The Road to Sustainable Food Production in Lebanon

An Examination of Saida District Food System

Lebanon

April 2025

Report prepared by

This study is part of the *Road to Sustainable Food Production* Program in Lebanon, led by DCA and conducted by the Agricultural Movement in Lebanon.

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ACKNOWLEDGEMENTS

We extend our deepest gratitude to the farmers for their insight, assistance, and constant initiative throughout the project. In addition, thanks go to Sikka Farm for their openness to our meetings and experimentation. Also, we thank the survey respondents who were not yet bored of generously hosting our teams and answering their questions.

We extend our heartfelt thanks to the Novo Nordisk Foundation for the generous support and partnership in making this study on food systems in the Saida District possible. The Foundation's commitment to advancing sustainable, inclusive, and health-oriented food systems has been instrumental throughout the course of this research.

This study brought together farmers, consumers, and local stakeholders to explore the interconnected challenges and opportunities within Saida's agricultural and food landscape. Through dialogues, data collection, and fieldwork, we have been able to shed light on local food production practices, market dynamics, nutritional trends, and community-driven solutions.

We deeply appreciate Novo Nordisk Foundation's belief in the importance of locally rooted knowledge and in amplifying the voices of those directly engaged in shaping the region's food future. Their support enabled meaningful participation from across the community and laid the groundwork for future initiatives toward a more resilient and equitable food system in Saida.

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EXECUTIVE SUMMARY

Objectives

The present research , developed in the framework of the *Road to Sustainable Food Production Program* in Lebanon, led by DCA and conducted by the Agricultural Movement in Lebanon, investigates the food system in Saida and its surroundings. The study focuses on production and consumption patterns related to ecological farming, particularly in the context of the Israeli war on Lebanon and its escalation in the summer of 2024, which significantly impacted the country's agriculture and food security.

The research aims to understand the reality of agriculture in the South of Lebanon, specifically Saida District, the risks and impediments to agroecological transition, the conditions of small farmers, and the challenges they face. The research use a mix methodology appraoch, triangulating secondary data, with both primary qualitative and quantitative data, and field observations, including primary data collected during the war.

Key findings

Agriculture, particularly citrus production, was once central to Saida's local economy. However, the agricultural landscape in Saida has been shrinking due to urbanization and real estate development since the 1980s. Urbanization has led to further fragmentation of agricultural lands, disruption in irrigation networks, and ultimately lower productivity. Furthermore, the persistence of outdated agricultural practices has contributed to the declining economic feasibility of the sector.

Without changes in agricultural practices, where agroecology can provide sustainable alternatives, agriculture in Saida is becoming economically unfeasible for many farmers. Rising costs of inputs and decrease in farm gate prices are making conventional farming increasingly unaffordable, pushing farmers to sell their land selling their lands at an increasing rate for real estate development. While the agricultural sector remains weak and food security is increasing, a paradigm shift is needed to delink small farming from currently prevalent methods, available inputs, and unfair supply chains as will be shown throughout this study.

Farmers in the Saida area face significant challenges, including economic instability due to volatile prices for agricultural inputs and unpredictable produce prices in unregulated wholesale markets like *Hesbet Saida*. They often experience unfair pricing and low profits, exacerbated by high transportation costs to markets.

Farmworker rights and wages are contentious issues, with wage gaps between men and women and a lack of social protections due to the informality of the agricultural sector. Land

regulation and access to land are also problematic, with a significant portion of land controlled by a few large landowners, and many agricultural workers being landless.

Water access and sustainability remain critical challenges in the region, driven by multiple factors including contamination of the Litani River, unreliable public water supply, and the widespread digging of unregulated wells. The unmonitored use of agricultural chemicals further compounds environmental and public health risks. In parallel, urban expansion continues to encroach on valuable agricultural land, threatening long-term food security and rural livelihoods.

Surveyed farmers report low-income levels and increasing debt, primarily related to the high costs of agricultural inputs. Many farmers have limited formal education, hindering the adoption of improve agricultural practices, and report various health problems, including pesticide-related issues, without adequate social security or health insurance. There is also a growing concern about the lack of interest from younger generations in taking over family farms.

Transitioning to an ecologically sound agricultural model is crucial for small food producers. Agroecology strives to transform food systems by enhancing biodiversity, improving resource management, and reducing reliance on synthetic inputs.

However, transitioning to agroecology faces several challenges. The cost entailed in transitioning from chemical farming into agroecological farming discourages some farmers from taking the step. On the one hand, they entail lower yield expectations, especially in the first seasons, and the loss of income in one or more seasons during rehabilitation. On the other hand, rehabilitation could include costly services like lab tests, remediation from toxic chemicals, expensive professional consultancies, and additional farm labor.

The wholesale market in Saida (*Hesbet Saida*), while intended to help farmers, suffers from unfair practices and a lack of regulation, with a few influential stakeholders controlling prices and terms of exchange. Farmers also express fear of taking the risk of adopting new, sustainable practices and may not believe that crops can grow without chemical inputs. The initial costs of transitioning to environmentally friendly practices and a lack of knowledge about renewable practices are significant barriers. Furthermore, there can be a market bias towards standards that seemingly require pesticide use.

Recommendations

1. **Food sovereignty and right to food as the core resilience strategy**

- Treat the war as a policy turning point to accelerate transformation toward a localized, resilient food system.
- Prioritize the right to food approach as a resilience pillar—strengthen communities' and producers' ability to decide what/how to produce, preserve, and market food.

2. **Long-term, multi-year programming (avoid short-term/pilot cycles)**

- Move beyond one-year cycles; set a minimum three-year commitment for agroecological transition support programming, including follow-up and multi-year monitoring. Design donor financing to avoid "pilot and abandon" by prioritizing stable, pooled, and flexible funding for scaling and institutionalization.
- Prioritize place-based investment in agricultural areas (jobs, services, and resource provision) to strengthen local food systems.
- Apply transparent, needs-based targeting and conflict-sensitive approaches in recovery to prevent political/geographic marginalization of vulnerable areas.

3. **Empowerment, participation, and farmer-led organization**

- Empower small farmers, food producers, and agricultural workers to organize, advocate for rights, and participate in decision-making.
- Create and expand farmer-led platforms (unions, cooperatives, farmers' markets, producer groups) to amplify voice and bargaining power.
- Ground interventions in local needs and farmer validation, relevance checks and participatory design.
- Recognize and scale farmer-led knowledge and innovation through peer learning, documentation, and replication channels.

4. **Cooperatives, community-level systems and collective infrastructure**

- Invest in community-level systems (cooperatives, shared infrastructure, local governance) rather than fragmented individual support.
- Promote cooperatives to reduce costs (transport/packaging), improve market access, and strengthen collective bargaining power.

5. Policy and regulatory reform to protect farmers

- Reform policies to protect farmers' rights and ensure international agreements do not undermine local producers; embed safeguards for smallholders.
- Establish fair market conditions and regulatory safeguards (competition rules, procurement standards, market access protections) to limit distorted supply chains and excessive corporate influence.

6. Support agroecology transitions through technical support, enabling inputs, and practical targeting

- Provide sustained agroecology support (extension, coaching, on-farm troubleshooting) to reduce knowledge gaps and uncertainty about practices.
- Scale heirloom seeds and build seed sovereignty networks (propagation, community seed banks, sharing and distribution).
- Localize key inputs (compost, natural fertilizers) to reduce dependency on imported inputs and strengthen closed-loop systems.
- facilitate agroecological farmers access to tailored market-channels.

7. Equity and rights-based framing and whole-system change

- Reorient food-system programming toward equity and agency, ensuring "empowerment" interventions do not reproduce unfair dynamics.
- Center reforms on equity, resilience, and producer rights, explicitly including small farmers and agricultural workers.
- Integrate food waste prevention and management into food operations (measurement, reduction targets, redistribution, composting.
- Make public awareness and education a national pillar (climate campaigns, curriculum integration, information-sharing) a
- Strengthen joint state–civil society accountability around the right to food and the right to a healthy environment, with clear roles and coordination.

1 Introduction:

1.1 Background

Lebanon protracted compounded crisis

Since 2011, Lebanon has faced a succession of overlapping shocks that have progressively eroded economic, social, and institutional resilience. The Syrian humanitarian crisis placed sustained pressure on public services, infrastructure, and labor markets. These stresses were compounded by the 2019 economic and financial collapse, which triggered a sharp loss of purchasing power, spiraling inflation, and rising poverty. The COVID-19 pandemic further disrupted livelihoods and supply chains at a time when households' coping strategies and formal support systems were already severely constrained. More recently, the 2023/2024 Israeli war on Lebanon constituted a major additional shock.

Against this backdrop, social inequality and food insecurity for the most vulnerable social groups has shown alarming level. The most recent WFP and FAP Integrated Food Security Phase Classification (IPC) indicates that "between October and November 2024, about 1.59 million Lebanese, Syrian refugees, and Palestine refugees experienced high levels of acute food insecurity (IPC Phase 3 or above), i.e. 29% of Lebanon estimated population. Among them, about 205,000 people experienced IPC Phase 4 (Emergency). Data shows a significant increase compared to the 1.26 million people in Phase 3 or above estimated for the April-September 2024 period. The deterioration of IPC indicators is mainly attributed to the impact of the 2023/24 war on the Lebanese economy, including impact on sectors such as trade and tourism.

Paradoxically, the crisis has also triggered renewed political and civil society interest in the potential role of productive sectors, particularly agriculture, in contributing to economic recovery, employment generation, and food security. Within this context, pioneer farmers and civil society movements are increasingly looking to agroecological practices, both as a set of sustainable production practices and as a form of political engagement, as a pathway to improve farmers' livelihoods and advance social justice.

Agro-ecology transition

Agroecology offers a holistic approach to agriculture that integrates ecological principles, social equity, and economic viability across the food system[1]. In Lebanon, where small and

[1] According to FAO, food systems encompass all actors and activities involved in food production, processing, distribution, consumption, and waste management, as well as the broader economic, social, and environmental contexts in which these activities are embedded.

medium-scale farmers face intense pressure from oligopolistic markets, lack of support policy, climate stress, and unfair value chain dynamics[2], agroecology represents a practical pathway toward more resilient and dignified livelihoods. It can respond to these structural constraints by promoting farming systems that are less dependent on external inputs, better adapted to local agro-ecological conditions, and better integrated into territorial food systems. By enhancing biodiversity, improving natural resource management, and reducing reliance on synthetic inputs, agroecology can help transform food systems while supporting sustainable livelihoods, contributing to climate change mitigation and adaptation, and empowering farmers through knowledge exchange and local innovation.[3]

Agroecology international definition relied on the High Level Panel of Experts (HLPE) of the United Nations Committee on World Food Security principles and the FAO (2018) 10 elements (see Table 1 below). Together, these provide a comprehensive vision for transitioning toward sustainable food systems. They emphasize:

- Enhancing biodiversity and ecosystem functions;
- Improving soil health, water management, and climate resilience;
- Reducing dependence on synthetic inputs and imported technologies;
- Strengthening farmers' autonomy, knowledge systems, and collective organization;
- Supporting inclusive, territorial markets and fairer value chains;
- Promoting social equity, decent livelihoods, and local food sovereignty.

10 ELEMENTS OF AGROECOLOGY FROM FAO, 2018	13 AGROECOLOGICAL PRINCIPLES FROM HLPE, 2019
» Recycling	1. Recycling
» Efficiency	2. Input reduction
	4. Animal health
» Diversity	5. Biodiversity
	7. Economic diversification
» Resilience	7. Economic diversification
» Synergies	5. Biodiversity
	6. Synergies (managing interactions)
	5. Soil health
» Co-creation and sharing of knowledge	8. Co-creation of knowledge (embracing local knowledge and global science)
» Culture and food traditions	9. Social values and diets
» Human and social values	9. Social values and diets
	10. Fairness
» Circular and solidarity economy	11. Connectivity
» Responsible governance	12. Land and natural resource governance
	13. Participation

Table 1: The 13 principles and 10 elements of Agroecology

See: FAO, "Sustainable food systems: Concept and framework," Food and Agriculture Organization of the United Nations, 2018, Link [Last accessed on 28 March 2025].

[2] FAO (2022). Lebanon Food System Report. FAO Rome.

[3] DCA Agroecology Hub, "What is Agroecology? Principles, elements, and levels of Agroecology," Link [last accessed on 28 March 2025]

1.2 Research objectives

The research was conducted within the framework of the "Road to Sustainable Food Production Program" in Lebanon, led by DCA and implemented by the Agricultural Movement, which aims to support smallholders in vulnerable contexts in transitioning to agroecology. The program approaches agroecology as a pathway towards more climate-resilient, environmentally sustainable, and equitable food systems.

The present study examines the local food system in Saida and its surroundings. As the gateway to South Lebanon and the country's third-largest city, Saida represents a major agricultural market hub. The research focuses production and consumption patterns, with particular attention to the potential of agroecological transition as pathway toward more resilient and sustainable system. Following the escalation of the Israeli war on Lebanon in summer 2024, the research approach was further adjusted to reflect the realities of conflict, displacement, and the anticipated phases of return, recovery, and reconstruction. This shift required the study to integrate questions of security, resilience, and the wartime relevance of food-system transformation.

As a result, the study combines analysis of the pre-existing food system with an examination of wartime disruptions and recovery needs, with a view to identifying opportunities to embed more sustainable practices in recovery and reconstruction processes. Grounded in the lived experiences of farmers and farming communities, the study addresses the following research questions:

- What are the impacts of the Israeli war on the Lebanese food system? What are the lessons learned from civil society response
- What is the reality of agriculture in Saida from the perspective of small farmers?
- What are the impediments to agroecological transition?

2 Methodology

Approach and tools

The research adopted a mixed methodology, triangulated literature review, with primary qualitative and quantitative data.

The literature review was based on published studies, articles, as well as unpublished investigations, especially those connected with AgriMovement's work. Field and training reports developed by DCA and AgriMovement's also provided valuable insight. They ensured synergy with farmers' experiences and aspirations.

Semi-Structure Interviewees. Semi-structure interviewees and community discussion with farmers provided key findings and insights into farmers challenges, living conditions and readiness for agro-ecological transition. Interviews were also conducted with farmers who transitioned or are transitioning into chemical-free farming. In total 10 farmers were interviewed (9 men and one women), with age ranging from 21 to 71 years old. 4 out of the 10 interviewed farmers live on their farms and receive support from a single family member.

To complement the information from farmers, two merchants at the Saida wholesale produce market (al-Hesbeh) were interviewed, followed by an interview with the head of Saida Municipality. For insight into the situation of farmers and previous experiences, interviews were held with the ILO and Farah Social Foundation. Primary qualitative data collection culminated in a meeting held at Sikka Community Farm in Saida following the cessation of major hostilities (the so-called ceasefire) on 6 February 2025. The meeting looked into the post-war recovery process based on farmers' war-lived experience and expectation for the future.

The core of the study is based on **primarily quantitative data** collected with 41 farmers. The survey results were also triangulated with the findings of the *Hazard to Harvest* assessments.[4] The survey look at farmers living conditions, key production and marketing challenges, as well as a detailed review of agricultural practices. The survey was also supported by a needs assessment of 10 farmers from the Road to Sustainable Food Production program.

Throughout the research, the AgriMovement research team's close engagement with farmers enabled the collection of **field-based observations**. These observations opened the way for an in-depth discussion on the main challenges involved in transitioning to agroecology, based on the direct experience of farmers navigating this transition and the needed policy and institutional support.

Research limitations

The research faced significant challenges due to the escalation of the Israeli war on Lebanon in Fall 2024. The war required an adaptation of the research objectives to capture its impact on farmers (see above section), as well as adjustments to field data to account for the security

[4] DCA, "Hazard to Harvest Project," Assessment by field team, 2023, *unpublished.*

situation, and population displacement, e.g. a survey targeting consumers in the city had to be postponed due to the continuing hostilities.

The war physical and psychological impact on farmers significantly increase farmers research fatigue and reduced the willingness of some in participating in the survey, reducing survey response rate to 46% (41 respondents from 89 targeted farmers). In addition to the impact of the war, low response rate can also be attributed to several factors including:

- Farmers leasing agricultural lands were more reluctant to participate in the research, i..e did not wish to answer questions related to "someone else's land".
- The general perception that research does not yield any benefits.
- Some agricultural workers that manage plot but are not involved in marketing and sales, also tended to be more reluctant in participating into the research
- Some previously identified farms had been converted to real estate use.

Overall, the survey low response rate was mitigated by increased direct interpersonal interaction between AgriMovement research team and farmers interaction, which were documented in the team's field observation notes.

The war also had a direct impact on the research team. Several team members live or have family members living in South Lebanon. During the war, AgriMovement team directed most of their efforts towards supporting IDPs, including many farming households. Interaction with IDPs from the surrounding region and participation in food aid activities prompted the incorporation of the effects of the war within the current research, looking into agroecology as a potential tool for post-conflict recovery and reconstruction.

Research report outline

In the following sections, the report first provides a summary of the documented impacts of the 2023–24 Israeli war on Lebanon (Textbox 1). Section 3 then reviews the political economy and key structural challenges of Lebanon's agriculture. Section 4 discusses specific dynamics in Saida and its surroundings, while Section 5 presents the key research findings from primary data collection. Section 6 maps current public and donor-funded interventions. Finally, Section 7 concludes and provides recommendations.

Textbox 1: War impact on Lebanon Agriculture

Since October 2023, the Israeli army has killed 4,244 people and injured 17,506, of which 335 killed and 973 injured, following the November 2024 cease-fire.

[Ecocide] The war also had a significant impact on agricultural land, forests, and ecosystems, including the Israeli army use of white phosphorus ammunition, and regular spraying of highly concentrated herbicides. Overall, it is estimated that 2,200 hectares of land were destroyed 340,000 heads of livestock were killed. The loss of fruit orchards and forests is expected to require multiple years for recovery. Fruit-bearing trees such as olives and citrus typically require around three years to resume production and up to ten years to reach full yield potential. As a result, their destruction represents a prolonged setback for farmers, with livelihood impacts likely to extend over the next decade. In term of water infrastructure, more than 46 water facilities across the country have been damaged, including the Qasmiyeh pumping station that provide water to from the Litani river to more around 6,000 ha of agricultural land in South Lebanon.

[Loss of income] Nearly three-quarters of the farmers South Lebanon and Nabatieh Governorate temporarily lost their primary source of income. According to the UNOCHA, "the hostilities severely impacted agricultural production and, critically, people's safe access to their agricultural land. Despite the cessation of hostilities agreement in effect, access to agricultural areas remains restricted in southern border regions, and recovery will require sustained support and access". A rapid needs assessment conducted by FAO and MoA found that the impact is most acute in the southern districts of Bent Jbeil, Nabatieh, Marjaayoun, and Tyre. In those areas, approximately 95% of agricultural households have been displaced, and have lost access to their land during the war. In Baalbek-Hermel and Bekaa, where land is relatively more accessible and agricultural activities continue, farmers struggled with value chain disruption, such as lack of inputs, scarcity of labor, and absence of markets.

[**Monetary terms]** The World Bank estimated total damaged at US$6.8 billion and economic losses at US$7.2 billion. The total recovery and reconstruction needs were projected at US$11 billion. According to the report, "the Agriculture and Food Security sector has suffered extensive damage and losses, with significant impacts on crop production and livestock." It estimates the damage at US$79 million and losses at US$742 million, primarily from reduced agricultural revenues. For recovery, US$412 million are required, including US165 million for infrastructure and US$247 million for emergency food security assistance.

[Food security] According to UNOCHA, the decrease in local food production, combined with disruptions to the Lebanese economy and hyperinflation in food prices in recent years, has worsened household purchasing power. The monthly cost of the Survival Minimum Expenditure Basket (SMEB) surged by 17% in December 2024, compared to December 2023, reaching LBP 40.6 million ($449) for a family of five. The conflict escalation in September 2024, alongside infrastructure damage and displacement, further compounded food insecurity for both Lebanese citizens and refugees in the country.

Sources:

UNOCHA flash updates - HYPERLINK "https://www.unocha.org/publications/report/lebanon/lebanon-flash-update-53-escalation-hostilities-lebanon-02-january-2025"Link

World Bank (2025). Lebanon Rapid Damage and Needs Assessment – HYPERLINK "https://documents1.worldbank.org/curated/en/099030125012526525/pdf/P506380-f58e9761-b29e-4d62-97c3-ebf5a511c4e1.pdf."Link

3 Lebanon's Agriculture: An alternative sector diagnosis

3.1 Historical and Structural Factors

Lebanon's food system suffers from chronic structural problems including a deficiency in food production, an exploitative agricultural labor sector, and a lack of environmental sustainability. Lebanon's agriculture production is fragmented and farmers are dependent on financial capital and terms of trade . There is a clear polarization between large and export-oriented agricultural industrial farms on the one hand and small owners who suffer from a lack of capital on the other.[5]

This dynamic is in direct conflict with the interests of smallholder farmers, who are often reduced to price takers and pushed to adopt mono-cropping industrial systems to remain competitive. As a result, small and even medium-sized farmers become embedded within production chains dominated by large food corporations, both locally and globally, that are linked to multinational food and chemical companies. This system drives farmers into significant debt, arising from the costs of industrial hybrid seeds, agricultural inputs, and access to wholesale and retail markets.

The consequences of this system extend beyond financial burdens, impacting farmers households' due to the reliance on harmful chemicals and the lack of adequate healthcare support. Smallholders, thus, find themselves isolated and under constant pressure, trapped in an ongoing cycle of debt and environmental degradation. Contributing factors include volatile food prices, rising energy and input costs, excessive duties imposed by intermediaries, weak infrastructure, and a cooperative sector that is often influenced by political agendas rather than focusing on farmer needs and interests.

Farmers occupy a central role in the food supply chain, yet they remain among its most vulnerable actors. Many carry significant debt owed to input suppliers, financial institutions, and entities affiliated with large agribusinesses. Despite their foundational contribution to the sector, they are often excluded from key decision-making processes that shape agricultural policies and governance structures. This exclusion leaves them isolated in the face of powerful financial and political interests. Current agricultural policies tend to prioritize short-term economic gains, frequently favoring industrial farming practices reliant on chemical fertilizers and pesticides. These approaches pose serious risks to environmental sustainability and public health—impacts that are most acutely felt by farmers and their families. Strengthening the role of farmers in governance and supporting ecologically sound farming practices are essential steps toward a more equitable and resilient food system.[6]

[5] Kanj Hamade, "Right to Food in Lebanon," *Arab Watch on Economic and Social Rights: Right to Food*, Arab NGO Network for Development, Beirut, 2019, - link

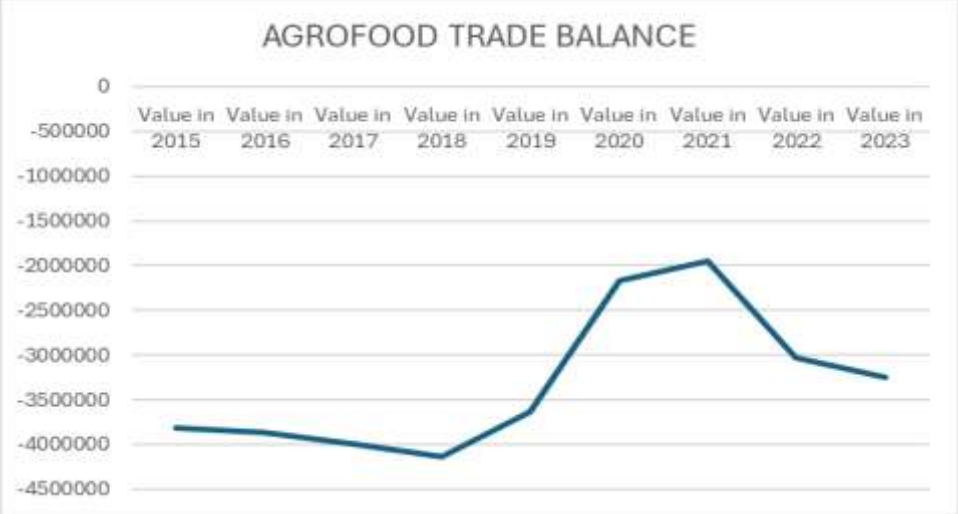
[6] For a discussion of food system governance, please see: Michel Pimbert, "Putting citizens at the heart of food system governance," International Institute for Environment and Development (IIED)," IIED Briefing, May 2012, link

3.2 Terms of trade

3.2.1 Food trade deficit

The domestic agrifood production satisfies only 20% of the local demand. As a result, Lebanon has an import dependency on most food products that, in some cases, such as grains and sugar, is very high."[7] Lebanese Customs data in 2024 indicated that the country imported US$3.3 million worth of animal, plant, and food products. The value of exports did not exceed US$702 thousand,[8] at a ratio of 1 to 5 also.

Figure 1: Lebanon's Overall Trade Balance (2015-2023)[9]



[7] *Lebanon National Agriculture Policy 2020-2025*, Lebanese Republic, Ministry of Agriculture, July 2020, link

[8] Sifr Magazine, "Social Media posts referencing Lebanese Customs Department data," 28/3/2025, link

[9] Source: International Trade Centre, Trade Map (www.trademap.org)

Figure 2: Lebanon's Trade Balance in agriculture, agricultural products, and processed food.[10]

Lebanon show a historical trend of food trade deficit. As indicated in Figures 2 and 3 the deficit decreased dramatically by 2018 until it began growing again in 2022. The reduction in the trade deficit arrived at the start of the financial crisis and the onset of COVID-19 and could be attributed to reduced spending, especially at the governmental level. Moreover, the reduction in the trade deficit during the last recorded period (2022-2023) did not apply to the agro-food sector, where it continued to grow, which attests to the volatility of the market and recent increases in food prices due to the Russian invasion of Ukraine and other global events affecting the market. **Overdependence on imported food impedes food security and exposes people to global market and supply chain fluctuations.**

1.1.1. Lebanon trade agreements

The main treaties that directly impact the agricultural land and agro-food sectors are:

The Euromed agreement: In June 2002, Lebanon signed an Association Agreement with the European Union, which came into effect in April 2006, permitting free access to the EU market for Lebanon's industrial and agricultural products. This agreement grants Lebanon duty-free access to the EU market for manufactured goods and preferential treatment for agricultural, processed agricultural, and fishery products. The deal is expected to abolish customs duties on imported products into Lebanon, 12 years after the entry into force. Moreover, Lebanese products would have access to preferential tariffs and quotas. However, the EU has implemented extensive non-tariff barriers to trade, especially in terms of phytosanitary requirements. Small- and medium-scale Lebanese producers face numerous challenges, and only large-scale producers can implement the required standards through measures such as the global gap certification. According to the Arab Watch Report on Economic and Social (2019), "Over the past years, bilateral agreements between Lebanon and the European Union have been steadily increasing, with total trade amounting to €7.1 billion in 2016, an annual average growth of 7.6% since 2006. Last year, Lebanon exported €0.4 billion to the EU, of which €0.1 billion were agricultural products (24.3%). Since 2012, the EU has ranked among Lebanon's main trading partners, absorbing 37.7% of Lebanese exports in 2015. Lebanon Customs Data.

The Greater Arab Free Trade Area (GAFTA) agreement entered into force in 1998. Including Lebanon, its membership extends to 17 Arab countries. Within the Social and Economic Council of the Arab League, the GAFTA agreement was announced as an executive program aimed at stimulating the Trade Facilitation and Development Agreement that had been in force since January 1998,1. Under this agreement, tariff rates, fees, and taxes would be gradually reduced, and all non-trade barriers would be removed.[11]

As Lebanon heads down the fast track to trade liberalization, some commentators, including UK-based charity Oxfam, predict a devastating impact on small-holder farmers.

[10] Source: International Trade Centre, Trade Map (www.trademap.org)

[11] Kanj Hamade, "Right to Food in Lebanon," *Arab Watch on Economic and Social Rights: Right to Food*, Arab NGO Network for Development, Beirut, 2019, link

Unable even to sell produce on the Lebanese market, let alone for export, these farmers are painfully unprepared to compete with subsidized imports. Yet little is being done to fortify the agricultural industry as the fruits of major bilateral and multilateral free trade agreements (FTAs) and liberalizing reforms loom on the near horizon.[12]

3.3 The reality of farmers and farmworkers

Agriculture accounts for only 3% of GDP. However, it contributes about 12% of the labor force on a full-time basis and another 13% (mostly unpaid family labor) is employed in the sector on a part-time or seasonal basis. The agri-food sector makes up one-quarter to one-third of the economy, employing a quarter of the industrial workforce. The employment of agriculture and agrifood industry is estimated at 24% of total employment.[13]

A marked dualism characterizes Lebanese agriculture. Agricultural holdings are divided between (1) a handful of large estates with easy access to credit and inputs and fully integrated with trade and industrial activities, and (2) myriad undercapitalized (see textBox 2 on access to finance), fragmented, and in most cases, small farms that are managed in ways that prevent them from being sustainable. Furthermore, a significant number of Lebanese agricultural workers and all Syrian agricultural workers are landless. Landowners either employ them to oversee large- and medium-sized orchards, rent land to plant seasonal crops or set up greenhouses. Inadequate land tenure is linked to low productivity and land degradation, as it encourages unsuitable practices, such as the overuse of inputs leading to soil and water pollution. Meanwhile, inheritance laws that facilitate the fragmentation of agricultural land impede efforts to reach economies of scale. It is estimated that about 70% of farm operators cultivate less than 1 hectare and only 4% of farms operate on more than 6 hectares. More than 90% of the food industry is composed of small businesses of less than 50 employees."[14]

Farming and agricultural labor remains mostly informal. Around 90 percent of Lebanese people, and almost all Syrians, working in agriculture do so informally. Agricultural labor is unregulated; therefore, there is no legal definition of “farmer” as a profession or “agricultural exploitation” as a business. The fact that definitions of legal and commercial status don’t exist implies the absence of any social protections for agricultural workers, such as health coverage or pensions. Before the Syrian refugee crisis, agriculture generated income for 170,000 part-ime and full-time Lebanese farmers, agriculture labor, and/or landowners. It is estimated that 200,000 Syrian refugees worked in agriculture in 2017. Around 24% of the Syrian refugees in Lebanon work in the agricultural sector,[15] and 85% of hired agricultural workers

[12] Yasmine Ryan, "Letter from Lebanon: Farmers risk losing big," bilaterals.org, link

[13] *Lebanon National Agriculture Policy 2020-2025*, Lebanese Republic, Ministry of Agriculture, July 2020, - link

[14] *ibid*

[15] Nour Turkmani and Kanj Hamade, "Dynamics of Syrian Refugees in Lebanon's Agriculture Sector," Issam Fares Institute for Public Policy and International Affairs, American University of Beirut, 2020, link

in Lebanon are Syrian.[16] Before 2011, 54% of the agricultural workforce in the Beqaa was comprised of Syrian migrants, while in Akkar, 90% were Syrian migrants workers. [17]

Migrant and refugees agricultural workers face difficult and unfair working conditions. Syrian agriculture workers work without contracts, receive low wags (with a considerable gap between women and men), long working hours, lack of protection, exposure to multiple health hazards, lousy working conditions, and cyclical poverty. They are also denied the right to form cooperatives or join existing unions. Legal restrictions and a general atmosphere of xenophobia following the Syrian refugee crisis impede their ability to organize around their everyday issues. Men and women Syrian workers "actively distance themselves from any form of mobilization in cases of exploitation, whether from the Syrian shaweesh or Lebanese landowners and employers. Yet, there are cases of solidarity, whereby refugees, particularly women, look after and protect one another." Furthermore, many women face harassment on their way to and from work, in the transportation trucks, and sometimes from the shaweesh (supervisor).

The cooperative sector in Lebanon faces a number of challenges that constrain its potential to contribute meaningfully to agricultural development. There is a need to shift perceptions among value chain actors regarding the role of cooperatives—from being seen primarily as extensions of public institutions or development programs to being recognized as independent economic actors that offer inclusive, democratic, and socially equitable models for management and income distribution. Political dynamics have at times influenced the way cooperatives function, with some being used to advance specific agendas rather than the broader interests of rural producers. At the same time, regulatory and institutional frameworks—particularly the interpretation and application of cooperative laws—have not evolved to support the sector's growth, limiting both the establishment of new cooperatives and the strengthening of existing ones. Enabling a more dynamic and independent cooperative movement will require legal reform, institutional support, and a renewed commitment to cooperative principles.

1.1.2. Climate change impact

The impact of climate change on Lebanon is tangible. Since the 1960s, the country has witnessed several climate trends, including: "Increase in annual mean temperature of 0.11°C per decade, more in spring and summer; increase in the number of hot nights by 7 percent (mostly in summer); decrease in precipitation of 11 mm per month on average (since 1950); increase in the amount of rainfall received during one-day extreme rainfall events; rising Mediterranean Sea levels of roughly 20 mm per year; increase of 1.3°C in Mediterranean Sea surface water temperature (since 1982)."[18] According to a UNRC office climate change is expected to negatively affect agricultural output and the livelihoods of many communities.

[16] Chaden el-Daif (ed.), "Access to Legal Stay and Labor for Syrians in Lebanon: Status and Prospects," Refugees=Partners and Heinrich Boll Stiftung, Beirut, 2018, link

[17] Turkmani and Hamade, 2020, op. cit.

[18] Ministry of Foreign Affairs of the Netherlands, "Climate Change Profile Lebanon," April 2018, link

Higher temperatures will also result in increased energy demand, putting a strain on businesses and services as they struggle to meet their power needs.[19]

The impact of climate change on Lebanon is further exasperated by outdated infrastructure and inefficient water governance. Years of underinvestment, compounded by shifting priorities and partial moves toward privatization, have left the sector ill-equipped to cope with growing climate pressures. Addressing these challenges requires a comprehensive, transparent, and inclusive strategy that prioritizes public interest, environmental resilience, and the rights of local communities. Water resources and supplies are expected to be at the center of climate change impacts, as "drier conditions are likely to further accelerate the depletion of groundwater supplies that are currently under pressure from extraction for agriculture and are also being polluted by industry. Anticipated climate changes would reduce exploitable water supplies by about 1% in 2020, 8% in 2040, and 29% in 2080. Lebanon's arid/semi-arid climate makes it poor in water resources availability and vulnerable to the impacts of climate change; the projected changes in rainfall will put additional pressure on national water security and impact sectors such as agriculture, where around 70% of the available water is being used for irrigation. The supply of hydroelectricity will diminish with anticipated declining precipitation and rising temperatures, reducing the water in rivers available for hydropower plants."[20]

Similarly, unsustainable land management are likely to further amplify climate change impact. Current land management practices in Lebanon are not sustainable as they continue to erode the country's natural resource base (soil, water, green cover, and landscape). While traditional practices such as terracing, controlled grazing, and forest management have helped protect the land, modern practices have significantly altered the natural and social make-up of the land including perceptions of natural resources. Population growth, the continued loss of arable land and biodiversity, concerns about food security and the expanding infrastructure due to population growth and urban sprawl are major factors impacting land resources and the natural environment. Land degradation has been flagged as a serious environmental problem in Lebanon, resulting in losses estimated at US$132 million yearly."[21]

[19] Najat Rochdi, Climate change in Lebanon: a Threat Multiplier," Op-Ed by the UN Resident & Humanitarian Coordinator for Lebanon, 01 September 2021, Link

[20] Ministry of Foreign Affairs of the Netherlands, 2018 op. cit.

[21] UNDP Lebanon, "Land Degradation Neutrality of Mountain Landscapes in Lebanon," UNDP Fact Sheet, 1 November 2019, link

Textbox 2: Access to finance

Limited access to finance is a major challenge facing small farmers. This constraint existed before the crisis and has been further amplified since it began. In fact, both previous and currently available financing mechanisms may not be fully adapted to the needs of smallholders.

Kafalat guarantees. As of 2000, Kafalat, a semi-public loan guarantee company, was set up to improve small and medium businesses access to bank loans by providing loan guarantees to eligible sectors and companies. Specific loans schemes were developed to support farmers. The Kafalat Agriculture program funded through an EU revolving funds in the framework of the ARDP (Agricultural and Rural Development Program), offered two products, a small farmers' product, and a 'trees' product. The Kafalat Loan was set up accordingly, and it accrued a fee of 2.5% paid by the borrower. Before reaching Kafalat for approval, the applicant's file and project must first be screened, assessed, and approved by the bank. The upcoming World Bank funded GATE project, is expected to work on the revival of Kafalat agricultural loans.

Micro-finance. Microfinance institution interest in financing small farmers has significantly increased following the 2019 crisis and the collapse of commercial banks. Rural Microfinance ndustry has boomed in the last decade, owing its exponential expansion to commercial banks' lack of investment in Lebanon's rural areas, as they have succeeded in tapping into the agricultural sector. Just before the onset of the 2019 crisis, the microfinance economy in Lebanon was estimated at 170,000 clients/households; its worth at the time can be estimated at about $170-200 million.

In Lebanon, nine institutions, grouped under the Lebanese Microfinance Association (LMFA), officially supply micro-financial services The largest microfinance institution in the market, excluding the Hezballah linked and under sanction Qard Al Hassan, is Al Majmoua, which counts 95,000 accounts and a portfolio of $100 million, approximately 55% of the market prior to the financial crisis. The other three financial institutions that offer microfinance services for profit are Vitas, , 49% of which is now owned by Saradar Bank (25,000 accounts), Emkan (owned by BankMed, which is itself owned by Harriri family) (14000-15000 accounts and a portfolio of $53 million), and Ibdaa, owned by the AGFUND (Arab Gulf Fund for Development) operating 18,000 accounts.

The trifecta of the microfinance industry, commercial banks (under the auspices of the monetary and fiscal policy of the Central Bank), and international financial complement each other to financialize every aspect of the agricultural food chain. Microfinance institutions financialize the unbanked populations, and small and medium farmers need constant liquidity with no access to bank accounts. Commercial banks, deploy financial tools and technologies that curb the market towards further financialization of the agricultural supply chain, rigidifying monopolies along the way and displacing financial risks onto atomized small and medium farmers while solidifying the expansion of agribusiness.

4 Localized Understanding: Saida as a Case Study

4.1 Agriculture in Saida: Land use and integration into the city

Agriculture was once at the heart of Saida's local economy and its cultural tangible and intangible heritage. The vast coastal fertile land and abundant water encouraged fruit production in the Saida orchards (Basatin). The Basatin also carried a cultural heritage and significance. They were frequented by families for promenades and picnics during Fridays and holidays, especially during the spring orange blossom season.

The total agricultural area in Saida is estimated at 233 ha (2013 data), and around half of it constituted citrus orchards (see figure 3 below). Fruits such as avocado and guava have been introduced over the past 15 years and, although successful, have not yet been produced in massive amounts. The Northern parts of Saida, south of the Awali River, are predominantly monoculture orchards, usually citrus or banana. In the central part of Saida's agricultural areas, south of the Wastani River, plots are smaller and have different owners, probably due to inheritance. There, orchards are more mixed, i.e., one type of crop occupies around 50% of the total cultivated surface. Cultivation in this area is highly affected by the availability of water. Some orchards are dying due to poor irrigation practices; not all lands have wells, and available wells are not shared. Like the North, in the Southern Dekerman area, large monoculture lands are predominant, with a high concentration of greenhouses. "Tadmin'' or outsourcing is common in the Dekerman area, and cultivation is usually intended for mass production. Overall, a significant number of small orchards are being transformed into private gardens, and worse, many orchards are being entirely removed due to increase urbanization.

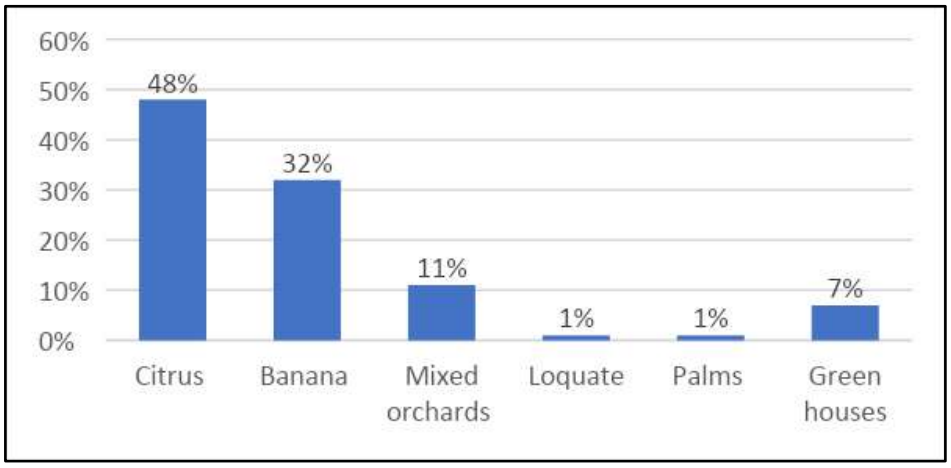


Figure 3: Distribution of main crops in Saida[22]

[22] Based on data from: Makhzoumi J, Al-Sabbagh S. Landscape and Urban Governance: Participatory Planning of the Public Realm in Saida, Lebanon. Land. 2018; 7(2):48. https://doi.org/10.3390/land7020048

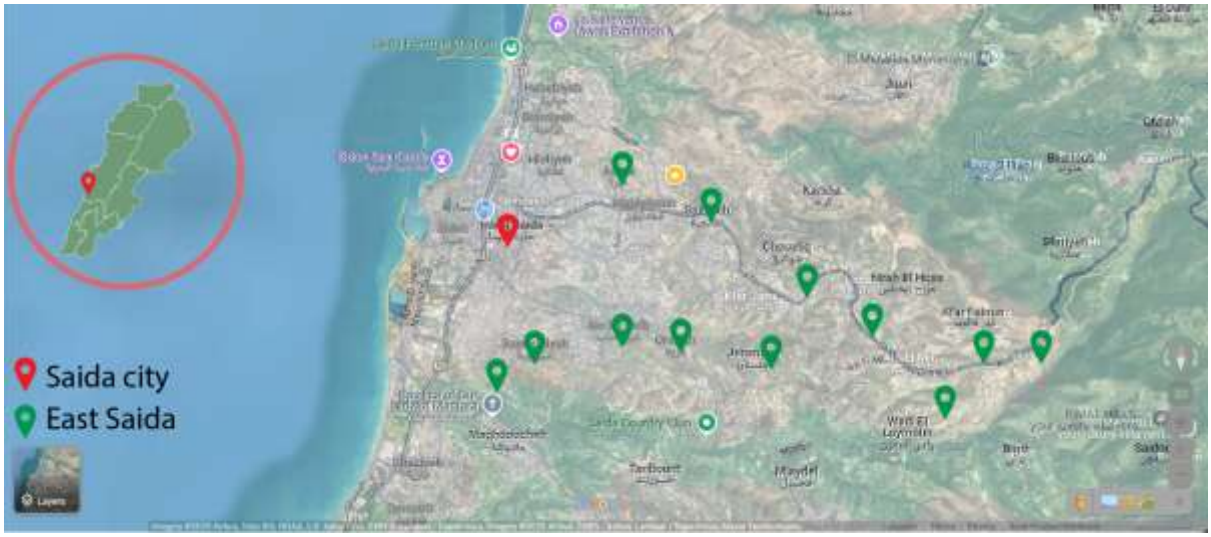


Figure 4: Map of Saida and surroundings.

The Saida Sustainable Urban Development Strategy (SSUDS, 2013) report identified the following long-time trends in the agricultural sector of Saida:

- **Spiraling urbanization and shrinking agricultural landscapes:** During the 1980s a large portion of agricultural land was repurposed with the re-parceling of the Wastani River Watershed and the increased pressure of urbanization. It is estimated that an average of 4.5 ha of agricultural land is loss every year to urbanization. Spiraling urbanization has further exasperated challenges related to land fragmentation, breaking irrigation network, and lowering productivity. This further incentivize landowners to gradually sell small plot of agricultural land for real estate purposes.

- **Outdated agricultural practices**: The SSUDS concludes that, without improvements, agriculture in Saida is highly likely to become unprofitable. This conclusion was confirmed by the present research data collection. This conclusion was confirmed by the present research data collection.

The low profitability of conventional farming practices, in a peri-urban context, remains a major concern with farmers expressing increased interest for sustainable forms of production. Farmers interviewed by the research reported high cost of inputs, especially inputs required to ensure productivity of improved hybrid seeds promoted by input suppliers. Many farmers mentioned considering quitting farming, while others are waiting for opportunities to sale. The potential of agroecology to improve revenues through a more sustainable use of inputs, and thus through lower cost, was well received by farmers interacting with the research team. However, many remained concerned about the risks associated with the transition. In addition, several farmers reported increasing pest pressure and declining pesticide efficacy, which prompted them to seek information and alternative solutions online. Many expressed surprise at the effectiveness of natural remedies they identified through these searches.

4.2 Farmers profile

4.2.1 Surveyed conventional farmers

The average farm size is around 5 dunums (0.5 ha), reflecting a pattern of small land size, with around 51% of farm being under 0.5 ha and 29% above 2ha (See Figure 5 below). The production profile is dominated by orchard-based farming. The vast majority of surveyed farmers (85%) manage orchards, mainly citrus and olives, while 31% cultivate both permanent and annual crops (mostly vegetables), and 15% grow only vegetables**.** This suggests a farming system centered on perennial crops, with a substantial share of farmers also maintaining diversified production systems. **Around one third of surveyed farmers reported recently reducing their planted area** due to rising production cost, especially for pest management, and a decline in farm-gate prices. Together, these factors have significantly reduced overall profitability.

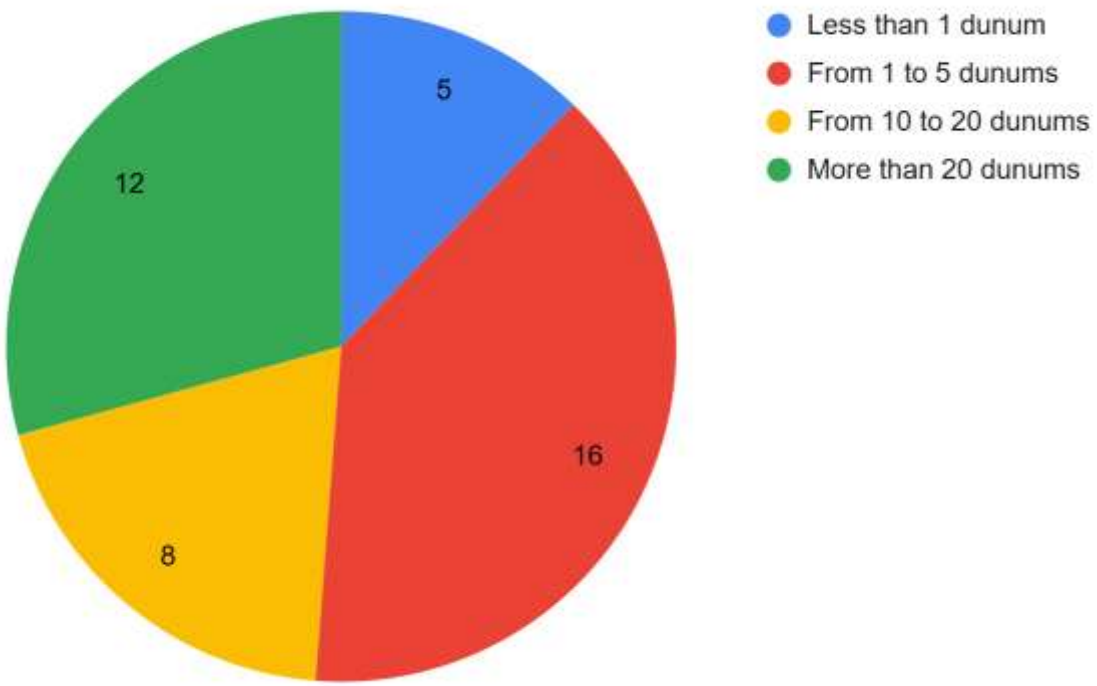


Figure 5: Land holdings in dunums (0.1 ha).

Farmers in the surveyed sample show a mixed production profile combining traditional and modern practices, with some appearing to use elements of both systems. Of the participants, 44% reported relying mostly on traditional farming methods, which they associated with practices such as organic fertilization, avoiding chemical inputs, simple tools, soil tillage before planting, and surface irrigation. While 38% reported using modern farming

methods, including chemical inputs, agricultural machinery, plastic greenhouses, and drip or sprinkler irrigation.

In practice, however, the overall input-use pattern suggests a strong dependence on commercial and chemical-based agriculture. The majority of farmers reported purchasing seeds from agricultural input markets and shops in Saida, while only 5% reported using heirloom seeds. Chemical input use was highly prevalent: 68% of farmers reported using chemical pesticides and 58% farmers reported using chemical fertilizers. Although 17% of farmers reported using organic fertilizers, concerns were raised about their availability and affordability, indicating potential barriers to wider adoption.

Around half of interviewed farmers concerns about low soil fertility. Improved soil management practices such as composting, green composting and mulching are not widely adopted, only 15% of interviewed farmers reported using this technics. Most farmers burn crop residues, driven by limited knowledge of sustainable alternatives. Nonetheless, many expressed willingness to adopt these practices if provided with adequate training, appropriate equipment, and stronger awareness of their positive effects on soil health and yield.

Farmers appear to have limited engagement with collective organizations. Only 7% of farmers reported being cooperative members or interacting with cooperative like organizations, i.e. René Moawad Foundation (RMF), Olea in Jezzine, and the Union of Agricultural Workers in Saida. This low level of membership suggests weak collective action. Farmers who are members of cooperatives or unions reported better access to resources, including access to seeds and inputs, as well as knowledge sharing. The limited engagement of farmers in cooperatives reflects findings from previous surveys conducted by AgriMovement under DCA's *Hazard to Harvest* project, which focused on mine-cleared agricultural lands. While cooperatives are numerous in Lebanon, they often operate with narrow mandates and are frequently affected by political influence. This has limited their effectiveness and credibility and underscores the need for more transparent, inclusive, and farmer-led cooperative models.

4.2.2 Farmers transitioning to agroecology practices conventional farmers

Farmers transitioning to agroecology are small-scale, livelihood-oriented producers with a growing openness to low-input and sustainable practices. Farming represent a core source of income and daily subsistence, even though earnings are modest. Their pathways into farming are rooted in family knowledge and experiential learning, sometimes complemented by training from local support organizations, which suggests a transition process built on both tradition and exposure to new ideas. Agroecology farmers are driven by a combination of self-sufficiency, environmental concerns, and personal commitment to farming, indicating that agroecological transition is not only an economic adaptation but also a values-based choice

for many. Paradoxaly, collective representation and cooperative structure are limited, despite shared values.

Farm practices reflect agroecological principles. Agroecology farms are typically diversified, often combining crop production with livestock. A key practice is the preservation and exchange of heirloom seeds, reflecting both local knowledge and a concern for seed quality and autonomy. Farmers show wide adoption of natural fertilization practices and awareness of circular resource use, including composting and repurposing agricultural waste for soil cover or animal feed.

4.3 Farmers' human capital

On average, the farmers were in their late forties, with around one third of farmers aged 60 years old and above. Many farmers stated being " born on the farm", an expression they used to express their long experience in farming. Most farmers lease all or part of the land they cultivate.

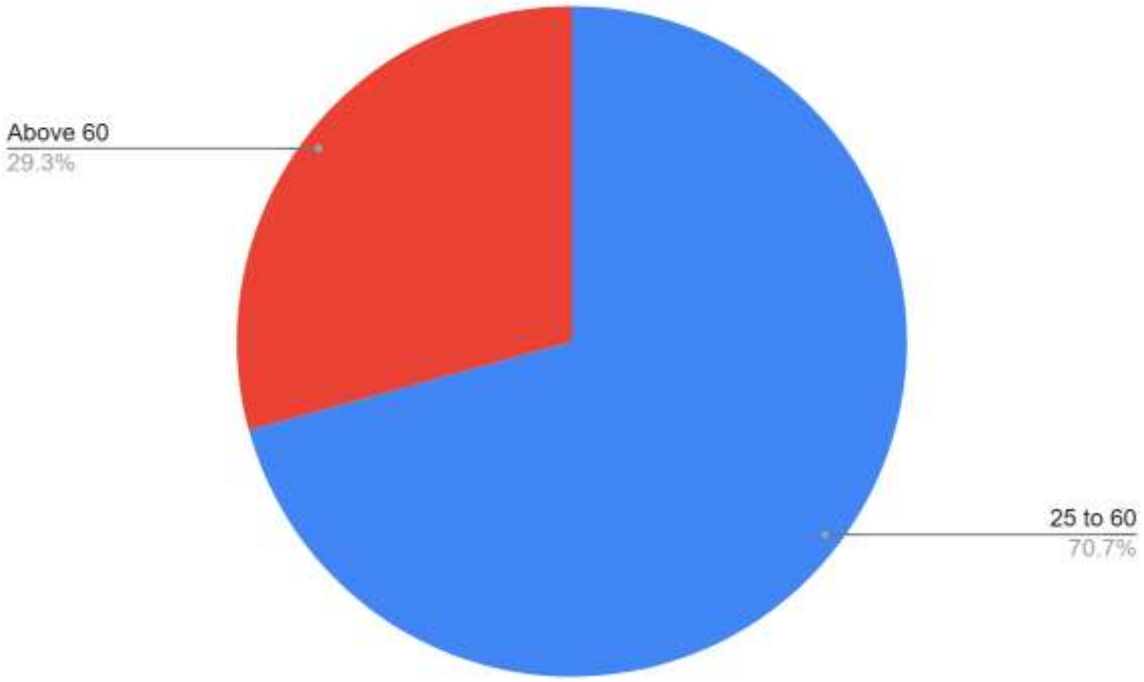


Figure 6: Age distribution of farmers

Most farmers have only achieve primary education (55%), with 30% achieving secondary education, and 15% achieving higher education level. These figures suggest a moderate-to-low formal education profile, which can shape how farmers access and use technical information, and administrative procedures (e.g., certification, licensing, loan applications).

With most farmers at primary education, adoption of new practices may depend more on hands-on training, demonstration plots, peer learning building on the farmers extensive know-how (versus potentially limited know-why). The presence of a sizable minority with higher education indicates there is also capacity within the farming community to engage with more technical content, support record-keeping, and potentially act as "lead farmers" or early adopters who can help diffuse innovations.

Around 65% of interviewed farmers reported health problems, including respiratory issues, skin allergies, and chronic conditions like diabetes and high blood pressure. Pesticide-related health issues are mentioned by around two-third of farmers facing occupational health issues. However, farmers reported that input suppliers representative continue to promote pesticide use, often without providing adequate guidance on safe handling and health risks. At the same time, most farmers lack social security and health insurance, which limits access to healthcare and treatment when needed.

Farmers primarily rely on hired daily labor to manage their farms. Around 70% of farms rely on employing farmworkers, mainly Palestinian and Syrian refugees, while the remaining 30% depend mostly on family labor. Around a third of interviewed farmers reported difficulty in securing seasonal and daily labor because of the relative increase in wages. Furthermore, several farmers told the research team that they struggle to convince their children to take over farm activities. While farming families have traditionally passed knowledge and responsibilities from one generation to the next, many now find it difficult to encourage young people to work in agriculture, given limited social and economic prospects.

4.4 Water and energy

Access to irrigation water is a major concern for most farmers. Around half of interviewed farmers rely on artesian wells, while 20% relies on local irrigation network, and a significant 30% relies on harvested rain water which are mainly used supplementary irrigation of small winter-crop plots and/or intercropped olive orchards. Water scarcity and increasing demand are placing significant pressure on artesian wells, alongside growing concerns about water quality, including nitrate contamination, pesticide residues, and rising salinity. Rainwater-harvesting structures are also vulnerable to contamination, particularly when they built without proper lining, insulation, or reinforcement. Meanwhile, the local irrigation network requires rehabilitation and regular maintenance to function reliably.

Rising cost of energy, needed for irrigation, is a key challenge for farmers and represent a significant share of production costs. Most interviewed farmers reported difficulties securing water because of power outages and the high cost of diesel. Only a small proportion of farmers (20%) currently use renewable solar energy for pumping. Overall, uptake remains limited, largely due to the high upfront investment required.

4.5 Market access

Most farmers in Saida are market-oriented, with 90% selling their products; however, the 10% who practice subsistence farming is not negligible. These figures suggest that a meaningful share of farmers uses agriculture primarily as a household resilience strategy. This often reflects a context of constrained profitability, where rising input costs and low farm gate prices reduce the farmers ability to produce for sale. It also highlights structural limitations such as very small landholdings, limited access to capital and irrigation, and weak market access or bargaining power. In this setting, producing mainly for household consumption becomes a way to protect food security and maintain a minimum level of self-sufficiency.

The most common sales channel is Saida's wholesale market (Al-Hesbeh), used by 54% of farmers; however, direct sales and other local market channels also account for a significant share of marketing outlets. Around 40% of farmers use direct sales to consumers, and 27% sale directly to local fruits and vegetable shops (see Figure 7) This finding reflects the existence of a local food system dynamics as well as the use of alternative sale strategies by farmers. While Al-Hesbeh acts as a central hub, farmers diversify marketing strategies to manage price volatility and transaction costs such as transport and wholesale commissions. This also indicates that farmers operating at small scale and/or with mixed crop portfolios, select different outlets depending on crop type and quantities. This finding reflect a longstanding dynamics already noted by SSDU (2013).

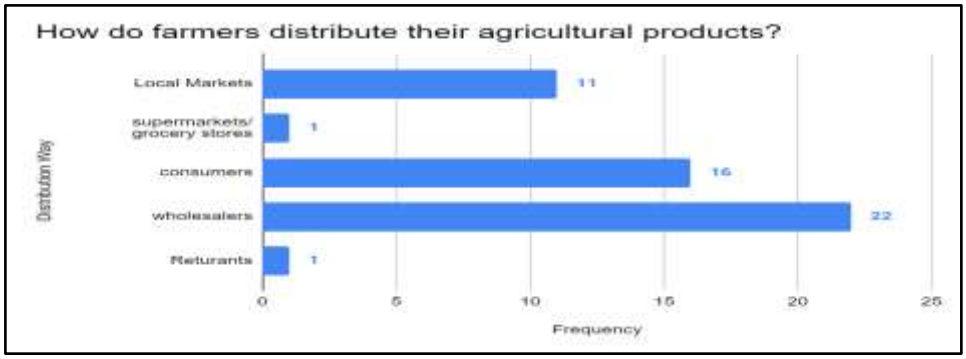


Figure 7: Distribution means

Farmers diversification strategy is reflected in on-farm processing activities as well as in farmers future plans and expectations. Around 20% of farmers reported engaging in value-added activities such as producing rose water, orange blossom water, pickles, vinegar, and thyme, for both home use and local interpersonal sales. Furthermore**,** as shown in figure 6, 32% of farmers which to diversify production to include beekeeping (15%) or animal production (17%). This tendency is align with potential agroecological transition that relies on diversification and mixed crops-livestock production.

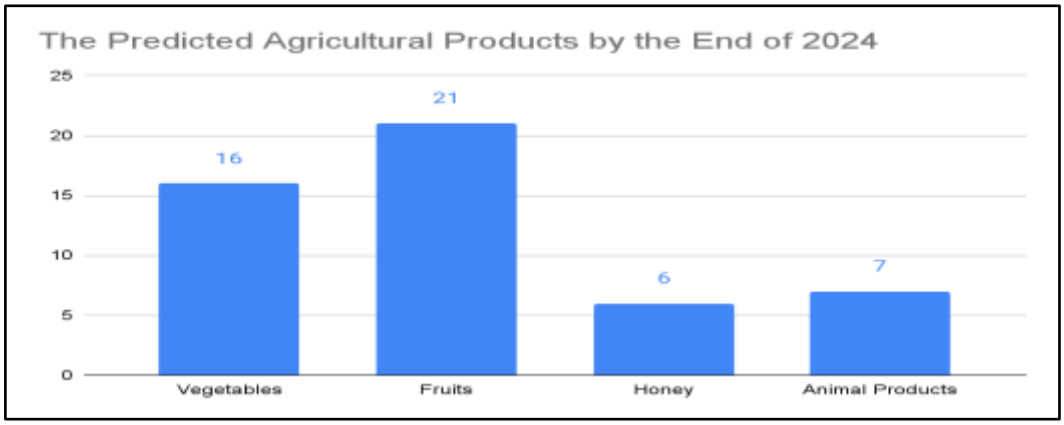


Figure 8: Expected crops by the end of 2024

Around 61% of farmers reported facing significant challenges with untransparent wholesales dynamics.. Farmers stated that Saida's wholesale market (Al-Hesbeh) does not provide fair prices, and impose high commissions, which usually causes financial loses to farmers. This market works as an a traders oligopoly which pushes prices low. In fact, the creation of a local market that allows farmers to sell their crop production with a fair value system was a demand reported by many farmers. (see Textbox 3: Saida's Hesbeh).

Textbox 3: Al-Hesbeh

Saida fruits and vegetables wholesale market, Al-Hesbeh, is owned and manage by the Municipality of Saida, it was initially established to offer wholeslsae market services for South Lebanon, in fact Al-Hesbeh does provide services to a large number of farmers beyond Saida and is a key hub for citrus, avocadoes and bananas. Al-Hesbeh also serves as a distribution hub for imported agricultural produce coming from, or transiting through, Syria. At the time of the research, however, the volume of imported goods was significantly lower due to the ongoing war and the temporary disruption of supply routes.

Al-Hesbeh use to operate under the oversight of a local committee nominated by the municipality. The committee role was to monitor and regulate sales activities. According to the head of Saida Municipality, official monitoring and guidance ceased around ten years ago, with external factors, such as the economic crisis and the COVID pandemic, further delaying the establishment of proper governance mechanisms. The municipality confirmed that discussions are ongoing to create an official management board responsible for setting internal regulations, monitoring, and accountability. In the meantime, key informant stated that power in the market has since consolidated among a small group of influential traders, “these few large traders now set the rules and control the terms of exchange within the market”.

The market function based on consignment sales, where traders set prices and receive a 10% commission. Transports cost and unsold products are at the farmers responsibility. Payment used to be made with delayed checks, however, since 2019, farmers received payment directly in cash. Interviewed farmers expressed concerns about untransparent price setting and unfair practices such as weight and volume fraud.

Al-Hesbeh, like all wholesale markets in Lebanon, does not operate through auction sales, and quality grading is largely determined at the discretion of traders. Agroecological farmers reported that the market (and consumers) tend to favor standardized, “nice-looking” produce, even when it is chemically treated. As a result, chemical-free produce is not differentiated from chemically treated produce at the wholesale level and is generally priced the same. In contrast, these product receive a premium at retail level, consumers may pay a premium, while the wholesale system does not transmit that added value back to farmers. In practice, many farmers continue selling through Al-Hesbeh rather than incurring the additional costs of transporting produce to specialized outlets in Beirut. Even when they view wholesale prices as unfair, they often accept them because it remains the most accessible option.

4.6 Farmer’s financial capital

A significant percentage of farmers report low-income levels, with many indicating a decline in income due to the economic crisis. Approximately 68% of farmers mentioned having financial difficulties with significantly decreased income financial struggles, including reduced profits and difficulty covering costs leading to significant decrease in income. While only 10% of farmers report an increase in income and 22% mentioned overall stable income. Around half of surveyed farmers have also reported being indebted with the larger share of the debt being hold by input suppliers.

The decrease in farmers' income reflect a compounding set of production and support constraints, including productivity issues, access to input and technical support, as well as the lack of government support policies. Interviewed farmers reported that yields have been inconsistent and, for many, have declined due to unpredictable weather and soil degradation, as well as pest management challenges Similarly, livestock productivity is reduced by high prices of feed, disease issues, and lack of local affordable veterinary services. Agroecological farmers, reported facing challenges in seed storage that often lead to losses and poor germination. These pressures are exacerbated by the lack of extension services and MoA supporting policies.

4.7 Agroecology transition: challenges and good practices

4.7.1 Farmers key challenges

In addition to limited institutional support (see section below)**, the research survey highlighted a set of interlinked constraints that collectively slow farmers' ability to adopt and sustain agroecological practices** (see figures 9 and 10) . **Financial constraints are the most frequently reported barrier (80%),** reflecting farmers' limited capacity to absorb risk during the transition period, invest in new infrastructure (e.g., irrigation upgrades, composting units, protected storage), or withstand short-term yield fluctuations. **This is compounded by water scarcity (70%),** which affects both production stability and the feasibility of practices that depend on reliable water access (e.g., diversified cropping, soil-cover management, and establishment of tree crops). In many areas, pressure on groundwater resources, quality concerns, and the rehabilitation needs of irrigation networks translate into higher costs and greater uncertainty—conditions that discourage experimentation and investment.

Knowledge gaps are also prominent (65%), pointing to limitations in extension, training, and applied advisory services. Even when farmers express willingness to adopt practices such as mulching, composting, integrated pest management, or improved seed saving, they often lack practical guidance, demonstration sites, and affordable equipment. This is visible in residue management, where burning remains common, and only a minority report adopting composting or mulching.

Market access constraints (55%) further reduce incentives to transition: without predictable outlets, fair prices, and consumer awareness farmers face difficulties capturing a premium prices or recovering additional costs. Finally, **input availability (45%) remains a meaningful barrier**. Agroecology is often framed as "low external input," but in practice farmers still require timely access to quality seeds, some soil amendments, basic tools, and energy for irrigation. Together, these constraints reinforce each other and create a environment in which farmers are disincentivized to transition to agroecology.

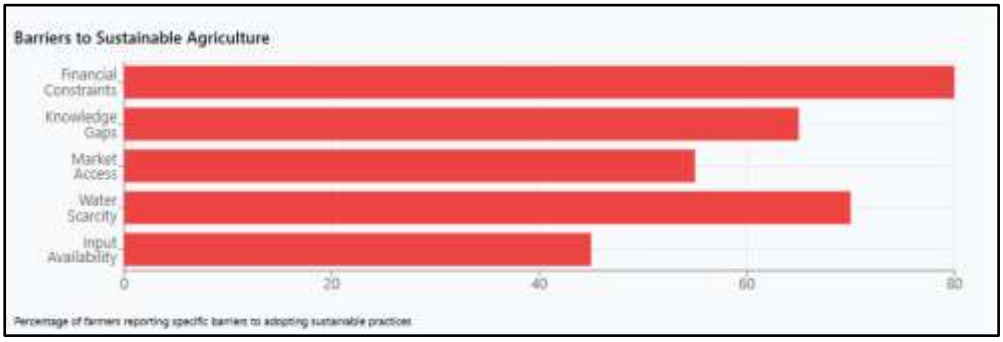


Figure 9: Barriers to sustainable agriculture

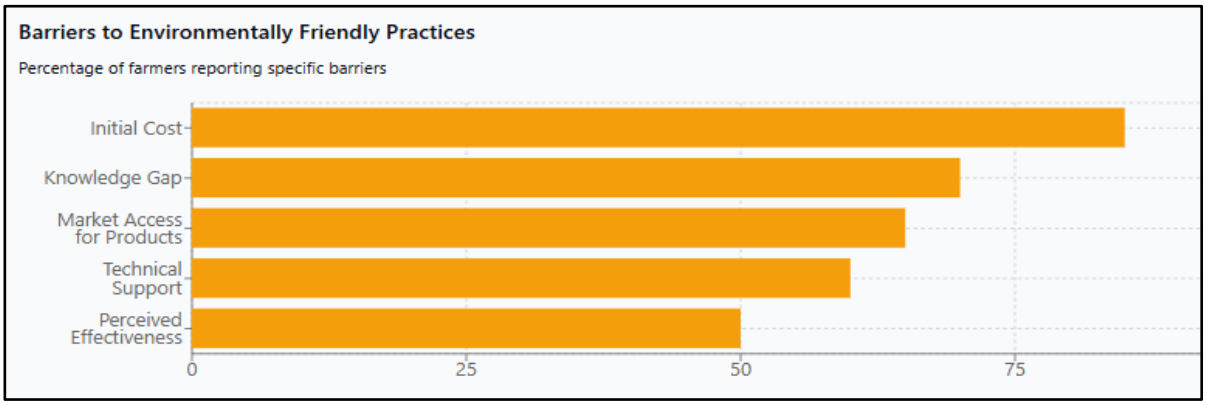


Figure 10: Barriers to adopting environmentally friendly practices.

4.7.2 Limited public support

Public support to farmers in Saida has been limited in recent years. This reflects both the constrained interest and capacity of the Ministry of Agriculture (MoA), and the relatively low priority given to interventions in a region where influential traders and large landowners, particularly within the sub-tropical crop systems (citrus, banana, and avocado), play a dominant role in shaping local agricultural dynamics. These local food-system dynamics likely disincentivized MoA engagement, contributing to a preference for a *laissez-faire* approach rather than designing and implementing farmers centered interventions. Similarly, UN agencies and international NGOs have largely prioritized programming in the Beqaa and Akkar, which were considered higher-priority areas due to the impacts of the Syrian crisis.

Similarly, local municipalities support to farmers is limited to the, now halted, management of Saida's wholesale market. According to interviewed municipal council leaders, municipalities do not consider agriculture to fall within their mandate, viewing it as the sole responsibility of MoA.. Many interviewees, however, described this as a misconception, and a justification of the chronic mismanagement of municipal resources. They argue that strengthening the local enabling environment for farmers' livelihoods by investing in practical, inclusive learning and support systems, with a focus on market-relevant skills, digital literacy, and the adoption of appropriate technologies, is an example of potential municipal support

and involvement. More importantly, the integration of agriculture into the city local development strategy as suggested by Saida Sustainable Urban Development Strategy (2013), could not only be a way to support farmers, but also significantly improve local economic and living conditions.

4.7.3 Civil society dynamics

Following the 2019 crisis, several grassroots and community based initiatives have sprang-up in Saida and across Lebanon to advocate an agroecological shift based on the right to food principles. The post crisis growing interest in sustainability and eco-conscious farming has encouraged activist circles to launch alternative agriculture initiatives, either by creating cooperative marketing outlets in cities or by reclaiming and cultivating farmland using non-conventional practices. For example, Saida and the Ain El-Helwe Palestinian Refugee Camp have witnessed a recent surge of local initiatives, ranging from rooftop gardening to securing small plots and establishing micro-farms or community gardens.

Yet many initiatives remain fragmented, limited in scale, and difficult to sustain over time. A key reason is the short planning horizon of donor funded projects: time-bound and vulnerable to shifts in donor priorities or abrupt administrative decisions, meaning that even successful interventions can be discontinued, interrupting valuable learning processes and undermining continuity. Another recurring limitation is that most initiatives have concentrated on the supply and production side in rural areas, while paying less attention to demand and consumption dynamics, particularly in urban markets where consumer preferences, purchasing power, and distribution channels strongly shape farmers' decision to transition.

4.7.4 Lessons learned from the AgriMovement interventions

The Road to Sustainable Food Production Program, funded by DCA and implemented by the AgriMovement is an evidence-based project, that aims to support the transition of small-scale farmers to ecological farming practices, through promoting sustainable food production, enhancing food security and self-reliance, building climate resilience, encouraging biodiversity, and farmers empowerment . Overall, the project aims to create a sustainable and resilient food system by supporting the adoption of agroecology.

A self-implemented learning exercise showed that the intervention achieved meaningful shifts in farmers' knowledge, practices, and cost structures, highlighting several lessons for future programming. **Prior to the intervention, most farmers had limited awareness of how to farm without chemical inputs**, and many held a strong belief that seeds could not germinate or produce viable yields without synthetic fertilizers and pesticides. At the same time, farmers consistently reported the high and rising costs of chemical inputs, alongside

increasing challenges in pest and disease management, including perceptions that pests were becoming more aggressive and less responsive to commonly used pesticides. These dynamics translated into weak farm profitability, with many farmers describing low or even zero profit from marketing their produce.

Following participation, the learning exercise indicated that training and accompaniment can rapidly improve both confidence and adoption of agroecological practices. Farmers reported stronger awareness of agroecological options and began applying practical alternatives, including the on-farm preparation and use of natural pesticides and fertilizers. A notable outcome was the preservation and exchange of heirloom seeds, suggesting that interventions can strengthen local seed systems and farmer-to-farmer resilience when they intentionally support seed saving and sharing. Importantly, farmers reported a sharp reduction in production costs, primarily due to the elimination of recurring chemical input expenses, implying that the economic case for transition becomes more tangible when programmes prioritize low-cost, locally available solutions. Finally, the emergence of farmer-led diffusion was a key lesson: participants actively shared learning with peers and invited other farmers to observe and learn, underscoring the value of demonstration effects and social networks in scaling adoption beyond direct beneficiaries.

Textbox 4: Transition to Agroecology: success stories from AgriMovement's interventions

Ahmad's Lemonade. Ahmad is a young farmer who lives at the Sikka community farm in Saida. A year ago, he started a small side business with his wife to increase their household income. They named it "Tarte." They produce two items and sell them at local festivals and venues: lemonade concentrate and Lemon Pies.

Ahmad and Maysa, his wife, became well known for their Lemon concentrate's authentic and tasty flavor, which allowed them to expand to Beirut. Their primary source of Lemon is grown at the Sikka lemon and banana farm with zero chemical inputs. Their orchard couldn't supply them with the needed amounts of lemon, so they turned to Botrous, a lemon farmer in Darb El Sim (Southeast of Saida) and a program participant.

Agroecology as tradition: the story of Boutros. Boutros is a farmer running his family's lemon orchard, which dates back to the 1970s and was under his father's management. As a kid, Botrous helped his father with lemon-growing practices. Seven years ago, in 2017, he decided to stop using chemical inputs and rely on traditional ecological methods. His participation in the program contributed to sharing the knowledge he acquired, promoting environmental farming practices, and testing new techniques with the AgriMovement team.

Botrous attended the training on ecological farming practices and, directly after the session, started with mycelium solutions at his farm. He sourced the mushrooms as instructed from within his farm and ecosystem. We visited him two weeks later to find that his solution was almost ready to use. The mycelium solution had a positive impact on his plants. He is sharing this solution with fellow farmers in the program.

Botrous is used to "cook" pesticides from natural sources. His recipes are tested on his farm. The ingredients are sourced from natural, trusted sources through an old rock and soil market value chain. So, he is always highly interested in testing new solutions on his lemon trees. The trees that his father planted in the early 1970s are of local origin and generous in their production, as he describes them. Botros applied all the techniques suggested to him and will be growing several types of local varieties.

5 Conclusions & Recommendations

5.1 On the war and post-war recovery: building back better

The 2023/24 Israeli war on Lebanon shed light on the importance of transforming Lebanon's unsustainable, unfair, and import-dependent food system. It made it impossible to ignore the need to localize and secure our food systems. Resilience begins with food sovereignty, i.e. the ability to make decision on what and how we produce, preserve, and market food. Lessons from both Gaza and Lebanon has that access to food and starvation can be and are used "as methods of warfare" emphasizing that starvation "can be slow, structural, and political" [23].

A critical step is to reclaim and scale the use of heirloom seeds, which are culturally embedded, climate-resilient, and vital to seed sovereignty. In parallel, inputs like compost and natural fertilizers can and should be produced locally, supporting closed-loop, regenerative systems that empower farmers rather than trap them in dependency.

Thus, the war must be a turning point. It teaches us that the humanitarian response alone is not enough—we must rebuild from the ground up. This means:

- Investing in local food production, not aid dependency
- Investing in communities, not individuals
- Empowering small farmers, food producers, and farmworkers to advocate for their rights and engage in decision-making processes
- Building seed sovereignty through heirloom propagation and creating networks for sharing and distribution
- Advocating for farmer-friendly economic policies and international agreements
- Supporting ecological farming and environmentally friendly inputs

5.2 On transition to agroecology

The transition to agroecology and sustainable food production remains challenging, in part due to limited technical support and lingering doubts about the effectiveness of agroecological practices. Many existing initiatives promoting sustainable agriculture have been short-term and fragmented, falling short of providing the sustained engagement needed for meaningful change. Achieving this transition requires broad-based action from both the state and civil society actors committed to upholding the right to food and the right to a healthy environment. It is essential for the government to reassess current policy approaches

[23] "Starvation and the right to food, with an emphasis on the Palestinian people's food sovereignty – Report of the Special Rapporteur on the right to food," Michael Fakhri (A/79/171), UNGA, 79th Session, 17/7/2024, - Link

and consider reforms that prioritize the protection of local farmers' rights, particularly in the context of international agreements. A shift toward more inclusive and supportive frameworks can play a vital role in fostering sustainable agricultural practices and strengthening food sovereignty.

Civil society actors remain key players in the agroecological transition, yet they often operate with limited, fragmented funding. This has led to a 'pilot and abandon' pattern of project implementation, hindering broader systemic change. Many initiatives tend to follow international trends rather than local needs, limiting their relevance and effectiveness. For example, rooftop gardening, while useful in specific contexts such as refugee camps, cannot replace land-based agriculture in scale or nutritional yield. Observations from the *Road to Sustainable Food Production* project demonstrate that supporting agroecological transitions on agricultural land yields more promising and sustainable outcomes.

Agroecological farming cannot thrive on agricultural aid alone, particularly in environments where farming communities contend with chronic underinvestment, limited institutional support, and the compounded effects of conflict and environmental stress. These systemic challenges are further exacerbated by the structure of global markets and supply chains, which often marginalize small-scale producers. Without regulatory safeguards and fair market conditions, these farmers remain vulnerable to disproportionate influence from multinational corporations and economic policies that fail to account for local realities. To ensure the viability of agroecological practices, there is a pressing need for coordinated policy reforms that center on equity, resilience, and the rights of local food producers. Achieving sustainable food production demands a fundamental shift in consumer behavior, corporate practices, and public policy. This transformation must be supported by a long-term commitment from the government, civil society, and donors. It should, also, be guided by a clear focus on the needs, rights, and aspirations of small and medium-scale farmers and agricultural workers.

Ultimately, the transition to sustainable agriculture is not only technical—it is deeply political, economic, social, and cultural. The artificial separation of these domains does not reflect the lived reality of small farmers in Saida and South Lebanon, nor globally. Top-down approaches focused on financial instruments and entrepreneurship models that prioritize individual gain over social benefit have proven inadequate and, at times, counterproductive. Their impact must be assessed in the field—where real lives and ecosystems are at stake.

5.3 On the food system

The research placed sustainable food production at the center of its approach, recognizing it as a fundamental entry point for more resilient, inclusive, and equitable food systems. However, in the realm of social engagement and economic empowerment, current programming trends have often fallen short, and have at times supported the replication of

food system unfair dynamics in which where structural inequities limit farmers agency and access to opportunity.

A gap remains between principles and practices. On the ground, international organizations—including UN agencies and INGOs—often continue to adopt conventional approaches in their food interventions, especially during emergencies. Recent examples highlight how large-scale food distribution operations have prioritized imported goods, over sourcing from local producers. Even fresh produce was largely procured through established bids with major wholesalers, sidelining smallholder farmers and local markets during times of heightened need.

This reliance on imports and large distributors, while potentially aligned with global supply and financial mechanisms, inadvertently reinforces unsustainable patterns in the food system. It also marginalizes local producers and limits the potential for integrating emergency response with long-term food sovereignty goals. Furthermore, the issue of food waste in such operations is often overlooked, despite its growing significance as both an environmental and social concern.

To create a more inclusive, resilient, and sustainable food system, humanitarian actors, policymakers, and development organizations must commit to better integration of local procurement, food waste reduction, and farmer engagement in both emergency and long-term planning. Aligning aid strategies with agroecological principles and supporting smallholder farmers are not just ethical imperatives, they are practical and necessary steps toward building a food system that can withstand the complex crises Lebanon faces today.

Moreover, critical recovery efforts—often led or supported by humanitarian and development organizations, are at risk of being undermined by geopolitical considerations, particularly those linked to international agendas targeting the dismantling of Hezbollah. This dynamic raises concerns about the potential marginalization of certain areas and communities perceived as politically affiliated, which could result in significant gaps in the recovery phase, especially in regions already facing chronic underdevelopment. A much-needed change in direction

Greater impact and sustainability can be achieved by investing in long-term, place-based development of agricultural areas and by empowering marginalized producers. Such investments should focus on job creation and resource provision to improve livelihoods and strengthen the foundations of local food systems. To ensure meaningful impact, interventions must extend beyond one-year cycles. A minimum three-year commitment is essential to support farmers' adaptation to sustainable practices. Implementing partners and donors should prioritize long-term engagement, including consistent follow-up, multi-year monitoring, and public awareness initiatives on agroecology. These steps can protect farmers from falling into cycles of debt and dependency and enhance their financial viability.

True transformation of Lebanon's food systems, including production, distribution, consumption, and waste management, requires more than technical fixes. It demands shifts in consumer behavior, corporate responsibility, and state policy, underpinned by a strong,

long-term civil society commitment. Although existing programs have yielded important insights, their overall impact is constrained by short-term frameworks and insufficient structural change.

Farmers must be granted access to the necessary tools—legal, financial, technical, and organizational—to protect the land and ensure the well-being of their communities and future generations. While the required knowledge, innovation, and willingness to change exist among farmers, they are often unsupported or underutilized. Many farmers already practice knowledge-sharing and innovation rooted in their lived experience, with strong potential for replication and scaling through appropriate channels.

Moreover, awareness raising must be an integral part of national efforts to foster food systems transformation. As articulated in a recent op-ed, this includes climate change awareness campaigns, incorporating relevant content into educational curricula, and establishing or strengthening early warning systems to help communities prepare for extreme weather events. Public understanding, education, and information-sharing across all societal segments are key to ensuring a collective response to the climate and food crises.

Farmers, through their daily lived experience, understand the interconnectedness of these systems. Many have developed individual and collective coping mechanisms. This report strongly recommends creating space and momentum for farmer-led organizations—through unions, cooperatives, farmers' markets, and other platforms that amplify their voices and concerns. Agroecological farmers in particular, due to their relatively small scale, require greater support to navigate the pressures of middlemen, urban markets, and global supply chains.

Local cooperatives present a strategic and sustainable opportunity for supporting farmers in East Saida villages who adopt agroecological practices. Although formal organic certification may remain inaccessible to many, cooperatives can help reduce costs through shared transportation and packaging, enhance market access—particularly to niche local segments—and amplify farmers' collective voice. An initial step could involve launching a recurring local farmer’s market, as previously proposed, and gradually expanding through partnerships with ethical buyers, including organic shops, health food retailers, farm-to-table restaurants, and eco-tourism establishments.

While establishing a formal cooperative structure may involve logistical and legal complexities, a phased approach—beginning informally with a small, dedicated group and targeting appropriate markets—can make the process more feasible and lay the foundation for long-term resilience and growth.

Ultimately, technical and financial support to farmers must be situated within a broader transition strategy that prioritizes sustainability and rights-based approaches across the food system. Agroecology offers a holistic, inclusive pathway that can empower farmers of all kinds to organize, advocate, and thrive.