



HIGH VALUE CROPS VALUE CHAIN AND MARKET ANALYSIS



Empowering the youth in a sustainable and equitable way
against COVID-19 through agribusiness.

The Agricultural Development (PARC)
& Fundación Promoción Social (FPS)

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Conducted by Consultancy Development Company

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Overview

According to the Oslo Conventions, the West Bank is classified into areas A, B, and C. Area C mostly consists of agricultural and grazing lands, and constitutes 60%¹ of the total West Bank area and population density and is estimated at 297,986² people distributed over 532 residential communities. Palestinian residential communities in area C are characterized by a population density relatively less than the Palestinian communities in areas A and B. Some of the residential communities in area C are independent areas such as villages and towns, and other neighborhoods belonging to communities located in area A.

The infrastructure in area C is under severe restrictions due to occupation; 29% of the constructions in Area C are without plans, less than 1% of area C are planned for the Palestinians development. Most of the Palestinians cannot obtain permits to build or renew their homes, livestock barns, or critical infrastructure. Therefore, the majority of buildings are built without permits, which makes the demolishing and displacing of their residency, by force, a routine action, and hence the prevailing housing style are tents or caves.

Palestinian communities located in Area C are the most vulnerable segment of the Palestinian population in the West Bank. In particular, the demolitions and forced evictions deprive the residents of their homes, undermine their living conditions, leading to deep-rooted poverty and increasing dependency on aid. These actions have been impacting children, and can also be particularly devastating, as they suffer of anxiety, and post-traumatic stress disorder symptoms.

70% of Area C lands is located within the boundaries of the regional councils of Israeli settlements. Therefore, Palestinians are prohibited to use and develop these lands. Moreover, 6200 Palestinians live in 38 compounds that are partially located in Area C and have been declared “firing zones” for military training purposes, increasing the population's vulnerability and risk of displacement.

The occupation severe restrictions imposed in Area C prevent the development process in the fields of social, infrastructure, water sources, transportation, and agriculture. 70% of the area C residents are not connected to the water network and are reliant on water transported by tankers, where the average consumption of water is 202 liters/person/day, while the Israeli settler is sevenfold³.



¹ https://www.ochaopt.org/sites/default/files/ocha_opt_area_c_factsheet_August2014_arabic.pdf

² <https://www.pcbs.gov.ps/postar.aspx?lang=ar&ItemID=3689>

³ https://wafa.ps/ar_page.aspx?id

Report summary

The overall assignment is conducted by the Consultancy Development Company, Tubas, and consists of a value chain & market analysis in the High Value Fruits sector, especially Guava, Avocado and Mango production in the West Bank area C, with a focus on the Qalqilya and Tulkarm governorates.

This assignment is conducted as part of the "Empowering the Palestinian Youth in Area C in a sustainable and equitable way against COVID-19 throughout the Agribusiness Sector" project, financed by The Spanish Agency for International Development Cooperation (AECID) and implemented by the Social Promotion Foundation (FPS) & the Palestinian Agricultural Association (PARC).

The project aims at increasing the resilience of the vulnerable population in Area C against the impact of COVID-19, by promoting the right to employment of the youth (19-35 years) in the agribusiness sector through the implementation of a set of activities that will take place over a 15-month period (23 April 2021 – 22 July 2022).

The value chain and market analysis of the high value fruits products gives clear image of the key obstacles, recommended opportunities and strategic interventions for youth investment in High Value Fruit sector in area C of the West Bank. Furthermore, the key constraints and opportunities for this sector value chain were addressed in order to identify leverage points to improve the chain performance. The functions of the value chain include the purchase and production of fertilizers, production quality, pesticides, farms management and marketing/sales.

It should be highlighted that high value fruits production is strongly affected by political, security factors and COVID-19 pandemic, including severe restrictions imposed by the occupation on the development of infrastructure, expansion of settlements, separation wall, violence, road closures, and scarcity of water. This study aims to derive recommendations for attracting programs interventions that support the value chain and create an improved enabling environment.

High Value Fruit sector is challenged by the lack of best practices in cultivation, bad packaging, water scarcity and lack of enabling environment at polices level. The relation with stakeholders is weak, and the marketing process suffers from dumping the local market with the Israeli avocado.

The marketing channels are limited in the local market without export prospects, except for small quantities exported to Jordan and Gulf countries. Moreover, 8%⁴-10%⁵ of high value fruits sold in areas behind the 1948 green line, are sold in an informal way.

⁴ <https://www.al-monitor.com/ar/contents/articles/originals/2019/07/avocado>

⁵ <https://www.aliqtisadi.ps/article/83358/120>

The cultivating high value fruit inputs have obstacles related to bad management, quality control, occupation restriction, weak utilizing of organic fertilizers and lack of the capital for purchasing inputs, which cause increase in prices of up to 20% ⁶according to the payment mechanisms. Furthermore, the COVID-19 pandemic affected the inputs prices, such as fertilizers, which increased up to 200- 300%⁷, in addition to the weakness of women's participation, limited labor force and absence of cooperative work among farmers.

The obstacles and challenges facing High Value fruit Sector created intervention ideas to develop the sector and overcome problems. These recommendations and interventions are in the area of services, extension and farmers guidance on applying the best practices, in addition to organizing farmers and networking them with the private sector through their associations, strengthening the production and marketing channels, and enhancing the youth and women's role in this sector, through enhancing youth participation and membership in the cooperatives for attracting the innovative ideas throughout the value chain, especially in marketing and supply chain, such as producing high-quality compost through establishing a group of youth and farmers with the required mechanization to produce high-quality and appropriate packed compost, in addition to financing a pioneer farm with partnership investment by youth, and subsidies grants. For promoting women's roll, there is a need to establish a production unit to produce secondary products of high-value fruits, especially guava. Women will be trained on concentrated guava juice and jam production, while applying Palestinian specifications and standards.

⁶ Albarqawi company Mr. Salah Rabaya

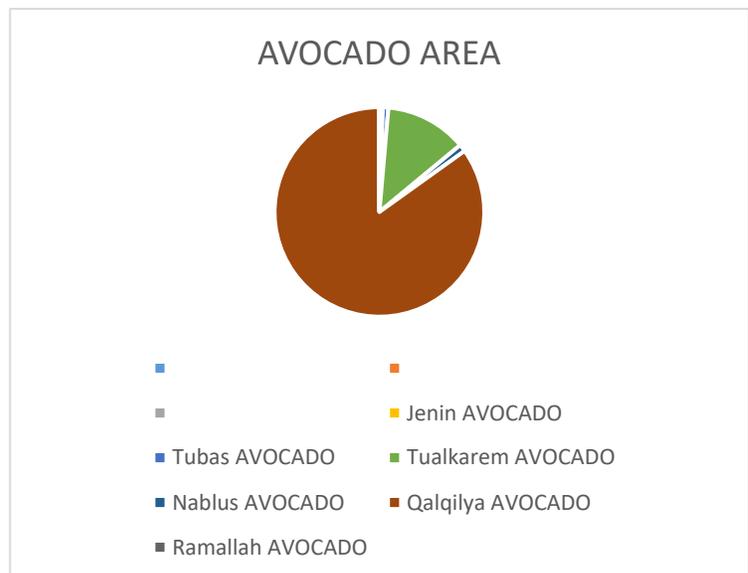
⁷ Albarqawi company Mr. Salah Rabaya

The importance of agriculture

Agriculture is a very important sector in Palestine, as it provides jobs for around 5.9%⁸ of the Palestinian labor force and comprises both major and secondary sources of income for many Palestinians. Recently, Palestinian agriculture has contributed to 3.5%⁹ of the GDP. Due to its importance, national and international development cooperation actors have recognized the need to reactivate the agricultural sector in Palestine for not only the benefit of the agricultural sector itself but also for it to become a key instrument in transforming the country's economic development. However, transforming and developing the agricultural sector are challenging considering that adequate infrastructure, agricultural investment promoting environment, and lacking of risk measurements, needs a suitable framework of policies that make the process of transmission and development harmonious with each other.

Cultivation of horticultural trees is one of the most important agriculture cultivation axes in the Palestinian countryside and areas C. The horticultural trees sector consists of olives trees, which constituted the largest part, followed by fruit trees as grapes and high-value fruit as Avocado, mango, and Guava, which are considered promising cultivation, and have the largest share of farmers' interest, especially in Qalqilya governorate and Tulkarm.

¹⁰In the West Bank, the Ministry of agriculture census in 2018/2019, shows that the area of lands planted with Avocado is 3,052 dunums, 1,046 dunums are unproductive Avocado trees, and 1,987 dunums are productive Avocado trees, which produce 12,499 tons of fresh Avocado. 85% (2,588 dunums) of the total Avocado areas in the West Bank are in Qalqilya Governorate which are considered the highest governorate percentage in cultivating avocado, followed by



Tulkarm governorate reported by 13% (385 dunums). The remaining areas of cultivated Avocado are in the other governorates as Jenin, Nablus and Ramallah; these are considered individual initiatives and not an agriculture approach being followed by farmers. While cultivated Guava area is 3,464 dunums (most of it is in Qalqilya Governorate) of which about 3,200 dunams are

⁸ https://info.wafa.ps/ar_page.aspx?id=FnFZtGa27819740190aFnFZtG

⁹ https://info.wafa.ps/ar_page.aspx?id=FnFZtGa27819740190aFnFZtG

¹⁰ <https://Ministry> of agriculture statics 208/2019

fruitful, and “a thousand dunams” are stated behind the separation wall, in addition to 469 dunums cultivated Mango area, most of which is in Qalqilya governorate.

High-value fruit cultivation is confined to the governorates of northern West Bank, and Qalqilya governorate occupies the highest percentage, where the cultivation of guava trees is considered a preferable one with good economic returns compared to other fruit trees.

The Northern West Bank is characterized by a suitable climate for the cultivation of high-value fruit trees, and a good water harvest given the high percentage of annual rainfall, and the accumulated experiences that have been acquired across generations.

The region is distinctive in Guava production and the Qalqilya Guava is the most famous, highest quality, and the best seller in the local markets and some markets of neighboring countries, where some annual exhibitions are held for it.

Background

For nearly half a century, Qalqilya farmers have been cultivating guava fruits. Qalqilya governorate was unique in the environmental elements that are suitable for guava cultivation, such as temperature, high humidity, availability of water and fertile soil, which contributed greatly to its prosperity and growth in the governorate, prompting many farmers and consumers to call it "the spoiled Qalqilya fruit". In the Jordan Valley and Tubas, guava cultivation has recently emerged. Among the most important features of these areas: the ripening of guava is earlier than other areas; which is economically beneficial to farmers; it begins to ripen from July to November or December, depending on the variety (the Egyptian, Al-Ghubra, and Al-Shawati varieties). Production in 2021 amounted to ¹¹15,000 tons, while in 2020¹² the production decreased to about 40% due to the prevailing weather conditions in the region; therefore, it was 9,000 tons, whereas during the previous years 2018 and 2019¹³ it exceeded 10,000 tons. The number of guava trees reached 140 thousand trees.

There is an annual increase in the cultivated area, based on the annual plan of the Ministry of Agriculture and NGOs such as PARC to develop this sector through reducing the planting cost in some areas by providing seedlings to farmers. ¹⁴The cultivation cost is 4,200 NIS per dunum, distributed as 1,000 NIS for the irrigation network, 1,000 NIS for labor, 600 NIS for seedlings, 1000 NIS for packaging, and 600 NIS for fertilizers and supplies.

¹¹ Mr. Mohamed Qateat, Director of the Chamber of Agriculture, Industry and Commerce in Qalqilya Governorate, <https://www.aliqtisadi.ps/article/83358/120>

¹² https://info.wafa.ps/ar_page.aspx?id=8651

¹³ Mr. Mohamed Qateat, Director of the Chamber of Agriculture, Industry and Commerce in Qalqilya Governorate, <https://www.aliqtisadi.ps/article/83358/120>

¹⁴ https://wafa.ps/ar_page.aspx?id

Guava and Avocado are two cultivated fruits that do not burden Palestinian farmers. Production of Guava and Avocado generates a better income than any other crops. A kilogram of guava is no less than 4 NIS and 7 NIS for Avocado in the Palestinian market throughout the season. The market value of the total production is 120¹⁵ million NIS of guava.

High-value fruits farmers follow different agricultural systems according to the irrigation system. The Avocado farmers depend on irrigation water while the Guava farmers follow two systems; rainwater and irrigation. But the majority of farmers in Qalqilya and Tulkarm depend on irrigation water.

The separation wall and the Israeli control on borders and movement of agriculture goods, the strict restrictions imposed by the occupation on the export and marketing are detrimental in Guava and Avocado cultivation, production and the ability to expand High value fruits cultivation, in addition to the diseases that cannot be controlled in light of the occupation's prevention to import some agricultural pesticide materials which leads to losses in production of 3-6%¹⁶, and so profitability decreases. Moreover, the poor infrastructure in production, especially in the post-harvest area, and some necessary construction lead to losses in products of up to 5%, poor quality, and lack of marketing on time, and will hence minimize profitability.

High Value Fruit's planting has three axes of producing Fruits: Guava trees are classified to (Egyptian, Al-Ghubra, and Al-Shawati), characterized by being more suitable for local environmental conditions and soil. The fruits ripen in late of August to October. They have a short life and require rapid picking, good storage conditions, and quick marketing. The second axis of the high value fruit's is Avocado, which has two types (Hass, and Ettinger) characterized by fruit size where Hass is bigger than Ettinger and the fruits have long life for marketing. The third axis of the High Value fruits is Mango; it has recently started to be cultivated in the form of experiments, and will therefore be circulated to areas that have a suitable environment for cultivation. Planted areas with mango in 2018/2019, according to the statistics of the Ministry of Agriculture, reached 365 dunums in the governorates of Qalqilya and Nablus.

¹⁷The Guava fruits are sold in the end of August – October locally, at a price of 5.5 -9 NIS/kg, while Avocado fruits are sold from September – November at a price of 3.5-7 NIS/kg.

There is a percentage of High Value fruits losses in pre/post-harvesting, especially in Guava fruits. The main reason beyond such losses is the need of infrastructures such as packing houses and cooling rooms, since during the processing health and public safety requirements are poorly

¹⁵ Mr. Mohamed Qateat, Director of the Chamber of Agriculture, Industry and Commerce in Qalqilya Governorate, <https://www.aliqtisadi.ps/article/83358/120>

¹⁶ CDC survey

¹⁷ CDC survey

applied, with minimum harvesting and storage requirements exist such as infrastructure, machinery, and equipment, due to the lack of financial resources, and the strict restrictions imposed on Area C.

The cultivation of high-value fruit trees faces some difficulties and challenges that lead to a decrease in productivity per dunum due to:

- 1- The separation wall, confiscation of lands, and limited access led to reduction in the farm land and production.
- 2- Relying on the traditional cultivation style, without applying the best practices in cultivation.
- 3- Weak Palestinian control over the quality of production inputs, in addition to the occupation restrictions in supplying some types of production inputs to the Palestinians.
- 4- Weakness in cooperation and commercial relationship with the private sector.
- 5- Poor management, planning, and vision, in addition to the absence of business approach.
- 6- Water scarcity due to climatic change and limited access to water sources in The Jordan valley.
- 7- The High Value Fruits farms are family businesses that rely on family members without sourcing, in addition to the lack of skilled labor availability in pre- and post-harvesting.
- 8- Lack of governmental policies and proper implementation mechanisms of agriculture laws that organize the sector including markets.

Study area

This study targets area C & B communities in the whole West Bank in Palestine especially focusing on Qalqilya and The Jordan valley. Based upon the discussion with PARC team to analyze the High value fruits chain, the study will highlight the chain functionality and analysis of the markets. The value chain and market analysis is within the frame of "Empowering the Palestinian Youth in Area C sustainably and equitably against COVID-19 throughout the Agribusiness Sector" project. The targeted areas of this study are:

1. Qalqilya Governorate: Hable and Jayyous.
2. Tulkarm Governorate
3. Jericho.
4. Tubas (Jordan Valley) Governorate: Ein Albayad, Kardallah.

The areas of High Value fruits lands in the West Bank, according to the statistics of the Ministry of Agriculture in 2018/2019 are shown in the table below:

Governorate	crop	Fruitful				Unfruitful		Total Area (dunums)	Production
		Rainfed		Irrigated		Rainfed Area (dunums)	Irrigated Area (dunums)		
		Area (dunums)	Yield	Area (dunums)	Yield				
Jenin	AVOCADO	-	-	-	-	16	-	16	0
Tubas	AVOCADO	-	-	10	2,000	-	16	26	20
Tulkarm	AVOCADO	-	-	290	4,000	-	95	385	1,160
Nablus	AVOCADO	-	-	3	1,499	-	31	34	4
Qalqilya	AVOCADO	-	-	1,684	5,000	-	904	2,588	8,420
Ramallah	AVOCADO	-	-	-	-	3	-	3	0
Salfit	Guava	4	500	-	-	-	-	4	2
Nablus	Guava	-	-	25	1,000	-	10	35	25
Qalqilya	Guava	-	-	3,226	5,000	-	181	3,407	16,130
Ramallah	Guava	2	400	7	600	-	-	9	5
Hebron	Guava	9	800	-	-	-	-	9	7
Nablus	Mango	-	-	-	-	-	7	7	0
Qalqilya	Mango	-	-	313	1,499	-	52	365	469
Total								6,888	26,242

Methodology

This study highlights the stakeholder analysis, value chain analysis, and market analysis. To identify and assess the main challenges facing High Value Fruits sector in Areas B & C, several approaches¹⁸ were used in collecting and validating information. The methodology tools were developed through a technical offer that has been submitted to PARC. The methodology included secondary data, approx. 44 structured and semi-structured interviews, household surveys in 5 communities, and a focus group with all key stakeholders to validate the data collected and discuss the study results.

The main objective of this study is to promote innovation/entrepreneurship of the common value chains in the targeted areas through assessment of the current agribusiness sector situation.

The specific objectives of the assessment are:

1. To identify the key constraints and opportunities for the High Value Fruits value chain.

18 Qualitative and quantitative (survey, interviews, Focus groups & desk research)

2. Identification of leverage points to improve chain performance (focus on fertilization, production, quality, pesticides, extension services, farm management and marketing/sales).
3. To identify and analyze the marketing systems and the main actors in the High Value Fruits sector.
4. Establishing a productive institutional, legal, and administrative ecosystem for cooperatives
5. Developing systems and tools for the provision of training support services for cooperatives.
6. Promoting new and innovative forms of cooperatives.

This value chain mapping and analyzing process consists of 5 steps:

1. Data collection and analysis (interviews, desk research and input stakeholders/sector analysis)
2. Chain mapping (actors, functions and relationships) & market analysis
3. Survey among High Value Fruits producers in selected communities
4. Analysis of opportunities and key constraints
5. Validating the findings of the VCA through stakeholders' focus groups

Stakeholder analysis

During the period November 25th – December 15th, the Consultancy Development Company conducted a stakeholder analysis for the High Value Fruits sector at the level of private and public sectors, with 10 face-to-face or telephone interviews for NGOs, inputs traders, fruit traders, farmers leaders, and Ministries, the general objective of this analysis and interviews is to identify the obstacles facing the High Value Fruits sector and highlight the development opportunities.

Throughout the conducted analysis and in close to consultation with the MoA office in Qalqilya, the following key obstacles in the High value fruits sector have been identified:

- 1) The inputs (fertilization, pesticides and water)
- 2) Production process (incl. extension services and product quality)
- 3) Output (marketing/sales)
- 4) The organizational structure/ management of cooperatives.

Therefore, a decision to assess these functions in the value chain thoroughly was taken.

Value chain & market analysis

The study of the value chain of High Value Fruits products in areas B & C will be an additional value to the chain, from cultivation inputs to production and consumption. During the period of the value chain analysis, 35 stakeholders (farmers, local NGO and fertilization and pesticides entities) have been interviewed and consulted, through (structured and semi-structured) interviews and bilateral consultations. Mapping and analysis of the value chain included the key constraints, opportunities, actors and possible intervention. The process of the value chain had a major focus on the high value fruits production, starting with inputs, High Value Fruits planting, Fruit collection, storing, traditional and advanced processing, quality management, packaging, marketing and sales, etc.

The recommendations will provide a guideline to PARC strategy to reach the core objective of "Empowering the Palestinian Youth in Area C sustainably and equitably against COVID-19 throughout the Agribusiness Sector" project.

Household survey

The household survey was conducted on November 5th and December 10th, including interviews with 3 communities in 4 governorates in the whole West Bank. The surveys were conducted in 3 communities divided over 2 governorates (Qalqilya and Tulkarm). The questionnaires addressed all relevant functions of the value chain, including the availability and access to water, fertilization and pesticides, production quality and quantity, farm management and good practices, sales/marketing, and the effectiveness of the cooperative. In addition, the survey included baseline data to determine the socio-economic situation of the farmers (farms size, household size, losses in production and trees, etc.).

Focus group

The focus groups were held on 22th of November - 6th of December in the West Bank with a total of 16 participants of the main actors in the High Value fruit sector (6 men, and 10 women), in order to assess the women's role in the high value fruits value chain at the social and economic levels, and the women's decision in farm and household management. The focus group also highlighted the obstacles and opportunities in the value chain.

Enabling environment

There are opportunities for the development of the value chain functions within agricultural holdings and the environment in the vulnerable communities of Areas B & C. Development of the opportunities in the High Value Fruit value chain functions will serve the farmers sector and high

value fruit products leading to positive impacts on the economic and social aspects. Due to occupation severe restrictions, the enabling environment is suffering many challenges such as limited access to the minimum requirements of life such as machineries, water, transportation, or even building infrastructure, as well as weakness in implementation mechanisms of Palestinian governmental policies and laws that serve areas B & C and High Value Fruit value chain. Based on the recent ministries council policy to encourage investment, the environment is still favorable for investments and development to serve the High Value Fruit Sector.

Furthermore, among the influencers on the enabling environment are external funds through donor institutions that initially focus on humanitarian aid, then development projects, and finally on market system projects. But the modest support is for advocacy to support and protect the projects serving infrastructures, from occupation, confiscation, and destruction of water tanks and Solar energy, water networks, the limitation on farmers movements, and the needs for development plans for these areas.

Key obstacles within the enabling environment for high value fruits farms and farmers:

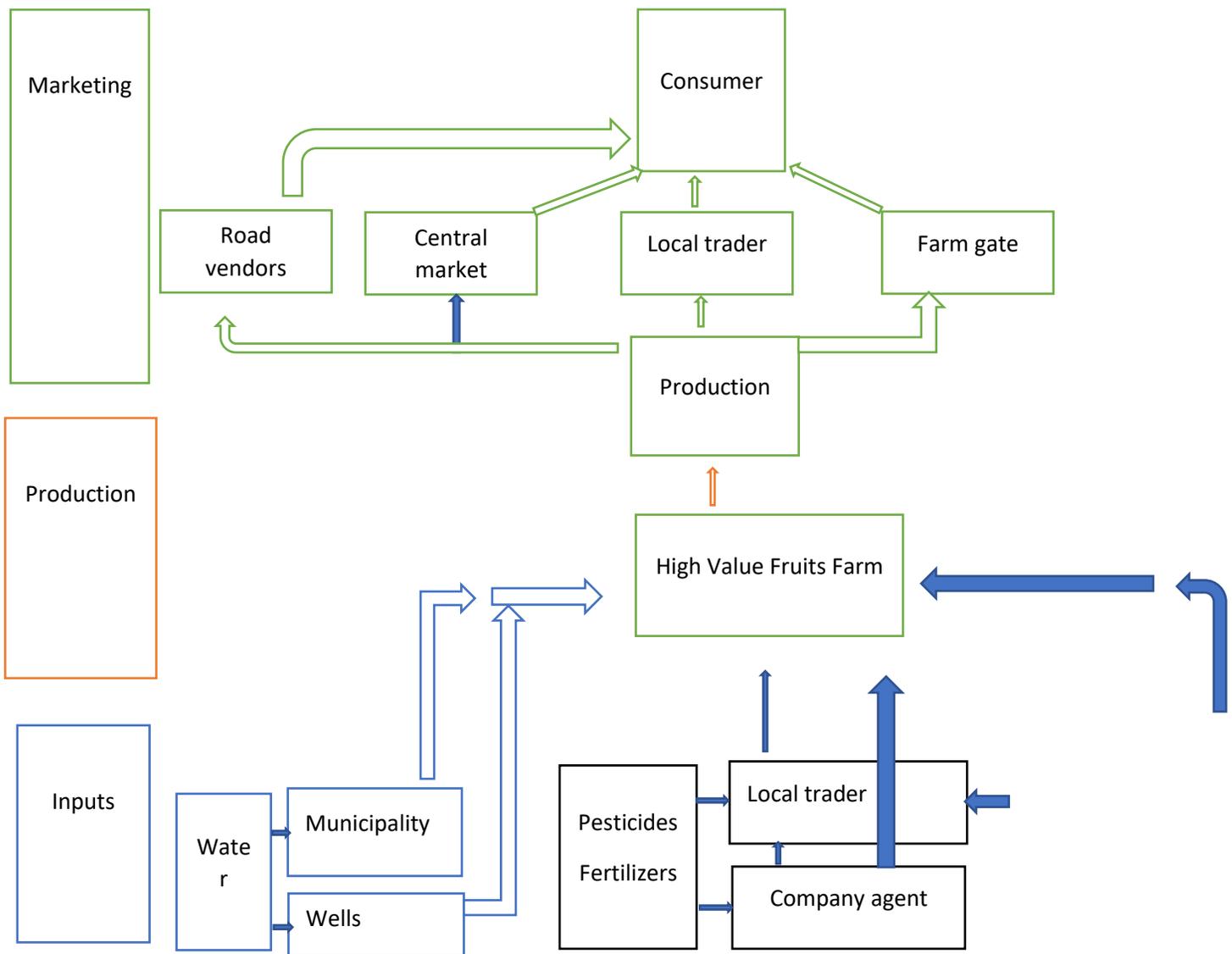
- a. Water scarcity and difficulty in accessing water sources. Moreover, the targeted locations have desert climate and environment especially in The Jordan valley.
- b. The separation wall and Israeli restrictions limit the access to lands, which reduced the areas of land planted with High value Fruit and limited the expanding plans in their cultivation.
- c. The closures and Israeli restrictions limit the access to production inputs.
- d. The difficulty of local and external marketing due to the occupation authorities' monopoly in controlling the borders.
- e. The high costs of production requirements and inputs that are not in line with the financial return and that reduce profitability, especially the recent rise in production inputs prices of up to 200 -300 % due to the COVID-19 pandemic.
- f. Weakness in applying implementation mechanism of agricultural laws, that leads to dumping the local market with products from the settlements.

Opportunities to enable the environment for High Value Fruit Value Farmers:

- ❖ Advocate and influence on the Palestinian government in controlling markets, preventing smuggling and positive distinguishing for local product with the imposed taxes, and labeling.
- ❖ Encouraging the partnership between agricultural cooperatives and private sector.
- ❖ Strengthening the relationship with global influencers, and building alliances with influential Unions and associations in Europe and USA to influence and advocate on the occupation government in controlling the entry points to A & B areas.

- ❖ Encouraging the processing of chemical alternatives, organic and environment friendly production inputs to reduce the costs of production inputs, irrigation water and to preserve soil fertility.
- ❖ Strengthening women's role in the High value Fruit sector, in addition to the ownership of High Value Fruit operations and farms.
- ❖ Promoting women's role in the field works. High potential women groups can be supported to develop the skills of production, packaging and marketing of products

VC MAPPING



Value Chain

Challenges in the value chain

There are challenges facing cultivating High value fruits all throughout the value chain starting from the cooperative structure to the final consumers. These challenges take place in the chain cycles; the lack of structuring of farmers into formal and informal groups restrict the cooperative work that serves the farmers in reducing the inputs prices by bulk purchasing and developing the

linkage with the private sectors for marketing, in addition to the influence on the decision makers to improve the laws implementation mechanism and enabling the environment for encouraging the investment in this sector.

Along with the inputs movement difficulties and unavailability due to the restrictions imposed by the occupation that will raise prices, there are the occupation violations, prevention of access of farmers to their High Value Fruit farms and the settlers' violations.

Cooperative structure	Input	Production/ Health	Marketing /Sales
Weakness of cooperative work in the sector of High value Fruit, especially in marketing and extension services.	All Production inputs are imported from areas behind 1948 green line and foreign markets through one or more intermediaries. Therefore, prices are raised up to 200- 300%.	General lack in the best practices of high value fruits pre and post harvesting, attention to hygiene, and appropriate conditions for keeping products.	Marketing is confined to a limited geographical area with limited marketing channels due to the lack of farmers' knowledge of other markets and no existing entities owned by framers specialized in marketing.
Lack of a business approach and weakness in commercial relationship with the private sector.	Limited access to the lands behind the separation wall and those close to settlements.	Lack of planning in the expansion of Avocado and Guava cultivation.	Accumulated profit margins between marketing chains and low profit margins for farms
Weakness in the extension services provided by MoA and field school	Weakness in quality control implementation mechanisms for production inputs.	Limited use and access to agricultural machineries during harvesting, post-harvest and marketing	The weakness of exporting high value fruits due to the Israeli restrictions on the border crossings
	Individual purchasing of production inputs due to the lack of implementation mechanism for bulk purchasing	Multiple farmers tasks and responsibilities without outsourcing	Limited business knowledge, marketing skills and poor business mentality. Farmers find difficulties in selling their products to the private sector.

		Production is limited to produce fresh fruits without tendency to process byproduct	Weak promotion of the Palestinian product and the absence of incentive policies for consuming the local product
		Limited women's role in production	

The value chain opportunities

Cooperative structure	Input	Production/ Health	Marketing /Sales
Enhancing collaborative work in High Value Fruit sector.	Activating the role of monitoring and controlling of Palestinian institutions on the quality of production inputs, and organizing using of pesticides.	Promoting best practices in agriculture, high value fruit cultivation, pre/post - harvesting, and the appropriate use of pesticides and fertilizers.	Developing the working mechanisms of central markets in addition to pricing mechanisms and origin of fruits.
Developing cooperative structure, sharing roles, strategies, risk management, and business plans.	Improving access to water sources and rationalizing their use through best agricultural practices and wastewater treatment.	Encouraging the processing of chemical alternatives, organic and environment friendly production inputs.	Increasing the consumption of high value fruit products among consumers through national awareness campaigns.
Building a cooperative model in partnership with the private sector for packaging and marketing high value fruits.		Introducing mechanization into harvesting and processing by enabling the working environment.	Abandoning traditional packaging into advanced levels that achieve an added value to the product.
Strengthening the relationship		Enhancing specialization in production along the value chain and creating	

between farmers and private sector.		an entity with an agricultural investment that carries out packaging and marketing operations	
Strengthening extension services through field school and MoA.		Developing a strategic plan for expansion of the cultivation and production	

Farmers organization and cooperatives

In the last two decades, from 2000 to 2020, many cooperative and charitable organizations were established aiming to develop the agricultural sector and the services provided. The number of cooperative societies working in the agricultural sectors is 139¹⁹, constituting 41%²⁰ of the total are operating cooperatives as well as some charitable associations, wherein 5²¹ women cooperatives are working in agriculture. Unfortunately, there are no cooperatives specialized in high value fruit, except for The Agriculture Marketing and Irrigation Cooperative (Qalqilya), where some of its members are high value fruit farmers. According to the survey conducted, less than 22%²² of the farmers interviewed are members in the cooperatives or charitable associations. The organizations' structures are formed of a board of directors elected by the general assembly, under the supervision of the competent ministerial institution: 1) The organizations focus on reducing production costs and increasing profits through collective purchase and marketing together; 2) They have an economically viable cooperative initiative that actively contributes to improving the economic conditions of the members; 3) Practices of good governance and management principles; 4) Represent the farmers in local and international institutions and the government; 5) To advocate and influence the government in implementation mechanisms of the laws; 6) To support the farmers in accessing land behind the separation wall.

In general, some weakness was noticed in the performance of cooperative and charitable societies, at the level of organization structure and services provided, which had negative impacts and weakness in operation, especially, the those that were established upon a donor's request

¹⁹ <http://www.cwa.pna.ps/uploads/REPORTS/16341197370.pdf>

²⁰ <http://www.cwa.pna.ps/uploads/REPORTS/16341197370.pdf>

²¹ <http://www.cwa.pna.ps/uploads/REPORTS/16341197370.pdf>

²² CDC survey

or covering humanitarian aid projects. Many cooperatives share a reasonable level of motivation among members to work together. However, more than 70 %²³ of the farmers interviewed stated that they subsequently experienced poor performance due to lack of fund, vision, resources, leadership, and unsuccessful business plans. This resulted in a loss of momentum and motivation towards self-help. Therefore, the Ministry of Labor or the competent authority has closed many cooperative societies or has not renewed their license.

Several stakeholders interviewed for this assessment, including the Department of Agriculture, had indicated that most cooperatives are viewed as charitable organizations by the donor community, rather than as for-profit institutions. It is therefore the current model that has to shift to a more profit-oriented, donor-oriented approach, by supporting cooperatives with a business-oriented approach. They also mentioned some successful models that carry out collective purchasing and marketing, such as Al-Thenabeh Cooperative, which purchases animal manure, processes it, and markets it, as well as snable Cooperative that buys the grape Fruits, processes and markets the products. This is due to: 1) they have an active (elected) paid board of directors, 2) the members pay an annual fee for services received, 3) the co-ops give back a certain amount of profits to the members and a certain percentage of the profits is used for the development of the cooperative and investments 4) the active and paid employees of the cooperative are responsible for the management, production quality, and sales/marketing.

The success of a cooperative depends on the common goal or "cooperative spirit" and business oriented. Unfortunately, Cooperatives often rely on funding from donor organizations, rather than collecting financial contributions from their members. Lack of knowledge, experience, and models that show how cooperatives can operate successfully as businesses undermines the need for motivation and confidence.

Production Inputs

Production inputs including seedlings, Extension Services, Pesticides, water, transportation and labor pose a major challenge to grape planting. According to the majority of stakeholders interviewed, value chain inputs skilled labors and fertilizers are the biggest challenges, followed by packaging means.

Agriculture labor (skilled labors) is considered one of the most interesting inputs in High-Value fruits cultivation due to Labor markets competition between local agriculture employment opportunities and employment opportunities in construction in areas behind the 1948 green line, as well as agriculture opportunities in settlements and areas behind the 1948 green line, that pay more wages and somewhat protected workers' rights. This led to an increase in the production cost or delay in harvesting

The limited water resources, especially in the Jordan Valley, are due to factors such as climate drought and changes, over saturation irrigation, occupation restrictions in digging artesian wells.

²³ CDC survey

All these led to scarcity of irrigation water for planting high value fruit, and thus, reduction in productivity per dunum and fruits quality.

The restrictions imposed by the occupation on farmers' access to land behind the separation wall is considered one of the most determinants to expansion of the high value fruit cultivation, due to the limited time of opening wall gates to enter to their lands, as well as the difficulty of using some agricultural machines such as tractors.

Furthermore, High-value Fruits are considered one of the modern crops in Palestine. Farmers' experiences are modest in production and controlling agricultural pests, and there is weakness in extension services of MoA, that leads to ineffective farm management, and reduction of production in terms of quality and quantity.

The traditional cultivation of high value fruits relies on artesian irrigation water. These artesian wells are exposed to closures due to Israeli Military regulations (starting from Oslo II, article 40) that prevents digging artesian wells in Area C, or the implementation or rehabilitation of any (water) infrastructure.

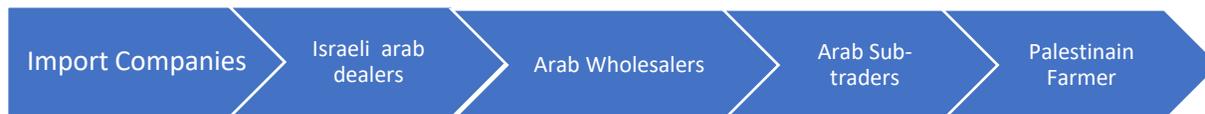
The fertilizers used are chemicals, supplements, natural or compost. But the majority of farmers is using a mixture of natural and compost, and chemical fertilization that are used in the flowering period. This duality in the fertilizing system is a coping mechanism to reduce production costs and increase production.

100%²⁴ of the chemical and supplements fertilizers and pesticides in the West Bank are imported from areas behind the 1948 green line and foreign markets, whereas a part of chemical fertilizers is acquired through Israeli importers due to political reasons. The annual rate ²⁵of agricultural fertilizers used in West Bank amounted to 30,000 tons of chemical and organic fertilizers, and 502.7 tons consisting of 123 types of pesticides. And there are 14 types that were banned for health reasons, including (Lindat - Aldecarb - Chlordane DPT - Pentachlorophenol Parathion - Parquet). Only natural fertilizers and compost are produced in the West Bank, and also imported from areas behind the 1948 green line at a price of 2000- 3500 Nis/12cup²⁶. The cost of pesticides is charged on the farmer's account with high-interest rates, and will be paid off after production. The depth and repayment cycle can only be addressed through access to capital.

²⁴ Mr. salah rabayah . Albarqawi company

²⁵ https://info.wafa.ps/ar_page.aspx?id=2322

²⁶ Albarqawi company. Mr. Salah Rabayah interview



Analysis of fertilizers and pesticides purchasing chain²⁷:

- First ring: Manufacturers: These companies are either foreign or Israeli, where they depend on the agency system in distributing their products to the world through agents.
- Second ring: Israeli and Palestinian agents (importers): Mostly they are agents to the original company or buy fertilizers and pesticides from the above mentioned first ring and supply them to the wholesalers, or directly to the farmers through agents in the West Bank with a %30 mark-up. Payments are made through cheques or in cash.
- Third ring: Wholesalers: They buy the fertilizers and pesticides from the agencies or company agents and sell them with about a %20 mark-up. Payments are made through short-term cheques or in cash.
- Fourth ring: Farmers: They have two options to buy: The first is to buy from an agency according to farm needs saving %15 (%10 mark-up of the sub-dealers and %5 transportation). The second option is to buy from wholesalers (retailers) based on the farm needs at higher prices (adding 10% and 30 NIS as transportation cost). Initial payment is in cash and the residual is paid in installments when selling final products.

Need to finance

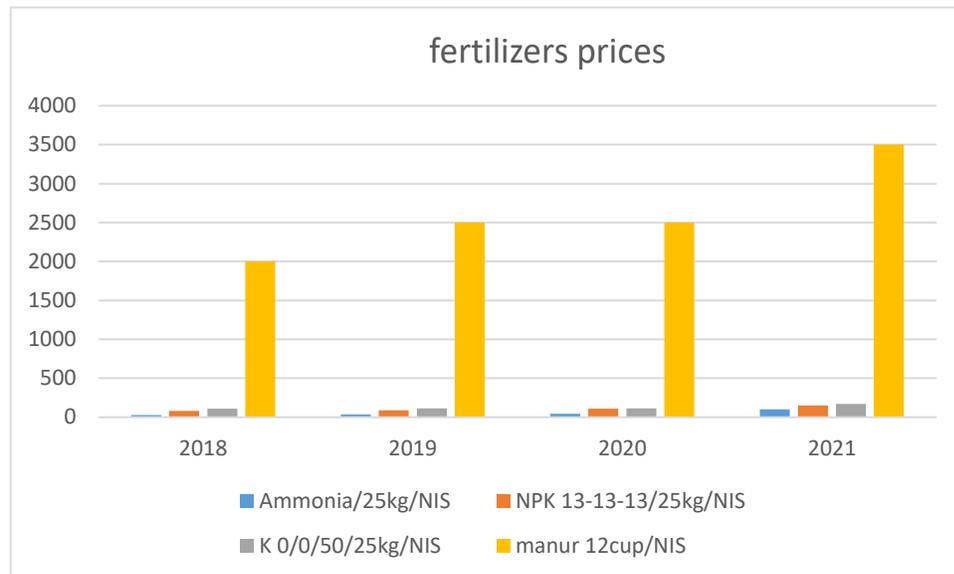
High value Fruits farmers need capital to reduce purchasing production inputs costs resulting from of loan interests, which make prices high. Access to finance is very limited for small farmers as banks refuse to give loans and lending institutions are reluctant to do so. Limited financial services/loans are provided to the cooperative as well. The Agricultural Credit Corporation was established and is in operation. It provides loans of up to NIS 70,000²⁸ at an interest rate of no more than 3%. However, farmers are reluctant to get the loans due to lack of knowledge, and cultural and religious beliefs that just allow borrowing money without interest.

The following chart shows the increase in fertilizers prices in the latest years²⁹:

²⁷ Albarqawi company.Mr. Salah Rabayah interview

²⁸ Interview with a member of the institution management board Mr. Rafet Khandaqi

²⁹ Albarqawi company.Mr. Salah Rabayah interview



Key obstacles

- Lack of quality control on fertilizers and pesticides that leads to adulterated commodity, and therefore lack of efficiency and effectiveness.
- The Israeli restrictions imposed on some of the solid fertilizers' entered to the West Bank due to security issue reduce efficiency and effectiveness such as inputs that include sulfur and nitrate compounds
- Reliance on imported fertilizers and pesticides, and Israeli middle men who charge high commissions.
- Due to limited extension services, there is poor using of organic fertilizers and companion plants that maintain soil fertility and help eliminate agricultural pests.
- Lack of capital among farmers and cooperatives, and the absence of institutions that take risks in lending farmers. Most producers purchase the fertilizers and pesticides on an individual basis from retailers or company agents and agree to re-pay after the production process, and are charged at high interest rates.
- The agricultural pesticides and fertilizers agencies (import companies) compete with the local traders in distributing agricultural goods. This led to ignoring a component in the supply chain; and therefore, monopoly will take place among distribution agencies as a result of canceling the local traders from supply chain, that will have negative impacts on prices. For example, Mezarol pesticide is sold by X agency directly to the farmer at a price of 270 NIS while the trader of the same agency sells it at a price of 300 NIS³⁰.
- VAT / double taxation

³⁰ Mr. Salah Rabayah .Albarqawi company

Agriculture employment patterns

The agricultural projects in Palestine are family businesses. There are two patterns of agricultural employment in High Value Fruit: 1) depending on the family members employment in an unpaid work perspective, where all family members participate in running all agricultural activities and fieldwork such as plowing, pruning, picking fruits, etc. Occasionally, in plowing works they lease tractors for 60- 80 NIS/ Hour³¹; 2) Second employment pattern is based on a daily wage of 80 – 120³² NIS per day. The farmers recruit skilled and unskilled labors for pruning, picking and harvesting fruits.

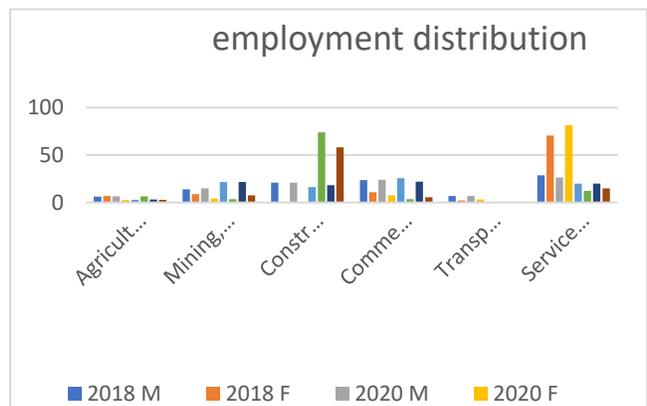
The High Value Fruits farmers reported that there is a shortage in manpower if the need arises to hiring skilled or unskilled workers. Therefore, agriculture workers are not available for running the agriculture activities, but are sometimes cramped and confined between family members especially in family businesses. This shortage of manpower is attributed to the Qalqilya site which is very close to the areas behind the 1948 green line, and family relationships that facilitate getting permission to enter these areas and getting jobs there.

Youth & Labor force

Statistics show that the percentage of youth (15-29 years)³³ in Palestine is 30.0% of the total population, distributed per age groups as follows: 37.4% are within the age group (15-19 years), and 62.6% within the age group (20-29 years), whereas (40-29%) of the young people are in the labor force. The highest unemployment rate among individuals is in the age group (20-24 years) by 44%, compared to 36% among individuals of (25-29) years.

Youth unemployment is an increasingly urgent and local problem. A recent PCBS report on the first quarter of 2017 stated that 53% of young people in Palestine were unemployed; the highest rate of unemployment was between the graduates of natural science by 70%

The survey showed that 39%³⁴ of the workforce in the High Value Fruits sector is youth as part-time and not permanent



³¹ Agriculture tractor owner

³² Farmer interview

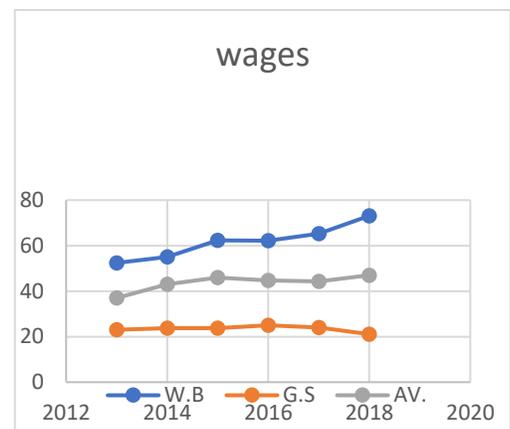
³³ <https://www.pcbs.gov.ps>

³⁴ CDC survey

work. But in general, ³⁵the percentage of youth workers in the agricultural sector in 2017 was 3.4% (less than the services sectors including (Professionals, Technicians, Associates and Clerk, services, trade, Elementary Occupations, manufactures), while in 2018 it was 6.3% (6.2% M, 6.8% F), compared to 35% working in the services, commerce and restaurants, and the hotels sector. In 2019 the agriculture youth employment was 3.2% (3 M, 2.9F) while increased in trade activities at 21.9 %. Finally, the youth employment in 2020 has been increased from the previous year up to 6.2%(6.6% M, 2.6% F), whereas it is noticed that female work in agricultural activities is continuously decreasing due to hard work and ownership.

According to the Palestinian Central Bureau of Statistics, “The Performance of the Palestinian Economy, 2018” issued in May 2019, the agricultural sector workers in 2018 were 51,500: 37,000 from the West Bank and 14,500 from the Gaza Strip, while the number of workers in the agricultural sector in 2013 was 82,700: 59,900 from the West Bank and 22,800 from the Gaza Strip. The drop-off in agriculture labor is due to:

- Un fair daily wage: According to the Palestinian Central Bureau of Statistics “The Performance of the Palestinian Economy, 2018” issued in May 2019, the average daily wage in the agricultural sector in 2018 was 47.0 NIS: in the West Bank it was 73.1 NIS/day, and 21.1 NIS/day in the Gaza Strip, while the daily wages in agriculture is lower in comparison to other sectors and higher in settlements or areas behind the 1948 green line, at 150-200 NIS/day.



³⁵ https://www.pcbs.gov.ps/pcbs_2012/Publications_AR.aspx

mechanisms that regulate the goods movement in the local market and prevent unfair competition, in addition to the fact that the production quantities of avocados and mango are low. This leads to a slowdown in the legislation and implementation of government laws, and thus acts as a hindrance to the development of this sector.

High Value Fruits and vegetables traders in the export market are considered weak players as a result of some challenges facing the farmers and traders. As for the markets in areas behind the 1948 green line, the occupation government puts obstacles on marketing the products and disclaimed all economic conventions and agreements signed with the State of Palestine, despite that some quantities are exported or sold to these areas through the wholesalers and sub traders also through direct purchasing by 1948 residents individually from the west bank markets. In October 2021, the Israeli cabinet declared a law that did not allow the importing from West Bank directly; Any imported quantity must be kept for 48 hours in Israeli traders stores then undergo laboratory tests. Positive tests will allow passing the goods into the market, whereas negative tests have two choices: either damaging the products or returning it to the Palestinian traders. Tis law has a negative impact on the price and market channels.

Opportunities

- The quality and taste of the Palestinian Guava compete with The Egyptian Guava, and thus facilitates their penetration to global markets.
- Traders and packinghouse gained experience in exporting Guava and Avocado through experimental shipment process and existing market links. They also gained experience in global markets requirement and standards
- Existing Guava sales outlets in foreign markets such as Jordan and the Gulf market, which can be developed and expanded.
- The existing packaging house models and entities will facilitate applying global markets requirements in producing Guava and Avocado.
- The ability of avocado fruits to withstand transport and storage conditions without affecting their quality, due to easy export operations and poor transport conditions.

Market Channels

Market channels are considered the core of the market and main means of communication in the market members between the farmers and consumers. High Value Fruits products are marketed in the West Bank markets through multiple marketing channels in each governorate. These marketing channels have not developed the trade contractual mechanisms or developed new market channels in or out of the West Bank. Therefore, we do not see a strong tendency to export agricultural outputs like other sectors as olive oil.

Central markets in the Hebron, Nablus, and Jenin governorates are the engines of vegetables and fruits trade fed from the other governorates and regions, traders, and farmers through oral

contracts. This market channel absorbed 90%⁴¹ of the whole quantities, and these markets are operated through municipalities which impose 2% and 10%⁴² of the farmer's volume of sales for commissioners. The operation mechanisms for Central markets did not develop or improve into one unified system based on prices and supply and demand.

The final consumers get their demand of High value fruits through wholesalers, supermarkets retailers, and street traders or directly from the farm.

Traditional processing has a preferred flavor and taste, but has weaknesses such as; 1) lack of standards and specifications; 2) traditional or unattractive packaging; 3) This manufacturing is still within the framework of the family business approach without a commercial perspective, despite the presence of manufacturing units that are somewhat advanced to a certain level.

The graph shows the rate of utilization of the market channels by farmers. It's clear that the ⁴³Central Markets represent 83%⁴⁴ of total market channels of Guava, followed by local traders who represent 58% of the marketing channels of Mango, and local traders representing 83% of the total market channels of Avocado.

Market Shares

Statistics indicate that the High value fruit; Guava, Avocado and mango production in Palestine is 55-65K Ton⁴⁵; 42%⁴⁶ are produced in the Qalqilya area. Most of the guava in the Palestinian markets is of a Palestinian source especially at the production peak period. For avocado and mango, the production volume does not cover the market demand, and so the gap is covered by the Israeli products. The exported Guava to the Jordan market is estimated at 9%⁴⁷ of the production, while some small quantities are sold in areas behind the 1948 green line, most of which enters through individual shopping by the residents there.

⁴¹ CDC survey

⁴² Central market interview HalHul

⁴³ CDC survey

⁴⁴ CDC survey

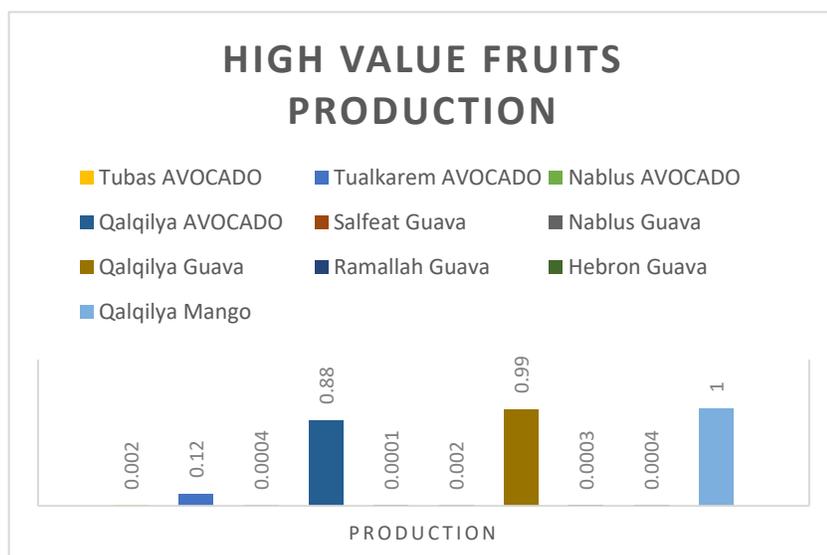
⁴⁵ MoA statics 2018/2019

⁴⁶MoA statics 2018/2019

⁴⁷ <https://alarab.co.uk/ar>

High Value fruits production

High value Fruits are considered among the most important horticultural trees with good economic returns, due to the volume of production and good prices. The Guava, Avocado and Mango production in 2018/2019 was estimated at 26,242⁴⁸ tons, 95% of which was produced in Qalqilya.



Profit Margin

Guava is ranked the first commercial product, followed by Avocado and Mango, in terms of profit margin after palm. Mr. Mohamed Samhan, Director of the Chamber of Commerce and Industry of Qalqilya Governorate, stated that the market value of the guava crop in 2021 is estimated at 120 million NIS. According to farmers' estimates in Qalqilya, the running cost of cultivating Guava fruits is 4200- 4500 NIS/Dunum, whereas the running cost of cultivating avocado cost 5500 NIS/Dunum.

Furthermore, the survey conducted by the Consultancy Development Company showed that the prices are equal in export and local markets, with a slight preference in price at local markets, due to the tax imposed on avocados in Jordan, and the rapid damage of guava fruits due to transportation and borders complications.

Price Average for end consumer	Production cost NIS /Dunum ⁴⁹	Selling price to the first ring of the marketing channel ⁵⁰ /2021
Avocado (Hass)	4800- 5200	3.5 – 6 NIS
Avocado (Ettinger)	5000 – 5500	7 NIS
Guava	4200- 4500	5.5 – 9 NIS
Mango		7- 8 NIS

⁴⁸ MoA statics

⁴⁹ Farmer and grape council interviews

⁵⁰ CDC survey

Main marketing challenges

- Occupation restrictions and control of borders and goods movements.
- Lack in law implementation mechanism and poor role of inspecting authorities.
- Local and territorial marketing: Guava is sold at the central markets (Hesba), which is the most common market channel, where the farmer has to pay 10% of total volume sales as a fee for the commissioner; it is a loss for the farmer. Also, central market sales take place at low prices (5.5- 9NIS/kg)⁵¹. Avocado is sold directly to the local traders.
- Poor and unattractive packaging due to the lack of Palestinian carton factories, absence of labeling and the product portfolio.
- Post harvesting process: Due to the bad infrastructures for picking and grading of fruits, which limited the farmer to grading production in proper environment leading to low quality and reduction in prices.

Main marketing opportunities

- The existing relationship with central markets and Palestinian body's authorities.
- The presence of packing houses and manufacturing units models that can be developed and expanded to establish new facilities.
- Local sales campaigns that gain consumers' interest, in addition to raising awareness of the local consumers about the Palestinian product.
- The State of Palestine and the Ministry of Agriculture pay attention to the High value Fruits sector, through approved policies such as agricultural clusters that encourage cultivation of these fruits, and ongoing development in the agricultural extension unit.
- The distinctive taste and flavor of the guava fruit and avocado fruit shape attracted foreign marketing outlets, such as the Arabian Gulf, to deal with Palestinian traders and establish new market channels.
- The agricultural approach slightly shifted from traditional cultivation of high-value fruit trees to commercial approach, as a recent development in marketing performance has been noticed.

Production & farm management⁵²

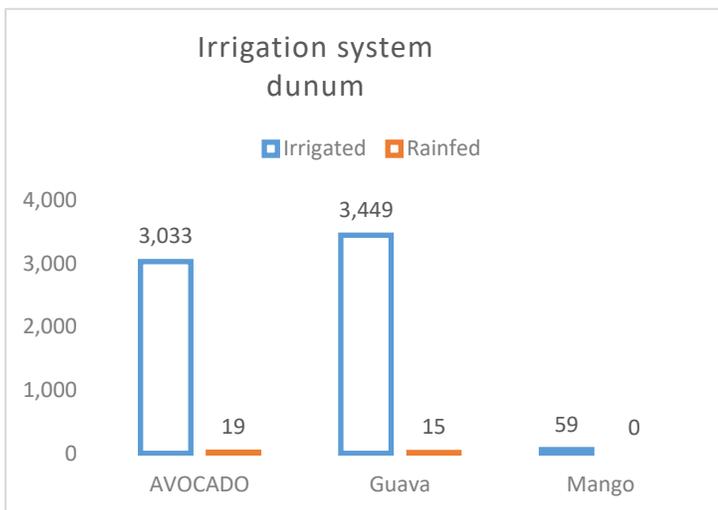
High-value fruits trees are tropical crops that need a tropical climate, somewhat similar to the climatic conditions in Qalqilya Governorate and in the northern Jordan Valley. Since half a century ago, Qalqilya farmers have been cultivating guava trees due to the availability of the appropriate environment including temperature, high humidity, abundance of water, and fertile soil. All these factors contributed significantly to its prosperity and growth in the province, and prompted many farmers and consumers to call it the "spoiled Qalqilya fruit." In recent years, "avocado" fruit cultivation has firmly entered the Palestinian agricultural map, especially in Qalqilya Governorate

⁵¹ CDC survey and interview with central markets

⁵² <https://www.alhadath.ps/article/88143/>

which is the motherland of Guava cultivation, to the extent that it is on the head of production levels with 70% of the total West bank production. Avocado became a main cultivation competitor to guava. Both types of fruits need continuous irrigation, as one acre of these fruits needs 800-1500⁵³ cubic meters of water, depending on the type of fruit, as avocados are the most consuming of irrigation water. And so, we note that the predominant pattern is the irrigated one as shown in the graph above, while the rain fed system is just followed by Guava farmers in other governorates such as Ramallah and Hebron due to scarcity of water, lack of experience, and lack of knowledge of good practices. On the other hand, planting fruit trees of high value in The Jordan Valley did not succeed and expand due to weather conditions such as humidity and temperature, water scarcity, soil disease and lack of experience.

⁵⁴High Value Fruits sector has three types of holdings⁵⁵, small agricultural holdings (less than 5 dunums), medium holdings (5- 10 dunums), and large-scale agricultural holdings (usually more than 10 dunums).



Although there is abundance of cultivating high value fruits in Qalqilya governorate, there is a need to increase and develop high value fruit production and marketing in other governorates in terms of specifications that meet the consumer's desire in/outside of Palestine. Therefore, the production process must be shifted to a modern level in terms of hygiene and packaging, and enhancing the business initiatives that produce high-value fruits on an advanced level must go hand by hand with the emerging agro-commercial approach.

To increase high value fruits production, farm management and applying best practices among high value fruits farmers must be improved, in addition to shifting cultivation from traditional to modern system. Several stakeholders have highlighted the need to use IPM applying best practices of irrigation, fertilization, and pesticides, and planting high-quality seedlings, as well as extension services, and improving the best post-harvesting practices such as picking fruit and packaging. All of these should increase the profit. Interventions in cultivation can reduce the losses by 5%⁵⁶.

⁵³ Farmer interview

⁵⁴ Farmer interview

⁵⁵ Oxfam value chain report 2016

⁵⁶ CDC survey

The assessment in Area C & showed that High Value fruits farmers rely on their own accumulated experience in controlling pests, selecting appropriate pesticides, and following experts' agriculture engineers from the private or public sector. Demand on pesticides increases during the preparation period (summer and spring)⁵⁷. Throughout the study, we found that farmers have limited awareness about the safety period for using pesticides and that a small portion among them adheres to it. Farmers purchase pesticides from wholesalers or companies' agents, either in cash or on account after selling the product.

Seedlings

Nurseries are considered one of the most important parts in the high value fruits value chain, which produce seedlings within certain conditions and needs. Many nurseries resort to produce seedlings through their accumulated experience, and this is often in avocado seedling. They produce seedlings from avocado seeds and graft them from selected mothers and not from original mothers. As for seedling Guava, farmers depend on Nurseries in providing the Guava seedlings; there are 7 nurseries in the West Bank for the production of different varieties of Guava. Planting of high value fruits seedlings faces many obstacles such as:

1. The seedlings used in planting are personally selected and there is lack of rootstock for grafting trees.
2. Helps spread soil diseases in addition to weak resistance of seedlings to diseases and pests.
3. Low quality and production quantities.

Key obstacles

- Multitasking for high value fruits farmers, from cultivation to marketing, without outsourcing, added some sections in the value chain.
- Linkages are weak between high value fruits farmers and stakeholders; farmers are confined to a limited network of relationships.
- Production losses are high up to 6.15%⁵⁸ and 4.18⁵⁹% for Guava and avocado respectively, due to the post-harvest fragile infrastructure and poor packaging materials.
- Lack of complementary industries such as the production of juices, especially guavas, which absorb fruits of low quality or those damaged by harvest and poor storage.
- Weak marketing channels of the export markets, due to the restrictions imposed on exporting and necessary facilities, in addition to the taxes imposed by Jordanian authorities.

⁵⁷ Farmer interviews

⁵⁸ CDC survey

⁵⁹ CDC survey

- The majority of High value fruits farmers, especially Guava farmers, sell fresh fruits without grading due to the fragile infrastructure and lack of funding.
- General lack of knowledge of good practices (hygiene, fertilizing, pest controlling, separation)
- Weakness in extension services lead farmer to rely on their own experiences in pest controlling.

Gender

Most of the agriculture projects are family businesses; all the family members participate in implementing the farm activities. Women's participation in running agricultural activities in high value fruits is almost non-existent, in counter to other agricultural sectors. Cultivation of high value fruits fieldwork is executed by family members, but for pruning, harvesting and plowing, labors from outside the family are hired. Women sometimes undertake field tasks such as picking fruits, and harvesting.

For farms' ownership, most of the farms are owned by men, a few women own a limited number of high value fruits farms. Social norms led to the male dominance in farm management such as development, expansion, and marketing; there is an almost non-existent role for women, where men perform the marketing and prices negotiation, distribution channels, selling inside or outside the communities.

The Ministry of Agriculture, Extension Department, provides extension services from a gender equality perspective frame work, it also recruits female agricultural engineers within its staff to provide the services. Furthermore, civil society and humanitarian institutions have female employees providing these services. Access to information and extension is not difficult for women in Area C, but some social determinants and norms prefer men to deliver the service to, since most agricultural businesses are run by men, and training and extension often target men as well.

With regards to income and sales, women's work is unpaid. Fewer women are free to use the income and save following the man's approval. Women in the focus group reported that the spending decision is made by men in most cases; they decide spending sectors and how to spend, and women play a marginal role in this aspect.

For the women's entertainment, for those working in the High value fruits sector, women stated that general environment is limited with vulnerable infrastructures, especially in the Jordan valley, in addition to the difficulties of movement and access to entertainment places. Therefore, the women's life in Area C is confined in farms working, processing, and household duties.

General obstacles facing women in agriculture

- Customs and traditional norms sometimes restrict women's individual running of the agriculture activities, starting with purchasing inputs and ending with marketing products. This problem exacerbated by the fact that these customs and norms became convictions and many women believe in them.
- The weakness of women's ownership of agricultural capital, especially agricultural lands and farms, due to the lack of access to their rights of inheriting lands from the father's or husband's side.
- Access to financial resources is limited due to the lack of guarantees for women, such as lands being registered by their names.
- Increasing production costs and thus reducing the level of profits, because most women are not able to do many jobs that require great physical effort, which leads to hiring male workers to do these jobs.
- Weakness in women's ability to deal with men from outside the family or the village in purchasing production supplies or marketing products, especially when dealing directly with wholesalers. This can lead to being exploit in terms of prices.
- Weakness in women's affiliation to specialized agricultural cooperative societies. They do not even occupy senior positions as boards of directors of these associations, which hinders the access of their voices and thus solving their problems.
- The inability of women farmers to become members of agricultural cooperative societies, due to the high "costs" of fees.
- Weakness of women's role in decision making positions at household and community levels, due to weak women capacity and social norms.

Opportunities

- Encouraging women farmers to claim their rights of inheritance in agricultural lands, as owning and registering the land. This can lead to benefit from many agricultural projects or facilitate their access to the necessary financing, as the relevant institutions require that the land be registered in the name of the person requesting the service.
- Improving women's capabilities at social and economic levels.
- Enhancing women's affiliation to cooperative and community associations.
- Increasing women's awareness, in terms of technical and social aspects related to production techniques, and keeping pace with other developments in production methods, and new products and varieties that can be introduced to the production process, in terms of social aspects to increase her self-confidence and how to deal with others, in addition to notifying them of their rights and how to claim such rights.
- Expanding the formal agricultural extension process, both in terms of quantity (number of extension agents), or in terms of type (specializations of extension agents and their gender).

Environment

99.6%⁶⁰ of the High value Fruits farms rely on artesian well water for irrigating farms. The irrigation system and irrigated water quantities that are not monitored for high salinity and calcium content, as well as the use of chemical fertilizers, pesticides, and herbicides, may destroy the fertility of the soil and biodiversity. Thus, the soil becomes unsuitable for cultivation of these varieties and productivity drops down. The majority of irrigated High value fruits farms use water networks in irrigation through drip nozzles, which reduces the evaporation. Few farms rely on rain water for irrigating farms without establishing water channels, water bodies or wells.

Farmers during daylight times depend on sunlight and use the local electricity network with electric meters controlled by the village councils. A majority of farmers expressed that they use the electricity in pumping water from pools and wells to farms. But in the field works, they use some fuel-operated machines, which are subject to defects or malfunctioning.

Production wastes as leftover fruits and twigs, dry leaves, fertilizers and pesticides packages, have no existing or used plan for waste management, disposal, or recycling. Leftover fruits, twigs, and dry leaves are disposed of in the farm or around the house without tendency towards composting, which is very weak and almost not existing. Moreover, there is no place designated for collecting packages of fertilizers and pesticides and safely disposing or recycling.

To some extent, high-value fruit farms, limit urban expansion in agricultural lands, as they are a major source of income for the families. Therefore, these farms act as a protector of the agricultural lands from urban expansion.

High-value fruit trees contribute to cooling the environment through the process of evaporation. Transpiration occurs when trees transpire water to cool themselves, in the same way that humans sweat to cool off. As the seep water evaporates, the area around the tree also cools down. Evaporation and shade can help reduce extreme summer temperatures, in addition to helping clear the air of pollutants often abundantly found in urban areas.

Finally, farmers do not use cement constructions or buildings with iron or plastic covers, which would raise the temperature.

COVID-19 impact

In light of the COVID-19 global pandemic, and following the emergency law declared in Palestine, super markets, restaurants, butcheries were closed, transportation was stopped, and movement was almost paralyzed. This had a negative impact on sectors of employment, production and marketing, and services, and, therefore, on family household income.

⁶⁰ Ministry of Agriculture statics 2018/2019

The agricultural sectors were affected by the pandemic like other sectors; The peak of the pandemic was in the period of April to June. The season peak for high value fruit extended from August to November 2020. Emergency law and continuous closures had direct effect on markets demand and supply and marketing channels, whereas, marketing of Guava decreased by 10%⁶¹ in 2020, while avocados were slightly affected by COVID-19 implications because the fruit is not as sensitive as guavas, bears severe conditions, and harvesting fruit can be delayed. However, in 2021, the prices increased based on the precautionary measures that have been mitigated, since prices decline in 2020 by 10%⁶² was attributed to cancellation some of marketing channels as the supermarkets, central markets, and consumer channels as well as the export markets. The market supply increased and demand decreased; the cancellation of market channels led the market shares rely on other marketing channels, which led to an increase in supply, and hence, a decrease in fruit prices. Moreover, the production inputs, especially fertilization and pesticides supply, were affected in the pandemic by the methods of payments in which the farmers had to prepay, contrary to what was done previously. Prices did not rise till July 2020, because most farmers bought their needs before the emergency law, but in 2021 they rose up to 200% - 300%⁶³, as the increase in demand and shipping costs also increased for up to 30%⁶⁴.

High value fruits sector employment has not been affected by the COVID pandemic, because the sector depends on labor from inside the family and the work place in opened areas. However, extension services have been affected by the pandemic due to the closures which sometimes caused delay in fulfilling the services and cost higher prices.

Recommendations for youth interventions

Selection of beneficiaries

- It is strongly recommended to work with the youth in the North of the West Bank, Qalqilya and Tulkarm Governorates, because of the added value of their basic knowledge in cultivation of high value fruits and processing byproducts, such as concentrated juice and jam cream.
- It is highly recommended to work with those who have innovative ideas, preferably in the area of automating farms, and those who have new technologies in cultivation of Guava and processing byproducts.
- According to the high-rate return of investment in cultivation of Guava, Avocado and Mango, new types of high value fruits should be introduced, such as dragon fruit.

⁶¹ CDC survey

⁶² CDC survey

⁶³ Albarqawi company, Mr. Salah rabaya

⁶⁴ Albarqawi company, Mr. Salah rabaya

- To encourage youth to cultivate guava in greenhouse farms: We strongly encourage to work with youth who have the ability to establish such micro-business greenhouse farms as demo farms.
- It is highly recommended to work with the youth in proper legal framework, such as establishing companies or cooperatives to conduct the bulk purchasing and marketing.

Proposed high value fruit interventions

As a result of some high value fruit problems facing the Guava sector in various functions of the value chain, and following the traditional method of production and based on profit margins, we recommend that the interventions focus on the following topics:

- It is strongly recommended to encourage agricultural projects that are specialized in packaging, as the overlap in post-harvest functions and absence of specialization in packaging reduces the profit return. The opportunity is to create entities carrying out packaging and filling the products by trained skilled labor.
- Encouraging secondary industries of guava and avocado, as concentrated juices or creams, to absorb low-quality fruits.
- To focus on the idea of recycling the farm's waste to produce compost, for which the profit margin is estimated at 40%⁶⁵.
- To encourage agricultural projects that use farm automation, by establishing automated high value fruits farms and applying irrigation systems to limit excessive irrigation, and thus preserve soil fertility.

Action plan pre-selection

Support aimed to engaging youth in a participatory creation and business planning process, which may help them in refining, clarifying and rearticulating their ideas, aspirations and business objectives. This should be done as an outcome of an individual assessment for their business idea and a SWOT analysis.

Step 1 Generation of ideas

Innovative ideas are the core factor of entrepreneurship. Every youth will derive these ideas from different sources. Generating ideas for an entrepreneur means discovering a business idea or developing an idea into a working business concept. This idea can be a plan, proposition, opinion, or belief. The informed entrepreneur gets better opportunities to identify upcoming opportunities. Generation of ideas will be through:

⁶⁵ Engineer Yousef Kanan . Thenabeh cooperative

- Brainstorming: A way to get new ideas and potential solutions. It is a method where like-minded youth participate in the discussion and provide their inputs. There may be constructive criticism at times but there are no dominances and inhibitions. This method has a good success rate when efforts are focused on high value fruit production, market area or the supply chain inputs.
- Focus groups: Workshop with those who possess accurate information about the concept of a certain idea, where they present this information in a structured form. The productive idea is conceptualized creatively as per the market need. It also helps in examining the idea.
- Problem analysis: The goal is to generate new ideas. Consumer's opinion is sought by providing them with a list of problems encountered, in general, and asking them to identify and discuss products in that category that have a particular problem. Thus, it helps find a new product or develop the practices or the products.

Step 2. SWOT analysis

SWOT analysis should address the need for access to input resources and the market. By analyzing the strengths, weaknesses, opportunities, and threats of the high value fruits sector challenges, pioneers will easily address their own needs.

Step 3. Market readiness assessment

A market readiness assessment should address the steps of improvement in the value chain prior to entering the market. All needs related to improvement of access to fertilization, increased productivity and quality, pests' control and processing will be addressed.

Step 4. Develop business plans

The business plan is an important and strategic tool for entrepreneurs. The business plan focuses on the specific steps needed to make their business ideas established and successful. Moreover, it helps them achieve short-term and long-term goals.

The business plan will include the human resources needed, production (product type, final shape, inputs, specifications, and machinery), and also analysis of the market in order to determine the demand and supply of the products. Identifying the sales volume of products, distribution, the competitors' strategies, pricing, market share, consumers, and finally addressing cash flow and return, should all be part of the plan as well.

Step 5: Networking with Private sector and financial resources

Through the multiple function linkages of the high value fruits value chain, the challenges facing this sector, and youth employment, it is necessary that these links are connected to each other in the presence of specialization in tasks for each function. In addition, pioneers should be

introduced and linked to services providers such as inputs suppliers, extension services, markets and financial resources, with a necessity to create a business legal framework.

Recommendations

It is recommended to focus on:

- ❖ The capacity building and governance for the agriculture entities.
- ❖ The interventions that enhance the farmers' awareness of best practices, pest control and fertilizing the trees.
- ❖ Enriching the relationships between the private sector and farmers especially in supply chain and marketing.
- ❖ The intervention that engages the youth in the high value fruits value chain, with giving attention to innovative ideas.
- ❖ The intervention that focuses on automation of farms especially in irrigation.
- ❖ The interventions of post harvesting
- ❖ Linking the central markets together through an application that will be developed by IT graduates. This system gives indicators on supply, demand and prices.
- ❖ Encouraging the processing of chemical alternatives, organic and environmentally friendly production inputs to reduce the costs of production inputs, irrigation water and to preserve soil fertility.
- ❖ Benefit from traders and packinghouse gained experience in exporting Guava and Avocado, through experimental shipment process and existing market links, as well as their experience gained in global markets requirement and standards
- ❖ Develop and expand existing Guava sales outlets in foreign markets such as Jordan and the Gulf market.
- ❖ Take advantage of the existing packaging house models and entities that will facilitate applying global markets requirements in producing Guava and Avocado.
- ❖ Encouraging women farmers to claim their rights of inheritance in agricultural lands, as owning and registering the land. This can lead to benefit from many agricultural projects or facilitate their access to the necessary financing, as the relevant institutions require that the land be registered for the person requesting the service.
- ❖ Enhancing women's affiliation to cooperative and community associations.
- ❖ Increasing women's awareness, in terms of technical and social aspects related to production techniques and keeping pace with other developments in production methods, and new products and varieties that can be introduced to the production process, in terms of social aspects to increase her self-confidence and how to deal with others, in addition to notifying them of their rights and how to claim such rights.
- ❖ Promoting women's role in the field works. High potential women groups can be supported to develop the skills of production, packaging and marketing of products
- ❖ Expanding the formal agricultural extension process, both in terms of quantity (number of extension agents) or in terms of type (specializations of extension agents and their gender).

- ❖ Activating the role of monitoring and controlling of Palestinian institutions on the quality of production inputs, and organizing using of pesticides.
- ❖ Increasing the consumption of high value fruit products among consumers through national awareness campaigns.
- ❖ Improving access to water sources and rationalizing their use through best agricultural practices and wastewater treatment.
- ❖ Enhancing specialization in production along the value chain, and creating an entity with an investment that carries out packaging and marketing operations.
- ❖ Developing a strategic plan for expanding the cultivation and production.



Proposed interventions:

Organizing and structuring farmer

Intervention area	Intervention		Description	Target beneficiaries
Organizing and structuring farmers	Enhancing cooperative work by establishing a cooperative association specializing in high value fruits	Workshops	Increase the awareness of collaborative works among farmers and strengthen collaboration work spirit in a business approach framework especially in marketing products through conducting workshops with CAW partnership. The workshops will target individual farmers, members in the cooperatives and charitable associations to increase farmers' pertinence to cooperatives.	Youth, farmers, coop
		Capacity building	Creating bylaws and manuals that include plans, management, generating business ideas, and developing business plans within the business approach, in addition to rehabilitating existing agricultural facilities.	Intended to be created
		Youth level	Strengthening youth role in cooperative work through enhancing youth participation and membership, in the cooperatives to attract innovative ideas throughout the value chain, especially in marketing and supply chain	Youth in South, North and Jordan valley

Production and management

Intervention area	Intervention		Description	Target beneficiaries
Extension services	Enhancing agricultural extension services through farmer field schools and copying it in another governorate.	Farmer, youth and MoA	Farmer Field Schools (FFS) is a group-based on youth and farmers learning approach that teaches farmers how to experiment and solve problems independently. FFS groups of farmers will meet regularly with a facilitator, observe, talk, ask questions, and learn together. Farmer field schools as an approach will first develop to teach integrated pest management (IPM) techniques in High Value fruits cultivating, post harvesting, and also income generating activities such as processing Guava.	Qalqilya and Tulkarm
Production and management	Enhancing alternative fertilizers as natural and compost	Youth & farmer level	The intervention idea is to promote organic and natural fertilizers in the cultivation of High value fruits such as producing high-quality compost through establishing a group of youth and farmers with the required mechanization to produce high-quality and appropriate packed compost. The production will be marketed through schools and field visits.	Cooperatives, groups of Youth
Management	Promote the cultivation of economic varieties of high value fruit trees	Farmers	The idea of the intervention is to guide farmers to plant certain varieties of high value fruit such as the type Hass of avocado, and to rationalize the cultivation of avocado Ettinger kind in order to organize demand and supply and price, through providing subsidies in seedlings and water networks.	Farmers in Qalqilya and Tulkarm

Demo farms	Establishing a pioneer farm	Youth, farmers	The idea is to finance a pioneer farm with partnership investment by youth, and subsidies grants. The farm, under formal frameworks, will be run and owned by youth, where best agricultural practices are applied, in addition to introducing and promoting new agriculture models such as cultivating Guava in greenhouses. Moreover, it shall raise the farmers' awareness of best practices through organizing field visits to it and through training.	Qalqilya
	Promote women's role in the high-value fruit sector through establishing women's entrepreneurship.		The idea of the intervention is to establish a production unit to produce secondary products of high-value fruits, especially guava. Women will be trained on concentrated guava juice and jam production and applying Palestinian specifications and standards, as well as conducting one-to-one coaching and mentoring by a professional technical and marketing team, also preparing a product portfolio, price list, and determining the proper packaging in terms of the potential buyers' requirements. Moreover, conducting a social assessment of community position of establishing women groups. Moreover, commercial mediation services will be facilitated by women groups through direct training in selling to market outlets.	Women groups in Qalqilya and Tulkarm

Marketing

Intervention area	Intervention		Description	Target beneficiaries
Marketing facilitation	Strengthening and establishing packing houses, cooling, and fermentation units.	Cooperative	Attracting private sector, farmers, and NGOs investments to expand and establish packing houses, cooling and fermentation units, which contribute to keeping the products in good quality, organizing products supply and preventing dumping markets with products.	Farmers, cooperatives and private sector

Export facilitation	Strengthening marketing links in export markets through B2B and exhibitions.		The intervention idea is to promote exporting of high value fruits products through utilizing the existing outlets. The intervention aims at enhancing the products in export markets through working with private sector companies to export fruits, especially avocado and mango. The intervention will conduct an analysis of the export potential and the market attractiveness index (MAI), based on market information, then select the most strategic markets based on market information as per the consumers' trends, product quality standards, importers, and conducting B2B meetings, and enhancing exhibition participation.	Private sector, cooperatives and farmers groups
	Enhancing collective marketing and purchasing supply chain inputs	Farmers, Youth & women	The idea of the intervention is to promote the idea of collective purchasing and marketing, through any entity, cooperative association, or companies through which production inputs are obtained at a competitive price and high quality, in addition to marketing and gaining additional margin	Qalqilya, Tulkarm

