kwakumuyeku,ema juna neikari amia naba ni achukwa ni, a ka nari anugwe niwesuya upaw, emey anawi cherwa neikari kun nari waseykumuya ni murundwa awga, emey anawi amia neikari cherwa kumu zanam awesuya ni.

Najunna, who traveled to the afterlife to look for his wife who had died, brought with him plants of all kinds that he considered necessary for human life. (Bars, 2001).

najunna neikari yamun zoya unapeiku, azey amia takun wichana nunna, ey anawi pinna juna pranta unaka unani, niwi chuka niwezunase kamukanukwey kawa.

Food autonomy is based on the origin of production that is associated with sacred sites, hence when we talk about the subsoil kwalama we are referring to all the clay pots that are buried in the different basins. These pots contain inside the figures that represent the original seeds of all kinds of animal and plant species. Many objects are drawn or glued on the designs of those clay pots, which symbolize the biodiversity associated with the kwalama; These objects represent the original Mothers and Fathers and it is through them that all species are connected with their origin in the spiritual world. They are the ones who maintain and give strength to food, that is why it is in those sacred sites where permits are requested and animal hunting activities are legalized, sowing and harvesting of crops and so that the seeds are maintained throughout the ancestral territory. Hence, these sites become seed banks, because their life and permanence is there. (Ministry of Culture, 2016, p. 35 and 36).

zamu chow ankachukwa neikari, chow achukwey naba anina, be eimi yagu
 kwalama auga ankuwaseykumuyeri yowkuchu eima jweru kasin bunna pinzunay
 kaseandin nanun nuga waseykumuya ni, eima jweri neikari ingweti nunai
 zarikukweyna aguya anikwuya ni. anugasin ingwi annusi, sumu ananuga kwa
 iniki nanun nuga eima jweruse kuja winna ni, ingwety chowachukwa kunari gugu
 niwewesuya na ni. Kwalaba annusi, ema neikari kaku awiri zaku upaw na ni, eima
 gun niki nunai kawi kumu isuya, jumamu kusuya na ni. Ey anuwame gun eymeku
 gwamu ankusisukwa auga ni, ananuga gwaka awungwa nari, zarisi awkwa awiri
 antasi unge awiri eima zamu du kawi dumanun nukungwasi ingwi yow powruse.
 eimi pari emakutu kanusi neika chow achukwa nari na ni, be eimi pari gun
 niwizey anugwe awiri nari nariza kuna nundi.

“The bean and corn seeds are kept in gourds with ash, usually hung between the beams of the house’s ceiling in the kitchen or bedrooms” (Personal communication, Zaratungumu Torres, 2022). Excessive humidity rots the seeds and kills them, but also the extreme dryness that occurs due to the proximity to the stove kills the embryo, which is what produces the new plant. After harvesting, the seed is dried in the sun, preferably in the morning, and stored spread out in the shade to prevent it from drying out too much at midday and losing its germination capacity. Bean seed that is too wet leaves a fingernail mark; on the contrary, if it reaches the right humidity it remains firm and does not leave marks when pressed with a fingernail. This can also be verified by adding salt to the container where they are kept; after half an hour the salt is removed and if there are lumps it means that it is still wet. The low temperature allows to preserve the bean seeds. Usually times of more than six months they decrease germination by half, depending on the temperature of the place where it is kept. In addition to ash, the seed is also preserved with chili powder, ground tobacco, eucalyptus leaves, chamomile flowers and, in a very small quantity, natural oil (Vélez & Castrillón, 2018).

Red bean planting component



Planting seeds is done on an empty stomach as well as cleaning

Component: sowing beans

Planting beans is a difficult task in the dry Caribbean, as a very superficial planting causes the sun to dehydrate it and the embryo dies quickly; Likewise, a very deep planting does not allow the plant to germinate. Therefore, it is advisable to make the holes with a doodle that has a mark at 3 cm. This was known in the lessons learned by the Umuriwa community, which produced biofortified beans in 2022 in the La Lucha plot within the framework of the AgriLAC Resilient Cesar project.

Regarding spiritual practices:

Sowing is done in the morning fasting to strengthen the spiritual strength of the plant, because that is the spirit of mother earth. Planting is done after the monkey begins to howl, in the first quarter. On planting day sleep well, eat food without salt, you should not eat sweet or fat. (Personal communication, Zaratungummu Torres, 2022).

zamu neikari twigwi azariga ni kumu anisi bonungwasi, anugwe nunai sin annusi,
be eima gun zamu zun anugwe gun nundi. Zamu ri kunkunun motu te nika awaki
nunge azariga ni, makeiwa tima achuna nika awaki nunge, zarikukwa kungeri
dukuchu kuma awkwa, zamu nugu azanu nari gey, muna zuna gukwey neki nanu
nariza ni kwa umagwi sebu kuzungeri.

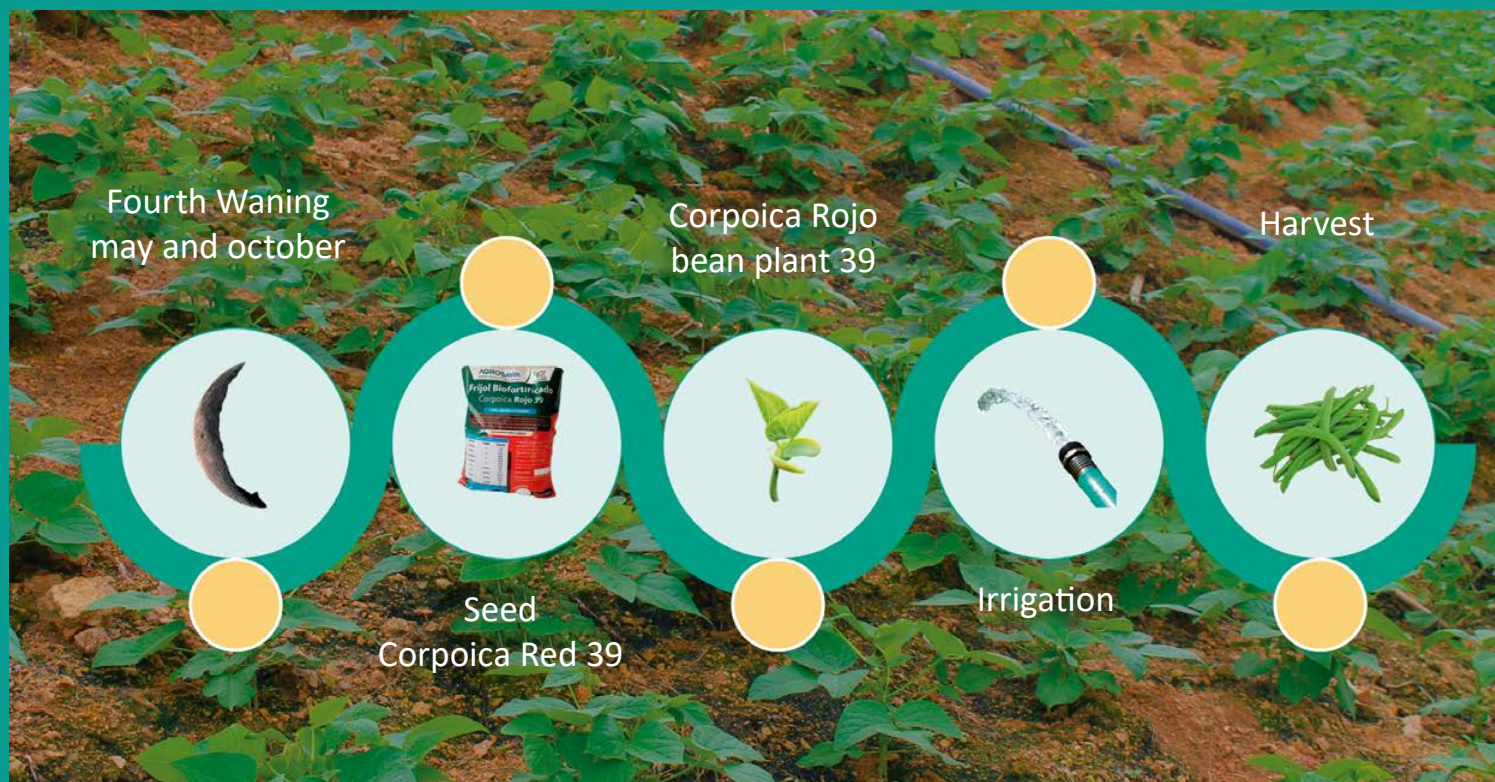
The planting process is carried out at the end of the payments with the mamos, for which the phases of the moon are considered. For planting, no chemicals are used, as they poison Mother Earth. For irrigation, the rains are expected; However, in some Arhuaco communities there is hose irrigation, using some sprinklers.

The Law of Origin establishes calendars to take into account, favorable times and spaces for cultural management related to the four cardinal points, which constitute referents for spiritual fathers, who are the patterns of native and foreign seeds for crops and farm animals. (CIT, 2016).

niwi kanikwuyaba tari ayeigwi niwikanikwuya ni fehasin, ingwi rimaseykwa jwin nungwi awi, 4 punto cardinales auga niwi kanisi, uya neikari niwipausin renuga na ni. Eima neikari zamu zupaw na ni, bema neki zamu kwa anu anuga jina.

The ancestral calendars have been maintained in many Latin American cultures, and these have allowed them to indicate ritual festivities, periods for planting and harvesting food products. This is part of the knowledge and cultural characteristics of indigenous groups. In Mexico, for example, the Mazatec indigenous people, who cultivate corn as the mainstay of Mesoamerican culture, have transmitted from father to son for centuries their own system for counting time, which ensures proper use of natural resources and the conditions surrounding work in the milpa or orchard. The Mazatec calendar precisely proposes the appropriate moments to fell and graze, sow (Carrera-García et al., 2012).

Culture cycle



78-80 days after planting



Aquí producimos
nuestro alimento
espiritual

Here we produce our
spiritual food.

Climate: the arrival of the rains



They begin by hearing the change in birdsong and the increase in winds

The weather and its changes.

Rainy season

It could be considered that the environmental crisis, which is also experiencing the SNSM, it would leave the indigenous communities in a position of uncertainty regarding the most opportune moments to sow the crops that support the traditional basic food basket, such as beans. However, in the workshops carried out with communities, it was evidenced that the Arhuaco people decide the planting date based on a set of indicators that include spiritual elements, according to the recommendations of the Mamo of each community, lunar phases, and zonal bioindicators, which are more sensitive to changes from dry to rainy phases, which are increasingly unpredictable in the dry Caribbean.

Firstly, it is that we begin the work, a work of spiritual sanitation in the month of February, and then, from the month of March, we always have a worldview from the beginning that in the month of March, even if it does not rain, the earth already begins to cool down, so they can do any type of production, then from there is where we sow the type of beans or any other crop.

imunu eygwi, nabari tima febteroseri aburu angawi ukumey keywu nani, ey anuweri marzo pari azurai ri, manunka iku nankuraseri marzoseri kari ku annikun nuga ni azi ne jewu wanu ne nanunki niwi kanikwuya ni, ei anawundi bema neki bona awiza ni, ey anawi eimi pari inusi keiwu ichu kwa bema neki azariga ni.

At the beginning of the rain you feel a change of song, and of insects too, the same cricket, the ant, the wind and it also shows what the weather is going to be like, and then all of that is based on, or if it is going to continue raining. (Personal communication, Juan Sebastián Izquierdo, 2022).

jewu jwin zuneru zamuya jinari ingu diwun yai me zanukwa ni, bema ananuga neki, sisio, sekunu, isu, buntikunu, eyma yowkuchusin ankunbumanukwa kawa ni.



Climate: onset of drought



Flocks of birds, singing is heard in the distance, cicadas are heard, ants appear, the “guacharaca”

Beginning of the dry season

The Arhuaco people associate the beginning of the dry season with the song of cicadas, the appearance of ants in the fields and howler monkeys. They also indicate that, due to the wind, the birds are moving away, they no longer sing nearby, others sing in summer or are passing by. The birds that settle permanently in the area change the tone of their song when it is about to stop raining.

The monkey sings, the guacharaca arrives, the hawk, they sing when summer arrives. It is that their song changes, because when the birds are going to rain, they sing lightly and when the rain is going to pass, they sing, they change the tone (Personal communication, Dwiawin maku Zalabata, 2022).

monu zamuya ni, gwacharaka kinkumey, siseku, neikari tiki zunge zamuya ni,
emari du kawi antakuma uwa ni, be sisiori llewu wanungwa nari neri eimari du
iri tina yeika ni chuka azari zamay, iwa ki jewu wanunga neri ikunhari diwun
yeika ni.

Biofortified bean crop cycle / 78 days later of sowing

Biofortified beans have been planted in different Arhuaco communities such as Umuriwa, Birwa and Nabusimake, with a crop cycle of a maximum of 80 days after planting. This bean has developed optimally in the first and second semester of the year, and its short duration implies the need to carry out the work in a timely manner. Beans are more resistant to drought than to flooding, but soil fertility improves the plant's response to attack by pests, diseases, and unsuitable environmental conditions (Rozo Leguizamón et al., 2018). The ethnic technicians trained by Fondo Acción use different biopreparations based on fermented plants to control insects, and compost and biol from manure for bean nutrition (figure 18).

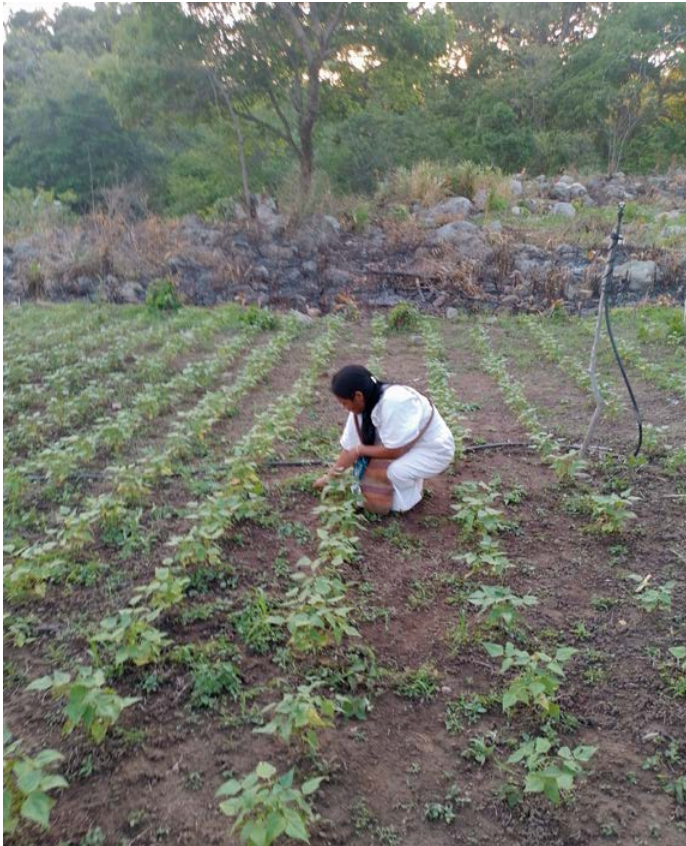


Photo: Adriana Patricia Tofino Rivera

▲ **Figure 18.** Member of the agroecological seedbed of Fondo Acción of the Umuriwa community.

Note: In the photograph, the review of the incidence of pests in biofortified beans is being carried out, within the framework of the AgriLAC Resilient Cesar initiative.

Traditions assign a role for men and women in managing crops:

When the plant blooms the woman should not walk in the lot. Once harvest time arrives. They harvest the harvest when the moon is waning so that it does not sting. It is advisable to plant the sisal around the garden to repel fungi from the soil. Also sow pigeon peas a year before and allow the leaves to fall to the ground where the garden will be planted. (Personal communication, Karen Zapata, 2022).

Kanu kwa inu neki bona awi itinsa awaki nungeri amia
eymake nayamu neki kaho narizani, imunu eygwi antakukwey
anzunge, tima menguante nabari antaka ukumuya ni wamu
ikumu nangwasi, bechu zarika aukwa wertan iniki neki naku
nungwasi, zamu iniki neki kubonu nari bonungwasi.

However, recently the spiritual authorities have empowered the Arhuaca woman to autonomously cultivate the garden. This recognition has also been achieved before state entities and international agencies, under the understanding that “empowering a woman is empowering her family and therefore an entire community.”(Alexandra Izquierdo, 2020).

emey anawi, iwa abiti iku nanun neikari anugwe naba du kawi aukwey kawi chey kapunkuya naba. Ema nikungwa neikari ankunnikumey atarigun zanusin nari anchunna ni, amia kumu ankasi aukwari ingwi yow rekwuya kumu kasi nanukwa ni, awiri igwi powru kumu kasi.

In general terms, for the crop cycle, sowing is done in May and October, during the lunar cycle of the waning quarter, and Red 39 Corpoica seed is used for beans.

Irrigation is done through a hose, so that on day 78 the harvest can be harvested. The harvest of beans and corn is done when the moon is in full phase, since in the waxing or “tender” phase there is a greater chance that the grain will be bitten by weevils. (Carrera-García et al., 2012).

Je idosi akwari magerase ta ukumuya ni, be 78 jwia zungeri antakukwey kawungwasi, ichu awiri in nanun nugari tima min nunge ukumuya ni, iwa inayun nugabari uman aziki nika uwa ni uman du kau nari.

In this regard, a relationship between lunar phases and the intensity of pest damage has been recorded in beans. For example:

In the full moon and first quarter there was less propagation of insects, possibly due to moonlight, while in the waning quarter there was greater damage caused by pests that affect this species. In general, the lunar phases influence a large percentage in agriculture.

According to ancestral knowledge, each lunar phase is relevant to different areas such as soil, harvest, pruning, planting, pests, etc., with the full moon and new moon being the ones that are considered most useful for crops to have better productivity. (Mera Andrade et al., 2017, pp. 40, 43).

Ichu naba kuwarunhakumaki nugari, tima chwi awi, amuka zanunge,, wamu ikumu nanungwasi, be tima min nunge kwa inayun nunge zarikundi awu sekunuse guya, ya tima wakun nugame, iwa makeymuru nekuri zamu uman sekunuse anguya kawi chwizunna un,, inu zarisi akwari tima chwukwa ingu amukuna ni.ikuse winukanikwuyaba ta,nanundi tima antakumey zoyai kaseri ema boriza ni winya jwasuya ni, zarisi, abeisi, sekunu, etc tima min nari kwa tima abiti nabari uman du neika izuna ni.

Biofortified beans can be safely included in the gardens of the Arhuaca families, in crops associated with the species that make up their own diet, such as corn, sweet potato, ahuyama, yam, cassava, cabbage, chives and other types of beans such as cowpea, pigeon pea, etc.; likewise, during the establishment of fruit trees, such as bananas, cocoa and coffee.

Ichu ini azuna neikari iku chey kapunkuyai du kunariza ni, eima juna zamu nanun nugari ema ni, in, batata, ammu, ñame, irokwu, col, sibolla, ajua nenun, ichu neika caupí gadul, etc, emey awi anzori uwaba ayei andebori prantanu cacao awiri cafe.

In the Motilonia Research Center, located in the municipality of Codazzi, department of Cesar, positive results were recorded in multi-layer arrangements, and in the biofortified bean linkage plan project. The production of biofortified products was monitored in several Arhuaco communities in the SNSM, such as Nabusimake and Jerwa (López López, Tofiño Rivera et al., 2022). Although the planting of beans is related to the arrival of the rainy season, due to the processes of change and climatic variability on the planet, it is increasingly necessary to have some type of irrigation system to ensure the harvest, which can be through ditches or by sprinklers, taking advantage of water sources located above the lot so that its movement is given by gravity (Jiménez Cisneros, 2012). It is important to ensure crop water during flowering and pod formation, that is, up to 40 days after sowing. Another important aspect has been observed in community, own and intercultural processes.

In order for young people and women to apply ancestral knowledge in the preparation of biopreparations that nourish the soil, they must be based on plants and composted organic matter, with which pests and crop diseases are controlled, including beans.

Iku abiti neikari amia kwa cherwa sumu juna jwasuuya kawasuya neika ni, kase kamukana awiza, ema neikari kun amukuna nariri abonu naba se ikununa ni, ema zun nari wamu ikumeyza winnchosuya ni, zamu wamu ikumeyza name. eima neikari ichu



The Early Childhood Care Program of the Colombian Institute of Family Welfare (ICBF) relies on institutions such as Fondo Acción, Asoanei and AGROSAVIA. Thus, a high grain production can be obtained by adding ground bone or composted goat or cattle manure, since they contain high levels of phosphorus, a nutrient that helps grain formation (Rivero Herrada et al., 2016). The addition of these natural products does not contravene the Law of Origin and guarantees in the long term the conservation of soil fertility for food production (figure 19). It is also important to harvest when the pods are completely dry to avoid the appearance of fungi that rot the grain and affect human health.



Photo: Adriana Patricia Tofino Rivera

▲ **Figure 19.** Compost production in the Arhuaca Umuriwa community by the Fondo Acción agroecological seedbed.

Bean harvesting



Part of the harvest is destined for self-consumption, another is kept for the next planting cycle and the rest is exchanged or sold

Bean harvest/sanitation prevents the appearance of pests and diseases

Harvesting at the right time of the bean crop determines the storage time and its quality. When grain with high moisture content is harvested, it is easier for storage fungi to appear, which affect human and animal health. Ideally, the beans should be harvested when the plant has removed the leaves and the pod is dry (Rozo Leguizamón et al., 2018).

According to the results of the workshops, the Arhuaca community uses sanitation rites to avoid the appearance of pests and diseases, and at the same time recognizes that the optimum harvest time avoids losses due to seed rot. Community processes are also referenced, such as the harvest to distribute the seed among the families that contribute to the workforce (figures 20 and 21).



Photo: Julio Ramos

▲ **Figure 20.** Community harvest of biofortified beans produced on the La Lucha farm, within the framework of the AgriLAC Resilient Cesar initiative.



Photo: Maria Izquierdo

▲ **Figure 21.** Community benefit from the biofortified bean harvest obtained on the La Lucha farm, from the AgriLAC Resilient Cesar initiative.

In this regard, the community narrates the tradition around the harvest:

Before collecting the grain, no one can be in discussion, they must be calm, happy and always grateful for the benefit that the land is giving them. The grain is collected in the morning fasting to catch the sap of the plant next to the harvest, because that is the spirit of Mother Earth, that energy allows magically nurturing the ancestral practices. (Personal communication, Jesús Torres, 2022).

rimasey awungwa nungeri ankasa awkwa in une nun ne ungeki redanun neki nuku
nariza ni, zeyzey kuzari zoriza ni, zeyzey, awiri binzari neki zeynari me zari, em aka
niwekawun nugamme, inu anika uwari twigwi ataka uwa ni, ugunkuya zamusin

The Arhuaco people, in their Safeguard Plan, promotes food autonomy, for which the highest percentage of the orchard harvest is used to feed families (70%). In general, the remaining 30% is used for its own economy within the reservation, trade with the areas surrounding the reservation, and as seed for the next cycle.

In this regard, the Arhuaco people describe their economy as follows: “We live mainly from agriculture growing bananas, cassava, malanga, yams, corn, beans, cocoa and cane. We use these foods for daily and family consumption, while we use beans, cocoa and coffee to market” (CIT, 2016).

Emanabari, powru iku jwi si neikari ema yun niwi anzarisi akwuya neikasin zun akwuya ni prantanu, irokwu, Maranga,ñame, in,ichu, cacao, awiri kuñu. Ema zamu neika sigin agungwa nari sinamusin ukumuya ni, iwa ichu cacao awiri caferi ankungeysi umun ukumuya ni.

A part of the harvest is for self-consumption and the other is exchanged for other harvested crops or is sold among the members of the community. The indigenous territory has experienced a permanent evolution over time, which includes the recovery of its own economic model framed in the cultural persistence plans, with a view to strengthening its own economy and directing it towards food

autonomy, reproducing from the worldview, the cultural procedures of cultivation, harvesting and barter, through ancestral reciprocity networks. This seeks to guarantee the internal consumption of healthy food from local production (Ministry of Culture, 2016).

The Arhuaco people conceive their own economy as the set of actions required to meet the basic needs of the family, the community and the people in general, from the performance of actions typical of the culture that include payments and cleaning of Mother Earth. According to the conception of the Arhuacos, the economy seeks an integral human development, which implies gathering the economic, social, cultural, and ancestral components (Ministry of Culture, 2016).

Powru iku neikari jwi ipunari ikunha iniki winukujunuya
ankungunamusukwey nanungwa nari, powruse, awiri ingwi yow
powruse, uya anawi nabari aburu angawi aukwa nenun kunariza nani
ankapinsin, iku se kununabata ri, eima neikari pinna tasi, ankurimasay,
iku ananun nuga diwun diwu neika awiri powruse kanikwuya ba ta.

How do biofortified improve nutrition?



Biofortified beans contain twice as much iron as any other bean, so preparing Injokowo with this bean improves the family's nutrition

How biofortified beans can improve the nutrition of the Arhuaco people

Bearing in mind that, thanks to different projects that promote Arhuaco food sovereignty (such as AgriLAC Resiliente, Fríjol Alto Hierro de Fontagro and Fíjol Sequia KolFACI), seeds are being delivered and the planting of biofortified beans is being promoted. Agrosavia Rojo 43, it is necessary to make Arhuaco families aware of the benefits of regular consumption of biofortified beans.

The context that reinforces the importance of dissemination is related to malnutrition problems identified in the Arhuaca population. Despite the efforts of the proper authorities and the traditional Government, 70% of deaths due to malnutrition in children are registered in the Arhuaco communities. This is why hence allied entities such as AGROSAVIA They have proposed to deliver and disseminate crops such as biofortified beans, which are tolerant to drought, have high grain production and a higher iron content, without negatively affecting the flavor or hardness of the grain. The protein and iron content in the grain can reduce malnutrition records if they are consumed in the amounts recommended by institutions that work with family nutrition, such as the ICBF, Wintukwa IPSI and Dusakawi IPSI (ICBF, 2015).

In this regard, the Safeguarding Plan of the Arhuaco people mentions the importance of maintaining their own preparations and food. Although biofortified beans from AGROSAVIA they are improved varieties, in their development they do not contravene the Law of Origin because they are not transgenic and have received the corresponding spiritual harmonization for their recognition by Mother Earth; this allows to use them for own preparations.

Emey anawi, ikunha ikuse kanikwuyari, iku neikari, eima juna uman kujunuya kutakukwa kujuna ni zamu ikunhazey. Ichu inuki azuna agrosaviazey neikari du kuzanina nani ., eima renisi zoyanari diwun neika neki nanu nani, awiri aburu angawi neikanenun una kasin annusi nanungwasi emari nunay kawi ukumungwasi.

“The ancestral food or zamu-kia is the producer of life in the culture, strengthens the concentration, allows knowledge, recreates the payments and the understanding of the law of origin” (Ministry of Culture, 2016 p. 78). Each type of food, be it root, fruit, or cereal, represents a physical fraction of our organism, the food is articulated with the clay pot and the candle with which it is prepared. “The management of the zuru (food) of the Arhuaco people is based on the application of the guiding precepts (traditional wisdom, time and space) for the well-being and the necessary conditions of a dignified life (United States Agency for International Development [USAID] & Tairona Indigenous Confederation [CIT], 2020, p 45).

zamu kia uya neika duna neika ni, azi kinki no me zari, du jwasukwey neika, du kawu anzasari winukanikwuyaba ta warunhey, ingwety zamu nanun nuga, akutu ne nunki, kwa a guchu, azuwa, niwi guchuse kamukuna nani. ema marneiku zamu gukwa powru ikuse nunaba, ema neikari du zakusukwa, migunsimiwi umukese, aukwey niwikawa, ema juna iku aruhaco neikari ema kujuriza ni azuna ni uman du nariza.

The conservation of traditional foods implies the use of clay pots (ka' jwero) for their elaboration and the presence of the specific tree (Kungemu) and the ability to create fire, which are necessary to give it the appropriate procedure (Ministry of Culture, 2016).



For example, if biofortified beans are included in injokowo, which is made with fresh or dry corn, it can contribute to reducing anemia problems related to low consumption of iron-rich foods. (ICBF, 2014).

Be in ne nariza nundi injokowo neikari inchuru kwa in jomu sin bonuya ni,
uyabari ichu nenun neika ni,ema neikari me muchi zweikwari mikayunsa akwa
ni, zamu ingu ne gunki minmuchu awi zwei kweika.

In studies conducted by AGROSAVIA, nutritional improvements were found in children from 7 to 11 years of age after three months of consuming two tablespoons of biofortified beans (90 grams) at least three times a week (Tofiño et al., 2012).

In this regard, the culinary hotbed of the Arhuaca Umuriwa community has made progress in incorporating biofortified beans in the production of buns, mixed with cassava, squash and bean cakes, and bean creams. From these culinary preparations, progress has been made in community enterprises (figures 20, 21 and 22).



Photo: Adriana Patricia Tofino Rivera



Foto: Adriana Patricia Tofino Rivera

▲ **Figure 22.** Umuriwa culinary hot bed preparations.

Note: Within the preparations, you can find buns, snacks, cream, and cakes made with biofortified beans, which are promoted at regional fairs within the framework of the AgriLAC Resilient Cesar initiative.

▲ **Figure 23.** Presentation of biofortified beans as a local brand of ethnic associations developed in the Obtaining commercial and peasant market varieties of drought tolerant beans under sustainable production systems in the Colombian Caribbean KOLFACI and Regional alliances for iron-rich beans in Latin American countries Fontagro projects.



◀ **Figure 24.** Label that accompanies preparations based on biofortified beans, produced by the culinary seedbed Fondo Acción, Arhuaco Umuriwa community.

Fountain: made self



Photo: Adriana Patricia Tofino Rivera

▲ **Figure 25.** Corn barrier used in the production of biofortified beans, La Lucha farm, Umuriwa community. Cesar Resilient AgriLAC Initiative.



Photo: Adriana Patricia Tofino Rivera

▲ **Figure 26.** Production of compost and violbsiolsin the Asoanei ethnic biofactory in Aguas Blancas, Valledupar.

In all cases, the success of these processes resides in the trust fabric with the communities and the continuous dialogue with the communities. In this way, intercultural knowledge is woven with dialogue and good will: “the sweet word and the pure feelings of the heart weave the processes with the younger siblings”, indicate the participants of the workshops (figure 27).

ey anawun nukunki, ema du kawi dumarizari
zorizari powru zunay dikin riwari zwein
ankurimasayun zun ante nusi, emey anawi
dikin inuki ankunpesi nanungwazey nari
uzweinunko dikin riwari, gakunamu du
kawa arunkwa uya kuchu jwawikase nari
du kawi uzweikwa ni, gunti bunachuri yun,
rimaseykumey uwabari.



Photo: Adriana Patricia Tofino Rivera

▲ **Figure 27.** Mural painted by ethnic groups and technicians AGROSAVIA during the intercultural ethnic festival in 2022.

This interaction platform generated by the communities has favored the participatory improvement carried out in the project obtaining varieties for drought, funded by KolFACI; In this, the communities select the bean grain that they like the most and evaluate it together with the technicians. AGROSAVIA their behavior in community properties (figure 28).



Photo: Adriana Patricia Tofino Rivera

▶ **Figure 28.** Participatory selection plot of drought tolerant beans established in the Arhuaca Umuriwa community.

Finally, the commitment AGROSAVIA is to generate productive dynamics based on the diversity of the communities established in the territory. In this way, we can form a team allied with the community to produce quality food with low environmental impact (figure 29). Although the accompaniment of the ethnic autonomous processes has allowed the identification of emerging processes related to the change in the role of the Arhuaca women in terms of the management of the orchards and their visibility in the organizational processes and in scenarios of political leadership within the Tairona authorities and in regional scenarios.

Anukuchori nabari ema AGROSAVIA se anchunhungwa nari kununa ni, powru zanun nugaba ta nari kuwarunhey ukumana ukumungwa. Emey anawi ikusin powru anugay neikasin ankunnugweri nari ingwi uman du kawi zamu nariza achunkwey nikungwasi, ayunu nari zweykwey nikun gwasi, ey anuweki ema andumari zwein nugaba ankuchwi nabari iniki unu akweyna isekunun ukumaki nugin,ingu nikamu amiasin nenun antakumukwey name ema chey ingu apaneika dumusukwa naba awiri isekunanukwa naba.



Photo: Maria Izquierdo

▲ **Figure 29.** Intercultural technical teams to produce better in response to the climatic affectation in the Sierra Nevada.

In this regard, multiple studies have recorded that indigenous women are subjected to discrimination, such as accusations based on sex, race, and color. This situation has historically led women to the deterioration of their environment and higher rates of poverty, violence, multiple forms of discrimination and limitation of their rights. However, recently there are more and more examples of female leadership, which has allowed them to perform as autonomous managers of their orchards, knowledgeable, technical, commissioners, councils, commissioners of the Arhuaco people, successful entrepreneurs, and public servants. The spiritual work led by the mamos, and the sagas has allowed the Arhuaca women these new roles that were previously assigned only to men. (Izquierdo, 2020) (figures 30 and 31).

ema neykari, sumu rigawiana neikari sumu amia akumana chow agachu neika, inurino izuna, bemay pari arukunno iku, kwa kogi kwa bema neki, awiri bunsu kwa twikawa neki, ema anzari zoyabari sumu wamikumey anzoya anuwabari, diwun diwun zanisi zari, chuwizananmukwey, wamu ikumey, inu mikunana tana awi, wamu neika kawa akuma anawiri ikunha kumu zanamuri anayuri zori . emey anuweki uman kinki renisi zoyari amia nanun nuga neika ni, uya winnari nikamu awukumukwey neki kahu nari, ingu chey kapunkuyaba, agunkwuya, agunsi, cominsaria, sakuka, ema iku neika. Zory zweikweyka renisi zweyn nuga, awiri pinnazey naba amukanun nuga., nikamu anugwe nari mamuse wesun nuga, ikunha sey ankunchwi zorizuna amia iku naba, ema juna sanusiri chwewase zun aukwey kawi rebunna nunna.



Photo: Adriana Patricia Tofiño Rivera

▲ **Figure 30.** Arhuaco women leaders in socializing the results of AgriLAC Resiliente Cesar. a. Aurora Izquierdo, manager of Asoanei, and Alcira Izquierdo, commissioner of the Arhuaco people for women, children, and generation; b. Umuriwa Zirkunawi Torres community council.

The Arhuaco people reaffirm the value of the contribution of women in their culture, in survival in the current environmental crisis and in the image before the country and the world.

“Arhuaca women are called to cool the planet” (personal communication, Aurora Izquierdo).



Photo: Juan Sebastián Páez

▲ **Figure 31.** Women leaders in dialogue scenarios with authorities.

Note: In the photograph you can see Alejandra Izquierdo, head of culture for the municipality of Valledupar, weaving knowledge with authorities from the Ikarwa community.



BIENVENIDOS A LA ESCUELA

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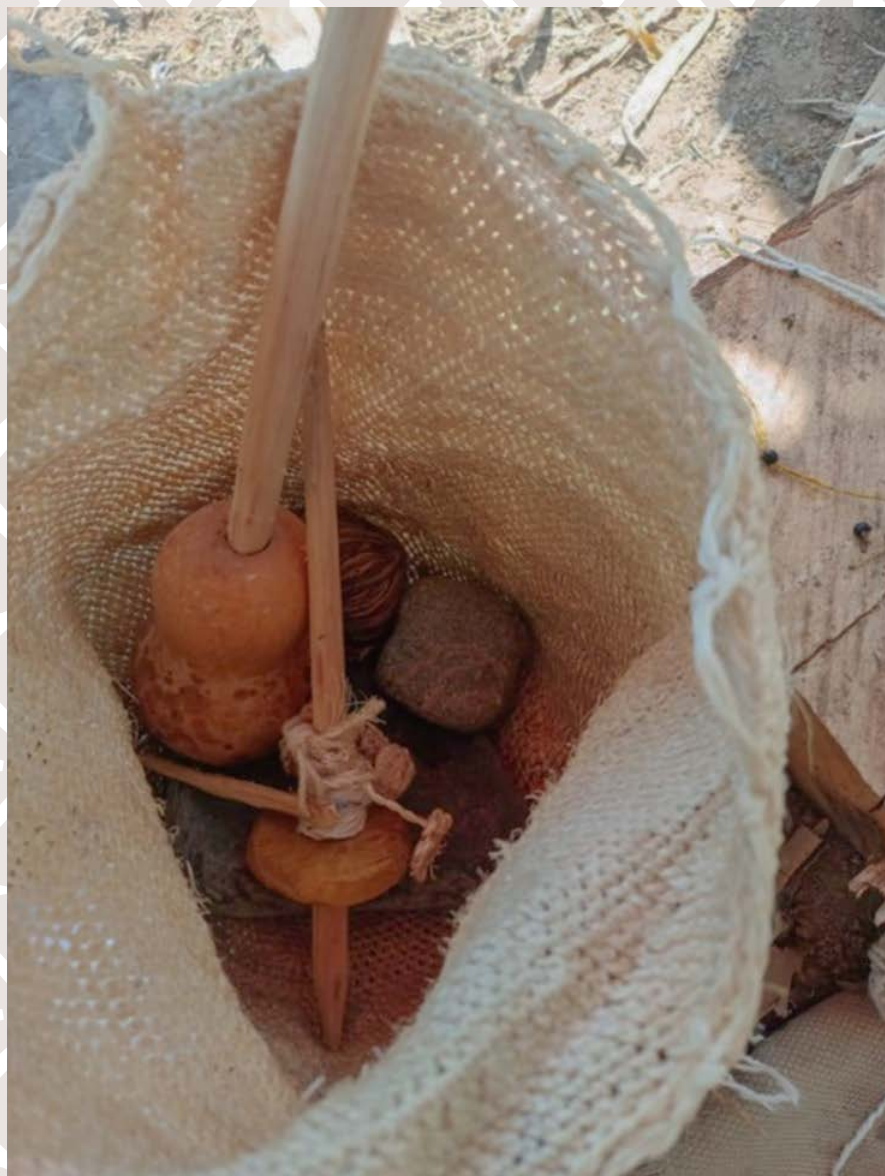
Image Compendium



Arhuaco children



Garabato for planting



Symbols of Arhuaco men and women
(man: poporo, woman: weaving tool)



Arhuaco Mamo,
Umuriwa community



Young Arhuaca weaving a mochila (bag)



Gourd



Ethnic Library of Valledupar

Glossary

AGROSAVIA: Corporación Colombiana de Investigación Agropecuaria, mixed institution, private law, non-profit. It is a science, technology and innovation entity that contributes to technical change to improve the productivity and competitiveness of agriculture in Colombia.

AGROSAVIA: dumari uwa Colombia kurigatasi, nunaba,pinzunai riwi, ingwety kurigamiri, ... ema neikari sumu azarunkwa neika ni. Chwizanu nunay nikamu akumuya, ema zamu anisi awiza du umun kukumukwey nariza tasi,.. renisi zwein gwasi.

Anthers: they are part of the stamen or male structure of the flower. They are located in the unta of the stamen and contains sacs with pollen.

Anteras: Inuki, chwerwazey reneikua kwa reneikuya cherwazey kanuzey, uya neikari reneikuya naba kudumana uwa ni.

Biofortification: human process with which, from directed fertilization between carefully selected plants, the crops of the basic basket are improved to achieve a higher nutritional content or higher nutrient density in the organ that is consumed.

Biofortificación: iniki ikumana, ikuse kundumanun nuga, ema ankubori zoyai ingwety kanu uya dizunna, emey anawi gucha niwi muchiza uman du kuzanika awiza ni,uman gey zoyay gucha minmuchi.



Biofortified bean Agrosavia Rojo 43: bean variety developed by AGROSAVIA in partnership with the International Center for Tropical Agriculture (CIAT). This variety contains a high nutritional content, represented by a higher iron content in the grains with an average of 90 ppm and a growth habit that facilitates planting in association. Likewise, it requires a smaller volume of firewood for cooking the grains and high sensory quality. It is planted successfully in the Arhuaco reservation in the medium and cold thermal floors.

Friol biofortificado Agrosavia Rojo 43: Ichu bunachuzey abonu azuna, agrosavia zi kawa 43: ichu reuyuga agrosaviase bunhasana, rimasay unase ema centro internacional agrícola tropical zaki nugasin CIAT. ema reyunuga neikari sumu minmuchukweyna kununa ni, sumu hierro kununna 90 ppm, kuwasi ey awiri munu bona aukwey kawi, emey anawi, ingu umun awu kun kujuna ni, dukuchu kawi iku aruhaco si azarina ni iku wiwi awiri ku zunaba.

Black line: ancestral sphere of priority protection and spiritual, cultural, and environmental value. It refers to the imaginary line that delimits the sacred territories as a kind of physical and spiritual fabric through which these ancestral peoples manage to create their link with nature.

Línea negra: agekwuya twi kawa, ema neikari niwikanikuyaba ta nari, kumu ankunsi, anugwe rigun, niwi naba awiri zanun nuga. Ema neikari powru iku neikazey emita zunin yeika, emba ta zunin yeika naba ikunha anugwe rigun anzasari ingwi kasin kunsin, annusi.

Fertilization: process that occurs in flowers when pollen (male component) reaches the ovary (female component) and unites with the ovule to form the embryo that will produce a complete plant once it is planted and germinates.

Fecundación: renisi . emari ikunha reneisi naba ema akutu siku,cherwazey sin, amia siku kinkuma unge amiase kununa, emey aawi cherwazey awiri amiazeysin ingwi annika anawi keiwi nunge ingwi kanu annusi kawi kwakumuya ni, imunu eygwi azarika awiri inay pana unge.

Fontagro: is a unique sustainable co-financing mechanism for the development of agricultural technology in Latin America, the Caribbean and Spain. In alliance with AGROSAVIA, finances the project: “Iron-rich beans for family farming in Latin America and the Caribbean”, with which, based on the implementation of communication strategies and knowledge management, it seeks to strengthen, from demand, the value chain and increase the rate of adoption of these technologies with biofortified crops in LAC. In Colombia, it promotes the dissemination of the consumption of biofortified beans Agrosavia Rojo 43.

Fontagro: Ema mieri neikari ingwi dikin nanukwey neika, ema zamu bori zoyaba neika america latina ayaba awiri España. ema agrosaviasin winunkurimaseyna nari, eima paperi akumana nari jwi ekupa una,ichu anei azunaiku america awiri cariwe winkuya, uyari ema ankurimasay uman du nariza kuretasi nabari, uman kumu aankasukwa takukwey nisi, uman gunu ihagaka uweku precio azunaba awiri uman karusi gukweyna iniki azuna nanun nuga. Ema kagumuse Colombia ichusi dumusuya ni gey akwaba.

Hybrid methodology for the scientific-technological linkage of ethnic groups: proposal developed by AGROSAVIA for the adequate participatory agricultural technology transfer of the ancestral peoples of the SNSM. The new approaches must facilitate the effective participation of the representatives of the communities to which it is directed; that is, of the peoples who

are guided in all their activities and experiences by the principles contained in the Law of Origin and the Safeguard Plan, recognizing them as subjects and social actors of interest. This means that they must assume themselves as valid interlocutors to be consulted and taken into account in the technological linkage activities carried out by institutional actors, which affect or may affect their lives, those of their families, the community and that of their entire natural, spiritual and cosmic environment of which they affirm that they are a part.

Dumanungwa nuneika ema kurigatasi chwizanu nunay neika ikuzey: Ikunha winwaseyna anchunna agrosaviasin powru zanun nugay neikasi nunai kawa ankungunamusi snsm, ajua abiti nanun nugari, kawu akumey zoriza juri kakusiza nariza ni,uyari bema powru amaseykumanundi nikamu awi aukweyka awiri kwey aukweyka niwi kanikwuyaba ta uzori, uyari iniki zana ankujwasi,ema juna neikari iniki pinna waseykwey kunariza winawi awun nuga arekwera zunai nikamu awun nuga nenun, wamu i kumana kwa wamu ikuma aukwey kawa ikunha kwa apowruse awiri ingwi yow aju iku, anugwe naba .

KoIFACI: Korea-Latin America Food and Agriculture Cooperation Initiative (KoIFACI). In alliance with AGROSAVIA, it carries out the project to obtain bean varieties for climate change, which ends in 2026. In addition, it is committed to the generation of a new bean variety for the Colombian Caribbean coast, in coordination with management recommendations for its production and in accordance with the cultural criteria of the different ethnic groups that inhabit this region.

KoIFACI: nunaykawi dumanungwa nari anpekumey, gungwazey nari,ema corea awiri latinoamerica, atarigun zanu nanun nuga kolfaci, rimasay nari ankubexkumey ema

agrosaviasin nunai kawi dumusi paperi ema pinna juna hichu nanun nuga ema wiwi zanika awiri ku zanika awi antakumey zwein nuga, ema kugi 2026 se,ey awiri,ingwi nanun nugeikari ema ichu pinna juna nanun nuga,ema costa caribe colombiana aguekasin, ema dumukumun nukun guasi ayei niwikanikwuya neika yina iku pinna winanun nugeika ema gukweyna dumusi ingwety powru anugay neika.

Pistil: It is the female reproductive organ of the flower, which is located in the central area in the shape of a bottle; usually surrounded by stamens.

Pistilo: Akumana. Emari kunachu itinsuya nanun nuga reneikuya jinazey ni, uyari bukuna kununa ni ingu botella nari kawi, ey anawoi jwasia neika iminuga.

Resilient AgriLAC: new research initiative with an innovative and transformative approach to sustainable food systems in the region. The Initiative aims to increase the resilience, sustainability and competitiveness of agri-food systems and actors in Latin America and the Caribbean, and with this train them to meet urgent food security needs, reduce climate threats, stabilize communities vulnerable to conflicts and reduce migration. In alliance with AGROSAVIA, In the department of Cesar, since 2022, the planting of a basket of biofortified crops such as beans, corn, rice and sweet potato has been disseminated with the Arhuaco people, based on agroecological and intercultural guidelines.

AgriLAC Resiliente: Azi nenun ne awunki azurin zweikwa naba, dikin nariza awiri ankubasi ankundumari uwa, america latina awiri caribe, ema jinasin nikamu reveci, niwikujuri uwa kurugekungwasi, zamu gukwa naba, zamu a azari bunna ingu ana



yunsi powru azun uwa du akusi kumu ankasi, twire ankei ema agrosaviasin ankundumari. Ema powru cesar ema 2022, seri apugena una ema iku si, ingwi canasta bori una, ichu, in, arroz awiri batata naba nunay kawi rebori.

Rigunsi (harmony-harmonization): reflective understanding that we all live subordinated by the Law of Origin.

Rigunsi: Gugin renosi nunay kAwi anchunhey niwikanikwuyaba ta.

Self-pollination: also known as self-fertilization. It is seen in species such as beans, which have flowers that have both stamens and ovaries, and whose pollen and ovules can combine to form an embryo. Thus, a plant manages to pollinate itself and with this guarantee the formation of seeds, even if there are no other plants nearby.

Autopolinización: eygwi du kukusi, du kawi sekunari, flor inusi naba pinna kunari ajua kanu bona aukin, reyukumey naba renisi. Eymey anawi ha kingwi reneika awungwa ni, ema neikari uman uwa ey kawu akumey narizuna du nariza ni, ajwa kanu muchey kunariza neki ku neki.

Transgenic crops: are those derived from genetic engineering, which have a laboratory process for the insertion of genetic material from animals, microorganisms or other plants in each crop, to confer new characteristics and functions, without depending on fertilization or pollination.

Cultivos transgénicos: Inikisin reneikun gwakumana neikari ayei nunay kawi nakun nuga, uya neikari ingu maquina nusi uwaba nukamu kurigamina anawi, zarikungwa nari, ananugase pari neika neki, iniki igu kawa, kwa ajua kun zarikukweyna, emey anawi ingwi eygwi abiti dumari akwa kuregusi, ema iniku idori du kukusi naba zun iasekununa ni,.

White corn bio-Mzn-01: corn variety developed by the CIAT. It has superior production characteristics and nutritional content, and has been successfully planted in Valledupar and Pueblo Bello, in Arhuaco and Kankuamo ancestral territory. The color of the grain is white, and its texture is semi-crystalline. Of this variety, 1000 grains weigh 366 g; its average production is 5.9 t/ha, and it has a high nutritional content. Its productive cycle is 140 days from sowing to harvest; presents a shattering index of 0.81 and stem overturning of 1.5 %. This corn has 31% more zinc than non-biofortified corn, which contains an average of 2.6 mg/100g.

Maíz blanco bio-Mzn-01: In bunsí bio mzn 01: pinna juna in akubunna CIAT se, sumu juna amukanukwey kawa ni, du niwekusiza, zey zey kuzari azarikaki nugin arwayun awiri pueblo viejo, powru iku awiri kankwu. bunsí kawa neika ni a neikari ingu bunsí nisay kawa ni ema juna neikari 1000 gramo neikari 366 g mu azuna ni, anisi uweikari 5,9 t/ha, sumu kuchu guchuse niwimuchukweyna nani ha anika aukin di 40 jwia zune aniga ni, zarika awi anika aukin ingu kuwirina uwari 0,81 awiri diwun nisi kunachuse 1,5% ema indi 31% zinc kununa ni, in iniki ajua azanu neika, uya neikari ingu 2,6 mg/100g kununa ni.



Unchunhamu (repair): make amends for the action that affects the balance or Utanhuya, and compliance with harmonization so that material and spiritual harmony prevail.

Unchunhamu (reparación): Du kukusi wamu ikumey zweyn nuga, sey ankunchwi nanu nugeyka gugin anchunhey anugwe naba.

Unzasari (payment): compensate the good that is received from Mother Earth and reward the favors received from others.

Unzasari (pagamento): Anzasari dikin neika tasi ka se niwekawun nuga, ey awiri ajway zaqnu guamu niwekurekumana dikin riwari.

Zhátukua: Consultation made by the hands to the spiritual parents of the universe.

Zhátukua: Mamusin sey ankunchwi se ankunari anugwe naba ta.





Thanks

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Eima winguwa jina sumu kuchu zeyzey winazari duni alcaldía kuyun nuga, pinna neika iku zu sakuku, emey anawi, ema asonei, zakuku tairona zanu paperi neika ID 1001513, obtaining tolerant vean variantes, kplfaci zunaba jwisin winazasari, awi pinna nari zamu aniga neika anpesun nuga ID 1002408.

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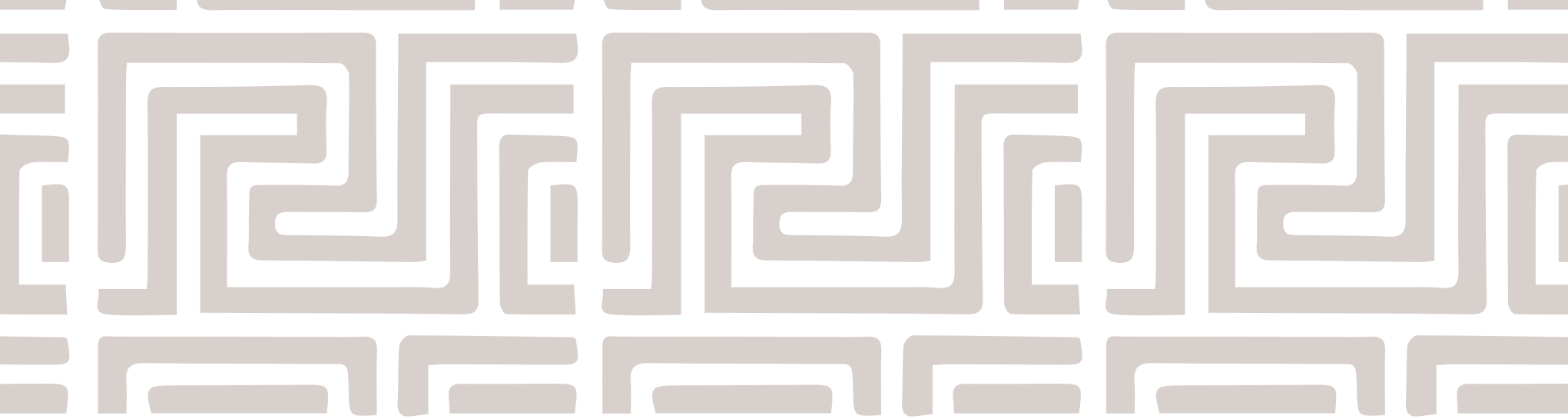


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The economy of the Arhuaco people, one of the four ancestral communities settled in the Sierra Nevada de Santa Marta, revolves around communal agricultural and livestock production. This is why their primary and secondary education processes prioritize subjects that promote work in the gardens, among which beans, as a traditional and ceremonial food, are prominent. In the context of this growing community, food production requires the development of new teaching tools to disseminate agricultural techniques and practices derived from the intercultural technological innovation processes of AGROSAVIA. Through this educational booklet, the aim is to integrate the worldview of ancestral communities into the management of technical knowledge, in such a way that it guarantees the conservation of their identity and their notion of life territory. The technological hybridization contained in this document—resulting from harmonizing traditional and agroecological thoughts— is presented to the Arhuaco communities and the global scientific community as a fundamental tool for caring for the environment. It also serves to teach the “bonachi” or younger brother to recognize that humans belong to Mother Earth and not the other way around, a call that spiritual leaders make as guardians of the heart of the world

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