



ALOE VERA AGRIBUSINESS
AS SUPPORT FOR WOMEN'S
EMPOWERMENT AND LIVELIHOOD OF
RURAL COMMUNITIES
in Jordan



ALOE VERA



Published by John Paul II Foundation, Onlus- Florence 2022

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By Leonardo Rosini

Premise

The Small Farmers Reports is a series of publications produced by the John Paul II Foundation Projects department, whose aim is to contribute to the awareness and circulation of the results obtained by its economic development programmes in rural areas.

The series aims to systematise theoretical and methodological aspects to promote their replicability and to share the learned lessons. It is intended for small farmers, cooperatives, agricultural enterprises and other public and private stakeholders.

The Reports share valuable scientific and technical know-how and promote human, social and economic development in the most disadvantaged communities worldwide, thus supporting the fight against poverty..

Acronyms

ARCO	Action Research for CO-Development Lab
CNR	Consiglio Nazionale delle Ricerche (trans. National Research Council)
FAA	Fondazione Archeologia Arborea (trans. Arborea Archaeology Foundation)
FAO	Food and Agriculture Organization of the United Nations
FDA	Jordan Food and Drug Administration
FGPII	John Paul II Foundation
FTC	Federazione Trentina della Cooperazione
IFAD	International Fund for Agricultural Development
IRET	Istituto di Ricerca sugli Ecosistemi Terrestri (trans. Research Institute on Terrestrial Ecosystems)
ISB	Inclusive Social Business
JCC	Jordanian Cooperative Corporation
JEPA	Jordanian Exporters and Producers Association for Fruit and Vegetables
JOD	Jordanian dinar/s
SDG	Sustainable Development Goal
QMS	Quality Management System
RSCN	Royal Society for Conservation of Nature

Systematization document

This series summarizes the strategy implemented by the John Paul II Foundation with the project for the introduction of Aloe vera value chain in Jordan, by reporting the methodology and the primary outcomes and outputs obtained. It is a summary of the documents produced by all the experts involved in each of the activities. The purpose of the document is to make the John Paul II Foundation strategy known and to give clear indications for its replicability and circulation of the results to all interested stakeholders. At the same time, it intends to offer a comprehensive summary document to systematize the information and make it user friendly to all beneficiaries who have participated in the activities.

The three main objectives favoring the replicability of this systematization document are:

- 1 – Divulgation:** to disseminate best practices among the beneficiaries, including the indirect ones, in order to maximize the impact of the project;
- 2 – Raising awareness:** to disseminate results, methodologies, best practices and learned lessons to the actors of cooperation and to Jordan stakeholders that are active in the agricultural development sector for the dissemination of Aloe and for the replicability of the strategy;
- 3 – Promotion:** favoring the market penetration of Aloe and its derivate products.

The other series:

- Report
- Researches
- Studies
- Practical Guides

SMALL FARMERS



Quality Management System

The Quality Management System (QMS) is a system of quality standards applied to agricultural production from plant cultivation to post-harvest management. The QMS is part of an overall framework to promote synergies and networks among the smallholder farmers involved in implementing a reorganisation strategy.

— The QMS is based on:

- An agroecological production approach promoting the QMS, focusing on improving product quality in response to international market demand whilst protecting the delicate balance between plants and surrounding ecosystem.
- The promotion of cultivation respecting traditions and local varieties whilst ensuring sustainable, high-quality product delivery.
- Ethical principles promoting efficient and inclusive agricultural systems for farmers and workers involved in the supply chain, aiming to support access to more profitable markets by fostering economic and social development in the most disadvantaged communities.

A > INTRODUCTION



THE JOHN PAUL II FOUNDATION AND ITS MISSION

The John Paul II Foundation's (JPIIF) Small Farmers program provides tools for a management, production and business reorganization to small farmers in the Middle East. The objective is to promote a sustainable and inclusive economic development of disadvantaged producers from rural communities who are excluded from the value chain. In fact, the intervention contexts are economically depressed areas, namely marginal, disadvantaged and more vulnerable to climate change.

The proposed entrepreneurial redevelopment with the agribusiness strategy enables the creation of a more market-oriented product with better quality and more relevant added value. The final product is the result of a more sustainable use of resources and in harmony with the agro-ecological context. This is possible through the introduction of innovative techniques, for a quality and ecologically sustainable production in the use of water, soil and fertilizers.

To facilitate the access to the inputs needed by these applications, it is important to strengthen an associated management of the productive services between individ-

ual farmers, including the smallest ones. In this perspective, the sharing of inputs enables to sell a product that is no longer “raw” but finished, processed, packaged and labeled in compliance with quality standards. Small producers thus increase their bargaining power vis-à-vis new national and international trading partners willing to pay more for a better-quality product. Therefore, only by merging, producers will be able to sell an attractive product on organized and more profitable markets, thus increasing their revenues.

The JPIIF’s mission is therefore to improve the living conditions of the beneficiaries of its projects, making them an active part of the program and economic development of the territory. In the long term, it will be encouraged the exit from a vicious circle characterized by high unemployment, low-to-medium income, lack of organizational management and unfavorable environmental conditions. Furthermore, the development of a fairer, more resilient and inclusive rural economy for small farmers provides a viable alternative to the migration of young people to cities or more attractive regional economic poles. Future generations will enjoy better job opportunities in the supply chain without seeking their fortune in urban areas.

The values that the JPIIF aims to pursue in its interventions can therefore be summarized in the following macro-areas:

1 – COMPLIANCE WITH PRODUCTION STANDARDS:

promoting innovative rural development strategies based on a quality control system of the production processes. This facilitates the compliance with consumer requirements and standards of the main national and international certifications.

2 – NO-ONE EXCLUDED:

believing that trust is the glue for the aggregation and empowerment of small producers, young people and women towards an associated, efficient and autonomous management. The JPIIF considers this aggregative model as the highest democratic and participative expression, able to guarantee the production processes sustainability.

3 – BALANCE AND SYNERGY WITH THE TERRITORY ECOSYSTEM:

enhancing agroecological production systems that improve the quality and quantity of the product by protecting the ecological heritage and local biodiversity.

4 – SUPPORT TOWARDS CHANGE AND THE IMPACT OF THE STRATEGY:

believing in a shared strategy based on common objectives and mutual concrete commitments. This leads to strengthening the cohesion of beneficiaries towards a real process of change with a long-term impact on rural communities.

THE JPIIF AGRIBUSINESS STRATEGY



In everyday language the word “business” is often confused with an attitude towards unregulated, unethical and profit-maximizing gain and this may seem in contrast with the JPIIF strategy values. Actually, for the JPIIF, business means much more: it implies economic and environmental sustainability, cooperativism and social inclusion. Male and female workers unite, beyond their ethnic origin and/or religious beliefs, to improve product quality and profits. This union enables to share inputs and to complete a production chain with greater attention to a sustainable use of the territory’s natural resources.

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This sustainable and inclusive agribusiness strategy has been put into practice by the JPIIF in its projects of development of the production chains of dates in Palestine, apricots and cherries in Lebanon and Aloe vera in Jordan. With these agribusiness programs, lasting 36-48 months, the JPIIF aims to provide technical tools to small producers and farming associations to enable them to increase production and profits. Farmers are then joined by local institutions, that are involved actively in the projects to improve their know-how and tools, thus offering high quality services to beneficiaries. These programs are based on a continuous in-field technical assistance and the exchange of best practices on innovative and sustainable organizational models of the Italian agribusiness

The final output is a production oriented to more profitable and sustainable markets, based on a solid quality control system. In this way, small producers can reverse the process of the turnover decrease they often face and find some valid reasons not to stop farming. This strategy also promotes wage equality for women and men in the post-harvest product processing activity.

These programs intervention logic is based on a vision of change focused on the Sustainable Development Goals (SDGs) set by the United Nations for 2030. These SDGs are indicators of the agribusiness strategy impact in giving sustainability to the agricultural activity and the life of farmers. This program is mainly based on SDG 2 for the elimination of hunger, SDG 8 for the economic growth and decent working conditions and SDG 15 for the respect of life on earth.



JPIIF agribusiness strategy





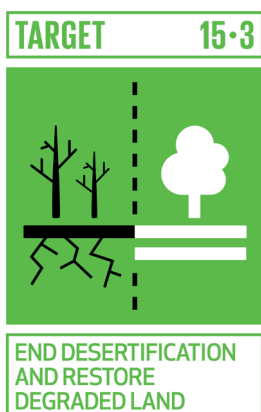
SDG2

More specifically, the SDG2 target 3 is to double agricultural productivity and the income of small-scale food producers by 2030. The indicator chosen by measuring the increase in the income of small farmers associations and cooperatives, enables a direct quantification of the strategy implementation contribution. This strategy aims to promote a self-sustainable and more productive agriculture through a collective involvement of beneficiary farmers. The associated management of the post-harvest, processing, packaging and sales phases enables producers to obtain higher revenues. Their product in fact, meets requirements that are difficult to reach through an individual management.

Target 4 of the same goal is to ensure sustainable food production systems and to implement agricultural practices that can increase productivity and production, preserving the soil resilience. This helps to conserve ecosystems and to strengthen their adaptability to climate changes and weather conditions, sometimes extreme, in the intervention areas. The JPIIF pursues this target by promoting a process of rearrangement of the production phases and the application of a Quality Management System (QMS) in the agricultural parcels concerned. The QMS is a collection of guidelines that make small-scale farmers focus on meeting quality standards during the production, harvest and post-harvest phases and in adopting eco-sustainable techniques and practices.



the role of the strategy in pursuing the SDGs



SDG15

Therefore, also the SDG15 target 3 is pursued, that is to make the earth free from soil degradation, to combat desertification and to restore the land affected by extreme events. Considering that farming is one of the main factors responsible for soil degradation, the JPIIF strategy provides to apply more sustainable production techniques that are oriented to enrich the soil organic matter, thus reducing the negative impact of farming and helping to protect and restore the ecosystems of the target areas. For example, the use of techniques and tools such as the integrated pest control, enables the reduction of chemical pesticides. Furthermore, the integrated and consociated management of plant varieties enriches biodiversity by reducing the use of chemical fertilizers and promotes the presence of pollinating insects. These and other agroecological interventions contribute directly to the reduction of soil degradation and the reconstitution of organic clod oriented towards a sustainable use of the agricultural ecosystems.



SDG8

The SDG8 is pursued by the JPIIF through a redevelopment of the farming practices and, in the post-harvest phase, of the product processing skills and facilities. Target 2 aims at achieving higher levels of relative economic productivity* through diversification, technological upgrading and innovation.

At the same time, target 3 is based on the promotion of policies aimed at supporting production activities that can create new decent jobs, entrepreneurship, creativity and innovation.

In the JPIIF vision, these two targets can be reached by encouraging the formalization and growth of micro, small and medium-sized enterprises, also through the access to financial services. The agribusiness strategy involves the adoption of quality control procedures to obtain the certifications required by the internal and foreign organized market. On the one hand, this leads to an improvement in the economic performance of the associated producers, both in terms of increased quantities and sales prices. On the other hand, it promotes the creation of decent jobs in new production phases, thus reducing the trend of rural population, and young people in particular, to move to cities.



* Just like the concept of Business, even the concept of Economic Productivity declined in this way could be misunderstood, risking to refer to an idea of agricultural production characterized by over exploitation of soil and plants aimed at obtaining the maximum quantity of leaves and fruits, as possible. As for the projects carried out by the JPIIF instead, "improving productivity" means choosing the cultivar variety that best suits the context of intervention. The variety chosen will better grow in size and quality, having a genetic heritage that can optimize the use of soil organic matter. This results in a product with better quality properties that can be sold at a much higher price on the market in compliance with internationally approved requirements. In this case we speak of "relative productivity".

These indicators are, of course, linked by IFAD to its 3 key objectives provided in the **Results and Impact Management System (RIMS)**, that is also taken in to account by the JPIIF in adapting its intervention strategy to specific contexts.

- The three objectives are:
 - **Increasing the production capacity of poor rural people:** the SDGs 2.3, 2.4 and 8.3 are clearly linked to this objective.
 - **Increasing the income of poor rural people through participation in national and international markets,** linked to SDGs 2.3, 8.2 and 8.3
 - **Strengthening the environmental sustainability and climate resilience of economic activities of poor rural people,** to which targets 2.4 and 15.3 are linked (IFAD, 2017).

The beneficiaries of this agribusiness program thus become an active part of a redevelopment process that takes place at a production, management and business level.

A.2.1 ————— The agribusiness of aloe vera for the livelihood and empowerment of the Jordanian rural communities



Livelihood and
empowerment for rural
communities

The agribusiness strategy applied by the JPIIF in its project for the introduction of the Aloe vera supply chain in Jordan, has also had some positive effects in pursuing other SDGs.

First of all, the introduction of the Aloe vera cultivation and its transformation into by-products was important to strengthen the livelihood of the communities involved. The project beneficiaries were mainly rural associations of women who now have an additional income useful to protect themselves from possible economic shocks. In fact, the new revenues come from the cultivation of a very resilient plant and the transformation of its leaves gel into galenic and cosmetic products required by the market. Target 5 of SDG 1 is therefore pursued, which is to build the resilience of the most vulnerable people to extreme events linked to socio-economical, climate and environmental shocks.

The involvement of many rural women's associations in assistance and training however, has fostered the empowerment of many women. Thanks to the training for the Aloe cultivation women have become "working" leaders and have developed better skills from a production, management and business perspective. This has also changed women's perception of their own status at community level. In Jordan, where only 13.5% of women work (ILOSTAT, 2021), these results were important to help reduce the gender gap. More specifically, to pursue SDG 5 target 1, which aims to fight against all forms of gender discrimination.

Looking ahead, the intervention in Jordan can also contribute positively to SDG 13 target 1, which aims to strengthen resilience and adaptive capacity to climate-related

hazards and natural disasters. In fact, the cultivation of Aloe is also suitable for one of the driest countries on the planet, whose fields are located 400 meters below sea level. This plant, as shown by studies conducted by the Italian partner NRC-IRET, is very resistant to temperature variations and requires little water. In the medium to long term, Aloe Vera plantation will be able to regenerate local biodiversity by reactivating soil microbiomes and enabling the cultivation of other fruit and vegetable species.

These targets have also been recognized by the FAO Scaling Up Agroecology Initiative (2018) as achievable through the dissemination of agro-ecological practices.



Strategy ownership as a result of a participatory process of sharing with beneficiaries and stakeholders starting from needs analysis to project management and impact assessment.



The role of JEPA in the Aloe vera project

In order to ensure the sustainability of the development strategy over time, the JPIIF has involved partners, beneficiaries and local stakeholders at every stage of the project, despite the emerged critical issues in terms of organizational weakness of the local stakeholders during the project management phase. The aim was to ensure the participation of target beneficiaries, individual producers and local public and private stakeholders in all the intervention phases, that enabled to constantly monitor the level of take-over (or “ownership”) of the community involved in relation to the intervention implemented. That means to ensure the gradual take over by beneficiaries of the facilities created or upgraded through the program investments.

The support of the project beneficiaries towards the implementation of the strategy has been developed through 3 different phases:

01 _____ SITUATION AND RISK ANALYSIS: in the project start-up phase it was performed through a dynamic work of quantitative and qualitative data collection and exchange of information with partners. The resulting strategy review, shared with the donor, has increased the number of local associations involved and located in different areas of the country. To know the conditions of local beneficiaries in terms of environment, culture, productive resources and market access, a baseline has been defined. The aim of this phase was trying to involve potential stakeholders by disseminating information about the program economic potential.

02 _____ STRATEGY PLANNING: at this stage the beneficiaries, mainly women’s associations, were involved in the analysis of the possible development scenarios of their reorganization. The analysis enabled them to reflect on the importance of agroecological techniques to ensure quality Aloe vera and the implementation of associated production steps, which were however limited by the stringent constraints of the current local regulations*, to complete the production cycle.

03 _____ STRATEGY MANAGEMENT: the project staff has constantly supported the

* As revealed by the survey, the process of consolidating associations in Jordan is slow and complex, due to both, bureaucratic procedures and the prevalence of personal interests over collective ones. The project staff tried to foster associations that tended for an associated management of the supply chain, but they had to give up because of the above-mentioned structural problems. In addition, the burdens of a cooperative weigh far more than the benefits, due to the high costs that cooperative members are required by the national legislation, in the face of a very uncertain institutional assistance.

associations by providing training and technical assistance to ensure their commitment to applying the QMS production standards. At the same time, the associations and stakeholders' contribution to the sustainability of the activities has been identified in terms of:

- proactivism against the welfare dynamics that have taken root in Jordan since the 2003 Iraq crisis, making many cooperatives and rural associations mere receivers of assets and humanitarian funds;
- acceptance of and compliance with the delivery regulations and the management model of product processing, transformation and preparation for sale;
- role of local actors, who are directly interested in the community's economic development and have committed to collaborate as active partners of the project.

This support approach, despite the difficulties faced, proved to be essential in encouraging the inclusion of beneficiaries and the promotion of the program activities.



B > JORDAN AND ALOE VERA AS A POTENTIAL STRATEGIC PRODUCT

to give a new stimulus to the
agricultural economy





The strategic potential
of Aloe vera for the
agrarian economy

On 1st May 2018, with the Italian Agency for Development Cooperation (AICS) co-funding, the JPIIF launched a project, with an overall final duration of 50 months, for the introduction of the Aloe vera value chain in Jordan. The production chain of this plant, which is almost not present in the Middle East, has been strategically identified to strengthen the agribusiness activities and livelihood of rural communities. Jordan has a market economy based on the tertiary sector (in particular tourism), which accounts for about two thirds of GDP. The agricultural sector, which accounts for 5% of GDP, is a key source of livelihood and income for at least 25% of the poor households.

The poverty rate calculated on the national threshold is 15.7% and it is concentrated in rural areas that are particularly vulnerable. Rural poverty is the result of a combination of rapid population growth, degradation of natural resources and climate change impact. Farmers do not diversify their agricultural production; they insist on cultivating species that are not suited to a semi-arid climate and their irrigation systems are 61% based on rainwater. In addition, the Land Law resulted in an unsustainable use of fields, especially those for breeding (Balestri, 2021).

All these factors, together with the historic influx of Palestinian, Iraqi and Syrian refugees, contributes to increasing anthropogenic pressure on water and food resources. Food production is no longer able to satisfy all the domestic demand, so the country has to rely heavily on imports (cereal imports reach 100%). On the other hand, the long-term closure of national borders due to conflicts in the neighbouring countries has interrupted the international sale of specific products such as the Jordan tomatoes or onions. Today these products are not able to find a demand that can cover the supply, but farmers have not been able to redirect the cultivation towards more profitable products. This implies the continuation of monocultural practices which are environmentally and economically unsustainable.

Moreover, Jordan ranks among the last countries in the world in terms of Access to Credit. This contributes to discourage self-entrepreneurship and to fuel the welfare dynamics rooted in the country since the Iraq crisis. Indeed, the flow of humanitarian aid that began in 2003 has led to a systematic use of the public welfare and little empowerment of the population in solving internal problems (FTC, 2019).

On the basis of such critical issues, the 2018–2022 Jordan Economic Policy Council Development Plan recommends to:

- Help citizens to spot the available opportunities in terms of agricultural production and to support agricultural development projects in rural areas;
- Develop marketing plans to increase the export of agricultural products to new markets;
- Empower Jordan rural workers by improving their skills;

- Increase water use efficiency;
- Encourage the cultivation of higher crop yield;
- Review the role of cooperatives and internal governance mechanisms to improve their productivity and profitability.

In this context and in view of the economic and environmental shocks that may also affect the Middle East in the future, the JPIIF staff has promoted its intervention in several parts of the country (Box 1). Jordanian rural communities find in the sale of aloe by-products, a great opportunity to establish themselves in the future both on the local and international market. Aloe vera production guarantees up to 5 litres of gel per plant per year, it requires little water and easily transmitted know-how. The international demand for extracts such as juices, soaps, cosmetics and pharmaceuticals are constantly growing, reaching a value of 2.3 billion dollars in 2021 (Statista, 2021).

These data have been relevant in order to get aware of the product potential in terms of trade and income generation for local communities in the long term.

* Jordan Economic Growth Plan 2018 – 2022 (2018).

Box 1 – The three areas of intervention and the role of women in their family livelihood

The beneficiary rural communities identified by the JPIIF in collaboration with its partners are located in the governorates of Maan, Mafraq, Madaba, Balqa, Jerash and Karak. The intervention areas are located in different climatic-environmental contexts. In particular, the governorate of Mafraq includes the Highlands, that is plateaus characterized by a desert climate, very arid (rainfall below 180 mm per year), hot in summer and rigid in winter. The areas of Madaba, Balqa and Jerash are located in the Hills, therefore hills with mild climate and moderate rainfall. The area of Karak develops instead in the Jordanian tectonic trench, characterized by altitudes below sea level, with very high temperatures and rainfall typical of desert environments (NRC-IRET, 2020). The population of these areas is characterized by high vulnerability indices. In some districts, in 40% of the households none of the members had a job.

The cultivation of aloe does not require efforts or great skills, so it represents an opportunity for income and employment for vulnerable groups such as young people and women.

The role of women in beneficiary communities and family livelihood

Women account for a large proportion of the agricultural workforce, particularly in subsistence farming. However, in the country the roles of women in the agricultural sector remain limited to informal and unpaid work. This, together with the exclusion of women from governance roles and decision-making processes, made Jordan rank 131st (out of 156 countries) in the 2021 Global Gender Gap Index. Moreover, the low participation of women in paid work reduces incomes and the diversification of family income that could protect them from economic shocks.

Empowering women economically means securing economic resources and greater decision-making power for themselves, their families and their communities. This means controlling their own time, income and accessing fairly existing markets. For this reason, the JPIIF staff gave priority to the inclusion of women for the creation of new businesses and job opportunities in the focus area. This decision was made in the belief that the psycho-social and economic development of women also has a crucial impact on the economic and social development of the communities they belong to.

After a phase of in-field analysis, 17 associations were identified, in most cases managed only by women who agreed to participate in the project and improve their skills. Women accounted for 80% of the total project beneficiaries and they acquired know-how in growing plants, processing leaves and making galenic products (soap, gel, creams, toothpaste, hair oil etc...).



C > ACTION PLAN



The Small Farmers programs are made up of activities that combine several production chains thanks to a systemic approach. This action plan is based on 4 general principles, which correspond to an intervention module and its specific work packages. This type of approach was the basis of the promotion project of the Aloe vera production chain in Jordan..

The action plan of the pilot project addressed to local male and female farmers' associations was based on the following interventions objectives:

01. Increase the quality and sustainability of agricultural production through the application of a Quality Management System (QMS) to improve technical and production skills.

Problem: before the intervention, beneficiaries were not familiar with the quality control procedures and the primary processes needed to orient the Aloe vera prod-



The action plan
for the Jordan
Aloe producers

ucts to the market demands. Moreover, they did not possess the proper equipment to transform the aloe gel into by-products.

IMPACT: with the implementation and dissemination of the QMS, local beneficiaries have a clear vision of the production processes and activities they have to carry out in the Aloe vera supply chain. Agricultural associations now know the different types of authorisations that are required for traditional (e.g., soap) or industrial products. The result is a quality product that can meet the needs of the local and national market and that is environmentally sustainable, in line with the Sustainable Development Goals set by the strategy.

02. Promoting an “Inclusive Social Business” to give small producers access to business opportunities by identifying formulas for an associated management of production, processing and sale of the product.

PROBLEM: the empowerment of local people and women in particular was hampered by a low level of associationism between farmers and a low level of capacity building of local authorities and institutions.

IMPACT: the production chain was started by strengthening the production skills of women, young people and local partners for the management of business support services.

03. Retraining the management of the target farmers’ associations by developing a Business Plan aimed at achieving a clear medium-term positioning objective.

PROBLEM: local beneficiaries lacked proper know-how to set up a management control system, to plan economic and financial flows and to forecast costs and revenues of their business.

IMPACT: the JPIIF staff supported local producers’ associations with training and technical assistance activities to analyse the internal critical issues. Then a business plan was drawn up to identify business development opportunities. This tool provides a long-term forecast of costs and revenues and describes future business opportunities starting from the analysis of the product current state and unit cost.

04. Improving the strategic business and sales management skills to facilitate beneficiaries’ access to more profitable markets through a strategic promotion and marketing plan.

PROBLEM: local associations and producers lacked skills for a direct access to more profitable business channels. The initial lack of a product, an identifying brand and online/offline promotion activities would result in a loss of important economic opportunities. Without these conditions the product would be poorly marketable in organized markets that care for a product’s quality, sustainability and its effects on health.

IMPACT: data collected from market analyses provide beneficiaries and potential investors with information that identify the requirements needed to attract domestic and international consumers. The target product types with the highest market demand, from cosmetics to pharmaceuticals, were analysed. Participation in international trade fairs and the exchange of good practices have been and will remain important to verify the level of other producers and to reach new markets.





II Quality Management System for a sustainable and high-quality agricultural product

The project carried out to introduce the Aloe vera value chain in Jordan required several interventions from a production point of view. Initially, good farming practices to be passed on to producers were identified together with the inputs needed to carry out all stages, from cultivation to product processing. Then clear procedures have been identified to meet quality and health-hygiene standards in every production process and thus access organized markets. In this view, the set up and the application of the Quality Management System enabled local beneficiaries to be guided towards the optimization of all production processes.

The JPIIF has set up the QMS thanks to its partners NRC-IRET^{*}, FAA^{**} and ARCO^{***} after a process of analysis of local criticalities, market analysis, assistance and in-field confrontation with beneficiaries. The document collects the production protocols to



The role of Quality Management System (QMS)

* The National Research Council (NRC) is the main public research organization in Italy. It is responsible for carrying out, promoting, disseminating, transferring and enhancing scientific and technological research activities in the main sectors of knowledge development and their applications. The Institute of Research on Terrestrial Ecosystems (IRET), is a branch of the NRC that studies the structure, functioning and productivity of terrestrial ecosystems also in relation to global changes and anthropogenic pressure.

** The Fondazione Archeologia Arborea (FAA) is an Italian research centre specialized in the biocultural and genetic study of floristic species. It works in collaboration with the NRC in many of the JPIIF's projects.

*** The Action Research for CO-Development Lab (ARCO) is a university research centre linked to the Department of Economics at the University of Florence. The centre offers services of research, expert consultancy and training services on local development, social economy, inclusive development, M&E, impact assessment, circular innovation and sustainable commodities.

be followed to ensure compliance with international standards in the production of Aloe vera and its derived extracts. These protocols can provide practical and clear information even to producers with a low level of education.

During farming, following the QMS protocols means to apply an agroecological model and to obtain quality, environmentally sustainable and labelled aloe leaves and extracts. Before this intervention, the JPIIF staff had detected a lack of know-how and production inputs that are relevant to produce in an eco-sustainable and market-oriented way. Thanks to the application of the QMS, the locals improved their technical and production skills, their equipment and their revenues in view of a sustainable agricultural development.****

In the post-harvest phases, the QMS procedures promote the use of raw materials and processing inputs in compliance with quality and health-hygiene standards. This increases the added value of by-products.

The application of these protocols throughout the value chain of Aloe vera is in line with the JPIIF vision of change and with some of the 17 SDGs set by the United Nations for 2030.

During the project, the JPIIF staff directly involved the beneficiary rural associations in a production upgrading process based on the QMS procedures.

**** For the JPIIF, the concept of sustainability has two interrelated meanings. Environmental sustainability refers to the compliance with production protocols that increase long-term soil fertility through the application of agroecological techniques that protect nature and biodiversity. Economic sustainability is a consequence of adopting these techniques, that will enable producers to obtain more productive and climate change resilient soils, thus obtaining more revenues to live on, invest and thrive in their own context.

Box 2 – The QMS guidelines for the cultivation of Aloe vera leaves and the production of by-products.

The QMS of the Aloe vera supply chain consists of 4 documents, that are set up respectively by the partners NRC, FAA, ARCO and an expert in the Aloe transformation.

The NRC “Production Specification” contains the guidelines to be followed in the in-field production phases.

In summary:

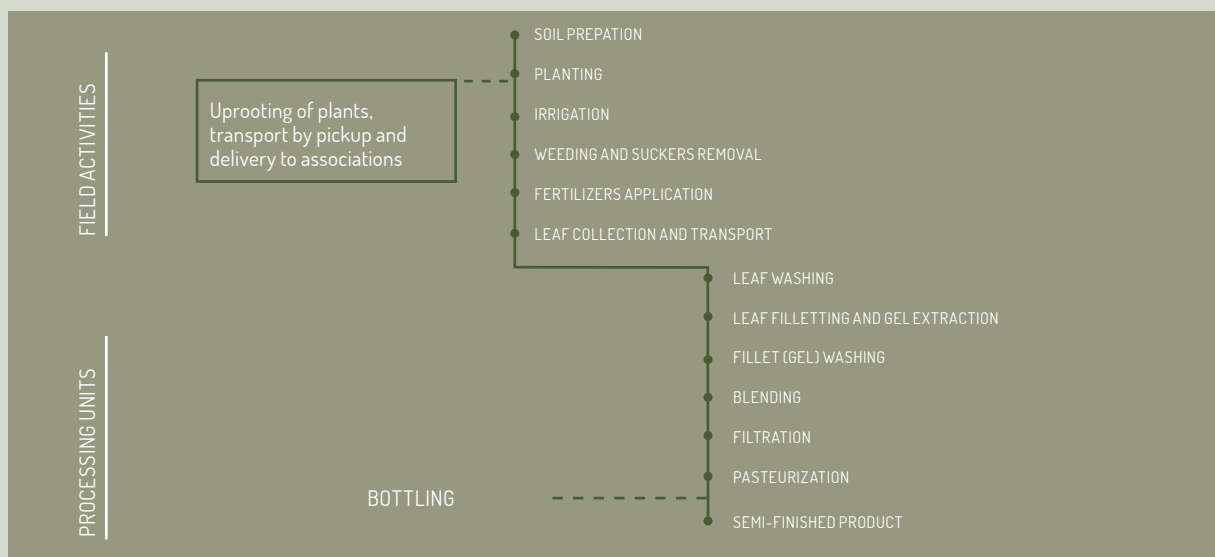
- 01 ____ Agamic propagation (i.e., the vegetative propagation that allows plants to reproduce without the intervention of the reproductive organs) must be done by removing 5 to 20 vegetative propagules from each plant, so that they can then develop new plants,
- 02 ____ Planting must be done on a soil fertilized with 5-6 quintals of manure per hectare with an inter-row spacing of 1.5 meters and an inter-plant spacing of 1 meter, so that approximately 6,666 plants per hectare are grown;
- 03 ____ Irrigation should be carried out by applying a maximum of 4 litres per plant per week, while in sandier soils it is advisable to apply 2 litres at a time;
- 04 ____ Harvesting, if oriented to the production of cosmetics, should be done by first cutting the largest leaf, which is often the second starting from the bottom and can provide up to 500 grams of gel.

The document produced by the FAA contains good practices for the production of agroecological aloe that enables to enrich biodiversity in the fields and the organic matter in the soils to the benefit of the plant. In particular:

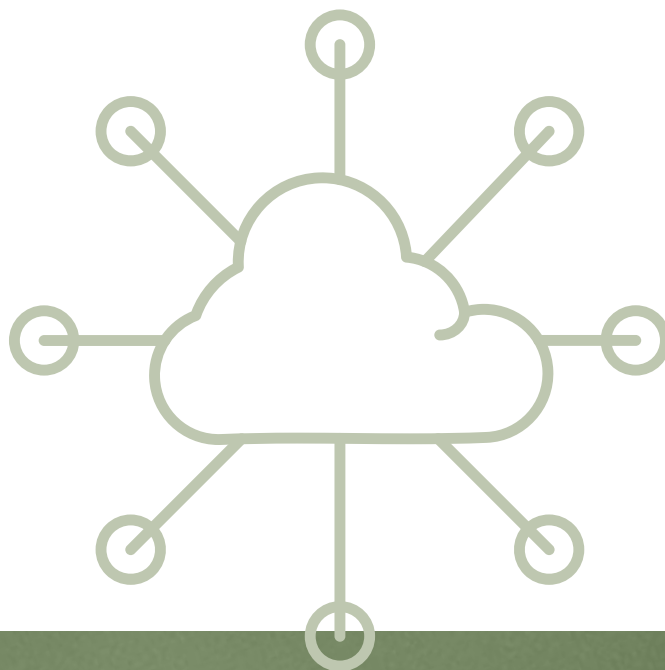
- 01 ____ practices to be followed to optimise composting, that is the processing of wood waste and pruning into nutrients for subsoil micro-organisms. In composting, parameters such as the C/N ratio, oxygenation, characteristics, humidity and mass temperature must be considered.
- 02 ____ good practices for the inclusion of ground cover and green manure species, that is the burial of nitrogen-rich herbaceous species to increase soil fertility.
- 03 ____ the possible consociations with species to enrich the soil with organic matter and attract pollinating insects or antagonistic insects (anti-parasites).

The document “Quality guidelines and Good Manufacturing Practices (GMPs) of Aloe vera processing” set up by ARCO contains the production protocols to be followed in the post-harvest phases within the processing centres. Following these protocols enables the use of internal spaces, production inputs and raw materials in accordance with international health-hygiene and quality standards, from leaf washing to gel production. Still, it enables to perform a clear and understandable administrative management audit. In fact, the ARCO document is based on the HACCP method for food hygiene practices, the international ISO 9001 standard for management procedures and the ISO 22716 standard for cosmetic production practices.

Finally, the “Document for the production of galenic recipes for the processing of Aloe” provides indications of ingredients and quantities for the production of 10 products (cosmetics and food).



WORK PACKAGE



1.0

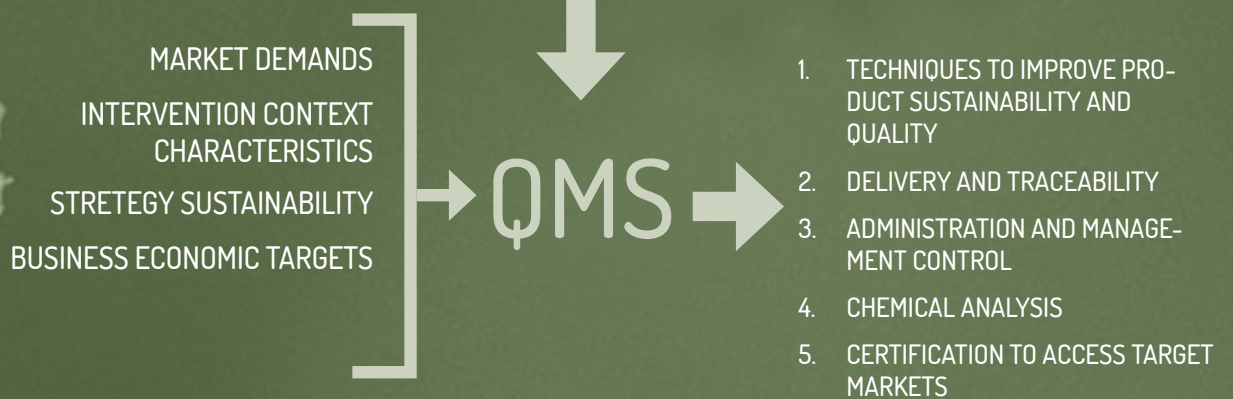
Strategic planning and coordination to link the QMS with the Business Plan

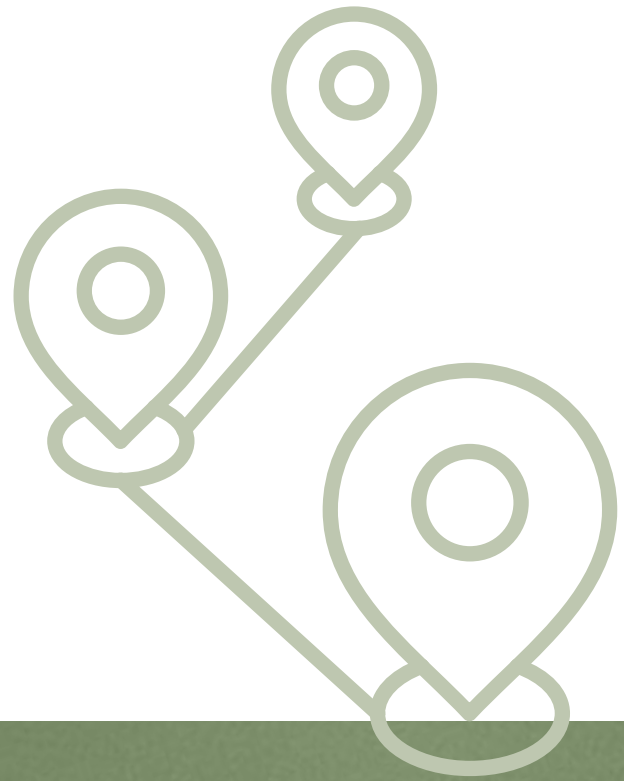
The set up and subsequent application of the QMS work packages is one of the most important development factors of the JPIIF's agribusiness strategy. The QMS was the result of the analysis of multiple variables related to:

01. market demands, from those of consumers to the certifications needed to enter the market (like the ISO 9001 standard certifications);
02. agricultural, social and economic characteristics;
03. environmental and social sustainability conditions of the strategy;
04. economic objectives of the business, also dictated by the Governance needs in terms of cost control management.

The QMS was a "tool" that took into account all these aspects within the Business Plan drawn up for the entrepreneurial retraining of beneficiaries. Its implementation therefore required a strategic coordination between all actors involved in production, governance and trade. Copies of the QMS distributed to beneficiaries also contain images to facilitate the understanding of the practices to be applied, from soil preparation to post-harvest activities. The QMS guidelines have been applied to the different Jordanian pedoclimatic environments where the Aloe vera production has been tested.

BUSINESS PLAN





WORK PACKAGE

1.1

Techniques to improve product sustainability and quality

One of the main objectives was to introduce the cultivation of Aloe vera *Barbadensis* Miller plants by pursuing an environmentally sustainable and quality production. From initial in-field tests, the JPIIF staff and partners realized that all areas in Jordan were suitable to the cultivation of Aloe in terms of soil and climate. This plant is also suitable for sandy soils, it requires a low water supply and no fertilizers. One year after planting Aloe leaves can already be harvested and a good farming can guarantee up to four harvests per year.

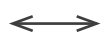
To ensure a production of long-lasting, high quality and volume Aloe Vera leaves, the project staff supported and trained the beneficiary associations in the application of the QMS. According to the SDG 15.3, the locals were trained on practices for a sustainable soil management and a supply of organic matter functional to the life of microorganisms. With reference to SDG 2.4, the locals learned practices to improve product quality and reduce production costs.

This involves applying inputs and techniques to obtain a quality product while protecting biodiversity, reducing soil degradation and using water resources efficiently. In this sense, the exchanges of experience in Jordan and Italy have contributed to make expert partners such as the RSCN* and JEPA** aware of the importance of agroecological techniques to be transmitted to the locals.

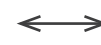
* The Royal Society for Conservation of Nature (RSCN) is an independent national organization founded by the royal family, committed to the conservation of Jordan's natural resources.

** The Jordanian Exporters and Producers Association for Fruit and Vegetables (JEPA) is a Jordanian organization that provides services and information to farmers who want to improve their business. It took part in the project coordination.

ADOPTION OF SUSTAINABLE
SOIL MANAGEMENT PRACTICES



QMS



ADOPTION OF PRACTICES FOR
QUALITY AND PROFIT IMPROVEMENT



SDG 15.3



SDG 2.4



SDG 8.3

The development of farm
businesses fosters more skilled
and/or seasonal job



1.1.1 Sustainable farming management practices for the regeneration of biodiversity and the reduction of soil degradation



Techniques for a sustainable and high-quality Aloe

In the first phase of the project, the NRC-IRET and FAA partners carried out in-field research to set up the QMS farming protocols. In the first year, the partners learned about the pedoclimatic context of the intervention areas and explained the usefulness of soil analysis for a proper land management. After these analyses, the NRC realized the need to combat soil erosion resulting from land system, monocultural production and climate change.

As for ploughing, the QMS guidelines used by the project staff during the training call, foresee a two-stage intervention aimed at avoiding damage to the organic clod. The beneficiary associations were able to comply with these protocols thanks to a motor cultivator purchased by the project staff. To increase the soil organic matter, the QMS recommends fertilization through regular addition of compost or urea. It suggests the practice of green manure with leguminous plants and the intercropping of the Aloe plant with nitrogen-fixing species to increase the presence of nitrogen in the soil. In addition, the protocols developed by FAA provide detailed instructions for composting, from the bio-oxidation of the material used, to the placement of the finished product on the ground.

The QMS protocols also provide for the inclusion of herbaceous and tree species as a practice to increase shading and humidity and thus optimize the consumption of water resources in the soil. To this end, the project staff also promoted the best practice of mulching with biodegradable materials such as jute coffee sacks*.

These interventions contribute to optimizing the C/N ratio in the subsoil, that is to increase the consumption of humus by microorganisms and, consequently, to promote fertility.

1.1.2 Efficient use of water resources

The QMS provides beneficiary farming associations with guidelines to optimize the use of water resources, both to prevent arid periods and to properly nourish soil and plants. According to the NRC, in addition to terracing and underground dams, one of the best practices for water harvesting are drip irrigation and soil antidegradation techniques.

Following these instructions, the JPIIF distributed drip irrigation systems and 2000 litre PVC tanks to all beneficiary farming associations. Drip irrigation has enabled aloe producers to save more water and to provide the leaves with the needed amount of water required for the photosynthetic activity. In fact, complying with the QMS procedures means supplying water from a minimum of 2 litres to a maximum of 4 litres

* Mulching is an operation performed by covering the soil with a layer of material, better if organic. It is also useful to protect the soil and the roots against the action of heavy rain, to reduce compaction and to maintain the soil structure and temperature.

per plant per week. The JPIIF trainers also sensitized the locals on the importance of proportioning the water supply according to climatic variations to avoid an irreversible yellowing of the leaves.

Another relevant aspect is the introduction of the grassing technique with herbaceous species and shrubs. The increase in biodiversity in the agricultural plots has enabled to reduce the rate at which water flows deep into the cracks that widen in the subsoil during dry periods. This is a useful practice to retain water in the soil organic clod, making it a “natural tank” that protects microorganisms from drought and evaporation.

Considering that Jordan’s water demand exceeds the supply by hundreds of millions of cubic meters each year, these interventions are of great strategic importance. ”

Practices for quality agricultural products and biodiversity protection

1.1.3

In the JPIIF view, the protection of biodiversity is one of the main tools for achieving a quality product that meets the market demand.

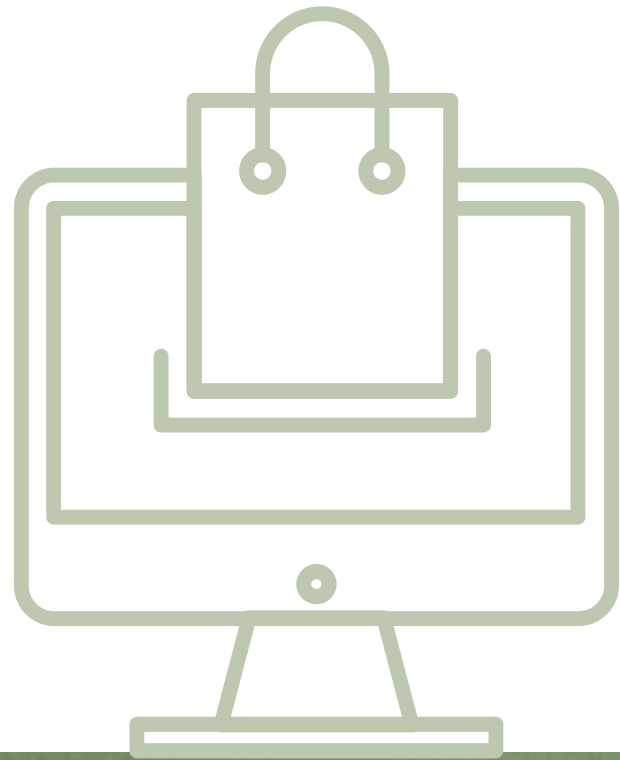
According to such vision, in-field analyses have played an important role. An experimental test carried out by NRC and FAA has shown a better efficiency of organic fertilization compared to chemical fertilization for growing Aloe stem and leaves. This led to establish detailed fertilization guidelines within the QMS, that fosters the life of microorganisms in the soil.

In addition, the QMS recommends to intercrop with medium height evergreen plants such as olive trees, holm oaks and conifers to protect the Aloe from solar irradiance and thermal overloads. The FAA suggested species to introduce for their ability to attract pollinating insects and produce fruits required by the market, thus generating an additional income. The introduction of shrubs and grasses has improved the biological activity of the soil, with a tangible impact on the quantity and quality of the leaves produced and their gel. Along with these technics, through the workshops practice, the beneficiaries have acquired know-how on removing cuttings, essential technic to get aloe leaves from the mother plant. When this removal is not practiced, the shoots absorb most of the water resources required by the mother plant to fill its leaves with gel.

Further, the study tour held in Trentino Alto Adige Region in Italy, gave the opportunity to the local partners to reflect on the importance of product quality and agroecology to access the most profitable markets.

** In its 2017-2018 report, the AICS office in Amman (2018) reported that in 2015 the water demand in Jordan was 1,266 million cubic meters. The supply deficit was about 200 million but it could increase to 600 million per year in 2035 due to population growth and economic development.

WORK PACKAGE



1.2

Product processing and traceability

From the collaboration with the partner NAMA* and the support of an expert consultant, the JPIIF has carried out an international market analysis from which got essential information on the national and international Aloe markets and the requirements needed to access in. Buyers require compliance with international standards – from processing to labelling – both for the direct sale of aloe leaves and for the sale of liquid, concentrated or dry extracts. Based on the market analysis information, the project staff has implemented a training session to the involved agricultural associations on the procedures to be observed in the post-harvest phase.

As for the processing phase, the beneficiaries were trained on QMS guidelines to ensure compliance with hygiene standards and to preserve the active substance of the product. In particular, the QMS provides guidance on pest monitoring, cleaning and separation of the processing areas, from the aloe leaves filleting to the preservation of gel. The QMS provides practical documents to ensure the traceability of each production process and the guidelines needed to provide a complete product label.

The beneficiaries started to apply these good practices in their own galenic laboratories** and in the processing centre in Feifa, Karak Governorate. The JPIIF has equipped the Feifa processing unit with all the required inputs to obtain an aloe gel at the same or more quality level, in comparison to others in the international markets. The RSCN is responsible for the management of the processing unit and today it supplies producers with services of aloe leaves sale and processing into gel.



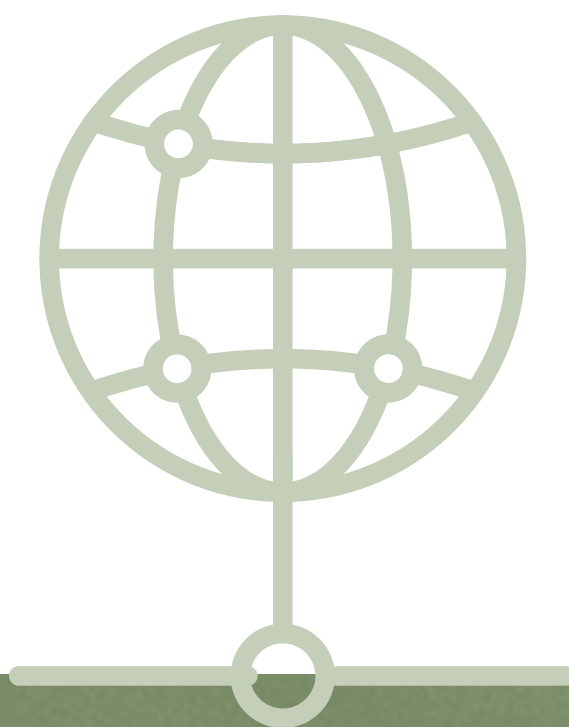
Aloe processing and traceability

* NAMA Strategic Intelligence Solutions is a consulting firm based in Amman that carries out market analyses in Jordan and the rest of the Middle East in network with international partners.

** Within their own premises, the agricultural associations involved in the project have set up a room for Aloe processing, where the QMS protocols inspired by the HACCP method for hygiene, the ISO 9001 standard for management procedures and the international standard ISO 22716 for cosmetics production are performed.



WORK PACKAGE



1.3

Administration and management control

The application of the QMS was also relevant to support local associations in their transformation from simple voluntary associations to rural businesses. The project staff trained male and female members of the associations on the basic administrative and managerial tools with the aim of improving their internal management organization. In particular, the workshops covered topics such as record keeping of registers, transparency of supporting documents, the concept of revenue/profit and the calculation of income.

The Business Plan model created by ARCO provides beneficiaries with a clear view of all the items to consider, in terms of costs and revenues, in the management of their business activity. In addition, by consulting the QMS on good manufacturing practices, beneficiaries can know how to produce the documentation needed to ensure a good post-harvest management control. Each production process includes a document to be completed, from the one used to control the incoming products to the final production report. These documents are simple but also important to ensure greater economic sustainability to the business by keeping track of both inputs and outputs. To complete the QMS work, the RSCN has provided associations with a document about the quality standards that aloe leaves must meet to be purchased by the processing unit. This implies the activation of a strict management control even during the collection and delivery phases.



WORK PACKAGE



1.4

Genetic and biocultural analysis of faa and nrc



Aloe genetic and
biocultural analysis

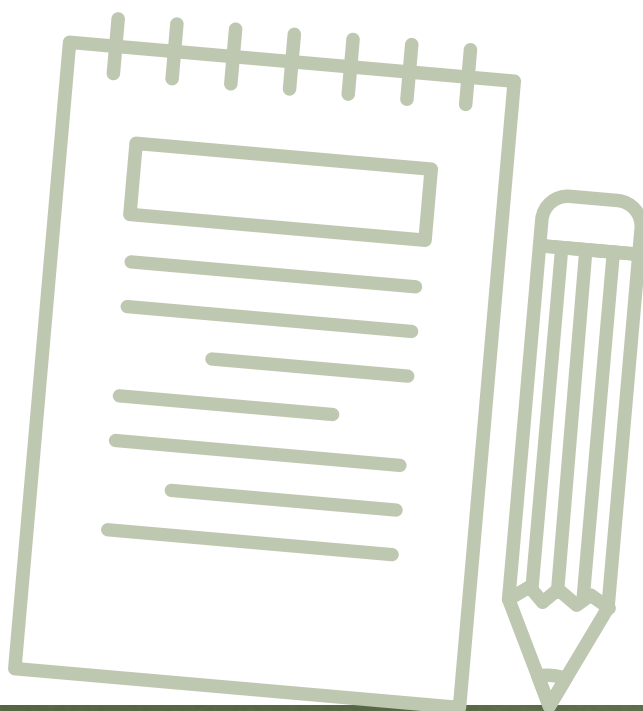
During the study tours in Italy, FAA and NRC explained to beneficiaries the usefulness of genetic analyses in order to choose the variety of Aloe to plant and to promote an agroecological balance. In fact, a genetic analysis enables to analyse the genetic heritage of a variety, to know its origin and to identify the shrub and herbaceous species that are most suitable for intercropping. In line with the wishes of the FAO report on the state of biodiversity in the world^{*}, the preservation of the varietal heritage is important in order not to lose connections with the local history and, regarding the market demands, to promote the product by focusing on its local origin and environmental sustainability.

On this basis, the FAA searched for the Aloe vera *Barbadensis* Miller species that best responded to low-impact agriculture in different intervention contexts. Aloe vera does not originate in Jordan but often the variety that best fits with the local organic clod is to be found among the more ancient ones. This has been confirmed by the fact that species usually grown in Jordan were the most productive when subjected to limited use of chemical agents.

From these results, the project staff suggested the locals to grow plants that due to their genetic conformation can better be intercropped with the Aloe species typically grown in Jordan. As a reminder, the beneficiary agricultural associations received a document on the guidelines for the agroecological and biocultural analyses of the Jordan agricultural system.

^{*} FAO (2019), The State of the World's Biodiversity for Food and Agriculture, J. Bélanger & D. Pilling (eds.).

WORK PACKAGE



1.5

Product certification

Through market analyses, the JPIIF showed the importance of certifications to sell aloe products in pharmacies, cosmetic stores, local and international markets. In legislative terms, it was important to identify the demands of local institutions to demonstrate compliance with market-recognized standards for an agricultural supply chain not yet active in the country.

During the project, the local staff then analysed the most feasible paths to ensure the quality of processed products and their compliance with the local regulations. In particular, two different certification paths were identified: one related to traditional products such as soap and a second one linked to the production of food and cosmetic products.

Thanks to the QMS, the equipment purchased by the project and the investments made by the RSCN to upgrade the environments, the Feifa centre has been licensed by the FDA, that is a government agency that certifies compliance with international standards established by the ISO 9000 rules. The FDA has then approved certification for 10 products including Aloe gel and other Aloe based cosmetic products and it will also be an important stakeholder for future supply chain projects.

The associations have already started to independently process Aloe vera into traditional galenic products, such as soap or aloe gel (to be rinsed after application). In fact, by law these products can be sold without a FDA license, by obtaining a certificate issued by the Union of Liberal Professions. This has already made it possible to legalize the informal work of 45 members of the beneficiary associations, recognising the added value derived from traditional production.





Inclusive Social Business for an associated management of the production chain relaunch

The JPIIF staff supported beneficiaries towards a greater awareness of the principles for a shared, conscious and associated management of natural and productive resources.

In a context where the role of men in business management is prevalent, the JPIIF has based its project on the social inclusion of women. In fact, most of the beneficiary associations are women's and the project has had both an economic and social impact. Women have increased their financial independence and livelihood, but also awareness of their own means through internal cohesion. The beneficiaries have changed their routines and skills by orienting the association's work towards a business target.

With the aim of keeping and improving these results in the future, the project staff wanted to involve strategically relevant local organizations as an active part of the project. Indeed, one of the principles of the Small Farmers programmes is to improve beneficiaries' access to public services that support their activities. In the intervention context, partners such as the RSCN and JEPA could promote Aloe production by offering technical services useful for the associations' business activities.

The partnership with the FTC* and the exchanges of best practices have been important in raising awareness among beneficiaries and local stakeholders of the benefits of cooperatives and producers' associated management.



The Inclusive
Social Business
of JPIIF

* The Federazione Trentina della Cooperazione (FTC) is an organization that represents, assists, protects and audits the Trentino cooperatives in the field of credit, production, consumption, labor and social services. For many years it has been cooperating with the JPIIF in rural economic development projects to do analyses and propose interventions on the cooperative structure of the countries targeted by the project.

WORK PACKAGE



2.1

Strengthening of institutional capacity building

In the JPIIF view, local institutions play a key role in ensuring future sustainability to the activities promoted by the project agribusiness strategy. Public institutions can offer business support and promote cooperativism between producers to share inputs. The institutions involved in the project did not have the proper know-how to provide support services to the aloe supply chain. The JPIIF has therefore started a path of training and support aimed at eliminating knowledge gaps and increasing the initiative ownership.

In particular, the 2019 study tour in Italy has been useful to aware institutions and partners on the importance of cooperativism to ensure a proper quality control of the production processes. The assistance of ARCO has instead enabled the RSCN to put the QMS procedures into practice at the Feifa centre. On the spot, representatives of partner institutions also participated in a workshop on establishing new business channels for beneficiary producers.

At the end of the project, the RSCN has already activated the processing unit for the project beneficiary associations and the promotional campaign for the first Aloe products.

In 2021, the staff also involved JEPA and RSCN as members of the evaluation committee for the start-up funds awards and later these same organizations provided support to the grantees.

* The project was carried out in collaboration with the Jordanian Cooperative Corporation (JCC), the Ministry of Agriculture and the Food and Drug Administration (FDA), as well as university institutions such as Mutah University and the University of Balqa.



WORK PACKAGE



2.2

Inclusion of the most vulnerable in production processes



Empowering women through Aloe

One of the main objectives of the agribusiness strategy implemented by the JPIIF in Jordan was to increase the livelihood of women and young people. In economic terms, the Aloe plant costs little and at the same time it is very profitable. In fact, it has a very high return on investment rate starting from the first year and as for production it is easy to grow, as it does not require much effort.

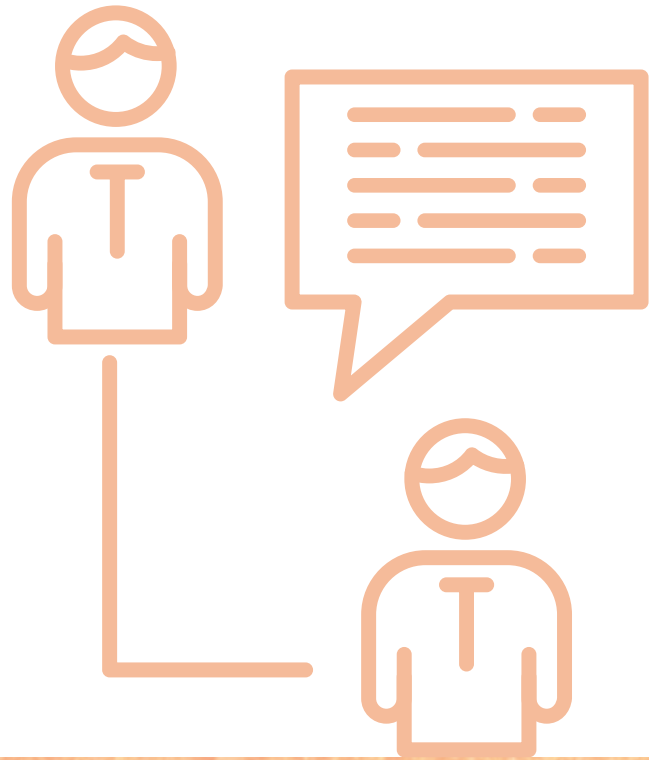
The introduction of the Aloe supply chain in the country was therefore important to include the most vulnerable in the production processes. Before the project, most associations, mainly women, were not involved in farming, had no clear business targets and their members were considered volunteers. The members of women's associations were housewives with no real financial autonomy.

During the project, the local staff trained the association members on farming and processing techniques, but also on the economic and financial management of their business. Today members have clear roles and responsibilities within the associations that comply with the QMS to sell or distribute aloe leaves or products.

Through their participation in the project, women gained more self-confidence and strengthened their production and management skills. The additional income from their new activity has and will contribute to women's empowerment and decision-making power also in their households. In the future, the spread of the Aloe vera supply chain will facilitate the creation of many decent jobs in Jordan.



WORK PACKAGE



2.3

Promotion and development of associated management

In Jordan, where a high mistrust of cooperativism persists, the JPIIF has raised awareness among beneficiary associations and local partners about the benefits of associate management. In the country there are more than 1,500 cooperatives but many of them are inactive and created only to receive donations and land. In most cases associations have a very weak governance structure, no meetings are held and members are inactive.

In collaboration with the FTC, the project staff guided representatives from the RSCN, JEPA and JCC* in identifying the main shortcomings of the Jordanian associations and cooperatives. Along the project, exchanges of experience were carried out in Jordan and Italy to compare the Trentino cooperative system to the Jordan one. In particular, the study tour in Trentino made partner institutions realize the positive effects of cooperativism in creating scale economies and access to services.**

Following the field visit, the FTC in collaboration with local institutions drew an analysis of the Jordan's cooperative system weaknesses to reflect on, in view of future policies (Box 2).

In the short term the organizational option of cooperativism appeared to have little applicability in Jordan, where mistrust between people and self-employment are widespread. The development of a system of social enterprises seems more feasible within the beneficiary associations. Transforming the association in a social enterprise would enable to formalize the business activity and at the same time to keep the "individualist" character preferred by the locals.

* The Jordanian Cooperative Corporation (JCC) is a government body responsible for monitoring and promoting activities within cooperatives nationwide.

** Following the study visit it has been published the article: <http://jordantimes.com/opinion/fares-braizat/reinstating-jordans-social-capital-italian-lesson>

Box 2 – FTC's analysis of the Jordanian cooperative system weaknesses and its effects

Following dialogues with local partners, the Trentino Federation of Cooperatives drew a list of the major causes of the lack of cooperativism in Jordan. In fact, the field visit and the SWOT analysis carried out with JEPA, RSCN and JCC in the study tour in Trentino had shown serious shortcomings with respect to the Trentino cooperative model.

In the agricultural sector there was no widespread cooperative culture and awareness of the benefits of cooperating also due to the institutions lack of activism. In particular, shortcomings had been identified within the Jordanian Cooperative Corporation, in terms of human, economic and management resources, that hinder its ability to effectively support the local cooperatives.

The consequences of all these factors are:

- low productivity, low efficiency in the use of resources and low profit;
- farmers' high vulnerability to economic changes and shocks;
- limited investment by farmers;
- poor business competitiveness, especially for foreign markets;
- unsustainable use of natural resources;
- lack of financial resources;
- food insecurity;
- social conflicts.





The Business Plan for the development of entrepreneurial skills

The third principle of the agribusiness strategy applied by the JPIIF staff in Jordan was to set up the conditions to give sustainability to business activities. Thanks to in-field interventions, local beneficiaries embarked on a path of self-determination based on upgrading the management structure of their associations.

Many beneficiary associations were weak in terms of governance, often only presidents were active members and made decisions for all. The production inputs management and the control of economic and financial flows were inefficient.

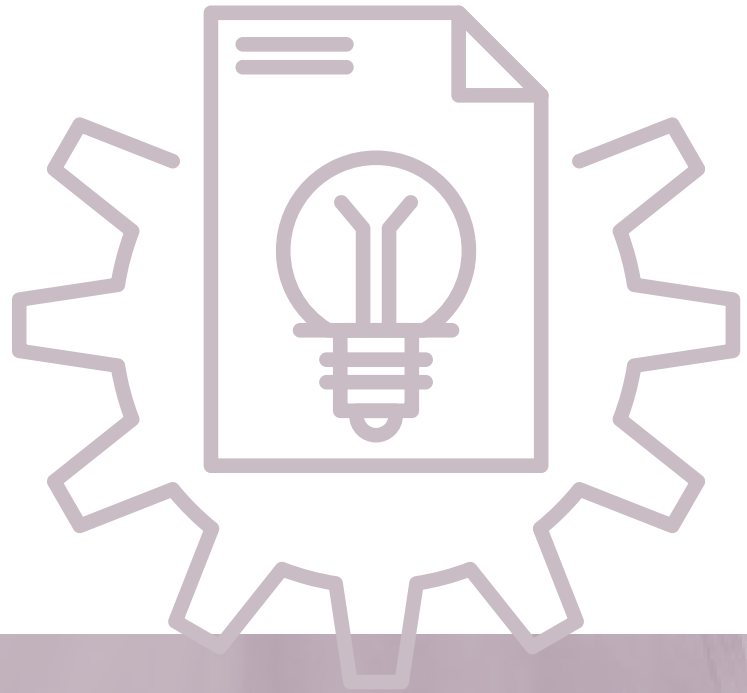
In this context, the JPIIF supported the associations in analysing internal criticalities and defining a clear business objective. ARCO developed a business plan model to make beneficiaries aware of the growth potential of the Aloe supply chain and to assist them in managing their business.

The Business Plan helped associations to enter into a business rationale aimed at selling a finished product that is attractive to the market. In line with this objective, the start-up funds award has been important in assisting associations to start production activities and manage costs and investments.



The business plan
for Aloe vera
producers

WORK PACKAGE



3.1

From criticality analysis to business idea development

During the project's first months, the JPIIF staff deepened relationships with the associations by fostering moments of discussion to know their level of managerial skills. Most of the associations involved in the project are women's, others are family or community based. The main source of income for the associations is the promotion of local products mainly for tourists.

The outcome of this research was that many of the 17 associations involved had shortcomings in terms of:

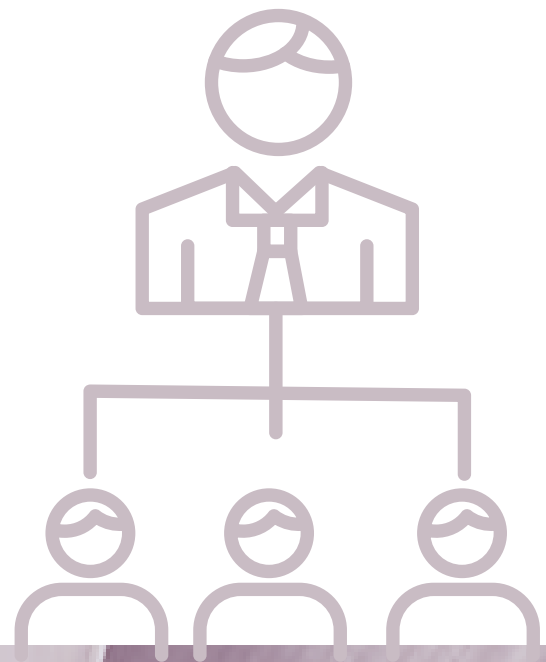
- division of roles and responsibilities;
- sharing and management of production inputs for farming;
- tools and documents for costs and revenues forecasting;
- know-how to access organized markets.

On this basis, the JPIIF has supported local beneficiaries in upgrading their management skills. To this end, ARCO developed a Business Plan model aimed at facilitating the planning and implementation of farming and processing activities in the medium to long term. Remotely, ARCO has constantly worked with partners and representatives of local associations to make the business plan a flexible and replicable tool in the future. By analysing in-field experience data, investment and production costs could be modelled in the plan, thus showing the great development potential of the supply chain. In particular, the Business Plan also served to make the involved associations realize the importance of the work carried out in the different phases of the Aloe farming and processing.



The relevance of a clear business objective

WORK PACKAGE



3.2

Business plan as an operational planning tool for the business project

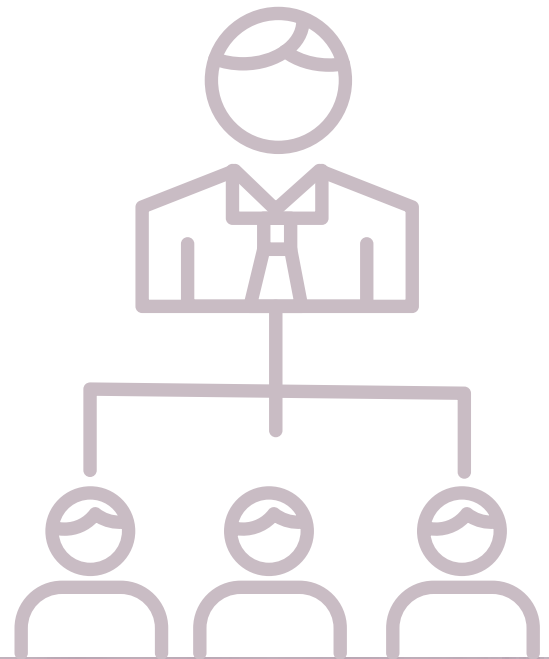
The Business Plan showed how the introduction of the Aloe supply chain can have very positive impacts on family income and local business development. The document makes a forecast of the investments needed to grow and process aloe into galenic cosmetic products, from business start-up to sale. It was set up by ARCO for both small beneficiary associations and the RSCN for the management of the Feifa processing centre.

The forecasts considered in the Business Plan are based on an investment scenario of growing 475 Aloe plants in a farming area of 0.5 donum*. It is assumed that each plant will produce 10 leaves per year, of which 66.6% sold directly and 33.3% processed into by-products. The first part considers the technical data for cultivation and processing, then the monthly and annual amounts of inputs and labour hours needed to grow and process the leaves. Each aloe leaf contains 400 grams of gel and the business plan provides an estimate of 7 products that can be obtained from 6 kg of gel and of other inputs and raw materials required to obtain them.

In particular, e.g., it is expected that from an aloe field of 20 x 25 meters, that is about 0.5 donum, it is possible to obtain about 170 kg of finished products per year: 37 kg of anti-age gel cream, 25 kg of face cream, 25 kg of foot cream, 18 kg of hair oil, 27 kg of body cream, 24 kg of hair oil, 16 kg of soap.

* The Donum is a traditional unit of measurement in the Middle East: 10 donum = 1 hectares.

WORK PACKAGE



3.3

Cost management to benefit producers and start-up funds for a sustainable social development

The objective of the Business Plan was twofold. First, to enable beneficiaries to see and monitor the economic and financial results over a one-year period since the start-up. Secondly, to support users in a correct management control by promoting knowledge of the economic and financial flows of the production processes.

In fact, the second part of the business plan identifies all investment costs, revenues and annual costs for the in-field production and the processing of aloe leaves into cosmetic products. The third part analyses the unit costs of inputs and raw materials per kilogram of product. The plan foresees that an initial investment of 6,300 JOD* will make profits as early as the first year of quality product sale that will increase in the following 10 years (Box 3).

The development of the business plan also allowed to enhance the beneficiaries' skills towards a sustainable management of their business activity. The project staff trained each association on the importance of administrative and management aspects such as: record keeping, invoice transparency and profit calculation.

In 2021, the JPIIF initiated a call for start-up funds, which were allocated to 16 associations to foster the application of the QMS from farming to product marketing. The staff then supported the beneficiaries to spend the funds on the investment items budgeted in the business plan, thus favouring a further growth momentum. Some associations invested a significant part of the funds in marketing campaigns to immediately open new commercial channels.

*

Equal to over 8,800 euros considering the EURO-JOD exchange rate of 0.7114 in September 2022.

Box 3 – Towards a sustainable management of costs and revenues over time

The Business Plan estimates all the investment and operating costs for the cultivation of aloe and the processing of leaves into by-products (here below the table related to the cultivation phase).

Investment costs	JOD	Useful life	Annual costs	JOD
Purchase of the field	-	-	Labour cost for aloe treatments (weeding + fertilizer)	137
Aloe plants	-	5	Labour cost for harvesting	39
Agriculture infrastructure (irrigation system)	250	10	Total annual labour cost for field phase	176
Macchine e attrezzature (spades, hoes, machete, water tank or other durable tools)	200	3	Annual costs for fertilizer and other Aloe treatments	80
Labour cost for land preparation and planting process	140	5	Annual cost for water supply	468
Labour cost for irrigation system installation	98	5	Electricity consumption for irrigation system	120
Total investment cost	687		Annual Cost for packaging for aloe leaves (5 JOD/50 m)	10.8
			Total annual costs	854

Thus, in a 10-year time view, the business plan estimates revenues basing on the prices paid on average by the market for 7 aloe-based products and obtained from the extraction of 72 kg of leaf gel. Potentially the gel processing into finished products that meet the quality standards required by the market can generate sales for more than 20,000 Jordanian dinars per year.

JOD CURRENCY	YEAR									
REVENUES	1	2	3	4	5	6	7	8	9	10
ALOE LEAVES	183	186	189	192	195	198	201	204	208	211
ALOE GEL WITH GELATINE (50 ML)	2.257	2.293	2.330	2.367	2.405	2.443	2.482	2.522	2.562	2.603
ALOE FACE CREAM (30 ML)	1.024	1.041	1.057	1.074	1.091	1.109	1.126	1.144	1.163	1.181
ALOE FACE CREAM (15 ML)	3.544	3.601	3.658	3.717	3.776	3.837	3.898	3.960	4.024	4.088
ALOE FOOT CREAM (15 ML)	5.080	5.161	5.244	5.328	5.413	5.500	5.588	5.677	5.768	5.860
ALOE BODY LOTION (50 ML)	3.331	3.385	3.439	3.494	3.550	3.607	3.664	3.723	3.782	3.843
ALOE HAIR OIL (250 ML)	212	216	219	222	226	230	233	237	241	245
ALOE HAIR OIL (150 ML)	283	287	292	297	301	306	311	316	321	326
SPRAY FOR HAIR (250 ML)	1.756	1.784	1.812	1.841	1.871	1.901	1.931	1.962	1.993	2.025
SPRAY FOR HAIR (150 ML)	2.682	2.725	2.769	2.813	2.858	2.904	2.950	2.997	3.045	3.094
ALOE HAND SOAP	243	247	251	255	259	263	268	272	276	281
SALES OF ALOE BASED PRODUCTS	20.595	20.925	21.260	21.600	21.945	22.296	22.653	23.016	23.384	23.758

Finally, considering operational, maintenance and tax costs, the Business Plan also estimates profits, projecting a positive return as early as the first year.

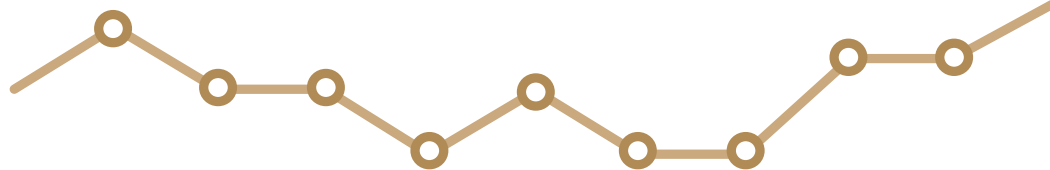
In practice, it is estimated that a single family growing every year about 20 plants of Aloe vera in its garden could obtain up to 72 kg of gel and, from its processing into finished products, about 8,000–9,000 JOD profit where it meets the quality levels required by the market. This is more than 600 JOD per month which could be a very important supplementary income for family welfare.

JOD CURRENCY	YEAR											
	0	1	2	3	4	5	6	7	8	9	10	
PROFIT AND LOSS STATEMENT												
REVENUES		20.595	20.925	21.260	21.600	21.945	22.296	22.653	23.016	23.384	23.758	
DIRECT COSTS		7.907	8.034	8.162	8.293	8.426	8.561	8.698	8.837	8.978	9.122	
INDIRECT OPERETING COSTS		1.617	1.643	2.037	2.069	2.102	2.136	2.170	2.205	2.240	2.276	
OPERATIONAL CASH FLOW (EBITDA)		11.070	11.247	11.060	11.237	11.417	11.600	11.785	11.974	12.166	12.360	
AMORTISATION		1237	1237	757	690	690	643	643	643	643	643	
PROVISION (RESERVES)												
OPERATING PROFIT (EBIT)		9.833	10.010	10.303	10.547	10.727	10.957	11.142	11.331	11.523	11.717	
FINANCIAL MANAGEMENT		0	0	0	0	0	0	0	0	0	0	
EXTRAORDINARY MANAGEMENT		0	0	0	0	0	0	0	0	0	0	
EARNING BEFORE TAX (EBT)		9.833	10.010	10.303	10.547	10.727	10.957	11.142	11.331	11.523	11.717	
JORDAN TAX		1967	2.002	2.061	2.109	2.145	2.191	2.228	2.266	2.305	2.343	
NET INCOME(NET PROFIT)		7.867	8.008	8.243	8.437	8.581	8.765	8.914	9.065	9.218	9.374	
CASH FLOW												
NET CASH FLOW		-6.352	9.104	9.245	9.000	9.128	9.272	9.408	9.557	9.708	9.861	10.017
DISCOUNTED CASH FLOW		-6.352	8.670	8.386	7.774	7.510	7.265	7.021	6.792	6.571	6.357	6.149





Business strategy to access target markets



The introduction of the Aloe vera value chain in Jordan required the implementation of a structured business strategy. The JPIIF realized that it is important not only to process Aloe but also to promote it and its by-products to absorb the supply in domestic and international markets.

The partner NAMA (2019) had pointed out that one of the main difficulties in Jordan was the lack of knowledge, among the population, of the aloe beneficial effects. At the same time, the few aloe products sold in Jordanian stores are imported and have quality certifications that local producers cannot obtain easily. However, the market demand for aloe products is booming worldwide and in Jordan before this project there was no real manufacturer. It has therefore emerged the opportunity to create trade channels by promoting aloe products in particular for body care, that has always been a key aspect in the Arab culture since the time of Cleopatra.

To facilitate the business qualification of the Jordanian associations, the project staff together with their partners started both a national and an international market analysis. Through these analyses the locals could identify the main requests of buyers and consumers from which setting up initial marketing campaigns. Later, the exchange of best practices and the participation in international fairs were relevant to convey ideas for the product promotion and marketing to the Jordanian partners.



The commercial
strategy for the
jordan Aloe
producers

WORK PACKAGE



4.1

National and International market analysis



The market analyses

The two market analyses provided local communities with detailed knowledge of business opportunities, that is of different buyers and their demands.

The national market analysis carried out by NAMA has highlighted the great potential of the aloe supply chain to promote the Jordanian product also abroad. In the report, NAMA listed all the Aloe vera pharmaceutical properties and the quality standards required by buyers (Box 4). To complete the analysis, 20 national companies that import aloe-based ingredients to make their own products were interviewed. The main focus of the interviews was on prices. It turned out that has not yet been established price for aloe plants, powder or gel, and this depends mainly on the product quality.

The international market analysis, carried out internally by the JPIIF, evaluates the aggregate data of the global Aloe market in the pharmaceutical, cosmetic, nutraceutical and food sectors. Here is a summary of the key import and export values for Europe, Asia, Mexico and the United States. With a focus on the European Union, the JPIIF also summarized the average prices of aloe gel per kilo and by-product in target markets such as Germany, France and the Netherlands. Another section refers to the main quality standards required for the product sale, from quality certifications to packaging. Finally, the analysis ends by suggesting that the product socio-cultural identity should be enhanced in order to connect with consumers who are increasingly attentive to product origin, purity and sustainability.

Box 4 – European Union market requirements

The national market analysis developed by NAMA (2018) summarizes the main standards to be met to sell aloe products in the European Union.

In particular, requirements are specified for medicinal products, food products and organic products. It is recommended to follow best practices in the product growing, harvesting and processing phases to ensure compliance with quality standards like ISO 9001 and hygiene ones like HACCP.

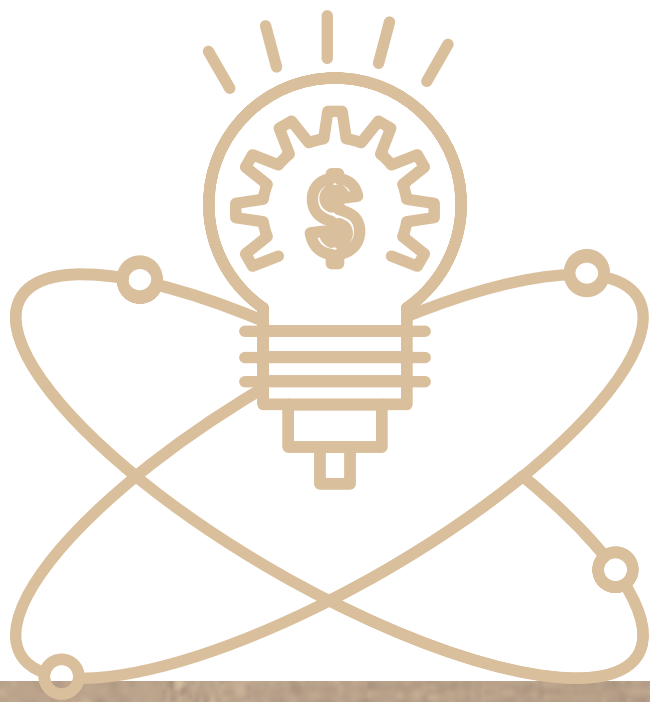
For preparing the product for sale, the following standards are summarized:

Labelling requirements:

- Product name/INCI name
- Lot number
- Place of origin
- Exporter's name and address
- Date of production
- Expiry date
- Net weight
- Recommended storage

Packaging requirements:

- Buyer-specific packaging details should always be acquired
- Reuse or recycle packaging materials
- Use containers whose material does not react to the extract components
- Clean and dry the containers before filling them with aloe
- Store containers in a dry and cool place to prevent quality deterioration



WORK PACKAGE

4.2

Product marketing

The Jordanian associations have based their Aloe marketing campaign on raising awareness of the product potential. A new section of the Small Farmers website (<https://smallfarmers.trade/aloe-vera-0>) explains how aloe can produce economic benefits for manufacturers and body health benefits for consumers.

The JPIIF supported the associations in developing a marketing plan aimed at promoting the product in an attractive way. Some of them have chosen to allocate part of the start-up funds to set up a website where they can highlight the local origin of aloe-based creams and soaps and their benefits. Others have made roadside billboards to attract consumers that are attentive to natural and “0 miles” products.

Beneficiaries were also made aware of the use of branding as a tool to advert the quality of their products and build buyer loyalty. With the RSCN, the project staff agreed to promote the product in the national market by creating the “Sabbar” logo under the “Wild Jordan”, made by the RSCN, that was already well known in Jordan for promoting eco-tourism packages and other local handicraft products. The JPIIF design expert has then supported 8 beneficiary associations in creating their own brand, which would enhance their identity and flank the other two brands.

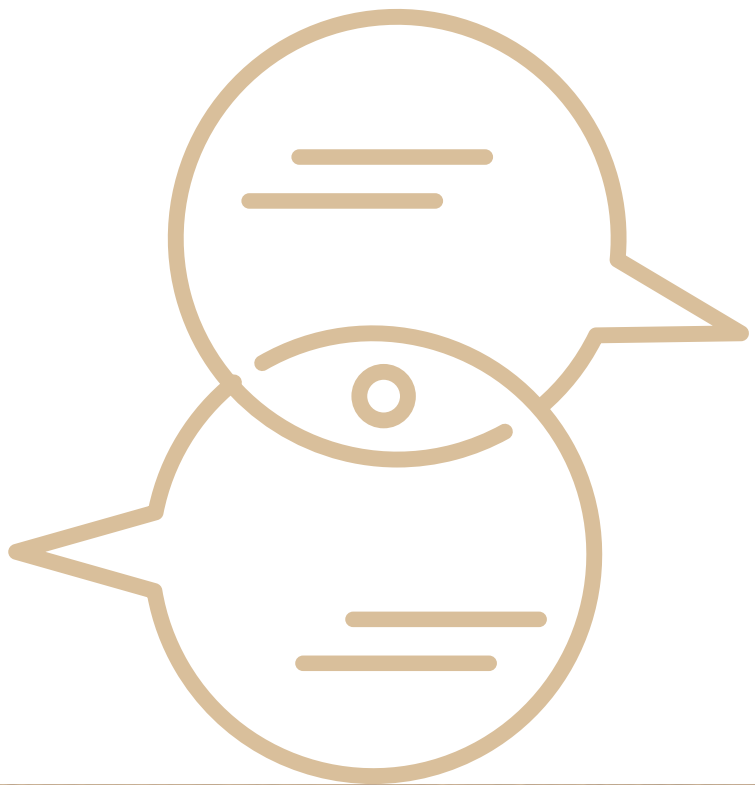
Has been draw-up a dedicated brochure in order to introduce to buyers participating in national and international fairs the available products, further has been draft a buyer database for send out a newsletter on a regular basis.



From the planning to the marketing



WORK PACKAGE



4.3

Exchange of best practices, management of relationships with buyers and participation in international trade fairs

An important work package of this business strategy was fostering meetings between beneficiaries and market experts through exchange meetings and participation in trade fairs.

During the study tour in Trentino, the Jordanian partners realized how though a good brand image high quality regional product have found their own niche in international markets. In Jordan, the representative of the Italian farm “Il Pucino” instead, recommended to the beneficiary associations to move towards a common packaging. In particular, he suggested to pool the containers for an easier retrieval and to customize the labels in order to enhance the identity of each association.

Until the pandemic time, beneficiaries were also able to participate in important international trade fairs to get in touch with possible new business outlets. In 2019, on their visit to Cosmoprof in Bologna, a world-class trade fair, beneficiaries could see how multiple types of aloe products with different packaging are promoted. Another fair in Bologna, the Cosmofarm, enriched the Jordanian partners with ideas and awareness of the supply chain potential.

* The farm Il Pucino has been growing and processing Aloe Vera since 1997 in Friuli Venezia Giulia and Sicily and today it manages the largest cultivation of Aloe Arborescens in Italy. Farming and production comply with the European organic farming legislation and are certified “organic” by the Mediterranean Institute of Certification (MIC). The company monitors all the production process and it sends freshly harvested leaves from crops in Sicily to laboratories in Trieste, where processing takes place

In the last year of the project, several representatives of the associations were able to promote their products by participating in national trade fairs in Amman, Aqaba, Mafraq and Umm Jimal. At the fairs, beneficiaries could hand out brochures and information leaflets about the new Jordanian supply chain and its products to potential buyers, retailers and final consumers.

D > RESULTS ACHIEVED
DURING THE PROJECT
AND POTENTIAL
ECONOMIC IMPACT IN
THE COMING YEARS



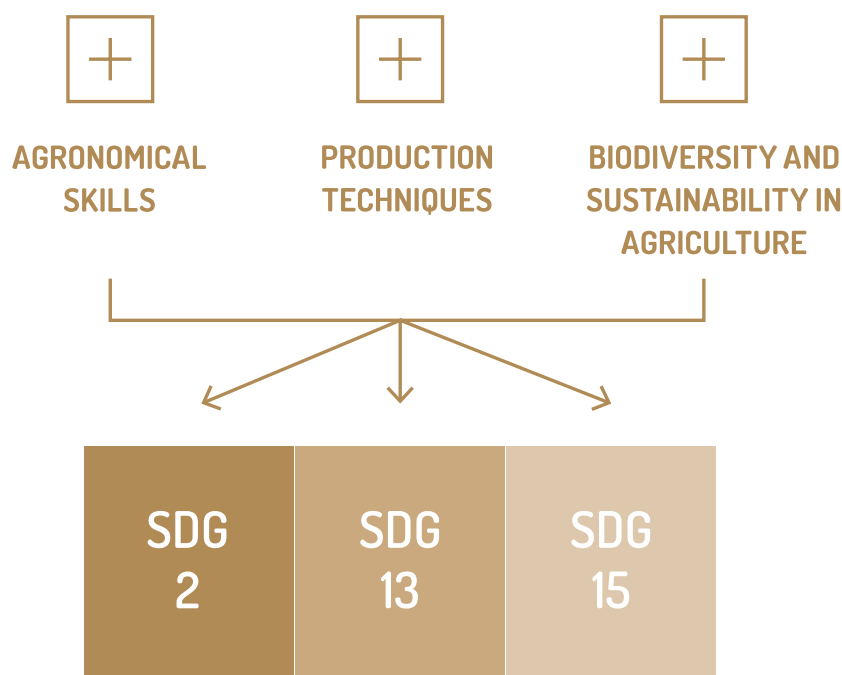
The pilot project carried out by the JPIIF in the Jordanian rural communities was mainly useful to establish the material and knowledge basis of a new agribusiness activity. The Aloe vera supply chain, which has been developed and will continue to develop in Jordan, may produce very positive economic effects for beneficiary and non-beneficiary agricultural associations. Aloe cultivation and processing can be a good resource.

At the end of the project, 17 associations with a total of over 620 members had started to grow Aloe vera in their agricultural plots.

Production results

Today all the involved associations producing Aloe vera and its by-products, follow the Quality Management System for an agroecological production. This enables producers to cultivate by pursuing the market qualitative demands, the environmental sustainability and as a consequence the economic sustainability in the use of raw materials.

As for the plants cultivation, 16 associations today are equipped with drip irrigation systems, which maximizes efficiency in the use of water resources. At the end of the project, the final evaluation carried out by the M&E expert according to several indicators, found in the associations a 206% improvement in the farming techniques adopted compared to the baseline values*. In addition, 75% of 13 associations involved in a qualitative survey, 9 of which were direct beneficiaries and 4 indirect ones due to the spill over effect, reported to perceive an improvement in terms of agronomic skills. All these results enhance the achievement of the SDG 2, 13 and 15 targets identified for the project, that means a more sustainable and productive agriculture not only for Aloe but, thanks to improved organic matter in the soils, also for other fruit and vegetable species.



* The mainly topics were: the use of pesticides in appropriate ways; analysis of soil characteristics and conditions; the adoption of fertilisation programs; the use of organic soil improvers; the adoption of fertigation and foliar fertilisation programs.



SOIL BIODIVERSITY REGENERATION

Introducing the cultivation of Aloe vera not only provides income for households but also implements a process of biodiversity regeneration in soils that have been deserted or parched due to climate change. Re-establishing conditions for organic sod regeneration in arid soils has a very important impact on the environment and thus on field production. The socioeconomic impacts of this change are relevant even in the long-term, improving the sustainability of agricultural production of aloe or fruit and vegetables in general.

At the end of the project, the beneficiary associations could grow about 21,000 plants, on average 1,000 per donum of their land. Basically, it is one plant for every square meter of a small plot of 20 mt x 25 mt placed near residences. These plants are sold at the market in small pots at a price ranging from 2 to 5 JOD depending on size (Balestri, 2022), while the leaves that are not intended for the gel extraction at the price of 0.50 JOD. Much of this price covers internalized production costs through the associates' labour (ARCO, 2021) and profit is generated for the association.



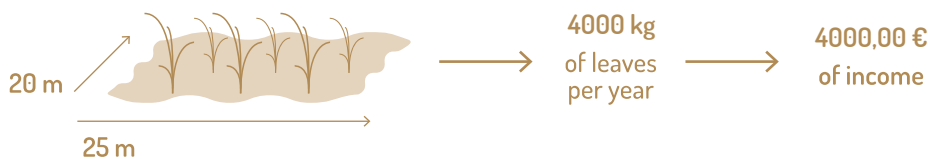
LIVELIHOOD - CREATING INTEGRATIVE FAMILY INCOME AND JOBS:

Introducing aloe vera on small plots adjacent to the homes of families living in desert areas of the Jordanian plateau has had a relevant socioeconomic impact. The cultivation and processing processes, which can be easily replicated and spread to other beneficiaries, do not require major physical efforts or large expenditures. This makes Aloe vera production ideal for women and youth, representing a concrete opportunity for supplementary income generation and employment. Field cultivation and the domestic process of transforming the gel into finished products thus offers high-impact development potential for rural Jordan. With the reopening of tourist flows, which traditionally represent a high-potential outlet market in the country, local Aloe producers will give their business an additional boost.

As of today, the association Jamaiyat Almurjan for Charity stands out and it has already been able to produce about 800 kg of leaves and 500 kg of gel per year (Pantalone, 2022). This resulted in an annual profit of 4,200 JOD, almost 6,000 euros* coming mainly from the sale of products in local unorganized market. This profit may increase to about 20,000 JOD (around 29.000 Euro) once full production** and sale*** will be achieved.

As for supply chain, RSCN's Feifa centre is able to:

- 01 ___ provide a certified gel production service for the associations that turn to it to obtain, from the cultivated leaves, finished products to sell in the local market;
- 02 ___ buy from the same associations Aloe vera leaves at about 1.10 €/kg to process them into cosmetic products to be sold directly in the national and international market. Thus, a family that will be able to obtain 4,000 kg of Aloe leaves per year from its small garden will be able to earn, from RSCN, more than €4,000 per year.



The processing of aloe gel into by-products, on which the associations have been trained, can provide producers and their families with additional income in the future. By following the QMS and Business Plan prepared by ARCO, this is an activity that adds a great deal of value to the product. In fact, each aloe plant will be able to yield about 4 kg of gel per year. The gel can be directly delivered to Feifa's processing unit or processed directly in the associations' laboratories. From the processing of 72 kg of gel (resulting from the cultivation of about 20 Aloe plants) into finished products, a family or association that enters this chain will be able to make over 8800 JOD of profit per year. This is about 1100 JOD per month in additional income.

* The EUR/JOD exchange rate considered here is 1.40556 of September 2022

** Today it accounts for 25-30% of its potential.

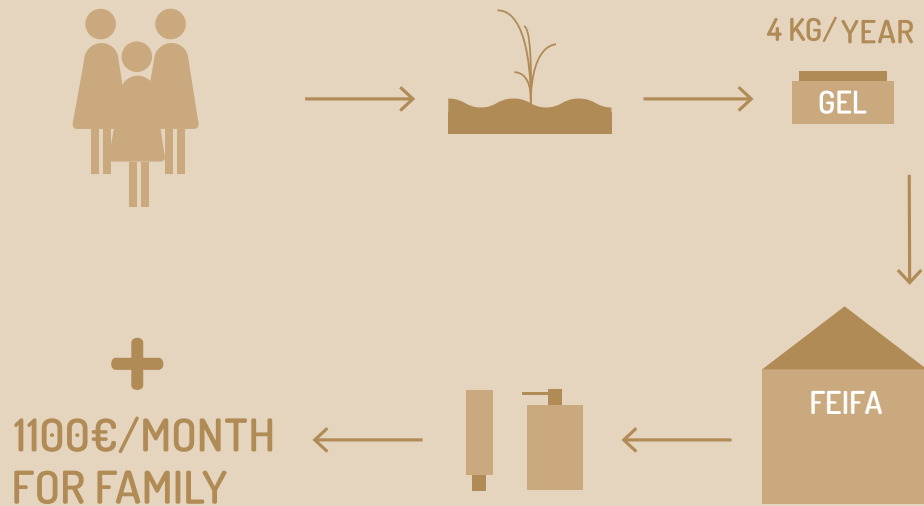
*** Today it accounts for 50% of the total product.



AGROBUSINESS

A – CREATION OF AN INCLUSIVE VALUE CHAIN FOR FAMILIES:

The implementation of the certified gel processing plant built at Feifa offers important opportunities for families who grow Aloe vera. Added to the direct sale of leaves at Feifa is the possibility of obtaining certified cosmetic products from the plant through the processing of their own cultivated leaves. This allows families to offer in the local market a wide range of certified cosmetic products that can offer greater added value.



B – DEVELOPMENT OF A BUSINESS PROJECT FOR THE ORGANIZED MARKET

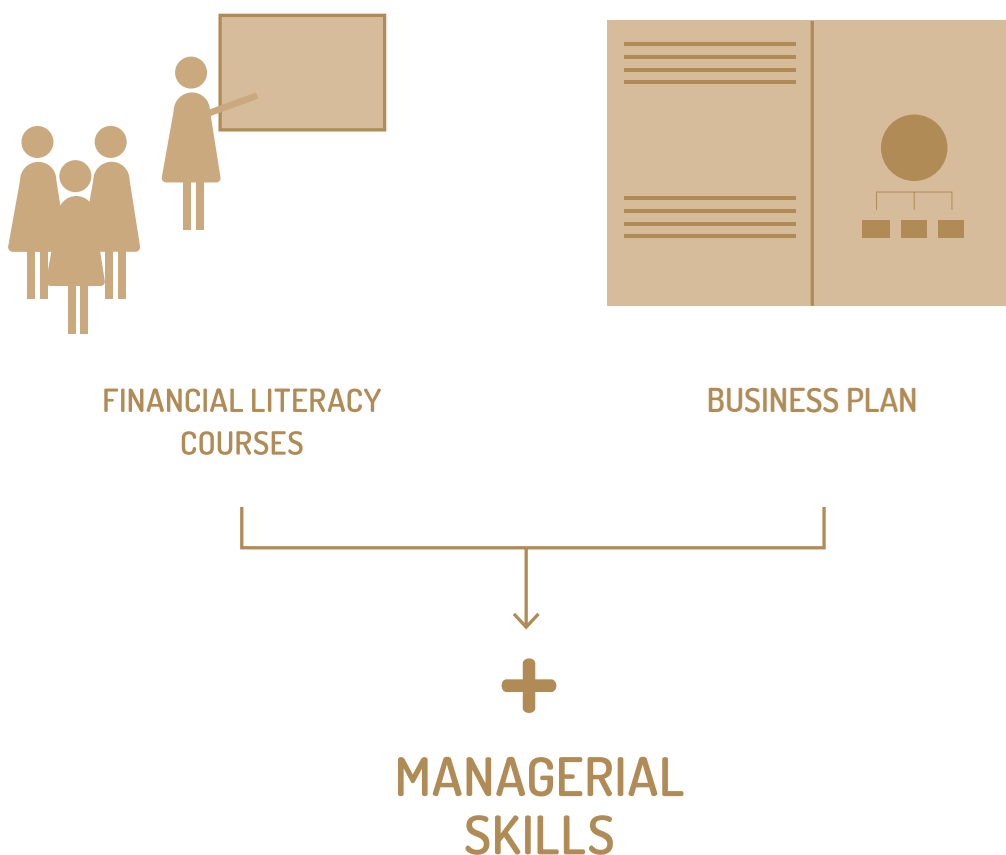
The implementation of the plant in addition to the direct impact on the producer families represented a business project capable of producing business income and employment. The production of certified cosmetics for the national and international large-scale retail market has a potential that as a result of the pandemic crisis could only be expressed to a small extent. For the future, important results in terms of profit and employment are expected with a direct impact on rural communities' beneficiaries as noted in the ARCO's Business Plan.

All this means additional income and greater livelihood to protect producers in the supply chain from future environmental, economic and social crises.

The introduction of the Aloe supply chain in Jordan has thus fostered and will enhance the creation of supplementary incomes and new decent jobs thanks to this project and the QMS. This also means pursuing the SDG 8 targets on which the JPIIF's agribusiness strategy is based.

Management Outcomes

16 associations today are financially literate, knowing how to use the management control tools of the enterprise and its accounting system. These associations are supported by the JEPA and RSCN representatives who will be able to provide them with technical assistance in difficult times. The Business Plan was also important to raise awareness of the new supply chain potential. In fact, the plan has foreseen a steady growth in profits for 10 years and a break-even point turnover of about 4,600 Jordanian dinars. This means that, once this turnover threshold is exceeded, the enterprise will begin to produce its first profits. Also in this case, the associations have undergone a 29% improvement in terms of management abilities compared to the values at the beginning of the plan (Balestri, 2022).^{**}



* The Break Even Point Turnover defines the value of turnover required to break even on the total costs (fixed + variable) of the Enterprise. From that point forward for the enterprise there will be profits that grow as the quantity of product sold increases.

** The aspects considered were: the use of accounting records; the way activities are recorded; a bank account dedicated to the activity; the compilation of periodic reports on the association's economic and social activities; the planning an annual budget; the development of a business plan.

Social Outcomes

The project has created and will create new job and income opportunities for many Jordanian women who previously played a simple volunteer role within the associations. This is a very important achievement in pursuing the SDG 5 for gender equality, considering that Jordan has one of the lowest women employment rates in the world. Women workers have acquired new skills to grow and process a product that will require more and more labour in the future. In the years to come, more women will be able to empower themselves by entering the new value chain and receiving additional income to improve their economic independence.

Business Outcomes

Several manufacturers are already selling regularly fresh aloe leaves or potted seedlings to large retailers through market intermediaries. Despite the pandemic that limited movements until the first half of 2022, 9 associations have already started to sell plants, leaves and processed products locally. Producers have made contact with the first domestic and international tourists, thus promoting a product that is new to Jordan but at the same time made using traditional techniques and so very attractive. In the medium term, the sale of by-products, obtained at the Feifa processing unit and other centres that will get the FDA certification may produce benefits for all people involved in the supply chain. Successful sales will depend on whether brands like “Sabbar/Wild Jordan” will be able to access regional and national markets by promoting these products that are increasingly requested by consumers.

This is just premature data but enough to convince more people to enter the supply chain. In fact, already before the end of the project more than 10 individual producers have purchased suckers from beneficiaries to grow aloe following the QMS good practices. This was also due to the increasing awareness campaigns (including television) carried out by several local associations to promote aloe consumption and production.

In the years to come, the presence of aloe leaves and products on regional and national markets may further boost this promising production chain.



E > CONCLUSIONS:

conditions for the sustainability and replicability of the project and lessons learned for the future



The JPIIF in Jordan has embarked on an upgrading journey with an ambitious goal: introducing the value chain of an innovative product to strengthen rural economic conditions.

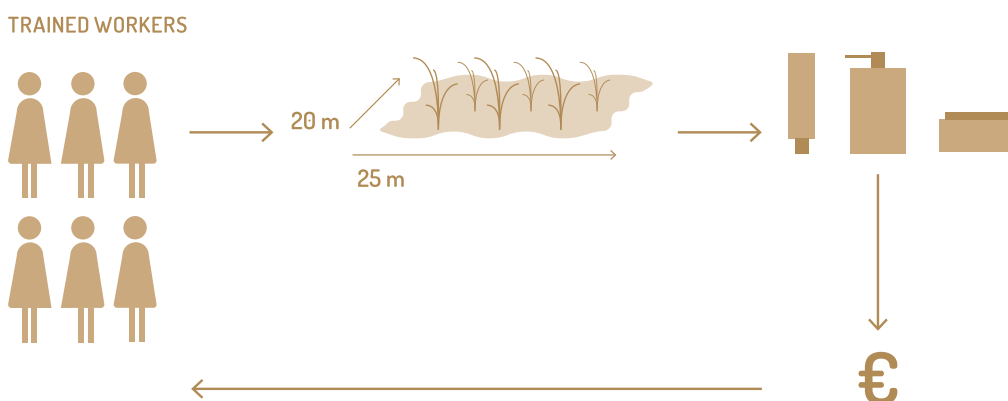
The implementation of this pilot project has led to important results in confirming the potential of integrating the Aloe vera supply chain in Jordan in the medium term. At the same time, however, the project staff encountered significant difficulties that required several reconsiderations and readjustments along the way.

From this first supply chain experience in Jordan, the JPIIF project office has thus derived reflections on the project's sustainability conditions and lessons to put into practice in the future.

A high value-added supply chain, even on a small scale

The production chain introduced in Jordan will enable the creation of high added value. Potentially, from the sale of soaps and gels derived from the simple home processing of Aloe leaves grown on 1 donum of land, you can get over 730 Jordanian dinars per month, that is almost 1,100 euros*. Considering the processing of 72 kg of gel, the Business Plan foresees that from an initial investment of 6,400 JOD it will be possible to obtain more than 20,000 JOD per year gross cost. The annual growing and processing costs, about 9,000-10,000 JOD, include as the main item after packaging, the labour cost. It is a workforce trained to carry out its tasks, from soil fertilization to final product packaging. Following the business plan and the QMS drawn up by the ARCO, even a small family business will be able to obtain a significant additional income from the sale of final products.

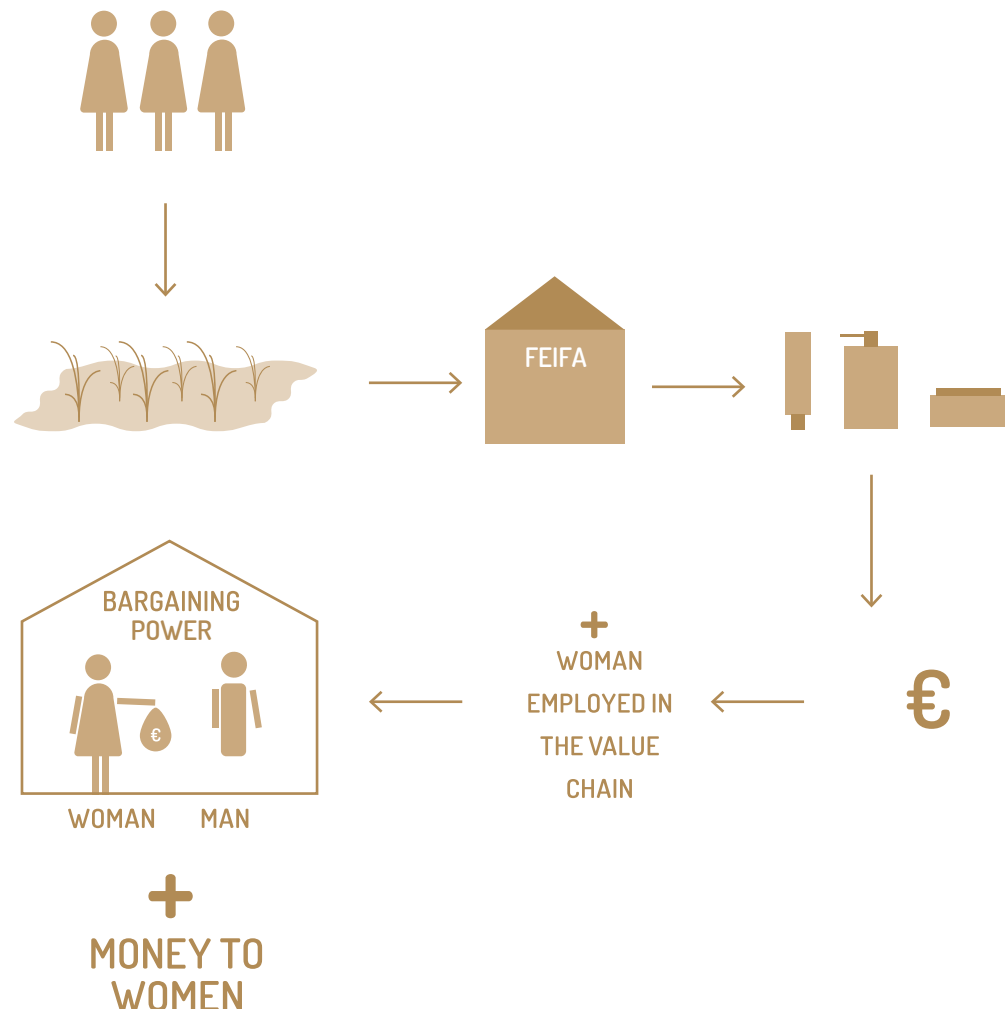
The project, however, has highlighted the associations difficulty in obtaining the FDA certifications for the sale of by-products in formal channels. To achieve these results, it is therefore important to make accessible certified processing centres such as Feifa's, to which family businesses and associations can turn to complete the product. Delivery also enables users to save money in several investments and annual cost items and to access the most profitable organized markets under a shared brand.



* Results calculated with the Inforeuro exchange rate of September 2022.

A simple applicability for women's empowerment

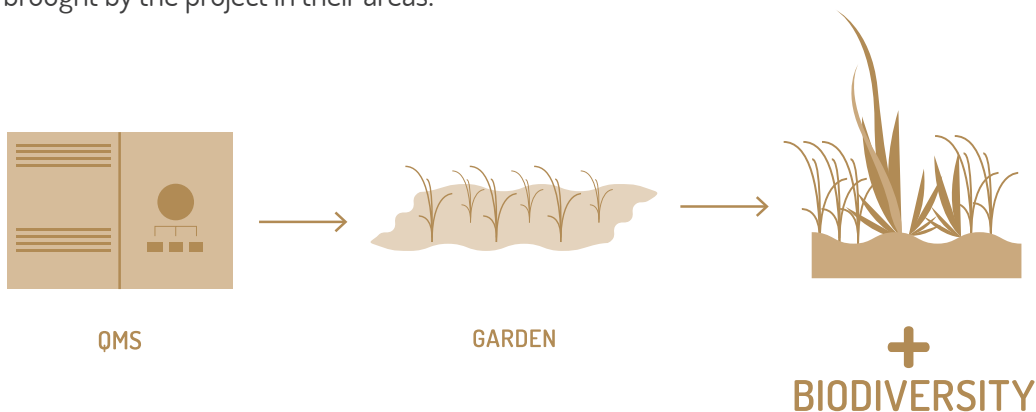
Growing Aloe and processing gel into by-products does not require much time or physical effort. In fact, during the growing phase the plants can be watered up to 2 times a week, while the leaves can be cut about 4 times a year. During processing, however, the QMS facilitates gel making by providing guidelines that are clear even for beginners. Although they involve the production of high-value galenic and cosmetic products, growing and processing therefore require very simple know-how. For these reasons, the Aloe supply chain is also suitable to foster the employment of Jordanian women, who are usually more engaged in domestic work than formal one. Working in the aloe supply chain, although not always full-time, has already enabled and will enable many other women to earn their very first own money within their home villages. Supplementing these incomes with those commonly brought in by their husbands, will enable women to gain both greater decision-making power within the household and empowerment in the socio-political contexts of their communities.



The regeneration of soil biodiversity

Looking ahead, the aloe production following the QMS will protect producers from environmental shocks by increasing the soil's resilience and organic matter. The project involved a restructuring of the production that enabled the adoption of agroecological techniques and the creation, within the communities, of what the NRC has called a "green belt", that is an area with a concentration of plant species, useful for preserving biodiversity and protecting soil fertility.

The locals were made aware of the importance of the QMS guidelines through a supporting process that included in-field training and technical assistance. These moments are important for imparting knowledge and reinforcing technical skills in a learning by doing process. In this case, local institutions will have to play a role in supporting farmers to foster and spread the adoption of the good agroecological practices brought by the project in their areas.



Limits of associated management and cooperative structures

A first major obstacle encountered in applying the agribusiness strategy in the intervention framework were local cultural barriers to associated management. From the first contacts with local associations and cooperatives, the project staff were able to experience what the FTC had written in its report. The organizational structure of Jordanian society limits turnover and democracy in the association's governance* and fuels their mistrust of the outside world. In the past, and still today, many Jordanian agricultural cooperatives or associations have been established for the sole purpose of receiving humanitarian funds. Others to receive free latifundia from the State and redistribute them to members who leave any management decisions to the president, effectively playing the role of shareholders. This has often resulted in uncultivated or grazing land and thus in a progressive loss of organic matter in the subsoil. Introducing changes to management structures in contexts reluctant to change, is easier if the recipients of interventions are made to understand the positive effects of their upgrading.

In future projects it will be therefore necessary to keep an active collaboration with local authorities and institutions such as the JCC, in order to identify producers that

* In several associations involved in the project, the chairperson is always the same or the title is handed down from parents to children. Often it is only the chairman who makes decisions about the management of production inputs and human resources (FTC, 2019).

are willing to actively participate; businesses and agricultural associations that see the project as a starting point for redeveloping their business and not just as a pool of funds; individuals who understand the socio-economic and business development benefits of their business management restructuring.

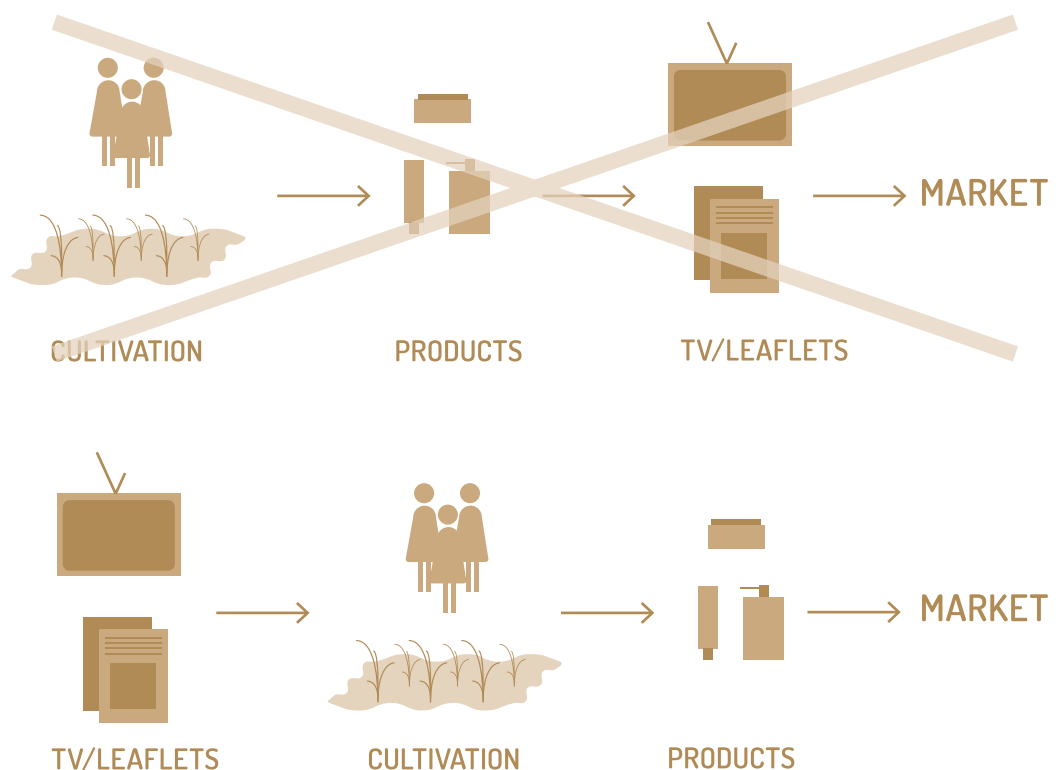
In terms of governance, given the difficult feasibility of the cooperative system, the social enterprise solution seems more suitable to the Jordanian context. The implications of this management model will need to be explored with strategic international partners such as ARCO and FTC for future planning and with local institutions in the planning phase.

Certifications

The project implementation has undergone delays and difficulties in obtaining the FDA certifications partly due to a knowledge gap on the part of institutions. For this reason, local partners need to have prior knowledge bases of the supply chain that is subject to intervention and of the bureaucratic processes required to certify the product. In terms of strategy ownership, it may be useful to involve institutional representatives in a focus group during the planning stage to better realize their level of knowledge.

Product marketing to access markets

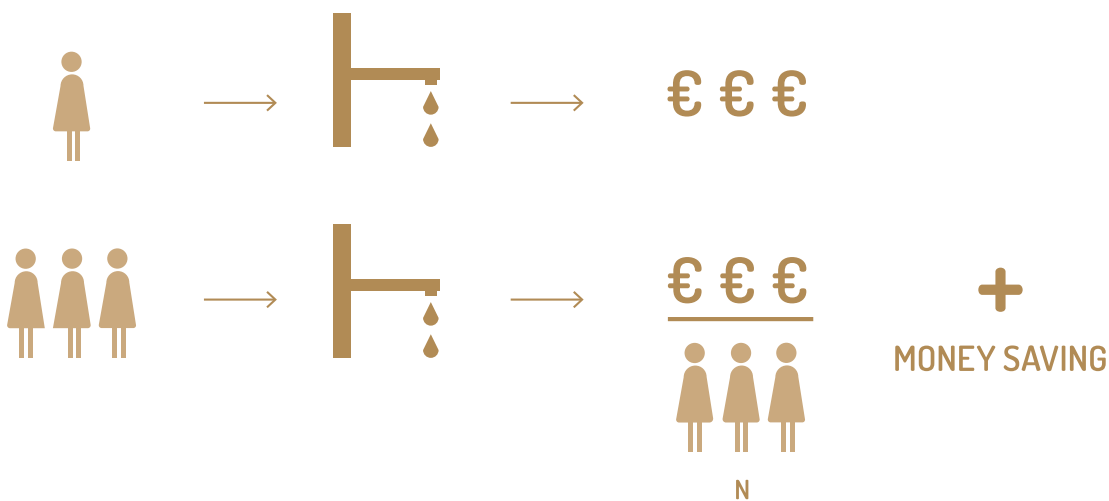
While several associations have already sold their products locally, to 2022 the RSCN processed products have had a strictly limited access to the formal market. This is also due to a poor product promotion that must be implemented to create a market demand among Jordanian consumers. Aloe leaves provide processable gels as early as one year after planting, but this aspect has been poorly considered by the marketing campaign management. It is therefore essential to promote the product even before it is made. Otherwise, the result will be a finished product with high added value but no market.



Networking and relationship building

Networking is critical to the success of the supply chain, both from a production and business perspective. Outward closure and unwillingness to cooperate have limited the number of associations that share with others the costs of water supply or product transport. As for the business, at the end of the project only few associations were inclined to retain local buyers through ongoing relationships.

Consequently, future projects in the Jordanian context should consider raising awareness among beneficiaries of the importance of nurturing relationships, which must go beyond a sense of belonging to particular social groups. In this sense, it is important to combine online and local promotion to increase the pool of potential users. In Jordan, however, there are good premises: the use of social media has already been recognized by 85% of the beneficiary associations as a useful tool to make new contacts (Balestri, 2022).



SOMMARY

- 4 Premise
- 6 A > Introduction
 - The JOHN PAUL II Foundation and its mission
 - The jpiif agribusiness strategy
 - The agribusiness of aloe vera for the livelihood and empowerment of the jordanian rural communities
 - Strategy ownership as a result of a participatory process of sharing with beneficiaries and stakeholders starting from needs analysis to project management and impact assessment.
- 16 B > Jordan and aloe vera as a potential strategic product to give a new stimulus to the agricultural economy
- 20 C > ACTION PLAN
 - 23 QMS The quality management system for a sustainable and high-quality agricultural product
 - Work Package 1.0 Strategic planning and coordination to link the QMS with the Business Plan
 - Work Package 1.1 Techniques to improve product sustainability and quality
 - Work Package 1.2 Product processing and traceability
 - Work Package 1.3 Administration and management control
 - Work Package 1.4 Genetic and biocultural analysis of faa and nrc
 - Work Package 1.5 Product certification
 - 39 ISB Inclusive Social Business for an associated management of the production chain relaunch
 - Work Package 2.1 STRENGTHENING OF INSTITUTIONAL CAPACITY BUILDING
 - Work Package 2.2 INCLUSION OF THE MOST VULNERABLE IN PRODUCTION PROCESSES
 - Work Package 2.3 PROMOTION AND DEVELOPMENT OF ASSOCIATED MANAGEMENT
 - 47 Business Plan for the development of entrepreneurial skills
 - Work Package 3.1 From criticality analysis to business idea development
 - Work Package 3.2 Business plan as an operational planning tool for the business project
 - Work Package 3.3 Cost management to benefit producers and start-up funds for a sustainable social development
 - 55 Business strategy to access target markets
 - Work Package 4.1 National and international market analyses
 - Work Package 4.2 Product marketing
 - Work Package 4.3 Exchange of best practices, management of relationships with buyers and participation in international trade fairs
- 62 D > Results achieved during the project and potential economic impact in the coming years
- 70 E > Conclusions: conditions for the sustainability and replicability of the project and lessons learned for the future

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This publication has been funded by the Italian Agency for Development Cooperation with the project "Promotion of the Aloe Vera agribusiness productive chain through the implementation of a pilot project supporting small producers' cooperatives in the area of Karak, Jordan" (AID O11481).
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