

Post-Conflict Agricultural Livelihoods Restoration Strategy in the Syrian Arab Republic Homs Governorate









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Economic and Social Commission for Western Asia

Post-Conflict Agricultural Livelihoods Restoration Strategy in the Syrian Arab Republic

Homs Governorate



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Executive Summary

A. Background

Since its outbreak in March 2011, the conflict in the Syrian Arab Republic has had severe consequences on the country's economic, social, environmental and development sectors. It has, to varying degrees in different affected areas, caused damage to services and facilities, disrupted services, and also led to the displacement of 11.8 million Syrians, of whom 6.2 million moved to safer areas within the country, while the rest (5.6 million) fled either to neighbouring countries (Lebanon, Turkey, Jordan, Iraq) or to other countries in the world.

During the conflict, the Syrian Government, United Nations organizations and civil society organizations implemented emergency relief programmes for those who fled the conflict zones. The programmes aimed to supply basic needs, provide camps and shelters and support livelihood projects and targeted interventions.

It is worth noting that since the start of the conflict, the agricultural sector was severely affected by the conflict, losing nearly 50 per cent of its production in 2010-2018. The rehabilitation of agricultural infrastructure facilitated the return of farmers and the restoration of many agricultural activities. A significant proportion of internally displaced persons (IDPs) and a small percentage of refugees have returned to their places of origin, and many are still waiting for security and favourable socioeconomic conditions to be restored before they return.

Displacement has put considerable pressure on host communities with more competition for housing, infrastructure, services, businesses, jobs and food. This has led to an increase in residential and commercial rents and high unemployment rates among the host population, prompting displaced persons to accept lower wages. Moreover, both displaced and host communities were suffering from reduced levels of food security.

Another aspect of displacement is that it led to an exceptional level of integration between displaced and host communities in their diverse cultures, affiliations, customs and traditions. It created new social linkages, especially through intermarriages, and established common economic interests through new networks and activities in the displacement areas.

B. Purpose of the study

The Economic and Social Commission for Western Asia (ESCWA) has adopted a participatory approach in discussing available options and scenarios with Syrian stakeholders during the critical postconflict process and identifying what is needed for recovery and reconstruction in the country. The Governorate of Homs was selected as a subject for a strategic study targeting the revival of agricultural activity and the restoration of agricultural livelihoods in the post-conflict period. This study is very relevant given the vital role of the agrarian sector in Homs and the significant number of displaced persons from Homs who remain outside the country, particularly in Lebanon and Jordan, where 24 and 16 per cent of total Syrian refugees, respectively, originate from Homs Governorate. Only a few of those refugees returned, even though the Government regained control over Al-Qusayr area in 2013, and the Governorate had a certain measure of stability restored since late 2018. The study area has a 25-km radius and is centred on Homs. It included the following areas: Homs (three sub-districts), Taldou, Al-Rastan and all villages in the Al-Qusayr area reaching to the Lebanese borders. This area was selected for two main reasons: first, it sustained one of the most severe levels of damage in the conflict, leading to the displacement of 50 per cent of its population (with 70 per cent of those being displaced outside the country). Second, the area is among the most agriculturally important in the governorate. Agricultural land accounts for 64.1 per cent of the total cultivated land in the governorate, and it contributes around 85.5 per cent of the entire plant output in the governorate.

The study was based on the broad concept of restoring livelihoods, including restoring economic activities and promoting social cohesion in areas that have suffered from the conflict. Agriculture is the leading sector in the economy, and its development and growth will stimulate other sectors directly and indirectly related to it. Agriculture is also vital for food security, it provides important inputs for the manufacturing and food industries and generate income, create job opportunities and contribute to population stability.

The study focused on analysing the value chains of five agricultural products that are considered important in terms of the area they occupy, their share of the total production in the region and the interest in growing them. This analysis aims to identify and develop mechanisms to rehabilitate these chains and develop comprehensive and participatory intervention mechanisms to meet market requirements according to the capabilities of key actors, in addition to designing the post-conflict agricultural livelihoods restoration plan in the Homs Governorate.

C. Methodology

The study methodology used statistical and preliminary data on agriculture obtained through fieldwork carried out in the areas and villages of Homs, Taldou, Al-Rastan and Al-Qusayr districts, between 14 April 2020 and 23 June 2020. The fieldwork included 16 discussion sessions involving relevant actors and stakeholders, as well as field visits to agricultural markets (wholesale, semi-wholesale, retail), a post-harvest centre, a feed factory, food retailers, suppliers of agricultural inputs, a public sector poultry facility working within the General Poultry Association (GPA), a private poultry facility, a cattle, sheep and family poultry farming facility, a bee project and an aquaculture project. Some 70 individual meetings were held with stakeholders, including farmers, agricultural engineers and technicians, doctors, veterinary observers, agricultural workers, truck drivers of agricultural products. The discussions covered surveying the main types of crops with comparatively competitive advantage in the region, and identifying the problems and challenges facing production of field crops (such as wheat and barley), vegetables and fruits and livestock, poultry, bees and fish. Gaps in value chains were explored, and the potential domestic cultivation of high-value crops, like medicinal and aromatic plants, was investigated. Analysis of the main crop and livestock value chains helped identify mechanisms and interventions needed to rehabilitate the agricultural sector, meet the population's food needs, generate incomes and jobs, and promote stability.

D. Realities about the agricultural sector

Homs is the largest Syrian governorate, with an area of 4.1 million hectares (22 per cent of the total area of the Syrian Arab Republic). It is divided into seven administrative districts (Homs, Taldou, Talkalakh, Al-Rastan, Al-Makhram, Al-Qusayr and Tadmur) which include 25 sub-districts and 585 villages.

In 2010, Homs had a population of 1.8 million, accounting for 8.6 per cent of the country's total population, making it the third most populous Syrian governorate. By 2019 and as a result of the conflict, the governorate's population had declined to around 1.734 million.

The agricultural sector directly accounts for 26 per cent of the overall labour force in the governorate, and 20 per cent of jobs in other agriculture-related sectors, making this sector a major generator of jobs and income, and a driver of stability and livelihood security in the governorate.

In the target area, the conflict hampered agricultural productivity and damaged physical and natural assets such as land, water, infrastructure, public and private agricultural facilities, machinery and equipment. As a result, there was a decrease of 12 per cent in cultivated area, and by 50 per cent in livestock assets. On average, agricultural and livestock production fell by 45 per cent.

Agricultural lands were being taken over by the construction of earth mounds and trenches. The conflict led to the destruction of public irrigation canals, the loss of about 20 per cent of private wells, theft of irrigation pumps, damage of agricultural equipment, livestock and food production facilities and having no means to repair or replace them.

Moreover, many fruit tree plantations were either damaged by the conflict, or died as farmers were unable to nurture them. Other trees were cut down to be used as alternative sources of energy for heating and cooking during the siege.

Poor veterinary care led to considerable losses in livestock in addition to forced slaughter and smuggling to neighbouring countries. Poultry production and beekeeping have also declined due to damage to breeding facilities, the lack of feed and the inability to market production. The sector has lost many indigenous plant and animal assets. Furthermore, the devaluation of the Syrian Pound against foreign currencies increased production costs and added to the challenges of securing production inputs such as seeds, fertilizers, feed and energy.

There has been a decline in the role of official institutions and unions (such as the General Organization for Seed Multiplication, Feed Establishment Branch, the General Establishment for Cattle Branch, General Poultry Association Branch, Syrian Grain Corporation Branches, Syrian Trade Corporation) that regulate the agricultural sector and provide it with crucial services. These services include agricultural research and extension, rehabilitation, training, pesticides and livestock vaccinations and treatments. The same happened to agricultural cooperatives, which previously provided agricultural production inputs for strategic crops and jointly marketed their production to the state. There was decreased levels of lending from the Agricultural Cooperative Bank, agricultural subsidies and funding of modern irrigation, while also rural and agricultural development and land reclamation projects were suspended.

Despite the conflict, farmers continued to cultivate 88 per cent of agricultural land. Mostly, this was done either by members of land-owning families who did not leave their area of residence, or by displaced farmers who frequent these areas during cultivation and harvest seasons.

To continue production, farmers replaced prevailing agricultural systems (which relied on irrigated agriculture for field crops and winter and summer vegetables) with rain-fed farming systems including winter crops that do not require significant agricultural services. Emphasis was mainly placed on growing wheat, barley and medicinal and aromatic plants. The shift from irrigated to rain-fed

farming caused a decline of about 60 per cent in agricultural revenues. However, these crops were vital because they provided farmers with income to cover their needs and represented a source of livelihood in areas suffering displacement.

In 2018, the Government began, within the available capacities, to rehabilitate services and infrastructure to facilitate the return of the population to their rural places of residence. It also reactivated all governmental agricultural institutions in the target area, and they resumed offering support services to farmers, but to a limited extent due to the lack of resources. In addition, the Government implemented development projects, including providing production grants to cultivate home gardens and loans to empower rural women. The Government has made the necessary investments to rehabilitate all destroyed agricultural production assets in the region, particularly government irrigation projects, which are key to stabilizing agricultural production.

During the response phase, international organizations and civil society associations launched rapid income generation initiatives. They provided emergency support to restore livelihoods, enhance community capacity, and achieve stability for affected populations of displaced persons, young people, women-headed households and people with special needs. Programmes that support entrepreneurship development, improve the standard of living, target people with special needs, initiate small-scale projects and rehabilitate public facilities and services (securing drinking water, cleaning roads, rehabilitating sewage networks, restoring schools and health centres) have been implemented, while continuing to provide food aid.

Despite the measures and interventions taken by the Government and international organizations, farmers still face difficulties returning to their places of origin; they can't afford the expenses of restoring their homes, productive assets, and damaged agricultural infrastructure. The situation is exacerbated by the continuing interruption of Government irrigation networks, the difficulty of accessing agricultural loans granted by the Agricultural Cooperative Bank and the lack of alternative means to access loans to secure production inputs. With the dwindling of support services, there has been an increased dependency on the labour of women, with decreased wages and weakened value chains across all stages, particularly marketing.

Fieldwork in the affected areas indicated that about 20 per cent of IDPs have permanently returned to their original places of residence (mostly because they could no longer afford the cost of staying in areas of displacement, while others indicated that they have returned because of the pressures they faced in host areas). Thirty per cent more are willing to return to their original residences once infrastructure and services are restored. About 30 per cent of displaced households are also willing to return to their place of origin, however their children prefer to stay in urban areas where they lived while displaced. It also appears that 20 per cent of IDPs do not wish to return and prefer to continue to stay in displacement areas. These are mostly families without productive assets, livestock or businesses in their places of origin.

As for refugees in other countries, very few of them have returned. Only those who obtain security clearances and hold property deeds are allowed to return to their villages and occupy residences there. A prior approval is needed for repair and reconstruction supplies. The same restrictions are enforced on importing production inputs and marketing in villages near the Syrian-Lebanese border. Furthermore, refugees have indicated that they distrust information they're receiving about security, economic and social conditions and the availability of infrastructure and services essential for livelihoods. They are also concerned about the suspension of humanitarian assistance received from international and national organizations. Displaced persons who have crossed the border irregularly and do not have the necessary documentation are also afraid of security checks. Moreover, new births and changes in civil status have not always been properly documented in host countries.

E. Study outcomes

Value chain analysis revealed several gaps and weaknesses that hampered the achievement of the desired economic efficiency of agricultural production and labour productivity. Some of these difficulties existed before the conflict and were exacerbated by it, while others arose during the conflict. The main weaknesses are:

- 1. Continued production using traditional methods.
- 2. Limited water resources, in addition to the damage and disruption of government irrigation projects.
- 3. Weak agricultural mechanization within the entire production and marketing chains.
- 4. Fragmented land holdings and ownership problems that limit the possibilities for development and better use of land.
- 5. Lack of integration of plant and livestock production in terms of regulating crop rotations, producing crops, using crop residues to manufacture feed and using livestock residues to improve soils.
- 6. Inability of farmer cooperatives to provide cooperative services as their role is limited to delivering production inputs and marketing strategic products and feed.

Other challenges include the weakness of the marketing system due to:

- 1. Lack of integration of production and marketing chains for agricultural supplies and products due to the absence of a contractual system between farmers and stakeholders within the marketing chains.
- 2. Lack of specialized companies or marketing institutions, lack of advanced sorting and packing centres for vegetables and fruits, lack of refrigerated storage areas, weak food industry sector and poor realization of added value for agricultural products.
- 3. Unavailability of specialized facilities for monitoring, analysing, and confirming compliance with specifications and quality and providing quality and geographical origin certification.
- 4. Absence of organized and integrated wholesale markets capable of trading, sorting, packaging and storing agricultural products.
- 5. Lack of a marketing information system that provides in-depth information about marketing calendars and target marketing channels.

- 6. Inadequate means of transport for marketing agricultural products, particularly for perishable products, leading to a high proportion of losses.
- 7. Weak promotion and advertising and lack of knowledge of the actual prices of agricultural products in foreign markets.

F. Measures to address and improve the status quo

The following are the most important measures to address and improve the status quo:

- 1. Development of agricultural production, prevailing agricultural systems based on market demand and agricultural extension services. and the application of modern farming practices (mechanization) that raise production and increase employment opportunities.
- 2. Development of an integrated agricultural marketing system to organize supply, demand and pricing, connect production and marketing links to supplies and products at the level of different marketing channels, increase their added value, reduce production losses and meet technical specifications and quality standards.
- 3. Improvement of the investment in rural areas to provide an attractive environment for private investment in establishing specialized companies in the areas of marketing, agricultural machinery and quality food industries.
- 4. Utilization of renewable energy systems to reduce agricultural production costs (using solar energy to generate electricity for irrigation pumps and using agricultural waste to produce biogas, fertilizers and feed).
- 5. Rehabilitation of agricultural infrastructure, restoration of government irrigation projects, conversion of government irrigation systems into compressed networks and conversion of all irrigated areas to modern irrigation methods.
- 6. Restoration of agricultural support services and extension to farmers, localization of the results of agricultural research, expansion of banks and sources of funding and provision of new banking products to support agricultural expansion.
- 7. Develop the work of farmer associations, promote cooperative work among members of associations and between associations and creation of specialized associations for major agricultural products to manage and regulate all administrative, organizational and technical aspects.

G. Proposed projects

The following are the most important proposed projects:

- 1. Establishment of a service centre to mechanize the agricultural operations of value chains.
- 2. Upgrading of irrigation systems and conversion of open irrigation canals into pressurized systems as part of governmental irrigation projects in the target area.

- 3. Development of wholesale and specialized markets.
- 4. Creation of collection centres to produce, dry, sort and package medicinal and aromatic plants.
- 5. Production of potato seeds using tissue culture techniques.
- 6. Creation of specialized markets for agricultural products and rural industries.
- 7. Setting-up units to produce vegetable seedlings and seeds of medicinal and aromatic plants.
- 8. Establishment of a production unit for the food industry.
- 9. Localization of agricultural extension and agricultural research as a key tool for development.

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I. Background of the Study

In March 2011, widespread demonstrations broke out in the Syrian Arab Republic, demanding justice and equality, the improvement of living standards, and better wages, infrastructure and services in rural areas. These uprisings soon evolved to a protracted armed conflict that went on for almost nine years in some areas, affecting all economic, social and development aspects, and leading to the displacement and migration of at least 11.8 million Syrians, (6.2 million internally displaced and 5.6 million refugees).

During the conflict, the Syrian Government, United Nations organizations and civil society organizations (NGOs) implemented emergency relief programmes for those who fled the conflict zones. As the conflict dragged on, those efforts shifted to providing IDPs with basic services such as medicine, education, and employment wherever possible.

The damages to the agricultural sector were especially severe. Cultivated areas declined by 12 per cent and livestock assets by 50 per cent. On average, agricultural and livestock production fell by 45 per cent. The conflict also affected agro-industries with increasing production costs and reduced income from agricultural production. This ultimately led to an increase in prices of agricultural products that is out of balance with incomes and reduced the number of food secure to only 32 percent of the population.



Damage to agricultural lands and poultry facilities in Al-Qusayr area - 2020



Damage to agricultural equipment - 2020



Damage to irrigation canals and government irrigation projects - 2020



Damage to water pump engines - Qattinah - 2020

Planning to rebuild economic sectors in conflict-affected areas is key to eliminating the effects of the conflict and motivating IDPs and refugees to voluntarily return. It also facilitates the transition to the stage of early recovery and reduces reliance on humanitarian assistance. The agricultural sector is crucial for achieving these objectives.



Al-Rastan - Reforestation of damaged land – 2020



Al-Rastan - Expansion of medicinal and aromatic plant cultivation - 2020



Water resources - Houla Dam - Taldou - 2020



Wheat in Al-Rastan area - Umm Sharshouh village - 2020

II. Purpose of the Study

This strategic study was conducted in the context of ESCWA's efforts to build a participatory framework that discusses the country's needs in the crucial post-conflict period. The Homs Governorate was selected to restore agricultural livelihoods due to its considerable role as a producer of field crops (such as wheat and barley), vegetables, tree fruit and livestock products, and has sufficient water resources from the Orontes River. The governorate is characterized by its location in the mid-sector of the country and bordering Lebanon to the west, which means inhabitants have longstanding economic, trade and social ties with Lebanon. Agriculture is a crucial economic sector in the governorate and has a major role in promoting social cohesion and stability. Therefore, a recovery strategy to revive this sector in the governorate and strengthen its main value chains is expected to facilitate the voluntary return of IDPs to their homes while enhancing agricultural production, leading to more employment and diversified sources of income and better stability. Furthermore, the strategy for Homs may serve as a model that can be adapted to the conditions of other conflict-affected areas.

The governorate suffered from recurrent displacement waves during the conflict. Around 50 per cent of its population fled to more secure and stable areas (30 per cent of those were displaced internally, and 70 per cent externally). Refugees from Homs constitute 24 per cent of the total number of Syrian refugees in Lebanon, and 16 per cent of those in Jordan. Migration from Homs to Lebanon was high due to trade, agricultural and historical ties between the two countries. Before the conflict, Lebanon relied on Syrian labour in the agriculture and construction sectors (an estimated 150,000 Syrian agricultural labourers used to work in Lebanon at any given year)¹. By August 2018, the reconciliation process brought stability back to all areas of Homs, and this culminated with the reconciliation of Taldou in September 2019. However, the number of returnees is still limited, particularly of refugees as the issue of return is linked to the availability of housing, infrastructure, services and decent employment opportunities.

The study area extends over a circle with a 25-km radius centred around the city of Homs, with a westward stretch to Al-Qusayr area on the Lebanese border. The cultivated area in Homs, Taldou, Al-Rastan and Al-Qusayr accounts for about 64.1 per cent of the total cultivated area in the governorate and contributes around 85.5 per cent of the total crop production of Homs, most of which is located within an area of 25 km east, north and south of Homs.

All villages in Al-Qusayr were included in the study to account for all agricultural lands within the specified area, while the villages of eastern Homs were excluded due to their reliance on barley cultivation, poultry, and sheep farming. Table 1 lists the areas covered in the study:

Study of Land Tenure and Labour Relations by Nadia Forni, National Centre for Agricultural Policy in cooperation with FAO, 2003 - Ministry of Agriculture, Syrian Arab Republic.

	Area Homs Governora	te	Study area		
Area	Districts	Number of villages	Districts	Number of villages	
Homs	Homs Centre, Hisyah, Khirbet Al-Teen Nour, Al-Riqama, Shin, Sadad, Mahin, Ain Al-Niser, Al-Furklus, Al-Qaryatayn	195	Homs Centre, Khirbet Al- Teen Nour, Ain El-Niser	66	
Taldou	Taldou Centre, Kafr Laha, Al-Qabu	48	Taldou, Kafr Laha	20	
Al-Rastan	Al-Rastan Centre, Talbiseh	29	Al-Rastan Centre, Talbiseh	29	
Al-Qusayr	Al-Qusayr Centre, Al-Hawiz	60	Al-Qusayr Centre, Al-Hawiz	60	
Total	17	332	9	175	

 Table 1.
 Administrative areas of Homs Governorate covered in the study

Source: Ministry of Local Administration Database - Homs Governorate.

The study focuses on analysing the context of agricultural livelihoods ad value chains in Homs Governorate. The analysis in the study has been conducted for the value chains of the most important agricultural products to identify the mechanisms for rehabilitating and upgrading comprehensive and participatory market-driven interventions, capabilities of key actors and a post-conflict recovery plan. The study analysed the following aspects:

(a) The impact of the conflict on agricultural livelihood assets (natural, human, social, financial, physical (infrastructure));

(b) Market for the main sectors and sub-sectors related to agriculture, identifying linkages between them, enhancing their role in market regulation, highlighting marketing challenges and determining the impact of the socioeconomic situation and forms of investment on marketing;

(c) Value chain for crops and livestock commonly produced in the study area. This was done through the selection of five value chains and analysing stages of production and marketing, identifying actors and stakeholders to find out the strengths and weaknesses within each part of the chain, identify target markets and their challenges and the interventions needed to increase production efficiency and achieve the highest added value;

(d) Population activities and trends in agricultural, vocational and entrepreneurial fields, creating new employment and regulating the supply and demand of the labour force;

(e) Developing innovative proposals for a more competitive, developed and sustainable agricultural sector in the province. Such proposals need to be applicable within the capacities of stakeholders, with a view of sustainability and flexibility factors and for the potential use of technology to improve productivity and competitiveness.

III. Study Methodology

The methodological framework of the study has made use of the following:

(a) Secondary data based on published agricultural statistics relating to the target area;

(b) Primary data collected through fieldwork carried out from 14 April to 23 June 2020 in villages within the study area. Fieldwork specific to the agricultural activities prevailing in each administrative area covered by the study (table 2). Meetings were held with agricultural technicians, veterinarians, farmers, livestock farmers, community leaders and opinion shapers, traders of agricultural products in wholesale, semi-wholesale and retail markets, owners of shops for agricultural families (among whom there were those who remained in conflict areas during the conflict, others who were displaced and returned permanently and others who were displaced and returned temporarily).

The work was carried out through:

(a) 16 separate interactive discussion sessions with stakeholders for each major agricultural activity. This was done as follows:

- (1) Concerning plant production, field crops (e.g., wheat and barley), winter vegetables and fruit trees: sessions were held in Mukhtarieh, Umm Sharshuh, Granada, Taldou, Al-Qusayr and Reblah, Ter Maaleh;
- (2) Concerning livestock/poultry farming and family poultry, beekeeping, sheep and goatherding and cow farming: sessions were held in Mukhtarieh, Ter Maaleh, Umm Sharshuh, Tasnin and Kafr Nan;
- (3) With regard to wholesale markets (wholesale market in Homs, Khirbet Al-Teen Nour market, Al-Rastan market, livestock market in Deir Baalba, wholesale market in Al-Qusayr): sessions were held with a wholesaler in the markets of Homs, Khirbet Al-Teen Nour and Al-Rastan;
- (4) Concerning the Directorate of Agriculture and Agrarian Reform in Homs: two sessions were held in the Directorate of Agriculture;
- (5) Regarding the status of the Red Crescent in Talbiseh: the meeting was held at the organization's office in Talbiseh.

(b) Individual meetings were held with 70 stakeholders in the study area, including owners, agents and employees of enterprises as follows:

- (1) Markets for agricultural products of all kinds;
- (2) Refrigerated collection and storage centre for agricultural products (Al-Qusayr);
- (3) Feed plant (Ter Maalah), a poultry facility of the General Poultry Association and a private poultry facility and a facility for raising cows, sheep and poultry;
- (4) Project to establish a traditional fish farm in the village of Kafr Nan;
- (5) Beekeeping project in the village of Umm Sharshouh, Al Dar Al Kabeerah;
- (6) Shops and stores selling agricultural production inputs;

- (7) Project for production grants from the World Food Programme (WFP) and the Federation of Chambers of Agriculture for home gardening in Zamamir village;
- (8) Village-level commercial activities to market agricultural products and commercial occupations originating from rural women in the village of Qaninat al-Assi, Kafr Nan and Granada;
- (9) Primary and secondary plantings in the region of crops, vegetables and fruit trees in all areas covered by the study;
- (10) A centre for the General Establishment of Feed, a centre for the Syrian Corporation for Commerce, a farmer union in the Al-Qusayr village of Reblah. The meetings were held at the headquarters of each of these institutions.

During these activities, the main types of crops with a comparative and competitive advantage in the studied area were investigated, identifying the problems and challenges facing production of field crops, vegetables and fruit trees, and those facing livestock such as cows, sheep, poultry, bees and fish. Gaps in value chains were also identified, and the possibility of growing high-value medicinal and aromatic plants and other crops was explored.

Area	Focus of field tours
Homs	Focus 1: Al-Dar al-Kabir, Mukhtarieh, Ter Maaleh. Focus 2: Khirbet Al-Teen Nour. Focus 3: Shanshar, Lake Qattinah.
Taldou	Focus 1: Al-Ba'doriya, Mahnaya, Al-Sindyana, Khirbet al-Hamam, Houla, Taldou. Focus 2: Tarin, Ghor Gharbia, Talil, Al-Haysa.
Al-Rastan	Focus 1: Qaninat Al-Assi, Tesnin, Kafr Nan, Granada, Um Shershouh, Talbiseh. Focus 2: Aseela, Abu Rummana, Deir Foul, Al-Zafarana, Al-Makramieh, Al-Hashemya, Al- Rawda, Eastern Granada, Zamameer.
Al-Qusayr	Focus 1: Al-Qusayr, Al-Saidya, Reblah, Zra'a, Josiah, Ras Al Ain Farm, Al-Nasiriyah Farms, Ramzon Farms, Al-Zayabia.Focus 2: Abl, Naqira (towards the lake of Qattinah).Focus 3: Arjun, Tal Qadesh, Al-Houth, Al-Cornya, Al-Naim, Al-Joubania.

 Table 2.
 Field tours in all study areas, including the following villages

The factors influencing the study are as follows:

(a) The local community continues to struggle to meet its basic needs for stability;

(b) The initial data collected during interactive sessions, dialogues and field trips only reflect the situation as of the time they were collected, especially in terms of determining costs and returns, which are constantly changing as a result of the fluctuating prices of agricultural production inputs, which are closely related to the rise and fall of the value of the Syrian pound;

(c) Some official bodies were unwilling to provide their views and proposals except through their centrally affiliated bodies.

IV. Displacement and return in Homs Governorate and the study area

As a result of the ongoing events, some 900,000 residents of Homs Governorate (about 50 per cent of the total population) were displaced in the 2011-2015,² mostly from areas in Homs, Al-Rastan, Al-Qusayr and some villages of Taldou. Monitoring the movement of displaced persons yielded the following results:

(a) Around 45 per cent of the total displaced headed to Lebanon, where some moved on to other countries around the world. Some settled in camps, particularly in agricultural areas, and relied on aid from international, local and civil organizations. Others, previously residents of urban areas, settled in city centres and relied on personal savings or the support of family members from the Syrian diaspora for their livelihoods. Those who had invested in businesses within the Syrian territories, continued to run them from neighbouring countries. Another group, mostly from rural areas, settled in cities in the Bekaa Valley. Others without financial resources or the ability to provide for themselves settled in camps throughout the country. In these latter two categories, refugees have relied on assistance from civil organizations and have worked in occupations compatible with their skills as agricultural workers, and in the construction and service sectors;

(b) According to UNHCR data in Lebanon, some 892,300 Syrian refugees remain in Lebanon as of 2020, including 216,000 from Homs Governorate, accounting for 24 per cent of the total number of refugees in Lebanon. They reside in the areas of Akkar Plain, Baalbek-Hermel, Zahle and Al-Minyeh. Some 655,600 Syrian refugees, including 106,000 from Homs province (16 per cent of the total) live in Jordan in the areas of Amman, Irbid, Mafraq and Zarqa³;

(c) 55 per cent of the displaced persons headed to safe areas within the Syrian Arab Republic, including to Wadi al-Nassara and Hisyah within Homs Governorate as well as to Rif Dimashq Governorate especially Deir Atiyah, and Tartus Governorate. A few settled in camps on the outskirts of cities, and those without a place to live went to government-provided shelters.



Displaced persons returning to live in destroyed houses in Talbiseh 2020

² Labour Market and Livelihoods Analysis Study, Homs and Hama 2019, UNHCR, Syrian Arab Republic.

³ UNHCR 2020. Operational Portal Refugee Situations – August 2020.

In 2014, a total of 150,200 individuals were displaced from their original areas of residence in Homs Governorate to other cities within the governorate, and 240,300 people were displaced to Homs from other governorates (figure 1).⁴

Most of the displaced persons from the Homs Governorate were residents of Homs, Al-Rastan, Taldou and Al-Qusayr. These areas have been severely affected by the ongoing conflict. Other regions in the governorate have experienced limited periods of instability, and so their residents were not forced to flee but rather to move temporarily within the areas themselves. Therefore, the study area was identified as territories of conflict with enough magnitude to force the population to leave. Such areas are the ones where support measures and interventions can revive the agricultural sector.

Having lost their livelihoods, IDPs face great difficulties, especially that most of them have relied on the agricultural sector and its related industries for their sources of income. Some also worked in civil service, while others depend on income from work as day-labourers. Housing rents have been steadily rising over the years of the conflict due to limited availability and increased demand, in addition to inflation and the depreciation of the Syrian pound against foreign currencies. In response for such circumstances, residents have relied on assistance provided by international and civil society organizations and on working in various occupations in the areas of displacement.

Mass movements to safer locations had also put the displaced in competition with local residents for services, infrastructure, resources and jobs. However, this has been somewhat mitigated with some displaced persons setting up businesses and renting shops.

The prolonged period of displacement transformed habits and lifestyles of many displaced persons, especially the children and the young. Some displacement women became the breadwinners of their families and have also taken up trading in food products and clothing.



Emerging shops around villages - Al-Rastan - 2020



Shops - New job opportunities for women - Homs - Qaninat Al-Assi -2020

⁴ Central Bureau of Statistics - Population Status Report 2014.



Figure 1. Movement of displaced persons, 2011-2019

Moving from one place to another was not only the result of direct conflict, but it also resulted from declining services and infrastructure, the suspension of businesses, loss of livelihoods and the disruption of food supplies in the areas of residence including inadequate health and social care and loss of livelihoods due to rising costs of living.

The number of people returning from displacement remains very modest, due to security, economic and social reasons, and the lack of adequate infrastructure, services and livelihoods. Several returnees indicated that they had encountered significant difficulties upon returning and didn't even make the minimum livelihood they had in displacement areas. They explained that the main obstacle lies in the lack of financial resources needed to rehabilitate their homes and productive resources, the administrative restrictions imposed on movement and the entry of materials, especially that the seasonal labour force is mobile and moves according to demand to wherever crops need agricultural services.



Al-Rastan area - Umm Sharshouh Village 2020

Other difficulties include those related to reconciliations in local communities and the ability to cope with conditions, especially with the lifestyle transformations brought by the combination of displacement, full or partial dependence on aid and the increased desire for urban life.

Local residents/farmers base their decision to return on their own sources of information, local offices of the Arab Socialist Ba'ath Party, elective bodies, religious figures, opinion-shapers and representatives of the People's Assembly in the region and official bodies with administrative divisions at the area or district level or at a lower administrative level, such as advisory units and veterinary units that oversee several villages. The Farmers Union is also one of the primary sources of Government information and decisions in villages. Decisions of interest to the community are also announced through houses of worship, particularly Government instructions or decisions related to health, education, agriculture, civil matters, etc. Civil associations are also another source, but more than 90 per cent of them are engaged in charity rather than public affairs. Overall, it can be said that local residents/farmers have good knowledge of the laws and regulations relevant to their livelihoods.



Home used by family working in guarding a poultry farm - Al-Qusayr 2020

Despite government measures and civil society interventions, farmers continue to face difficulties in returning to agricultural work, the most important of which are:

(a) Non-functional Government irrigation systems as a result of damage sustained during the conflict, and inability to rehabilitate damaged private wells or to use operational wells due to high operating and maintenance costs;

(b) Lack of financial resources to restore damaged homes and productive assets;

(c) Decline in agricultural loans provided by the Agricultural Cooperative Bank. No alternative banks have been offering agricultural loans;

(d) Lack of functional tractors and agricultural machinery for agricultural operations, as many as 85 per cent of farmers now rely on leasing agricultural machinery;

(e) Lack of skilled and young workers in agricultural activities such as livestock farming, fruit picking, pruning, etc. higher dependence on women labour;

(f) Rising production costs exacerbated by the increase in the costs of inputs (fertilizers, pesticides, fodder, seeds and packing) and in transport charges. Difficulty obtaining production inputs with good specifications;

(g) Limited availability of diesel fuel needed to operate irrigation pumps and agricultural machinery with the spread of monopolies and uncontrolled prices, leading to higher costs;

(h) Inability of the existing cooperative system to meet the requirements of agricultural work and to provide in-kind production inputs for growing and marketing strategic crops (wheat, barley);

(i) Declining role of extension units and government institutions in regulating agricultural production, monitoring the problems facing farmers and andproviding technical support, extension, dissemination of research results and training to farmers;

(j) Weak value chains at all stages, especially marketing, as they depend on outdated traditional wholesale markets that are controlled by major traders who exercise monopolies through alliances and control supply and prices in line with their interests. Additionally, manufacturing capacities have declined and there is a lack of advanced sorting and packaging centres and offices for testing and issuing quality certificates, leading to high levels of loss in production;

(k) Lack of awareness among farmers of quality as applied through international standards and quality certificates for specific markets, contributing to reduced profits for agricultural work and failure to benefit from added value;

(1) Restrictions imposed on border crossings that have led to a decline in exports.



Orontes River - Al-Rastan - Granada - 2020



Extension Unit - Umm Shershouh - 2020

Fieldwork in the affected areas revealed that about 20 per cent of IDPs have returned permanently to their original places of residence, and approximately another 30 per cent of them stated that they wish to return to their original places of residence once adequate and stable infrastructure and services are completely available. In contrast, many children indicated that they do not want to return to village life but wish, instead, to settle in urban areas of displacement. It also appears that 20 per cent of IDPs do not wish to return and prefer to continue to stay in displacement areas. These are mostly families without productive assets in their places of origin.





A farmer's house after years of conflict - 2020

Return of some displaced persons – residence with rehabilitation - Ter Maalah - 2020

There are also some cases of "partial" return as heads of households and their spouses visit their villages to rehabilitate their homes and productive assets in preparation for an eventual full return. Some farmers have continued to work in agriculture as a secondary activity, combining their incomes from agriculture with what they earn from new occupations in which they have gained skills in displacement areas. Some have leased their holdings to others, especially those who own poultry facilities (because they require substantial financial resources to reopen).

As for refugees, they still account to a small share of the returnees, due to the following:

(a) Regulations that ban returning to the village except for IDPs who hold proof of ownership of residential property. Moreover, entry of construction materials to restore demolished homes requires prior approval;

(b) Lack of information from within the country, and of a clear vision for the future in terms of security, the economy and social aspects and poor availability of infrastructure and services to provide livelihoods;

(c) Limited documentation of the movement of displaced persons to neighbouring countries, and the lack of documentation of new births and changes in civil status in areas of displacement;

(d) Prevalent views among displaced persons that wage levels at home are not commensurate with the effort exerted and the standard of living in their original areas of residence;

(e) Fear of the suspension of aid by international and local organizations and the loss of United Nations support provided in grants and food aid in displacement areas;

The common causes that prevent the permanent and stable return of both IDPs and refugees are:

(a) Lack of the financial resources to rehabilitate damaged housing, facilities and infrastructure;

(b) Unwillingness to return without the restoration of infrastructure and services;

(c) Adaptation to urban life by some, particularly young people. This has changed their lifestyles and integrated them in host communities, making them unwilling to return to rural life and work in agriculture;

(d) Declining levels of Government support for the agricultural sector during the conflict while farmers remain unable to recover without this support;

(e) Persistent fear of insecurity and theft in rural areas, with the memory of the conflict still lingering in people's minds;

(f) Lack of societal reconciliation between local populations to address the background and impacts of the conflict;

(g) Persistent security fears of retribution and revenge against certain individuals despite military reconciliations, and the ongoing security activity that tends to punish dissent;

(h) Reluctance of most young people to return out of fear for being called to military service;

(i) Decline of food security. Food security varies from one area to another depending on the capacity of the population to access food and the type and form of the intervention. The impact has been more positive in communities targeted by grants and production projects with rationed food support on the principle of work for food, especially for those who have returned to their original places of residence.



Rehabilitation Programmes - Homs 2020

Homs-Hama Irrigation Network - Talbiseh -2020



Use of renewable energies to operate wells and telecommunications services - 2020



Rehabilitation of private wells and planting home gardens – 2020



Rehabilitation of services and infrastructure -Road to Qattinah - 2020

V. The agricultural sector in Homs Governorate and the study area

A. Location and area

Homs is located in the middle of the Syrian Arab Republic, between latitudes 34 south and 35 north, and between longitudes 36 west and 35 east. It is located 250 km from the borders with Turkey to the north and Jordan to the south, and about 360 km from the eastern border with Iraq and 82 km from the Syrian Mediterranean coast. It has direct borders with Iraq and Jordan to the east, Lebanon to the west, and Jordan to the south, and it has internal borders with the governorates of Deir Ezzor, Raqqa, Hama, Rural Damascus [Rif Dimashq] and Tartous. It has a major road and rail network connecting the north of the country with its south and east to west and has a major border crossing with Iraq and another with Lebanon for passengers and commercial goods.

Homs is one of the largest Syrian governorates and accounts for 22 per cent of the 18.5 million hectares of the territory of the Syrian Arab Republic. It is divided into seven administrative areas, namely: Homs, Taldou, Talkalakh, Al-Rastan, Al-Makhram, Al-Qusayr, Tadmur) and has 25 subdistricts and 585 villages as listed in schedule 3.

Statement	Homs	Taldou	Talkalakh	Al- Rastan	Al- Makhram	Al- Qusayr	Tadmur	Total number
Number of districts	10	3	4	2	2	2	2	25
Number of villages	195	48	117	29	116	60	20	585

Table 3. Administrative regions of Homs Governorate

Source: Ministry of Local Administration Database - Homs Governorate.

The proportion of administrative areas in the governorate is distributed as follows (figure 2).

Figure 2. Area of administrative areas in Homs Governorate



Source: Agricultural Statistical Group - Directorate of Agriculture and Agricultural Reform, Homs.

In 2011, the population of Homs Governorate was about 1.8 million, 40 per cent of whom resided in the Homs district.⁵ Based on the population growth rate, the governorate's population was expected to reach about 2.2 million by 2019.

The Central Bureau of Statistics estimated the population of Homs Governorate in 2019 at about 1.3 million, 60 per cent of whom resided in the district of Homs, 51.26 per cent males and 48.74 per cent females.⁶ The urban population accounted for 53.5 per cent compared to 46.5 per cent for the rural population. Field surveys indicate that, as a result of the armed conflict, 56 per cent are females, and 44 per cent are males

B. Climate

Despite being an inland region, Homs has a Mediterranean climate due to its location in the gap between Mount Lebanon and the Syrian Coastal Mountain Range, bringing strong wind, humidity and good levels of precipitation, distinguishing Homs from other governorates. The average maximum and minimum temperatures are 23.9 and 11 C respectively. Average annual precipitation levels are 397 mm in the centre of Homs and Al-Rastan, 1039 mm in the Talkalakh and Taldou area, 266 mm in the Al-Makhram area, 226 mm in Al-Qusayr and 100 mm in Tadmur. Annual rainfall is the determining factor for growing rain-fed crops and fruit trees in the governorate.

Agro-climatic zones in Homs Governorate

- 1. **Zone I:** With average rainfall of more than 350 mm/year, exceeding 1,000 mm/year in some regions, it covers 163,000 ha and accounts for 4 per cent of the governorate's total area.
- 2. **Zone II:** With average rainfall of 250-350 mm/year, it covers 113,000 ha and accounts for 2.7 per cent of the governorate's total area.
- 3. **Zone III:** With average rainfall of more than 250 mm/year and an area of 114,000 ha, it accounts for 2.8 per cent of the governorate's total area.



- 4. **Zone IV:** With average rainfall of 200-250 mm/year and at least 200 mm in half of the observed years, it is only suitable for the cultivation of barley or use as pasture. This zone has an area of 174,000 ha and represents 4.3 per cent of the governorate area.
- 5. **Zone V:** Arid lands used for sheep pastures which cover 3.529 million ha and constitute 86.2 per cent of the governorate's total area.

Homs Governorate is divided into five agro-climatic zones (box above). Farming of various crops and cattle is concentrated in Zones I, II and III, which together constitute 9.5 per cent of the governorate's area (65.2 per cent of the governorate's land falling into these climatic zones is located in the regions of Homs, Taldou, Al-Rastan, and Al-Qusayr). The rest of the governorate consists of

⁵ Central Bureau of Statistics - Annual Statistical Group 2011.

⁶ Central Bureau of Statistics - Annual Statistical Group 2019.

marginal land in Zone IV, which is cultivated with rain-fed barley, and Zone V – arid regions. Sheep and poultry production is concentrated in these areas. Table 4 shows the distribution of the agro-climatic zones across the different administrative areas in Homs.

						Area (1,000 ha)
Area	Zone I	Zone II	Zone III	Zone IV	Zone V	Total
Homs	57.8	56.2	20.9	150.4	87.9	373.2
Taldou	32.5	0	0	0	0	32.5
Talkalakh	41.4	0	0	0	0	41.4
Al-Rastan	22.5	9.5	0	0	0	32
Al-Makhram	0	25.2	68.9	22.5	48.6	165.2
Al-Qusayr	8.8	22.1	23.9	1.2	0	56
Tadmur	0	0	0	0	3,391.9	3,391.9
Total	163	113	113.7	174.1	3,528.4	4,092.2

Table 4. Distribution of agro-climatic zones regions in Homs Governorate(at the district level)

Source: Agricultural Statistical Group.

C. Agricultural Sector in Homs Governorate

Land use balance⁷

The distribution of land use in Homs Governorate can be seen in the following land use balance for 2019 compared to 2010 (table 5).⁸

Table 5. Land use balance in Homs province

Statement	Area 2010	Percentage	Area 2019	Percentage	Difference 2010-2019
Arable land	349.097	8.5	343.790	8.4	-5.307
Cultivated land	306.839	7.5	287.739	7.0	-19.100
Irrigated land	55.947	18.2	40.613	14.1	-15.334
Rain-fed land	250.892	81.8	247.126	85.9	-3.766

⁷ Source: Agricultural Statistical Group - Directorate of Agriculture and Agricultural Reform, Homs.

⁸ 2010 was used as the basis for comparison since it is the year before the conflict. All areas capable of agricultural production were planned to be cultivated, production was stable and there were no fundamental deviations between the plan and implementation.

Statement	Area 2010	Percentage	Area 2019	Percentage	Difference 2010-2019
Non-arable land	1,000.884	24.5	1,004.242	24.5	+3.358
Buildings and public facilities	93.634	2.3	94.920	2.32	+1.286
Rivers and lakes	5.732	0.14	5.748	0.14	+0.016
Rocky and sandy land	901.518	22.03	903.574	22.08	+2.056
Meadows and pastures	2,685.108	65.6	2,686.973	65.66	+1.865
Forests	57.112	1.4	57.196	1.4	+0.084
Total	4,092.201	100	4,092.201	100	0

Source: Agricultural Statistical Group.

The scale of the conflict has reduced cultivation activity, which hit its bottom at the peak of the conflict in 2014, and reduced irrigated areas by 45.5 per cent after public irrigation networks stopped operating. Figure 3 shows the change in the cultivated area in Homs Governorate between 2010 and 2019.





Most of the cultivated area is in the governorate's western region in Zones I, II, III and IV. Nonarable land accounts for 24.5 per cent and includes land used for buildings, facilities, rivers and lakes. Rocky and sandy land account for 22 per cent of non-arable land, part of which could become arable after reclamation. Meadows and pastureland account for 65.66 per cent and are used to graze sheep and goats and planted with palms and some crops and vegetables to meet the local population's needs, while forests constitute 1.4 per cent of the governorate's area. This figure remains very low despite the major forestation campaigns carried out over the last 40 years. Table 6 shows the distribution of agricultural production in the governorate between irrigated and rain-fed areas during 2010-2019.

									Area	(1,000 ha)
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total production	711.1	889.8	849.9	666.4	442.3	441	523.2	493.9	504.6	611.5
Irrigated	588.7	482.7	567.8	382.9	274	263.9	220.4	251.6	223.8	268.8
Rain-fed	122.4	407.1	282.1	283.5	168.3	177.1	302.8	242.3	280.8	342.7

 Table 6.
 Agricultural production in cultivated land in Homs Governorate 2010-2019

Production fluctuations can be noted from one year to the next (figure 4) due to varying rainfall levels and availability of production inputs and water resources to irrigate cultivated areas. In 2015, rainfall was good but poorly distributed throughout the season, leading to low production.





Source: Agricultural Statistical Group.

Agricultural factors vary from one area to another based on the following:

(a) Agricultural systems: i.e. factors related to soil type, soil fertility and water resources allocated to agriculture. Agricultural intensification increases in areas with fertile soil, sustainable and stable water resources and an adequate agricultural environment, which are usually found in Zones I and II;

(b) Size of agricultural holdings: the size of agricultural holdings affects the farming systems used. The percentage of smallholdings is high in Zone I and among irrigated land in all zones, which is mainly devoted to vegetables and high-value crops. Medium and large holdings are prevalent in rainfed farming of wheat and barley in all zones;

(c) Agricultural labour used in farming: this factor is linked to the degree of agricultural mechanization. It is minimal in the cultivation of winter rain-fed crops including wheat, barley, chickpeas, lentils and other crops that rely almost entirely on agricultural mechanization. The cultivation of vegetables and fruit trees relies on mechanization and family labour in small and medium-sized holdings, with hired seasonal work during weeding and harvest. The operation of large holdings depends on permanent and seasonal hired labour to provide crop services;

(d) Agricultural productivity: agricultural productivity and net economic returns are higher in irrigated lands than in rain-fed lands.



Al-Rastan - Deir Foul villages - Al-Zaheriya - El Gin -2020

The governorate has the required elements for livestock production. Cow and goat farming is concentrated in the western area, while sheep and camel farming is concentrated in the arid lands in the eastern part of the governorate in addition to private poultry farms, family poultry production and beekeeping. Table 7 and 8 show the change in livestock-related businesses during 2010-2019.

		Unit: 1,000 heads			
Туре	2010	2019			
Cows	101.1	70.4			
Sheep	1969.3	1550.4			
Goats	194.6	95.8			
Bees	43.1	32.2			

8.3

Table 7. Number of livestock in Homs Governorate 2010-2019

Source: Agricultural Statistical Group.

Camel

8.3
Table 8.
 Livestock production in Homs Governorate 2010-2019

	Meat, milk and noney production: 1,000 tons, eggs: 1,000 egg				
Туре	2010	2019			
Red meat	26.2	16.9			
White meat	17.9	8.9			
Milk	316.8	164.8			
Eggs	703.1	228.3			
Honey	0.4	0.3			

Meat, milk and honey production: 1,000 tons, eggs: 1,000 eggs

Source: Agricultural Statistical Group.



Beekeeping - Talbiseh - 2020



Fish farming in basins - Kefr Nan - Al-Rastan - 2020



Poultry Facilities - Al-Qusayr - 2020



Breeding cows on the fringes of the farm - Homs - 2020



Talbiseh – Sheep and goat pastures - 2020

D. The agricultural sector in the study area during the conflict

1. Land resources and plant production analysis at the study area level⁹

In 2019, the total cultivated area in the study area was 192,500 ha, accounting for 66.9 per cent of the cultivated area in Homs. Uncultivated areas in the studied area amounted to 28,021 ha (figure 5), which farmers had stopped cultivating because of the conflict, although some areas had been planted by third parties taking advantage of the owners' absence; this may lead to a land dispute when IDPs and emigrants return to their original places of residence.





As a result of the conflict, migration or displacement, inability to plant for material or security reasons or because of degradation of land which can only be put back into use after being reclaimed, leaving land unused and moving into other occupations, the area cultivated with winter and summer crops and vegetables in the study area fell by 12.2 per cent in 2019 compared to 2010. Al-Rastan has had the least decline in cultivated areas (-0.4 per cent), in contrast to Al-Qusayr which had the greatest decline (-39.5 per cent). Figure 6 shows the rates decline of cultivated areas in different areas of Homs during the conflict.

Source: Agricultural Statistical Group.

⁹ Annual Agricultural Statistical Group - Ministry of Agriculture - Directorate of Agriculture and Agricultural Reform in Homs - 2019.



Figure 6. Areas of field crops and vegetables in 2010-2019 in the study area

Source: Agricultural Statistical Group.

The decline in cultivated areas has decreased the region's total production by 13 per cent. Production in Al-Rastan declined by 21.8 per cent, and by 88.7 per cent in Al-Qusayr. Meanwhile, output in Homs and Taldou increased by 21.6 per cent and 29.8 per cent respectively, due to increased cultivation of winter crops and favourable weather conditions and rainfall in 2019, leading to higher yields, especially in rain-fed lands (figure 7).



Figure 7. Production of field crops and vegetables in 2010-2019 in the study area

Source: Agricultural Statistical Group.

The areas cultivated with fruit trees (figure 8) have not changed, although this may not reflect realities on the ground as most orchards have been subjected to varied degrees of damages. Trees have

been logged or illegally cut down to be burned by households or sold as firewood. Remaining fruit trees have had reduced vitality, and at least 30 per cent have entered an early unproductive stage because farmers could not provide required care during the conflict.



Figure 8. Areas cultivated with fruit trees in 2010-2019 in the study area

Source: Agricultural Statistical Group.

The lack of agricultural care for fruit trees has led to a decline in production between 2010 and 2019. The level of decline varied between 48.6 per cent in Al-Qusayr and 4.4 per cent in Al-Rastan (figure 9).



Figure 9. Production of fruit trees in the study area, 2010-2019

Source: Agricultural Statistical Group.

2. Water resources

The agricultural sector in the study area is closely tied to the available water resources, as it utilizes around 85 per cent of them. Irrigated land covers an area of 27,000 ha, accounting for 14 per cent of total cultivated land (irrigated or rain-fed). Forty-one per cent of irrigated land relies on surface water sources from the Orontes River, springs in its basin, Lake Qattinah and public irrigation networks and dams built on it. Table 9 details the storage capacity of existing dams.

Dam	Storage capacity (million m ³)	Site
Qattinah	200	Qattinah
Tal Hosh	52	Talkalakh
Almazyanah	19.2	Talkalakh
Taldou	15.144	Taldou

Table 9. Existing dams and their storage capacity in Homs Governorate

Source: Water Needs Study for the Agricultural Production Plan - The General Commission for Scientific Agricultural Research.

About 58.3 per cent of irrigated land relies on private wells. The number of wells was 29,168 in 2010 and 38,965 in 2019, with an increase of 9,797 wells.¹⁰

Water resources are facing further deficits and deterioration of quality due to diverting sewage and industrial drainage into the Orontes River and the excessive use of fertilizers and pesticides. Water quality problems are also exacerbated by the inefficiency of irrigation networks and water use at the field level.



Irrigation pumps – Al-Qusayr – 2020



Lake Qattinah – Pollution of Water Resources – 2020 - 2020

The breakdown of the total irrigated area by water source at the level of the administrative districts in the study area is shown in figure 10 below. The water budget drawn up by the Ministry of

¹⁰ There are licensed and unlicensed wells.

Water Resources allocates water resources to agriculture based on annual rainfall and renewable water resources.



Figure 10. Breakdown of total irrigated areas by water source in the study area, 2019

Source: Agricultural Statistical Group.



Use of modern irrigation methods - Homs - 2020

There is planning to implement various crop rotations: a two-crop rain-fed rotation in which crops (grains and legumes) are sequenced to maintain soil fertility; and a three-crop rotation for crops irrigated from wells, surface water and rivers with an intensification rate of 114-125 per cent; and with river water by pumping with intensification rate of 144 per cent as shown in table 10.

										Unit: I	Per cent
Water source	Wheat	Barley	Fava beans, peas and beans	Winter vegetables	Sugar beets	Vetch and Vicia ervilia	Anise	Garlic and onions	Potato	Watermelo n and pumpkin	Summer vegetables
Upper Orontes	57.2	2.7	8.2	5.5	3.4	0	0	2.7	25.9	0.8	10.1
Wells	60.4	5.2	5.4	7	2.8	0.2	1.9	3.5	19.9	1.9	17.4
Rivers flow	46	0.5	8.2	5.7	11.9	0.4	10.2	6.6	15.9	6.1	12.5
Rivers by pumping	44.8	0.4	11.9	8.3	4.3	0.6	13.2	2.2	22.6	9.8	20.3

Table 10. Distribution of irrigated crops by water source in a normal farming season

Source: Water Needs for the Agricultural Production Plan - General Commission for Scientific Agricultural Research.

Agricultural production costs vary with the irrigation sources used. Government irrigation networks provide water at a fee of 3,700 SYP/ha. Lands irrigated from wells require pumps operated by diesel or electricity which increases irrigation cost more than 20 times than that under public irrigation schemes. In Homs and Taldou, 61.8 per cent and 81.2 per cent of areas, respectively, depend on irrigation from wells, and both areas rely in greater degrees on winter crops than summer crops to reduce irrigation costs. In Al-Qusayr there is summer, winter and intensive year-round farming as 47.4 per cent of the irrigated land rely on dams and public irrigation systems. Al-Rastan, on the other hand, currently relies on vegetable and winter crops because of the suspension of the Homs irrigation network.

3. Livestock

Livestock is of great importance for rural households in the study area because of the abundance of pastures and crop residues, but the size of the livestock herd decreased considerably during the conflict (figure 11). Before they could flee conflict zones, many livestock farmers had to sell their herds to merchants and Bedouins, who moved them to safe areas and later put them for sale.



Figure 11. Size of livestock herd in study area 2010-2019

Table 11 shows the volume of livestock production in the study area and the governorate as a whole.

					I	Production: Ton
Area	Homs - Study Villages	Taldou	Al-Rastan	Al-Qusayr	Total	Governorate
Milk	11,297.29	15,663.91	12,540	12,793.43	52,294.63	160,496.8
Percentage	21.6	30	24	24.5	100	32.6
Meat	1,183.15	931.31	1,241.85	778.87	4,135.18	18,495.41
Percentage	28.6	22.5	30	188	100	22.4

Table 11. Livestock products production in Homs Governorate and study area 2019

Source: Agricultural Statistical Group.

The area enjoys a comparative advantage in raising sheep, goats, cattle, poultry, bees and village poultry. It can achieve a reasonable complementarity with plant production if feed production is regulated and problems of marketing livestock products are addressed.



Sheep farming - Nomads - Tesnin - 2020

Rural poultry farming - Al-Qusayr - 2020



The General Poultry Association - Homs Facility - Mukhtariya Area - 2020

A small number of farmers raise cattle, and most holdings have 1-3 head of cows. Only a limited number of farmers have cow pens that include 10-20 heads. Farmers rely on the subsidized feed ration provided by the General Establishment of Feed for about 50 per cent of needs, while the remaining feed is secured from local markets at market prices.

As for sheep farming, it is limited to settled Bedouin populations living at the edges of agricultural land in the villages within the studied area. They lease residues for the grazing of their sheep and either purchase feed from the local market or the General Establishment for Feed, which provides 10-15 per cent of needs at subsidized prices.

There are 2,341 licensed and unlicensed poultry farms in the governorate, with 915 farms in the study area (290 in Homs, 250 in Taldou, 57 in Al-Rastan and 318 in Qusayr). There is also family poultry among rural households, accounting for some 6,400 turkeys, 2,800 swans and ducks, 100,000 pigeons, and 15,000 rabbits. It is worth noting that 40-50 per cent of these birds are raised in Al-Qusayr area. Poultry production witnessed severe losses during the conflict due to damages to breeding facilities, the inability of breeders to continue production due to the difficulty of reaching their facilities, the inaccessibility of feed, and their inability to sell products to central markets. Other reasons for its decline include the continued rise in feed prices in parallel with the decline in the value of the Syrian pound against foreign currencies as all feed is imported.



Sheep farming - Nomads - Umm Shershouh - 2020

Bedouin housing - Umm Shershouh - 2020

Fish production in Homs in 2010 was estimated at 425 tons. The main production sources are concentrated in the Al-Rastan and Qattinah lakes and 50 other fish farms. The largest farms are in Reblah, where trout is produced, followed by the Orontes River, the Southern al-Kabir River, and the western region dams. During the conflict, the production of these facilities declined to only 78 tons.

4. Patterns of agricultural holdings

Holding size is an important factor in applying modern technologies in agriculture, reducing production costs and increasing yield. There is a total of approximately 50.375 million individual landholdings in Homs. Ninety-five per cent of holdings are cultivated by their owners, while sharecroppers cultivate about 5 per cent in exchange for giving the owner a third of their crop. Table 12 shows the distribution of landholders by holding size for 2019 compared to 1994 (the latest holding size survey performed by the Central Bureau of Statistics).¹¹

Address	Number of holdings	Up to 1 ha (%)	1-2 Hectares (%)	2-4 Hectares (%)	More than 4 hectares (%)	Average holding (ha)
Census 1994	50370	34	22	11	33	8.4
Al-Rastan Field Monitoring 2019	There's no statistic	50	30	10	10	11.2

Table 12. Change in number of agricultural holdings by size, 1994-2019

Source: Study of agricultural holdings - Central Bureau of Statistics.

Small and medium holdings predominate in the study area, which makes them relevant for investment and development mechanisms.

¹¹ National Policy Centre - FAO - Assessment of the agricultural season 2016-2017.



Irrigated and rain-fed agricultural systems -Taldou Region - 2020

Irrigated and rain-fed agricultural systems - Al-Rastan Region - 2020

5. Major problems limiting agricultural investment and population stability in the study area

Figure 12 shows the main problems that limit the development of agricultural investment and population stability in the region.



Figure 12. Problems limiting agricultural production in the study area

E. Impact of the conflict on the agricultural sector in the study area

1. Land resources and existing crops

- (a) Damage to 1 per cent of cultivated land (3,400 ha) as a result of:
 - (1) Passage of heavy military vehicles through agricultural lands, damaging the mechanical structure of the soil and negatively impacting agricultural productivity;
 - (2) Presence of military fortifications, trenches and temporary installations;

(b) Decrease in cultivated land in the study area in 2019 by 6,605 ha compared to 2010, and consequently, decline of agricultural production by 110,000 ha during the same period (table 13);

(c) Decline in net profit from areas planted with crops and winter and summer vegetables by 35 per cent after public irrigation projects stopped working and farmers had to transition from irrigated to rain-fed cultivation.

Table 13.	Direct impact	of the conflict	on the decline of	cultivated areas,	2010-2019
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		Agricultural production		
Year	Irrigated	Rain-fed	Total	(1,000 tons)
2010	39.577	159.520	199.097	633.1
2019	26.958	165534	192.492	523.2
Difference	-12.619	+6.014	-6.605	-109.9

Source: Agricultural Statistical Group.

2. Water resources

- (a) Shutdown of the Homs-Hama and upper Orontes irrigation networks as a result of:
 - (1) Sabotage of Government irrigation systems;
 - (2) Inability of the Ministry of Water Resources to carry out required maintenance and repair operations due to the lack of financial resources. In May 2020, the Ministry began cleaning and maintenance work on the irrigation canals and water distribution gates.

(b) Destruction of about half of the wells in the study area, either because of military operations or out of malice; in addition to the theft of most pumps, equipment, tools and field irrigation networks;

(c) Decline in water quality in the Orontes River due to contamination by domestic and industrial sewage amid the shutdown of the water treatment plant since the beginning of the conflict;¹²

- (d) Waste of ground and surface water resources as a result of:
 - (1) Increase in the proportion of losses in irrigation networks during the conflict and

¹² Water Resources Tracking Report for the Meeting of the Ministerial Committee - Local Administration in Homs - 2020.

damage to main irrigation canals;

- (2) Exploitation of the conflict by some residents through digging new unlicensed wells;
- (3) High water loss rate and low water productivity as farmers had to return to traditional irrigation methods when they were unable to use modern irrigation due to major damages to wells, networks and pumps;
- (4) Increase in the number of dug up wells despite a water deficit in the basin;
- (5) Shortage and monopoly of the diesel fuel needed to operate well pumps and high prices on the informal market, adversely impacting irrigation costs.



Canals of government irrigation projects – 2020

3. Livestock

(a) Livestock headcounts have decreased significantly, by 50 per cent for cattle (and a recovery of 7 per cent from 2018 to 2020), 40 per cent for sheep (12 per cent of which have been recovered) while 50 per cent of poultry farms were damaged, with most being no longer operational (15 per cent resumed production between 2018 and 2020). The bee population fell by 70 per cent, while 40 per cent of wooden hives were damaged (30 per cent were rehabilitated from 2018 to 2020);¹³

(b) Shutdown of 16 private feed mills and the General Establishment for Feed centres in the region (two centres);

¹³ Agricultural Productivity Plan for the 2019-2020 agricultural season, Ministry of Agriculture and Agrarian Reform.

(c) Lack of financial resources among farmers, given that feed (ready-to-milk type) increased from 15,000 to 220,000 Syrian pounds per ton during 2010-2019, and bran prices rose from 9,000 to 12,500 Syrian pounds per ton;

(d) Decrease in field crop volumes and vegetable production resulting in a decline in crop residues, which had previously provided 50 per cent of the green and dry fodder for local livestock;

(e) Unchecked export and smuggling of animals in areas outside of government control to Lebanon, Jordan, Turkey and Iraq;

(f) Some farmers had to sell a part of their herd to pay for feed for the rest of the herd;

(g) Destruction of some livestock pens and poultry facilities, destruction of feed warehouses and manufacturing centres, theft and other damaging criminal acts;

(h) Deterioration in herd health and the prevalence of foot-and-mouth and smallpox infections with lack of access to veterinary services in conflict areas. This was exacerbated with high cost of medicines and transport.



Sheep farming - Nomads - 2020



Bedouins - Their conditions improved after they bought herds from displaced people - 2020

(i) High volumes of fresh milk waste due to the difficulties in marketing and transportation, lack of alternative routes for marketing and the inability to process milk due to the lack of required equipment for manufacture and storage.

(j) Some returnee farmers were unable to buy back herds due to increased prices. Table 14 shows the change in livestock prices between 2010-2019.

			Unit (1,000 SYP
Year	Live cows (head)	Live sheep (head)	Beehive with bees
2010	200-300	7-9	50
2019	2000-4000	250-300	150

Table 14. Change in livestock prices, 2010-2020

Source: Tracking reports from the Directorate of Productivity - Ministry of Agriculture and Agrarian Reform.



Destroyed poultry facilities - Al-Qusayr - 2020



Damage to livestock pens - 2020



Cattle raising within residential facilities - Mahjar - 2020

4. Plant production

(a) With a 10-20 fold increase in input prices, the devaluation of the local currency and monopolized markets, production costs have been increasing immensely;¹⁴

(b) Lack of timely access to inputs in the appropriate quantities, dates and specifications (fertilizers, seeds, pesticides, packaging, diesel, feed and spare parts for tractors and harvesters);

(c) Decline in returns on agricultural investment due to difficulties in obtaining supplies and inability to perform required agricultural services in cultivated areas;

(d) While the number of tractors in the region have been decreasing, those that are still operational are unable to meet the demand. Equipment are also being subject to theft and damage without the possibility of proper maintenance, also farmers are sometimes forced to sell them;

¹⁴ The results of the discussion sessions and field tours in the study area - and their intersection with the prices of production inputs issued by the periodic pricing bulletins from the Ministries of Trade, Foreign affairs and Interior and the Ministry of Agriculture 2011-2019.

(e) Between 2010 and 2020, farm wages have increased sevenfold (wages of farming a hectare increased from 3,000 Syrian pounds in 2010 to 25,000 Syrian pounds in 2019). Wages for skilled agricultural labour also increased 6-10 fold (hourly wages increased from 30 SYP/hour in 2010 to 200 SYP/hour for cleaning and weeding and 400-500 SYP/hour for strenuous work in 2019). Additionally, the cost of production inputs increased by 14 fold (the cost of basic fertilizers increased from 12,000 SYP/ton in 2010 to 175,000 in 2019, while the price of a litre of diesel increased from 15 SYP in 2010 to 185 SYP in 2020).¹⁵



Old tractors - Al-Qusayr - 2020

Traditional Harvesters - Al-Rastan - 2020

5. Fruit trees

(a) Military operations and illegal cutting and logging of fruit trees have resulted in a decline in the cultivated area in Homs, Taldou and Al-Rastan (by -0.5 per cent, -3.3 per cent and -2.3 per cent, respectively), while the wooded area in Al-Qusayr area increased after farmers planted the areas with olives and apricots at the expense of apples and almonds;

(b) The conflict caused the perishing of a large number of stone fruit trees (60 per cent of the peach trees in Al-Rastan area and 65 per cent of the apricot trees) and apple trees in Al-Qusayr area as many farmers were unable to access their lands to provide the necessary agricultural services for them in terms of tilling, irrigating, pruning and controlling pests and remaining trees were damaged, entered an early unproductive stage and now require rehabilitation;¹⁶

(c) Saboteurs cut down olive, almond and apple trees and windbreak trees for sale or for heating and other household uses, this was especially done by families who remained in conflict areas or living under siege;

(d) Fruit tree production was totally or partially lost during the conflict because of marketing difficulties from production areas to consumption areas.

¹⁵ The results of the discussion sessions and meetings with stakeholder farmers and the database of government official agencies.

¹⁶ The results of the discussion sessions and meetings with farmer stakeholders.





Burning and logging of fruit trees – Taldou – 2020

Logging forest trees – Eucalyptus Trees - Homs - 2020

6. Labour force

(a) Loss of skilled workers, particularly in the repair of transport vehicles, agricultural machinery and pumps and those specializing in spare parts, production inputs and the like;

(b) Migration of many agricultural engineers and technicians, veterinarians and experienced farmers;

(c) An increase in the proportion of female workers across different age brackets, from 26 per cent of the total agricultural labour force in the region in 2010 to 43 per cent in 2019;

(d) Increase in use of child labour;

(e) Inability of the market to absorb more workers due to damages to the means of production such as land and agricultural, water and industrial facilities;

(f) Surge in the proportion of persons with disabilities, persons with special needs and conflict victims in the labour force;

(g) Disruption of the labour market due to imbalance between wages and effort exerted, simultaneous unbalanced supply and demand, with a less equitable income distribution;

(h) Increase in poverty rates due to reduced wages and the increased cost of living.





Women's agricultural services workshops - Al-Rastan -Talbiseh - 2020

7. Other components of the agricultural sector

(a) Decline in support services previously offered by the government;

(b) Suspension of Agricultural Cooperative Bank loans from May 2011 to 2018, resulting in increased financial pressures on farmers;

(c) Damage to wholesale markets in the region, with the wholesale market in the city of Homs not resuming operations until 2016, while the central market in Al-Qusayr continues to be suspended until now, noting that several alternative markets opened in some parts of the region (Khirbet Al-Teen, Al-Rastan, Al-Rayyan);

(d) Reduction in the manufacturing capacity of food industry plants, loss of added value on agricultural products and high rate of waste during peak production;

(e) Drop in the quantities of exported agricultural production and the loss of market share of Syrian products in foreign markets;

(f) Decrease in the production of seedlings in private nurseries and government nurseries, at a level that is insufficient to replant damaged areas;

(g) Suspension of agricultural and rural development projects implemented in collaboration with international organizations and development funds.

8. Adaption measures during conflict

(a) Diversifying economic activities of the family (farming, public service, crafts, trades and commerce);

(b) Increasing women's contribution to strengthen the family's resilience. Many women have resorted to rural poultry farming, taking on agricultural wage labour and planting home gardens with vegetables to meet the family's need for basic food commodities. Others opened village shops selling clothing, household items and living necessities;

(c) There has been a reversion to the cultivation of smallholdings for survival needs, while surpluses are being sold as an income source;

(d) There is more interest in alternatives to reduce production costs, as farmers resorted to increasing quantities of organic fertilizers to compensate for the shortage of chemical ones. There has also been increased interest in collecting crop residues for feed processing and mushroom production. Some farmers have even resorted to using solar energy technologies and other renewable energy resources to generate power instead of relying on diesel fuel for water pumping from wells.







Growing vegetables to secure the family's needs - Taldou - 2020



Renewable energy - Al-Rastan Villages - 2020



Renewable energy - Al-Rastan Villages - 2020





Agricultural intensification - Planting under new trees - Al-Qusayr 2020

Cultivation of wheat, the most important food crop - 2020



Agricultural intensification - Planting under new trees for profit - Fairouza 2020



Cultivation of crops that can be stored to control when they are put on the market - 2020

F. Regulation of the Agricultural Sector and Investment Factors

1. Agricultural production.

Agricultural production in the study area is organized on the basis of the Agricultural Development Strategy of the Syrian Arab Republic, which addresses the issue of the full and sustainable use of natural agricultural resources and the preservation of ecological balance. The strategy stipulates that the agricultural production plan is to be prepared annually by the Ministry of Agriculture and Agrarian Reform to coordinate and cooperate with the Ministry of Water Resources and the Ministries of Industry and Internal and Foreign Trade. It includes the rights and duties of both government agencies and farmers. This strategy is also being implemented at the governorate level.

In Homs Governorate, and the target area in particular, the agricultural production plan is drawn up on the basis of Law 51 of 2005, which also covers water legislation. This law determines the water budget, the water resources allocated to agricultural production and the conditions for their use. In addition, on the basis of Decree 59 of 2005 governing the agricultural plan, and in accordance with the land use balance, the areas allocated for agriculture (irrigated and rain-fed) are determined by specific crop rotations at the level of agro-climatic zones. Support services that must be provided to farmers to achieve planned plant and animal production are defined. Consequently, extension units give farmers an agricultural permit to determine the area of land cultivated and the ratios of planned cultivation. Through this permit, farmers can obtain a loan from the Agricultural Cooperative Bank and government-subsidized inputs. All farmers with less than one-hectare holdings of irrigated areas and two and a half hectares of rain-fed areas are exempted from obtaining permits, and if they wish to obtain government-subsidized production inputs, they instead undergo a physical examination and must pay in cash. The decree imposes a fine on farmers in violation of this procedure.

2. Administrative and organizational structure of the agricultural sector in Homs Governorate

In the governorate, there is a local administration under the Ministry of Local Administration and Environment which oversees all official directorates and departments operating in the governorate and is technically and financially subordinate to the ministries and central authorities supervising them.

The agricultural sector is managed through the Ministry of Agriculture and Agrarian Reform, comprising a range of central departments, bodies and institutions with branches in the governorates, and a Directorate for Agriculture in each governorate.

The Directorate of Agriculture and Agrarian Reform in Homs comprises the technical and administrative departments corresponding to the central directorates operating in the Ministry and has a Department of Agriculture in each administrative region (figure 13).

Each administrative region has a set of extension units affiliated with the Agricultural Extension Department in the Directorate of Agriculture. Each extension unit supervises a group of villages and is responsible for technical agricultural matters.

The Directorate works with its affiliates to:

(a) Regulate agricultural production according to production and investment plans of the Ministry of Agriculture; its extension units provide agricultural organization according to the specific crop rotations for each administrative region and define the rights and duties of both the government and farmers, at the cooperative, individual and joint levels;

(b) Address problems facing the implementation of the agricultural production plan, contribute to securing the supplies of agricultural production and organize the provision of support services. The Directorate works to implement the decisions of the Agricultural Support Fund, the Fund for Modern Irrigation Project, and the Natural Damage Compensation Fund. It also supervises the implementation of land reclamation projects, fruit and forest plant production, rural development projects and women's empowerment projects, among others. It also publishes and communicates government decisions to develop agricultural production;

(c) Implement free annual campaigns to immunize livestock herds against foot-and-mouth disease and other diseases. The General Establishment of Feed of the Ministry of Agriculture works to sell regulated feed to breeders at subsidized prices ranging between 20 and 40 per cent of its actual value, covering 20 per cent of the annual fodder requirement. The Ministry of Agriculture is in the process of granting permits to establish veterinary drug laboratories and supervise their products. It is also in the process of regulating the import and export of live animals and meat, and in conducting a periodic census of livestock;

(d) Conduct general countermeasures against pests and weeds (locusts, sunn pests, pine caterpillars, silverleaf nightshades, voles, hornets and others) and provide integrated management for agricultural pest control by distributing pheromone traps and producing vital antibodies to eliminate harmful insects and reduce pesticide use;

(e) Foster cooperation between scientific research bodies and agricultural extension departments to enhance farmers' technical and professional competence.





The governorate has branches of the public institutions affiliated with the Ministry of Agriculture (the General Organization for Seed Multiplication, the Establishment of Cattle, the Poultry Corporation, the Establishment of Feed) that operate as production establishments and aim to provide a percentage of the plan's needs from the seeds required to grow strategic crops at subsidized prices (wheat, barley, cotton, sugar beets and tobacco), secure a percentage of the feed needed for livestock and provide technical extension.

The Agricultural Cooperative Bank of the Ministry of Finance grants short, medium and longterm loans to the public, cooperative and private sectors to allow farmers to practice agriculture. The Bank also manages agricultural development loans for the National Modern Irrigation Transition Project and the Women's Empowerment and Poverty Alleviation Project. There are three branches of the Bank in the study area.

The Farmers Union, which belongs to the General Farmers Federation both administratively and organizationally, has a series of associations with cooperative societies formed at the level of each village in the governorate. There is also an office of the Chamber of Agriculture that regulates trade in agricultural products, controls the marketing of agricultural products and implements specialized programmes to support producers.

The governorate has a branch of the Grain Corporation, which is administratively under its general administration, and in turn reports to the Ministry of Economy and Trade. There is also a branch of the General Organization for Cotton Ginning and Marketing affiliated with its General Organization, as well as a branch of the General Organization for Sugar, all of which are under the Ministry of Industry and are involved in purchasing strategic crops from farmers (wheat, barley, cotton, sugar beet, tobacco) at subsidized prices.

3. Private actors and international organizations active in the study area

International organizations, civil society and community-based organizations have implemented several important projects (annex 1), mostly focusing on providing livelihoods through food aid, cash and productivity grants, labour market projects, occupations capable of providing decent job opportunities and support for small, medium and micro-enterprises. This includes supporting entrepreneurship and financial services programmes, developing the conflict-affected private sector, supporting persons with disabilities and providing social protection for those in need. Annex 1 and annex 2 list the most important private actors, organizations, actors and projects.

4. Agricultural Cooperatives

The cooperative system was established by Agricultural Organization Law No. 21 of 1974, as amended, which stipulated the establishment of the General Farmers Federation with a sub-union in each governorate and subsidiary agricultural associations overseeing the work of agricultural associations at the village level. The latter can be classified into multi-purpose, specialized, productive, joint, single-purpose or marketing association. As of 2020, there were 630 farmer associations in the Homs Governorate, with 52 per cent of farmers affiliated. The associations provide several services to members, including coordination with the Agricultural Bank to provide agricultural loans to farmers and agricultural production inputs (cash, in-kind) of wheat, barley and potato seeds provided by the General Organization for Seed Multiplication, in addition to basic fertilizers. They also work to secure the feed ration for livestock farmers from the sales centres of the General Establishment of Feed and help market strategic crops to specialized public sector institutions (wheat, cotton, sugar beets, fodder). The remaining inputs and the marketing of products are dealt with individually, even if the farmer is a member of an agricultural cooperative. There are no production or specialized shopping associations in the governorate. The associations are unable to provide agricultural machinery and equipment to assist the association members, and there is no collective cultivation of holdings.

Every farmer association has an agricultural engineer assigned by the Ministry of Agriculture whose task is to train farmers on modern agricultural methods, provide agricultural extension and manage technical work in the association. The association can form a nucleus for interventions that enables direct access to the largest segment of farmers.

5. Physical and material assets

Agricultural machinery and accessories such as tillers, pesticide sprayers, fertilizer spreaders, irrigation networks, irrigation pumps and agricultural vehicles are essential assets for agricultural work. In the pre-conflict period, all these tools were available to major landholders, some were available to medium landholders, and farmers from medium and small-scale holdings rented these tools to carry out their agricultural work. During the conflict, some of these machines were directly damaged in hostilities, some have been looted while others suffered from disruptions due to shutdowns and need repair and maintenance. Table 15 shows the remaining tally of these machines in the study area.

Area	Tractors	Combine Harvesters	Tillers	Water pumps from wells and rivers
Homs	4,728	_	3,488	3,885
Taldou	1,122	_	474	328
Al-Rastan	1,330	_	1,600	3,538
Al-Qusayr	1,551	_	1,500	3,905
Total 2019	7,431	102	7,062	11,656

Table 15. Main agricultural machinery by regions, 2019

Source: Agricultural Statistical Group.



Damaged agricultural machinery – Tesnin – 2020



Damaged agricultural tractors and related accessories – Al-Qusayr – 2020

The Upper Assi Irrigation Network, the Homs-Hama Irrigation Network and Lake Qattinah are among the most important assets affecting the region's agricultural systems, and they are all out of operation and suspended due to damages. The return of land to irrigated agriculture (instead of rain-fed agriculture) increases the net profit by more than 50 per cent.

Markets, sorting and packaging centres, food factories, olive presses and livestock processing plants have been damaged in different proportions, most of which have not been completely destroyed, but vandalized and some tools and equipment were stolen. One of the most critical obstacles to rehabilitation is the lack of the necessary financial resources.



Damaged irrigation canals - Homs-Hama irrigation network - Pollution of Lake Qattinah water - 2020

There are several agro-industry projects in the governorate using agricultural products produced in Homs Governorate or in other governorates. In 2007, there were some 198 agro-industry enterprises with high production capacities (table 16) apart from small and medium food industries operating in the rural and simple food industries such as milk processing and production of cheese and dairy products, which are sold to retail markets in the city centre.

Industry type	Production capacity (1,000 tons)	Number of facilities	Industry type	Production capacity (1,000 tons)	Number of facilities
Olive press	11 (olive oil)	29	Spirits	1.650	45
Storage and cooling	32.887 (fruits and vegetables)	6	Natural drinks and concentrates	14.358	4
Manufacturing milk and dairy products	31.877	6	Sesame industry	1.650	31

Table 16. Food industries in Homs Governorate in 2007¹⁷

¹⁷ Ministry of Industry - Directorate of Production 2008, and for 2019 according to data from the Directorate of Industry in Homs Governorate.

Industry type	Production capacity (1,000 tons)	Number of facilities	Industry type	Production capacity (1,000 tons)	Number of facilities
Sugar, alcohol and molasses manufacturing (public and private sector)	690 (sugar), 7 (molasses), 27 (white alcohol)	2	Fertilizer industry	4.3 (private sector fertilizer)	4
Feed plants	1,105.348	45	Fertilizer industry (private sector)	-	1
Canning industries	4.372	2	Grain industry (public sector)	109.9	5
Vegetable oil factories	271.342 (vegetable oil)	7	Veterinary medicines	2.271	11

The food industry in Homs accounts for 34 per cent of all sectors. The main products manufactured are pickled olives, olive oil, dried figs, raisins, molasses, grape spirits and qamar al-din (apricot nectar).

The city of Homs has a wholesale market of 25,000 square meters, and there are four specialized submarkets (table 17).

Table 17. Main and secondary agricultural niche markets in 2011
and their current status in 2019

Market and location	Speciality	Status in 2019	
Al-Qusayr market in the town of Al-Qusayr	Field crops	Inoperative	
Sheep market in eastern Homs region, in the village of Al-Sa'an Al-Aswad	Live sheep	Stable and still a major location for sheep trading	
Cow market in the village of Deir Baalbah - Tel Al-Nasr, located in eastern Homs region on the Salamiyah Road	Live cows and calves	Stable and still a major location for cattle trading	
Suq al-Hashish	Red and white meat	Stable and still a major location for meat trading	
New markets emerging as a result of the conflict (Al-Rayyan Market, Khirbet Al- Teen Nour Market, Al-Rastan Market)	Plant products	Emerging and operating locally in varying degrees	
Fixed and mobile popular markets	Products of rural industries, micro and small-enterprises		





Wholesale market – Homs – 2020

Wholesale Market – Homs – Reused packages – 2020

During the conflict, several local markets emerged such as in Khirbet Al-Teen, Al-Rastan and Al-Rayyan, which are markets that include a group of traders associated with the authorities controlling the regions who purchase agricultural products from farmers and transport them to the central wholesale market in Homs Governorate or to markets in other governorates. Khirbet Al-Teen Nour market began to develop into a major wholesale market rival to the wholesale market in the city of Homs. As for the sub-markets in Al-Rastan and Al-Rayyan, they have begun to decline and split into semi-wholesale and retail markets with the task of meeting the agricultural needs of the region's population and receiving agricultural products from the region, especially those produced in smallholdings. The transfer of these products to central wholesale markets are not economically feasible due to the high transportation costs.

6. Support services for the agricultural sector¹⁸

(a) Agricultural research

In the area of agricultural research, several public bodies funded by the government operate, such as the Agricultural research Authority of the Ministry of Agriculture, and Higher Authority for Scientific and Agricultural Research of the Ministry of Higher Education and Scientific Research, as well as a number of self-financed private entities such as commercial companies involved in importing production inputs. Every year, necessary funds are allocated within each agency's investment budget to rehabilitate damaged buildings, laboratories, research stations, and means of work and production. However, the Agricultural Research Authority continues to carry out its research plan within its production and research fields. The Authority also has good and sufficient scientific staff to carry out all research work, but most of these staff are engineers since fewer people have a doctorate than required. To cover this deficit, research is conducted in cooperation with the scientific staff of Syrian universities, the International Centre for Agricultural Research in the Dry Areas (ICARDA), the Arab Centre for Studies of Arid Zones and Arid Lands (ACSAD) and other specialized centres.

In the study area, there are two centres for scientific agricultural research (in the Homs region and Al-Qusayr region) working to implement scientific studies, conduct technical and applied agricultural research, develop varieties of field crops, vegetables and fruits suitable for the climate and agricultural lands in the governorate and manage genetic improvement programmes by taking

¹⁸ Source: Agricultural Production Tracking Reports - Ministry of Agriculture and Agrarian Reform.

advantage of genetic assets within the genomes of fruit trees, medicinal and aromatic plants, Damascene Rose and saffron. Experiments are also being carried out to determine the water levels needed to irrigate crops and test appropriate modern irrigation methods. The two centres provide agricultural extension of research results and collaborate to disseminate their findings to farmers and implement technical training programmes. Research centres in the governorate located within the study area have resumed their work since 2018.

(b) Agricultural extension

Agricultural extension is organized through a central directorate, including agricultural techniques, agricultural information and education, rural economy, follow-up and evaluation of extension programmes. These departments are affiliated with the agricultural extension departments and 55 extension units, distributed among the target areas of the study as shown in table 18.

Area	Homs	Taldou	Al-Rastan	Al-Qusayr	Total
Number of extension units	29	10	5	10	55
Number of beneficiaries	15	4	5	8	32
Number of villages affiliated with it	191	47	29	60	327

Table 18. Extension units in Homs Governorate

Number of units

Source: Extension Units Database - Annual agricultural statistics issued by the Ministry of Agriculture and Agrarian Reform.

In coordination with the Agricultural Research Authority, an extension plan is drawn up based on scientific research outputs. Its recommendations are communicated to farmers through a range of activities such as field visits known as field days, demonstration lectures, production contests, publications, advertisements in the media, agricultural fairs, and extension schools and training courses. The aim of all this is to identify high-yielding and approved varieties, mainstream agricultural practices that promote improved productivity, rationalize the use of agricultural production inputs of fertilizers and pesticides, apply integrated pest management programmes and appropriate agricultural systems, select livestock breeds, disseminate modern breeding methods and improve feed use.

The results of agricultural extension have been positive for the agricultural sector. They have contributed to increasing the yields of wheat, cotton, sugar beets and potatoes and rationalizing the use of pesticides by applying integrated pest management. However, there is still a gap between the actual yield achieved from cultivated varieties and production standards, owing to the failure of farmers to fully implement extension advice and the lack of appropriate production methods and agricultural mechanization and laboratories for soil analysis and the inability to determine fertilizer needs, all of which can be addressed through monitoring and climate forecasting.

Agricultural extension requires the rehabilitation of extension units and the provision of supplies, in addition to retraining technical staff to be more effective in coaching farmers on modern agricultural practices, publishing the results of agricultural research, assessing problems and developing extension programmes to address them. This also requires the automation of extension programmes and the development of extension methods in line with modern global extension systems.

(c) Veterinary and animal production services

Through its policies, the Government has continued to provide veterinary services to vaccinate livestock at sites where animals congregate and are distributed. These services are provided free of charge to the entire herd (cows and sheep) while giving health and veterinary advice to farmers through the region's veterinary centres. The cattle genetic improvement programme has also continued together with the distribution of vaccination straws to breeders to improve the milk yield of cows. The General Organization for Feed and veterinary units circulate various forms of feed mixes made from crop residues in livestock farming areas to provide feed at the local level and reduce production costs.

During the conflict, some veterinary services in the target area declined because veterinarians could not reach the herd, and work at the two veterinary units in the area is suspended due to vandalism.

(d) Agricultural loans¹⁹

There are three branches of the Agricultural Bank in the target area (Homs, Al-Rastan, and Al-Qusayr) that continued to operate during the period of conflict in safe places.

The bank provides short-term (one year) loans to finance the purchases of production inputs and some agricultural operations, and medium-term loans (five years) to finance irrigation investments, especially modern irrigation networks, land reclamation, protected crops, purchase of animals and poultry equipment, building fences and terraces and planting bananas. It also provides long-term loans (ten years) to improve lands, build storage and cooling units and establish forest projects and fruit trees.

The Agricultural Bank grants short-term loans to cooperative farmers or individuals based on the agricultural license granted to them by the extension unit and the needs schedule of production inputs (fertilizers and seeds) specified for each crop. Cash payment is also given to cover the costs of agricultural operations, crop servicing and harvesting, and the loan is due seven months from the date of receipt.

In order to grant loans, real or non-real estate guarantees such as machinery, bank guarantees or personal guarantees are required.²⁰ The Union of Farmers Associations guarantees its members (farmers associations at the village level) for short-term loans according to their production and investment plans and their estimated budget, regardless of the loan amount. Personal guarantees are also accepted in the case of short-term loans not exceeding two million Syrian pounds granted to a co-operative member, with this amount including both the new loan and the balances of previously loans. The Agricultural Bank's interest rates for loans are shown in table 19.

¹⁹ Study of the supply and demand prospects for Syrian agricultural crops - National Centre for Agricultural Policy - Ministry of Agriculture and Agricultural Reform 2009.

²⁰ System of Operations in the Agricultural Cooperative Bank 2016.

Table 19. Categories of agricultural loans and interest rates by type of borrowerand type of agricultural activity

Loans/term	Public sector	Cooperative sector	Private sector	Remarks	
Short	3.5	9	11	Late interest for all	
Medium	3.5	10-11	11-12	sectors is 14 per cent	
Long	3.5	11-12	12-13	annually	

Unit: Per cent

In 2018, the Agricultural Cooperative Bank branches resumed financing all short loans to secure production requirements. Financing for medium- and long-term loans for productive assets is still limited due to the inability of farmers to secure the necessary guarantees to obtain loans, and so farmers resort to the private sector for financing at high interest rates of more than 20 per cent per annum.

Table 20 shows the loans granted to farmers in the study area between 2010 and 2019.

Unit: One million Syrian pounds									
	Homs and Taldou		Al-Rastan		Al-Qusayr				
Statement	2010	2019	2010	2019	2010	2019			
Short-term loans	28.6	23.9	3.4	0	21	156.6			
Medium-term loans	17.7	141.2	4.1	0	37.3	285.5			
Long-term loans	44.4	47	0.7	0	12.2	21			
Gross	90.7	212.1	8.1	0	70.4	463.1			

Table 20. Loans granted to farmers 2010-2019

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The marked increase in loans granted is not due to a rise in the number of borrowers or an increase in cultivated areas, but instead to the adjustment of the schedule of needs for financing crop cultivation, in line with the high agricultural production costs. For example, cash funding for the cultivation and servicing of the wheat crop increased from 15,000 SYP/ha in 2010 to 120,000 SYP/ha in 2019, in line with the increase in in-kind financing for fertilizers, as the financing of nitrogen fertilizer (urea) increased from 8,500 SYP/ton in 2010 to 175,000 SYP/ton in 2019, and then to 193,000 Syrian pounds in 2020. Likewise, funding for phosphate fertilizer soared from 8,800 SYP/ton in 2010 to 151,000 Syrian pounds in 2019, then to 237,000 Syrian pounds in 2020.

One of the main financing problems facing farmers is the inability of farmers in debt to the Cooperative Agricultural Bank to obtain new loans, limiting their ability to invest in agriculture, as no other banks grant agricultural loans. Farmers also face great difficulties in securing the necessary guarantees to obtain loans in the absence of institutions providing them.

To cover the costs of agricultural investment, some farmers receive the necessary funding, in part or in whole, from family members outside of the Syrian Arab Republic. The funds are transferred through exchange companies operating in the Syrian Arab Republic and approved by the Central Bank.

(e) Agricultural production inputs in the study area

(1) Agricultural production inputs

The production, import and trade of agricultural production inputs are regulated by the Ministries of Agriculture and Industry, and inputs are secured from the public and private sectors.

a. Public sector

The public sector works to provide the necessary production inputs for the implementation of the agricultural plan, by giving a proportion of the basic fertilizers needed to cultivate the planned areas of field crops, vegetables and fruit trees, and to provide the necessary seeds to grow strategic crops of wheat, barley, cotton and sugar beets. The sector also provides 12 per cent of the livestock herd's needs of feed as well as diesel allocations for agricultural work.

Seeds of strategic crops are provided by the General Organization for Seed Multiplication. Feed is provided by the General Feed Corporation. Imported fertilizers are provided by the General Organization for Trade, and locally produced fertilizers are supplied from the fertilizer plant of the Ministry of Industry. Fertilizers and seeds are delivered to the Agricultural Cooperative Bank of the Ministry of Finance, which delivers them in-kind to farmers according to the quantities and at the subsidized prices established in the needs schedule issued by the Agricultural Bank. Feed is sold at the General Feed Corporation in cash at subsidized prices.

During the conflict, the Government faced great difficulties in providing imported fertilizers and feed due to economic sanctions imposed on the Syrian Arab Republic, which prevented international companies from carrying out any supply contracts to the Syrian government. The lack of energy sources and raw materials also led to the suspension of the fertilizer production plant in Homs Governorate.



Syrian Trading – Public Sector – Homs Taldou Road – 2020



Branch of the General Feed Corporation – Public Sector – Homs – Taldou Road – 2020

b. The private sector

Companies that trade agricultural production inputs provide supplies from local production and imports, such as vegetable and field crops' seeds, pesticides, composite fertilizers, modern irrigation system supplies, agricultural machinery and their equipment and accessories, spare parts and the like. These institutions continued to provide goods during the conflict period without any bottlenecks or monopoly. However, these companies have encountered difficulties due to international economic sanctions, forcing them to secure supplies through intermediary companies. The prices of these resources doubled during the period 2011-2019 at a rate parallel with the deterioration of the value of the Syrian pound against the dollar, which fell from a rate of 50 Syrian pounds to the dollar in 2010 to 950 by the end of 2019, losing 95 per cent per cent of its value. The Syrian pound continued to fall from January 2020 to May 2020, reaching its lowest point at 2,500 Syrian pounds to the dollar.

Overall, during the conflict, farmers faced significant difficulties in securing production inputs because:

(a) Most agricultural input stores have ceased to operate as they have been destroyed, vandalized or rendered inaccessible;

(b) Most farmers have resorted to reducing the quantities of fertilizers and pesticides used to reduce production costs (this has had a positive impact on the environment);

(c) Owners of companies and agricultural production input stores have stopped selling with deferred payment, as a result of the constant change in exchange rates;

(d) Loss of some standards-compliant production inputs, from modern irrigation systems and spare parts to agricultural machinery and equipment;

(e) Lack of electricity needed to operate irrigation pumps, lack of diesel to operate tractors and agricultural engines, spread of monopolies and increase in the black-market price of diesel by 100 per cent compared to the official subsidized price of 185 SYP/litre.



Agricultural production input store – Al-Rastan -2020



Apricot picking supplies store and barley purchaser – Al-Qusayr- 2020

(2) Quantitative and qualitative employment

Some 46 per cent of the population of the target area depends on income sources from the agricultural sector and related sectors within the value chains, with 26 per cent of the region's

population working directly in agriculture and 20 per cent of its population working in trade, industry, transport and various craft professions associated with the agricultural sector.²¹

In the absence of specialized employment regulation offices in rural areas, agricultural workers in the target area are employed through the following four manners:

(a) First is in small holdings by family members themselves. Agricultural labour is not hired except in limited periods of the year, if necessary;

(b) Second is in medium holdings cultivated and serviced by their owners, where seasonal labour is sometimes hired to carry out agricultural services, harvesting and marketing;

(c) Third is in lands that are cultivated under agricultural contracts to grow summer vegetables. Most of the time, the tenant farmer family resides near the land they cultivate, with use of seasonal labour during planting, weeding and harvesting;

(d) Fourth is in large holdings requiring permanent and seasonal employment. Workers are provided to farmers at an agreed wage by a person in the village called a "*Shawish*".

During 2017, a partial survey was conducted to identify the basic sources of income for farmers residing in rural areas (Al-Rastan region) and found that income sources were distributed as follows: 28 per cent from crop cultivation, 25 per cent from government work, 13 per cent from fruit tree production, 18 per cent from livestock production, 7 per cent from paid agricultural work, 5 per cent from work in a private profession and 4 per cent from other trades and activities.^{22,23}

In the pre-conflict period, only 23 per cent of women worked in paid agriculture in rural areas of Homs Governorate, and in 2019 they accounted for about 23 per cent in Homs area, 36 per cent in the Taldou area, 30 per cent in the Al-Rastan area and 26 per cent in Al-Qusayr. Women work in light farming (spreading, weeding, sorting and packing), and their work is focused on raising and serving livestock of the rural family, where their contribution reaches more than 80 per cent, from care and nutrition to milking and manufacturing of milk products.

Women prefer to work in the public sector because it is permanent and stable work with fewer days and shorter hours than the private sector. They are paid more for the effort exerted and receive health and social insurance and a pension.

Before the conflict, seasonal workers' wages were in the range of 150 to 200 SYP/day (five working hours per day). Now their wages range from 1,800 to 2,500 SYP/working day. Harvest workers and more demanding agricultural workers are paid up to 4,000 SYP/day (seven working hours a day). In general, the labour market is severely disrupted, with high unemployment rates due to workers

²¹ Agricultural Investment Map for Homs Governorate - Ministry of Agriculture and Agrarian Reform - Agricultural Economy Directorate 2008.

²² National Policy Centre - FAO - Assessment of the agricultural season 2016-2017.

²³ Study of the technical report of non-agricultural activities in rural areas and their impact on agriculture in selected areas/Al-Rastan region, National Centre for Agricultural Policy - Ministry of Agriculture and Agrarian Reform in cooperation with FAO - 2008.

refusing the limited wages offered by employers and difficulty obtaining professional workers, most of whom emigrated or established their own businesses during the conflict.

Employment opportunities are available in the region for seasonal or permanent workers in the cultivation and servicing of field crops and cattle and poultry facilities, but wages are a determining factor for accepting the work. Ninety-five per cent of agricultural workers in Al-Qusayr are from the north-eastern governorates. In the Taldou region, 60 per cent are local, and the rest are migrants. In the Homs and Al-Rastan regions, 70 per cent are local. Typically, migrant workers seek employment in livestock to obtain accommodation from the livestock facilities, especially since most come to work with their entire families.



Alternative employment opportunities for those without agricultural holdings – Al-Rastan –2020



Feed mix preparation centre – Homs – Ter Maalah – 2020

7. Agricultural marketing

(a) *Marketing forms*

Agricultural products are classified according to their marketing forms as:

(1) Strategic crops, i.e. wheat, barley, cotton and sugar beets. The Government supports their cultivation by providing production inputs and guaranteeing the purchase of crops from farmers at promotional prices by competent public sector institutions. During the conflict, the Government has continued to buy crops and give farmers promotional prices, and the support in some years of the conflict exceeded 45 per cent of the market price of inputs. Farmers want to grow these crops because the Government declares the purchase price before planting and guarantees marketing;



Government-subsidized strategic crops marketed to public institutions – Homs – Taldou – 2020

- (2) Medicinal and aromatic crops such as anise, cumin, nigella (black seed), fennel, dried coriander, sunflower, caraway, saffron, in addition to grain and seed crops such as broad beans, peas, beans, and dry feed crops such as maize and vetch. These crops are marketed through brokers in the field who buy the product from the farmer at their property. Farmers want to cultivate these crops because of the possibility of storing them, control over their marketing timing and the large demand for them in local and export markets;
- (3) Other field crops, summer and winter vegetables and fruit trees. These products are marketed to wholesale and semi-wholesale markets located in the governorates' centres and major cities under the market system and per the balance of supply and demand. Farmers cultivate them according to the crop rotation and focus on the cultivation of less marketing-sensitive species that do not face severe price disruptions and guarantee a profit, such as fruit trees (olives, almonds), winter crops and vegetables (potatoes, onions, garlic) and summer crops and vegetables (tomatoes, eggplants, pumpkins, watermelons);
- (4) Livestock products. Prior to the conflict, meat was marketed through licensed government and private slaughterhouses, and slaughter was not allowed outside these slaughterhouses for any types of livestock and poultry. During the conflict, unlicensed local slaughterhouses were created. Milk is marketed through milk collectors and transported to manufacturing plants or workshops;
- (5) Rural products (home gardens, smallholdings, food industries). These are marketed to the popular retail markets located in city centres, fairs and festivals.

(b) *Marketing channels*

Agricultural products are marketed in Homs Governorate through various marketing channels, namely:

- (1) Central wholesale market in Homs;
- (2) Emerging markets in Khirbet Al-Teen Noor, Al-Rastan and Al-Rayyan;
- (3) Wholesale markets in other governorates;
- (4) Sorting, packing and storage refrigerators;
- (5) Food industry plants;
- (6) Direct export;

(7) Syrian Trade Corporation and Army Supply Corporation.



Central Wholesale Market - Homs - 2020

(1) Central wholesale market in Homs

The governorate has a central wholesale market under the local administration, with an area of 2.5 hectares and 74 shops, 155 semi-wholesale traders and about 820 suppliers (from farmers and intermediaries from other wholesale markets from inside and outside the governorate). The local administration collects occupancy charges, fees and expenses, regulates traffic and ensures protection, public services and hygiene. The market has a committee of 4 to 13 members elected from wholesalers and semi-wholesalers. The Commission works to organize work and resolve disputes between traders and the local administration. Each trader must have a certificate issued by the Chamber of Commerce to be able to practice the profession.

There is a scale at the entrance to the market, and the supplier receives a scale card containing the weight, date of weight and type of goods. However, there is no record of the quantities supplied. In addition, there are several stores for the sale of new and used packages, but there are no refrigerators for preservation and no sorting and packing lines in the market.

During the conflict, the market was subjected to neglect and some minor damage, and after the return of stability to the region, 80 per cent of shops returned to operate from 2 a.m. to 10 a.m.

The market's total daily volume is 200 to 500 tons, varying between winter and summer, 83 per cent of which is directly supplied from farmers, 9 per cent from intermediary traders and the rest from transport operators.

Figure 14 shows the sources of products supplied to the wholesale market in Homs, its components and the average sales in it for 2019.


Figure 14. Wholesale market in Homs: Product sources, market components, and average sales for 2019

From 2011 to 2015, the wholesale market in Homs stopped operating. It was replaced by submarkets in the regions where production is concentrated (Al-Rastan Market, Al Rayyan Market, Khirbet Al-Teen Market), where producers had the opportunity to market their produce nearby, without having to go to central markets, at the same time meeting the local population's need for agricultural products.

At the end of 2015, the central wholesale market in Homs returned to work with a small number of shops. Its business then developed, with 50 per cent of shops returning by the end of 2019. Currently, 50 per cent of the governorate's production is being marketed to the wholesale market in Homs, and 50 per cent of production to new emerging markets.

To date, the marketing tactics are not different from those that prevailed before the conflict. In general, they depend on:

- a. Guaranteed financing and marketing system: Wholesalers finance a number of farmers with production inputs such as seed, fertilizers, diesel, harvesting, collecting and marketing costs, in exchange for the farmers providing their entire production to the wholesaler. When the crop is sold, the wholesaler is paid a commission of 7 per cent on the sale plus the value of production inputs, with the rest paid to the producer;
- b. Marketing by traditional relationships: the producer supplies the product to a trader who works with him/her on a permanent basis, and the product is sold for a 5-7 per cent commission;

c. Auction system: including "from the back of the car" auctions, where vehicles are loaded with products directly from sub-markets or from farmers or wholesale markets from other governorates and shipped for sale in the market. The price is subject to supply and demand. Auctions are not only for wholesalers, and there may also be traders from outside the market who purchase products for wholesale markets in other governorates or for export, in each case the cargo will be transferred to sorting and packing centres to be processed for export or shipped to food industry factories. Market wholesalers deduct 3 per cent of the quantity of goods (for waste or low product weight upon unloading and even upon sale) and sell products to semi-wholesalers, retailers, supermarkets, hotels, restaurants, food industries workshops and factories and product-sorting and packing centres.

It is estimated that agricultural products are distributed among marketing channels as detailed in table 21.

				l l	mt: Percent
Market direction	Wheat	Barley	Medicinal and aromatic plants and grain crops	Summer and winter vegetables	Fruit trees
To government institutions	70	8	0	0	0
To grain dealers	0	88	95	0	0
To wholesale market for auction	0	0	0	20	70
To financier wholesaler	0	0	0	65	0
To food industry plants	0	0	5	5	15
Sorting and packing centre for export or storage	0	0	0	10	15
Kept by farmers for next season	30	5	0	-	-

Table 21. Destinations of agricultural products by marketing channel

(2) Marketers of agricultural products

The marketing chain includes five major actors, with a number of other actors in the subsidiary production chains (food industry, sorting and packaging, storage). The main actors are:

- a. Farmers who produce the material and obtain financing for production inputs from wholesalers: the farmers supply their products directly to the wholesaler, who in turn sells it for a specified commission. The farmer receives the value of the goods at the end of the season after deducting the 7 per cent marketing commission and the value of the supplies;
- b. Farmers who self-finance or receive funding from the agricultural bank or other sources. The farmers supply their production to a wholesaler, who then sells the product for the 7 per cent commission, or the products will be displayed "on the back of the car" at auction. The profit margin in this case varies depending on the farmer's ability to negotiate the highest possible price;
- c. Intermediary merchants or brokers who are active among farmers in agricultural areas. They form a transitional marketing link, buying goods from farmers and supplying them to a

wholesaler who sells the produce on their behalf for a set commission. The broker may also sell the produce in a public auction at the market or may contract with a wholesaler in another governorate or a sorting and packaging centre or food industry plant, in exchange for which the broker receives a profit margin of at least 15 to 35 per cent;

- d. Brokers of food industry factories or sorting and packing centres for export or refrigerated storage dealers. They buy goods from farmers at the farm, from the auction market or from wholesalers;
- e. Guarantors: traders who contract with farmers to buy their crop one month before harvest at an agreed price and are then responsible for marketing the produce. In this case, the profit margin is over 30 per cent.



Central Wholesale Market - Homs - Goods sorted, packaged and preserved in refrigerators - 2020

Table 22 shows approximate commissions for agricultural products within the marketing chain.

					U	mt: Per cem
Marketer	Commission earned by the marketer	Wheat	Barley	Medicinal and aromatic plants and grain crops	Summer and winter vegetables	Fruit trees
	Government institutions	0	0	0	0	0
	Grain merchants	7-10	7-10	10-20	0	0
Farmer	Market wholesalers	0	0	0	5-7	7-10
	Market semi-wholesalers	0	0	0	7-10	7-10
	Retailers	20-25	20	20	20-25	20-25
Total		27-35	27-37	30-40	32-41	34-45

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Table 22.	Commissions	on agricultural	products in	marketing chains

The multiple intermediaries in the marketing of agricultural products lead to higher commissions on agricultural products such as cereals, vegetables and fruits. Commissions are higher for leafy vegetables and plants sensitive to transport and prone to spoilage, such as apricots, peaches, strawberries and tomatoes. Commissions decrease when marketing chains are shortened.

(3) Production loss during marketing

Agricultural products may be damaged during production and marketing. This may occur due to diseases and insects, or during picking and packing in the field. The product is also exposed to spoilage and damage during loading, unloading and transporting from the field to wholesale markets, during the stages of marketing and sale to the retailer and during sorting and packing for export or transfer and storage in refrigerators. The highest losses are reported during the peak of production. Table 23 shows samples of the percentage of loss (spoilage) of the most important agricultural products in the study area.

Table 23. Proportion of agricultural production loss during the marketing stagesof the most important agricultural products in the study area, 2019

Сгор	During production (per cent)	During harvesting (per cent)	During transport and marketing (per cent)	During storage (per cent)	Total (per cent)
Tomatoes	5	1.4-4.2	12	0	18.4-21.2
Potatoes	5	2.5-4	5	3-4	15.5-18
Apples	15-20	1.5-2	5	5	26.5-32
Apricots	3	5	10	0	18

Source: Study on Improving the Quality of Agricultural Products in the Syrian Arab Republic - Ministry of Agriculture - International Cooperation Agency.



Central Wholesale Market – Homs – Traditional packing, transporting, loading and unloading methods are among the most important causes of loss – 2020



Collecting production in the field through traditional methods, with a high percentage of loss during uprooting, packing, transporting, loading and unloading - Homs - Talbiseh - 2020

Achieving product quality begins with agricultural practices in the field and extends to safety measures throughout the marketing chain. Since producers are not truly aware of market requirements, and without large price margins between products according to their quality, farmers are very indifferent to quality standards. This gap can be filled only by private marketing institutions addressing market sectors and the market environment.

(4) Agricultural production costs

The Directorate of Agriculture in Homs studies the costs of producing strategic and major crops in accordance with the standard criteria set for them, and the results of their study are based mainly on pricing. The Directorate of Internal Trade and Consumer Protection in the governorate also works to issue a weekly price bulletin, or when needed, as a basis for pricing (wholesale, retail). The prices of agricultural products in the target area are controlled by the interaction between a range of factors:

- a. Production costs and volume;
- b. Agricultural factors such as agricultural processes and practices, variety, whether the product is free of pesticide residues, and pest infestation;
- c. Farmers' experience, the skill of agricultural labour, quality and efficiency of implementation;
- d. Marketing-related processes such as quality of packaging, package type, professionalism of packaging workers, transport distances between production areas and consumption and supply areas, specifications of transport mechanisms for products, and time of transport;
- e. Volume of supply and demand at the place of sale;
- f. Ability to access the right markets.
- (5) *Regulating prices and trading*
- a. Theoretically, prices on the wholesale market are based on the balance of supply and

demand. In fact, wholesalers fix prices, through a network of alliances between wholesalers in the governorates on the one hand and brokers in the production areas who monitor cultivated areas, estimate the volume of production and estimate prices by balancing supply and demand, on the other;

b. Export demand is one of the most important factors influencing prices, with prices rising significantly when there is an overseas marketing channel, especially since the Agricultural Production Plan does not include licences to cultivate specific areas for export products. Production is collected for export from wholesale markets and then transferred to sorting and packaging centres to prepare for shipment to target markets. Syrian agricultural products are in demand in neighbouring countries and Gulf countries because of their good production specifications and competitiveness compared to products from other countries. However, these products do not have a brand or quality certificates and the packages used do not meet the specifications required in importing countries. The only certificates of origin are those granted by the agricultural chambers and the export approval issued by the Directorate of Economy and Trade in the governorate.

G. Value Chains of Agricultural Products in the Study Area

The study of the value chains of the most important agricultural products in the target area contributes to identifying production and marketing mechanisms, their institutional actors and associated stakeholders, monitoring the problems and challenges which lead to a decrease in products' competitiveness in the market and developing a strategy and action plan to address these problems. This will support farmers in returning to agricultural production and creating jobs in agriculture and the related occupations.

1. Comparative advantage of products at the level of the study area

The region is characterized by the cultivation of a number of plant species with comparative advantages in terms of the availability of natural resources suitable for their cultivation and their ability to attract labour. They are cultivated using irrigated, rain-fed and intensive agricultural systems. Their relative degrees of comparative advantage once government irrigation systems are restarted and support services and production inputs are provided are shown in tables 23, 24 and 25.

Figure Guide	+++++	++++	+++	++	~					
	Large commercial Average commercial production production		Little commercial production	Local production	Home production					
	Typical: As prevailed before the them once water resources are	iled before theconflict. These crops have a comparative advantage and farmer want to cultivate resources are available and government irrigation networks are restarted.								
	Commercial production: Produ provinces.	action covering the new	eds of the governorate	e, with part of the crop	marketed to other					
	Local production: Production t	duction to meet the needs of the residents of Homs Governorate.								
	Home production: Production	to meet the needs of th	ne family.							

Comparative advantage is rated as follows:

(a) Intensive production of field crops and winter and summer vegetables in the study area

Table 24. Comparative advantage of field crops and vegetables cultivated in 2019and their comparative advantage upon the rehabilitation of damaged productiveassets and population stabilization (typical)

Administrative area	Scenario	Wheat	Barley	Potatoes	Cabbage and cauliflower	Tomatoes	Eggplants and peppers	Cucumbers and zucchini	Watermelons and pumpkins	Medicinal and aromatic plants	Other vegetables	Feed crops
Home	2019	++++	++	++	++	++	++	+	+	++	++	++
noms	Typical	+++++	++	+++	+++	+++	+++	++	++	+++	++++	+++
T-1d	2019	+++	~	~	++	++	++++	++	++	~	++	+
Taldou	Typical	++++	~	~	+++	+++	++++	++	++	~	++	++
A1 Dester	2019	+++	++	+	~	~	~	~	++	+++	++	~
Al-Kastan	Typical	++++	++	+	++	++	++	+++	+++	++++	+++	++
41.0	2019	++++	~	+++	++	++	~	~	++	~	~	++
Al-Qusayr	Typical	+++++	++	++++	+++	+++	++	++	+++	~	~	+++

(b) *Fruit trees*

Table 25. Comparative advantage of fruit trees in 2019 compared to farmers' desires to expand

Administrative area	Scenario	Almonds	Olive	Grapes	Apple	Apricot	Peaches
Hama	2019	+++++	+++	++	~	++	+
HOMS	Typical	++++	+++	++	~	++	++
- T - 1 1	2019	~	+++++	~	++	~	~
Taldou	Typical	~	+++++	~	++	~	~
Al Destar	2019	++	++	++	~	++	++++
AI-Kastan	Typical		++	++	~	++	++++
	2019	++++	++	+	+++	++++	~
AI-Qusayr	Typical	++++	+++	+	++	+++++	~

(c) *Livestock*

Administra tive area	Measurement time	Cows	Sheep	Goat	Poultry	Village poultry	Bees	Fish
TT	2019	+++	++	+	+	+	++	++
Homs	Typical	++++	++	+	+	+	+++	++
T 11	2019	+++	+	+	+	+	++	~
Taldou	Typical	+++	+	+	+	+	++	~
	2019	+++	++	+	++	+	++	~
AI-Kastan	Typical	++++	++	+	++	+	++++	~
41.0	2019	+++	+++	+	+++++	++	++	~
Al-Qusayr	Typical	++++	+++	+	+++++	++	+++	~

Table 26. Comparative advantage of livestock species in 2019 and farmers' desire to expand

2. Specific criteria for the selection of field crops and animal products for which value chains will be studied

This study includes tables to measure the value chains of the most important agricultural and animal products in the target area, in terms of the groups of field crops, vegetables, fruit trees and animal products. Basic criteria have been set to measure these chains and determine a basic weight for each benchmark (as a percentage). These criteria were broken down into sub-indicators (totalling ten items), and their respective impact on target chains was measured.

(a) The most important field crops, winter and summer vegetables, as well as fruit trees, were measured according to the following criteria:

- (1) Possibility of increasing the economic efficiency of crop cultivation and production, which was given 60 per cent, including the following sub-items: comparative advantage and competitiveness of the crop, the presence of supplies and services supporting the cultivation of the crop, the ability to achieve value-added production, the desire and experience of farmers in crop cultivation and the strength of market demand for the product;
- (2) Operating efficiency was given 15 per cent, which included the following sub-items: the ability to attract agricultural workers, and the degree of recruitment of female and young workers;
- (3) Possibility and feasibility of intervention were given 25 per cent and included the following sub-items: agricultural practices applied in the field (appropriate varieties, seed rates, fertilizer and pesticide use), the ability to reduce production costs and the need to regulate marketing.

(b) The most important types of animal products were measured according to the following criteria:

- (1) Possibility of raising economic efficiency, given 55 per cent, included the following sub-items: the extent to which production has a comparative advantage, the level of profit attained, the strength of market demand for the product and competitiveness;
- (2) Operating efficiency was given 15 per cent, which included the following sub-items: the ability and skill of the employer in raising livestock and the ability to attract female and young workers;
- (3) Possibility and feasibility of intervention were given 30 per cent, and the following subitems were included: the ability to reduce production costs and the possibility of regulating production to reach target markets.

The results of the evaluation of the chains were as follows:

- (a) For winter and summer crops and vegetables:
 - (1) Autumn potatoes, cauliflower, cabbage: 76.5 per cent;
 - (2) Tomatoes, eggplants, cucumbers, zucchini: 68.8 per cent;
 - (3) Medicinal and aromatic plants: 58 percent;
 - (4) Wheat: 52 per cent.
- (b) For fruit trees:
 - (1) Apricots: 72.6 per cent;
 - (2) Olives: 70.5 per cent;
 - (3) Almonds: 59.1 per cent;
 - (4) Grapes: 42.1 per cent.
- (c) For livestock:
 - (1) Cows: 66.5 per cent;
 - (2) Poultry: 59.5 per cent;
 - (3) Sheep: 56.5 per cent;
 - (4) Goats: 51 per cent;
 - (5) Village poultry: 50.1 per cent.

Accordingly, the varieties with the highest results (and thus the greatest feasibility) were selected for the value chain analysis: potatoes, tomatoes, apricots, and cows.

A value chain of medicinal and aromatic plants has also been added due to their competitiveness in terms of environmental suitability and availability of natural resources and production inputs for cultivation, in addition to their flexibility in agricultural systems and the potential to be grown as irrigated or rain-fed crops in the absence of water resources, noting that their production costs are low and have high market demand and the potential for high added value due to multiple marketing channels.

Table 27, 28 and 29 show a breakdown of the basic and sub-evaluation criteria for the different chains and the results for the three clusters: field crops, summer and winter vegetables, fruit trees and livestock herds.

The total weight was split into sub-weights for the various core criteria based on the degree of importance, and the current status was measured on a scale ranging from one (the lowest mark) to 10 (the highest mark). To apply the sub-weight given to the criteria, the score was linked back to the basic weight (evaluation = (measurement * sub-weight)/10). Total weights after evaluation express the importance of the production chains studied. A higher number (closer to 100) means that the production chain meets the specific criteria and should be focused on and developed.

3. Winter Vegetable Value Chain - Potatoes

Potatoes are grown in the study area in a primary spring season, and secondary autumn season. The area under cultivation in 2019 was about 958 hectares, equivalent to 62.5 per cent of the area of irrigated winter vegetables. Potato production amounted to about 16,900 tons spread across the target area's administrative regions (figure 15).





Figure 16 shows the details of preparing, producing, manufacturing and marketing the potato crop in the study areas for 2019 and describes the size of the main players in the various stages.



Figure 16. Value chain of the potato crop in the study area of Homs Governorate, 2019

				Win crops/	nter wheat	Medic aromat (corianc cu	inal and tic plants ler, anise, min)	Winter ve (potat caulific cabba	Vinter vegetables (potatoes, cauliflower, cabbage)		Summer vegetables (tomatoes, eggplants, zucchini, cucumbers)	
Base weight (in per cent)	I	Basic standards and their sub-items	Sub-weight (per cent)	Measure	Evaluation	Measure	Evaluation	Measure	Evaluation	Measure	Evaluation	
		Comparative advantage and competitiveness of the crop	15	8	12	10	15	6	9	4	6	
		Presence of supplies and services supporting the cultivation of the crop	15	8	12	8	12	7	10.5	7	10.5	
60 Econor efficien	Economic efficiency	Ability to achieve added value from production	10	4	4	8	8	7	7	7	7	
		Desire and experience of farmers in growing the crop	10	8	8	7	7	9	9	8	8	
		Strong demand for the product from the market	10	8	8	8	8	8	8	7	7	
	Operating	Ability to attract agricultural workers	8	2	1.6	2	1.6	8	6.4	8	6.4	
15	efficiency	Degree of attracting female and young workers	7	2	1.4	2	1.4	8	5.6	7	4.9	
25	Possibility of intervention	Agricultural practices applied in the field (appropriate varieties, seed rates, fertilizer and pesticide use standards)	10	2	2	2	2	9	9	7	7	
	and its feasibility	Ability to reduce production costs	5	2	1	2	1	8	4	8	4	
		Need to regulate marketing	10	2	2	2	2	8	8	8	8	
100	Total points		100		52		58		76.5		68.8	

Table 27. Selection of value chains for winter and summer crops and vegetables in the target area of Homs Governorate

				Al	mond	Apr	ricot	Ol	ive	Grape Vine	
Base weight (per cent)	Basic	standards and sub-items	Sub-weight (per cent)	Measure	Evaluation	Measure	Evaluation	Measure	Evaluation	Measure	Evaluation
		Comparative advantage and competitiveness of the crop	15	8	12	8	15	8	12	4	6
		Presence of supplies and support services to grow the crop	15	7	10.5	8	12	8	12	5	7.5
60	Economic efficiency	Ability to achieve added value from production	10	2	2	5	5	5	5	5	5
	Desire and experience of farmers in growing the crop	10	7	7	8	8	8	8	3	3	
		Strong demand for the product from the market	10	10	10	8	8	8	8	5	5
15	Operating	Ability to attract agricultural workers	8	8	4	5	4	8	6.4	5	4
15	efficiency	Level of attracting female and young workers	7	8	5.6	3	2.1	8	5.6	8	5.6
25	Possibility of intervention	Agricultural practices applied in the field (appropriate varieties, seed rates, fertilizer and pesticide use standards)	10	4	4	8	8	5	5	2	2
	and its feasibility	Ability to reduce production costs	5	4	2	5	2.5	5	2.5	4	2
		Need for market regulation	10	2	2	8	8	6	6	2	2
100	Total points		100		59.1		72.6		70.5		42.1

Table 28. Selection of value chains for fruit trees in the target area of Homs Governorate

				Co	WS	Sh	eep	Go	oat	Poultry		Village poultry	
Base weight (in per cent)	Basic star	ndards and their sub-items	Sub-weight (per cent)	Measure	Evaluation	Measure	Evaluation	Measure	Evaluation	Measure	Evaluation	Measure	Evaluation
		Extent to which the comparative advantage in production is achieved	15	7	10.5	7	10.5	7	10.5	9	13.5	5	7.5
	Economic	Level of profit achieved	15	9	13.5	7	10.5	7	10.5	8	12	7	10.5
22	efficiency	Strength of the product's demand from the market	15	8	12	9	13.5	7	10.5	7	10.5	7	10.5
		Ability to increase the product's added value	10	8	8	9	9	7	7	2	2	8	8
15	Operating	Employer's ability and skill in livestock farming	8	8	6.4	2	1.6	8	6.4	8	3.2	8	3.2
15	efficiency	Level of attracting female and young workers	7	3	2.1	2	1.4	3	2.1	3	2.1	2	1.4
	Possibility of	Ability to reduce production costs	10	5	5	2	2	2	2	8	8	2	2
30	intervention and its feasibility	Possibility of organizing production to reach targeted markets	10	9	9	8	8	2	2	8	8	7	7
100	Total points		100		66.5		56.5		51		59.5		50.1

Table 29. Selection of livestock value chains in the target area of Homs Governorate

(a) From farming to marketing

The potato crop production chain consists of three main stages:

- (1) Preparatory stage for farming includes determining the crop rotation, obtaining an agricultural license, determining the method of obtaining production inputs, and determining contractual and productive relationships;
- (2) Agricultural production stage: includes agricultural operations and agricultural services;
- (3) Marketing stage: includes obtaining marketing requirements, identifying marketing mechanisms and trends;
- (4) Fourth stage, which is shown in figure 16, is non-major and revolves around the possibility of increasing the added value of agricultural and production losses.
- (1) Preparation for cultivation

Potato cultivation in the area is regulated by an agricultural license obtained by the farmer from the village's extension unit, which includes specifying the crop rotation and the crops it include (potatoes, wheat, vegetables or fodder crops, corn).

Based on the agricultural permit, farmers are entitled to a short-term agricultural loan from the Agricultural Cooperative Bank according to the table of crop production needs issued by it (the soft loan includes a cash payment of 200,000 SYP/ha to cover the costs of preparing and servicing the land for cultivation and in-kind financing of 3 tons/ha of potato seed imported through the General Organization for Seed Multiplication and an in-kind loan of basic NPK fertilizer). Farmers, who do not wish to borrow from the bank, source their inputs from privately run production centres.



Potato Crop - Al-Rastan - Umm Shershouh (2020)

The ways farmers obtain production inputs vary as follows:

(a) Sixty-five per cent of farmers get in-kind credits from wholesalers who act as middlemen between farmers and seed importers (these are farmers who do not have financial resources to finance

the purchase of seeds and production inputs), where wholesalers pay for the seeds and production inputs on behalf of the farmer in exchange for their agreement to supply the entire production to the wholesaler. In this way, the latter guarantees the supply of the whole crop produced by the farmer through him, while the farmer ensures that the production is marketed by the merchant and not subject to market forces, especially since most farmers do not have the ability to negotiate for the highest possible price;

(b) Eight per cent of farmers obtain soft loans from the Agricultural Cooperative Bank;

(c) Around 27 per cent of farmers purchase inputs from their own funds or investors or relatives and others. In addition to the technical supervision and training carried out by extension units and technicians of the agricultural research centres, farmers receive technical support from seed import companies that cooperate with a specific group of farmers to train them on modern farming methods, use their fields as demonstrations for other farmers and promote the items they import.

(2) Agricultural production

Potatoes are grown in the study area in a major spring and autumn season, with the spring planting from 15 January to the end of February. Imported Elite Sponta potato seeds (used for direct, fresh or stored consumption, not suitable for processing) are planted at a density of 1-1.2 tons/ha with a yield of around 25 tons/ha in a normal year. However, in 2019, this figure fell to 17.7 tonnes per hectare due to lack of fertilizer and unfavourable weather conditions. Then the potatoes are harvested and marketed from 15 May to July, and 90 per cent of production devoted to food consumption, and 10 per cent saved as seed potatoes for the autumn. The quantities of seeds used in the spring crop in the region are estimated at 3,000 to 3,500 tons imported by the State General Organization for Seed Multiplication and private sector traders, with only a small quantity not exceeding 50 tons imported from Lebanon. The price of seeds ranges from 750 to 1,200 SYP/ton.

After that, the autumn crop is then planted from 15 July to the end of August. One hectare requires 1.2 tons of seed in the target area to produce an estimated 17-20 tons/ha (production in ideal areas for cultivation in the governorates of Idlib and Hama reaches 30-40 tons/ha), and the produce is usually marketed from November through February.

All areas planned for irrigated agriculture are cultivated. Currently, irrigation depends on groundwater, wells and pumping from Lake Qattinah and the Orontes River basin. Most areas are irrigated by surface irrigation (when the governmental irrigation networks are rehabilitated and put into operation, farmers will irrigate cultivated areas from government irrigation networks using modern irrigation methods, as was prevalent before the conflict).

(3) Marketing

The crop is mechanically harvested and production is sorted, with 10 per cent stored in refrigerators and used as seed for the autumn crop, and 90 per cent of production marketed to wholesale markets.



Wholesale Market in Homs - Marketing Mechanisms - Packages Used - 2020

Production is collected in the field by specialized agricultural teams led by a so-called *shawish*, who collects workers from villages, brings them to the farmer's land and supervises their work. Most of these workers are females of different ages and levels of education, including children of both sexes younger than the minimum working age. Workers are paid between 250 and 300 SYP/hr and work for five to seven hours a day.



Potato Production - Reblah- Al-Qusayr - 2020 Source - SANA

Production is sorted and cleaned of dirt in the field, but not washed. The crop is packed in plastic bags weighing 10-12 kg when marketed to wholesale markets for direct consumption, and in plastic bags weighing 25 kg for quantities to be supplied for storage.

Production is marketed through traditional marketing channels, 50 per cent of which goes to the central wholesale market in Homs, 15 per cent to wholesale markets in other governorates, 13per cent to emerging markets in Homs, and 10 per cent to sorting and packaging centres for re-sorting and packaging in export-friendly packaging, 10 per cent to food processing plants and 2 per cent to market at the level of the production area to meet the needs of the local population. The quantities marketed through these channels are then distributed to retail and semi-wholesale dealers, supermarkets, clubs, restaurants and hotels.

(b) *Production costs*

As prices changed during the conflict, the production costs for the crop between 2010 and 2020 (with a production of 17.7 tons/ha in 2019) can be compared as follows:

Address		2010	2020	2020
Auuress		2010	2020	2020
	Ploughing, soil preparation and planting	12,450	69,034	Seed potatoes represent 55 per cent of the total cost, in
	Fertilization	2,650	21,257	by private seed companies,
	Water	5,500	17,241	which sell seeds at 1.1 million SYP/ton, with a
Agricultural	Hoeing, weeding	8,790	44,024	resulting production cost
operations	Pest control	2,400	10,643	The production cost drops
	Harvesting	12,700	40,058	by 37 per cent to 92 SYP/kg when using seed
	Sorting and packing	1,410	23,917	from the General
	Crop transport	14,950	121,964	Multiplication, because the
Total		60,850	348,138	seed price at the establishment is 750,000
	Organic fertilizer	5,000	64,109	SYP/ton.
	Chemical fertilizer	22,200	79,767	
Droduction inputs	Packaging	4,900	41,861	
Production inputs	Seeds	161,500	1,440,002	
	Diesel for irrigation	17,150	167,173	
	Pesticides	4,870	31,789	
Total		215,620	1,824,699	
Total operations and	d supplies	276,470	2,172,837	
Rent (15 per cent of	f production)	15,000	398,250	
Capital interest of 9	.5 per cent on inputs	26,265	65,911	
Five per cent incide supplies	ntal expenditure for	13,824	70,045	
Total costs		331,559	2,707,043	
Yield (ton/ha)		20	17.7	
Cost per kilogram		16.5	152.9	

Table 30. Comparison of potato production costs in 2020 vs. 2010

Unit: SYP/ha

(c) *Yields*

The yield per hectare of potatoes varies according to the season, climatic conditions, services provided, and quality of seed used. The average wholesale price in 2019 was approximately 220,000 SYP/ton, while in 2020 the average wholesale price was about 150,000 SYP/ton. Wholesale prices of produce sold by farmers ranged from 130,000 to 220,000 SYP/ton in different periods between peak production and the beginning and end of the season.

The per capita demand for potatoes for all uses is estimated at 32 kilograms per year. The production of the target area does not meet the population's demand, and so the deficit is filled by production from other areas and governorates.

(d) *Evaluation of the potato crop value chain from production to marketing*

- (1) Weaknesses
 - a. High seed prices, which account for 45-55 per cent of production costs;
 - b. Difficulty in obtaining agricultural loans from the Agricultural Bank, as farmers are unable to provide guarantees to obtain agricultural loans;
 - c. Unwillingness of traders to continue financing production inputs (seed, fertilizers) for farmers. Due to significant changes in the exchange rate of the Syrian pound against foreign currencies and inflation as of May 2020, they wish to avoid losing their capital between the financing date and the repayment date;
 - d. Higher production costs as a result of higher prices for inputs (seeds, fertilizer, pesticides), the suspension of government irrigation networks and farmers having to use private wells for irrigation, the cost of which is 38 per cent of the value of production inputs;
 - e. Need for large quantities of fertilizers and pesticides for economic production, which requires implementing programmes to rationalize fertilizer use and integrated pest management.
- (2) Strengths
 - a. Comparative and competitive advantage of crops grown in the studied area;
 - b. Demand for production and guaranteed marketing, especially from wholesalers who finance production inputs;
 - c. Possibility of controlling the marketing dates of the product since it can be stored for several months;
 - d. Importance of the crop in the three-crop rotation system (wheat, vegetables and feed crops) as a tuber crop that helps improve the soil;
 - e. Desire of farmers to grow the crop and their acceptance to follow agricultural practices to achieve quality and increase productivity.

Table 31 details possible potato crop policies and procedures to address value chain gaps.

Goal	Policies	Measures	
Increasing production and raising productivity	• Horizontal expansion of the cultivated area	 Adjust planned crop rotations and increase the area under cultivation from 958 hectares to about 2,000 hectares; Provide water resources for agriculture through government irrigation systems, especially since the crop is only grown irrigated and its production costs increase significantly when planted by relying on wells due to the high prices of the fuel needed to operate water pumps. 	
	• Vertical development of production	 Develop applicable agricultural practices: Diversify cultivated (food, industrial) varieties; Establish factories to sort and package products in suitable packages according to market demand; Mechanize the chain of agricultural processes using agricultural mechanisms suitable for various processes (soil preparation, planting, hoeing, incubation, pest control, fertilization, harvesting); Apply modern irrigation systems using solar energy; Mechanize post-harvest processes (sorting, washing, packing). Train agricultural workers capable of keeping pace with mechanization and new agricultural practices. 	
	• Reduction of production loss	 Mechanize agricultural processes (farming and settlement, planting, weeding, hoeing, pest control, fertilization services, and harvesting); Establish state-of-the-art production sorting and packaging centres before storage in refrigerators, and another for exports in accordance with the technical specifications and quality standards of target markets; Use appropriate packaging to reduce mechanical damage to the domestically marketed crop and packaging to meet target market specifications; Equip freight and crop vehicles to be suitable for agricultural products and reduce the impact of weather factors during transport, especially since agricultural products are currently being transported uncovered and without protection from the elements. 	
Reducing production costs	 Increased productivity Regulation of production inputs Development of the use of land resources 	 Automate agriculture to reduce the amount of seed used in agriculture to match the quantities specified by scientific research and extension advice and in line with soil fertility; Provide affordable agricultural loans from the Agricultural Bank per the actual costs of production to enable farmers to purchase all production inputs at the beginning of the agricultural season (seeds, fertilizer, pesticides, packaging, diesel) and reduce exposure to market price fluctuations; 	

 Table 31. Details of proposed policies and actions to strengthen the potato value chain

Goal	Policies	Measures	
	• Development of the use of water resources	 Implement a crop rotation to reduce the spread of pests, maintain soil fertility and increase productivity; Use organic fertilizers to improve soil properties and fertility. This measure is integrated with the livestock value chain of cows and poultry in the region as livestock droppings can be used as organic fertilizers; Reduce irrigation costs upon restarting government irrigation systems, and reduce the extraction of water resources from wells to stop groundwater depletion; Develop field irrigation systems using modern irrigation methods to reduce waste of water resources and comply with specific water needs of the crop. 	
	• Expansion of the cooperative system	• Develop the work of agricultural cooperatives to secure agricultural loans, production inputs and mass marketing of production to reduce transport costs.	
Developing Production	• Development of local seed production	 Support the efforts of agricultural research centres and the General Organization for Seed Multiplication to complete research and production experiments on the <i>in vitro</i> multiplication of potato seeds; Provide an attractive environment for the private sector, leveraging its material and productive potential and contracting with it to plant fields with potato nuclear seeds; Train specialized agricultural workers to handle the requirements of cultivating intensive fields; Reduce potato production costs by providing seeds from domestic production at lower prices, especially since potato seeds account for 79 per cent of the value of production inputs and 53 per cent of total production costs at 2020 prices. 	
Regulating marketing and raising the added value of the product	• Limitation of the impact of market disruption on net profit	 Regulate wholesale markets so that effective linkages can be created between production and marketing channels through: Regulating crop extraction according to full maturity dates and in line with market needs; Developing a market information system that enables farmers to learn about market needs for scheduling and understanding marketing trends; Regulating the refrigerated warehouse sector and increasing its capacity to store the largest volume of production during peak production periods for subsequent supply to the market; Developing potato processing plants, increasing the manufacturing capacity of potato chips, packing potatoes for restaurants, malls and hotels, and setting up potato processing and freezing plants; 	

Goal	Policies	Measures	
		 Granting soft loans from the Industrial Bank to enable manufacturers to set up potato manufacturing plants, sorting and packing centres and refrigerated warehouses; 	
		 Establishing a system of contracting between marketing and manufacturing companies and farmers to cultivate items intended for manufacturing, and for export items that meet the tastes of consumers in target countries; 	
		• Establishing crop waste collection centres and manufacturing feed and production mixtures to create a mix suitable for mushroom production.	

4. Aromatic and medicinal plants value chain

The cultivation of medicinal and aromatic plants is widespread in the study area as winter plantings (irrigated and rain-fed). In 2019, the area under cultivation was about 3,300 hectares, and production was about 3,700 tons distributed among the administrative areas of the study according to figure 17.

Figure 17. Area and production of medicinal and aromatic crops in the study area, 2019



Figure 18 shows details of the preparation, production, manufacture, and marketing of medicinal and aromatic plants in the study areas for 2019 as well as the size of key players at different stages.



Figure 18. Value chain of medicinal and aromatic plants in the study area of Homs Governorate 2019

(a) From cultivation to marketing - anise as a model

As one of the most important medicinal and aromatic plant products in the target region, the anise production chain consists of three main stages:

- (1) Preparation: determining the crop rotation and obtaining an agricultural license;
- (2) Production: agricultural processes and agricultural services;
- (3) Marketing: the sale of produce;
- (4) As for the fourth stage, shown in figure 18, it is not major and consists of the possibility of increasing the added value of agricultural waste and production loss.

(1) Preparation

Anise cultivation in the area is regulated by an agricultural license obtained by the farmer from the village's extension unit, which includes determining the crop rotation (wheat, medicinal and aromatic plants).

Under the agricultural license, farmers are entitled to a short-term agricultural loan from the Cooperative Agricultural Bank in accordance with its schedule of requirements (the soft loan includes a cash payment of 30,000 SYP/ha to cover the costs of preparing and servicing the land for agriculture and in-kind financing of 160 kilograms per hectare of basic fertilizer NPK). Most farmers obtain agricultural loans from the Agricultural Bank in-kind, specifically in the form of fertilizers, to take advantage of the price difference between the agricultural bank's prices and those on the informal market. Seed is saved from their own production in the previous season or purchased from seed traders in the region. All varieties of medicinal and aromatic plants are local, productively stable and can be grown under irrigated or rain-fed agriculture. There are no experiments or tests of agricultural research to determine appropriate agricultural practices for their cultivation. Agricultural extension units do not have any advice on their cultivation; farmers have sufficient and deep experience in their cultivation and servicing.



Cultivation of medicinal and aromatic plants - Talbiseh - 2020

(2) *Crop production stage*

Medicinal and aromatic plants are grown in the study area as irrigated or rain-fed winter crop depending on the availability of water resources. Farmers tend to cultivate them with irrigation when irrigation water is available from government systems. Farmers do not use well irrigation because the wells in the area are shallow and have little water drainage and, when available, are allocated to irrigate areas under wheat cultivation. Medicinal and aromatic plants are planted between November and December, with plantings mainly of anise, nigella and coriander, and cumin. Caraway and fennel are grown secondarily.

(3) Marketing

The crop is harvested manually. The produce is gathered in the field to dry until it is ready for processing using a threshing machine and sorting machine. The crop is packed in bags and stored for later sale to wholesalers.

Produce is collected in the field by specialized teams of agricultural workers, led by a so-called *shawish* (as we explained earlier). Workers receive wages in the range of 500-600 SYP/hr of work and work 4 to 5 hours per day.

Medicinal and aromatic plants are sensitive to collection and harvesting times. Therefore, the harvest takes place from dawn until 9 a.m. Traditional harvesting, collection and transfer of production results in the crop losing an important proportion of the added value that can be achieved from the extraction of volatile oils.



Cultivation of medicinal and aromatic plants - Talbiseh - 2020

(b) *Production costs*

Table 32 details the costs of agricultural production of anise (at 2020 prices) when achieving a yield of one ton per hectare under irrigated cultivation and 0.5 tons per hectare under rain-fed cultivation, in addition to the costs of rain-fed coriander when achieving a yield of 2 tons per hectare.

Statement		Irrigated Anise	Rain-fed Anise	Rain-fed Coriander
Agricultural	Ploughing, soil preparation and planting	100,000	100,000	100,000
operations	Fertilization	10,000	10,000	10,000
	Watering	40,000	0	40,000

Table 32 Costs of medicinal and aromatic plant production, 2020

Statement		Irrigated Anise	Rain-fed Anise	Rain-fed Coriander
	Hoeing and weeding	300,000	100,000	300,000
	Pest control	10,000	10,000	10,000
	Harvesting	70,000	70,000	100,000
	Sorting and packing	20,000	20,000	30,000
	Crop transport	10,000	10,000	10,000
Total		560,000	320,000	600,000
	Organic fertilizer	40,000	40,000	40,000
	Chemical fertilizer	250,000	250,000	250,000
	Packaging	40,000	15,000	80,000
Production inputs	Seeds	100,000	75,000	20,000
	Diesel for irrigation	50,000	0	50,000
	Pesticides	20,000	20,000	20,000
Total		500,000	400,000	460,000
Total operations and inputs		1,060,000	720,000	1,060,000
Rent (15 per cent of production)		750,000	375,000	180,000
Capital interest (9.5 per cent on inputs)		47,500	23,750	43,700
Five per cent incidental expenditure for supplies		25,000	12,500	23,000
Total costs		1,882,500	981,250	1,306,700
Yield (ton/ha)		1	0.5	2
Cost per kilogram		1,883	1,963	653

(c) *Yields*

The yield per hectare of medicinal and aromatic plants varies according to whether the land is irrigated or rain-fed. Anise and nigella achieve 1 ton of production per hectare of irrigated and 0.5 tons of rain-fed crops. The ton is sold for 5 million Syrian pounds. Coriander cultivation yields 4 tons per hectare for irrigated crops and 2 tons for rain-fed crops, and the ton is sold for 1.2 million Syrian pounds as of 2020.



Medicinal and aromatic plants (irrigated cultivation) - Al-Rastan -2020



Medicinal and aromatic plants (rainfed) -Talbiseh - 2020

(d) *Evaluating the value chain of medicinal and aromatic plants crop from production to marketing*

- (1) Weaknesses
 - a. Increased costs of rain-fed crops compared to irrigated ones, as the yield of rain-fed crops is 50 per cent lower than irrigated crops;
 - b. Continued use of traditional farming methods that depend on mechanized farming by dispersal and flood irrigation, which leads to high production costs, increased usage of seeds in planting, and a larger amount of water needed for irrigation;
 - c. Manual collection of the crop and leaving it in the fields in bunches for sun drying currently, which leads it to be exposed to atmospheric factors from the wind and loss of part of the crop, exposure to direct sunlight and loss of a proportion of volatile oils;
 - d. Continued use of traditional methods to thresh the crop and sift impurities, and packing it and keeping it in 50 kilograms plastic bags, leading to the loss of part of the production and the reduction of specifications and quality;
 - e. Sale of the raw crop to wholesalers who market it to their contracted marketing channels, thereby missing the profit margins that would be attainable by farmers if they had direct relationships with the marketers of the product;
 - f. Lack of factories to process the crop and extract essential oils, which would double the added value currently achieved from the methods used to market the crop, which uses traditional packaging, or process the crop for use in soft drinks, spirits and medicinal drinks;
 - g. Since most holdings cultivated in the area are small (in the range of 1-2 hectares), the production per farmer is relatively low. Moreover, marketing is done individually and in a non-cooperative manner, resulting in traders controlling prices and farmers not being able to negotiate for a higher price;
 - h. Fluctuating demand for the substance from year to year, depending on the volume of export contracts and global demand.



Manual harvesting and sun-drying of medicinal and aromatic plants - 2020

(2) *Strengths*

- a. Favourable environmental conditions to achieve comparative advantage and competitiveness;
- b. Possibility of expanding the cultivation of medicinal and aromatic crops in the study area as crops of high economic value;
- c. Important role in crop rotations, as these are considered crops that do not exhaust the soil and can be introduced into the crop rotation after any type of crop or vegetable grown in the region;
- d. Adaptability and the possibility of growing the crop irrigated and rain-fed;
- e. Large role in providing pastures for bees and production of honey;
- f. High demand for the product from the internal and external market for medical, industrial and cosmetic uses, folk medicine and nutritional supplements;
- g. Ability to obtain a very high added value by extracting essential oils;
- h. Considered a good export commodity because its good production specifications are desired in world markets;
- i. Farmers have experience in growing it, and farmers who wish to grow it can be trained since it does not need extensive and specialized agricultural services.



Cultivation of medicinal and aromatic plants - Jdaideh - Al-Rastan - Homs 2020

Table 33 details policies and procedures for medicinal and aromatic plants that can be taken to address gaps at the value chain level.

Goal	Policies	Measures
Increasing production and raising productivity	• Expanding cultivated area horizontally	 Adjust planned crop rotations and increase the cultivated area to take advantage of the crop's comparative and competitive advantage; Provide water resources from state irrigation networks to continue irrigated agriculture, achieving a 100-150 per cent increase in yield compared to rain-fed crops.
	• Developing production vertically	 Develop the agricultural practices used: Develop methods of sifting, cleaning and saving seeds, especially since the seeds used in agriculture are local varieties. Farmers are currently working to save the seeds needed for planting in the next season using traditional methods; Mechanize agricultural operations using agricultural machinery suitable for various processes (soil preparation, planting, control and fertilization, harvesting); Apply and automate modern irrigation systems. Train agricultural workers to be able to keep pace with agricultural mechanization and new agricultural practices.
	• Reducing production waste	• Mechanize crop harvesting and collection in the field and transfer to shaded drying areas to reduce the loss of part of the production and a portion of volatile oils;

Table 33. Details of proposed policies and procedures to enhance the medicinal and aromatic plants value chain

Goal	Policies	Measures		
		• Encourage the private sector to set up special centres to collect, dry, sort, sift, package and pack the crop to reduce production loss;		
		• Improve the type of packaging used for the crop and do not keep it in the open; improve the methods of storing it in warehouses to better preserve its quality.		
		• Train agricultural workers to be able to keep pace with the mechanization of the crop from harvesting to storage.		
Reducing production costs	 Increasing productivity; Regulating production inputs; Developing the use of land resources; Developing the use of water resources. Developing a cooperative system. 	 Use mechanized agriculture to reduce the quantities of seeds used in agriculture according to soil fertility, as determined by scientific research bodies and extension advice; Provide soft agricultural loans from the Agricultural Bank based on the actual costs of production to enable farmers to purchase all production inputs at the beginning of the growing season (seeds, fertilizers, pesticides, packaging, and diesel) and limit their exposure to market price fluctuations; Implement a crop rotation to reduce the spread of pests, maintain soil fertility and increase productivity; Improve field irrigation systems using modern irrigation methods to reduce waste in water resources and meet the crop's water needs. Develop agricultural cooperatives to arrange agricultural loans, production requirements and mass marketing to enhance the ability of farmers to negotiate with merchants of medicinal and aromatic plants who buy production directly from the region to obtain the best possible price for both parties. 		
Raising the added value of the product	• Increasing net profit.	 Promote marketing mechanisms by: Establishing laboratories for the extraction and marketing of the active ingredients from medicinal and aromatic plants for drug factories; Establishing factories to sort and package products in suitable packages according to market demand; Paying attention to the promotion and advertising of products derived from medicinal plants; Granting products a certificate of geographical origin to increase their comparative and competitive advantage; Limiting the marketing of the product in its raw form, instead marketing it in a processed and packaged form according to the needs of local and export markets per required specifications; Encouraging small and medium-sized enterprises that package the crop in standard packaging and use it in rural industries; 		

Goal	Policies	Measures	
		 Regulating the production and marketing of medicinal and aromatic plants within marketing and production entities to expand the cultivated area; 	
		 Diversifying the medicinal and aromatic plants cultivated by introducing thyme, sage and safflower and expanding the cultivation of fennel, caraway and others; 	
		• Training local women and youth to establish production units to pack the production in special packages, to benefit from the added value thereof and achieve higher profits when marketed locally to shops selling medicinal and aromatic plants used in popular medicine, which is widely practiced in the Syrian Arab Republic and other Arab countries;	
		 Establishing centres to collect agricultural waste and manufacture feed and production mixes to create a suitable mix for mushroom production. 	

5. Summer Vegetable Value Chain - Tomatoes

Tomatoes are grown in the study area as one of the most important summer vegetables. The cultivated area in the study area in 2010 amounted to about 417 hectares, and its production reached about 11,200 tons. As a result of the conflict and the disruption of government irrigation networks, the cultivated area in 2019 reached about 145.5 hectares, which constitutes 14 per cent of the land planted with summer vegetables and produced about 2,877 tons. Tomato production is distributed among the administrative regions in the target area as shown in figure 19.



Figure 20 shows the details of preparing, producing, processing, and marketing the tomato crop in the study area for the year 2019 and shows the size of the key players at different stages.



Figure 20. Tomato production chain in the study area of Homs Governorate, 2019

(a) From farming to marketing

The tomato production chain consists of three main stages:

- (1) Preparation for cultivation: includes determining the crop rotation, obtaining an agricultural license, determining the method of obtaining production inputs and determining contractual and productive relationships.
- (2) Production: includes agricultural operations and agricultural services.
- (3) Marketing: includes securing marketing requirements and identifying marketing mechanisms and trends.
- (4) The fourth stage, as shown in figure 20, is not major and revolves around the possibility of increasing the added value from agricultural waste and production loss.

(1) Preparation for cultivation

Farmers obtain agricultural licenses from the extension unit according to the crop rotation specified in the region (tomatoes complemented with cabbage and cauliflower, potatoes, wheat).



Cultivation of field tomatoes - Al-Qusayr - 2020

Based on the agricultural permit, farmers are entitled to a short-term agricultural loan from the Agricultural Cooperative Bank according to the table of crop production needs issued by it (the soft loan includes a cash payment of 200,000 SYP/ha to cover the costs of preparing and servicing the land for cultivation, financing for 150 grams of hybrid seeds from seed companies and in-kind provision of basic fertilizer NPK). Farmers who do not wish to receive the loan from the bank obtain production inputs from private-sector stores.

Farmers turn to the Agricultural Bank for crop-related chemical fertilizers. 70 per cent of farmers finance the cost of agricultural operations and agricultural services on their own, 10 per cent rely on financing from others with various loans or through their relatives and family members and 20 per cent receive production inputs from wholesalers in exchange for their commitment to supply their crop to them.

In addition to the technical supervision and training carried out by the extension units and technicians of the agricultural research centre, farmers receive technical support from seed import companies that cooperate with a specific group of farmers to train them on modern farming methods, use their fields as demonstrations for other farmers and to promote the varieties they import.

(2) Production

Tomatoes are grown in the region as open field crops starting in May. They are planted from seedlings grown by specialized nurseries or from seedlings produced by the farmers themselves. Modern agricultural methods are followed that consist of preparing the land for cultivation, softening and levelling the soil, extending drip irrigation networks and covering them with plastic wraps (to save water and not allow weeds to grow), and then planting seedlings and working on providing the necessary agricultural services to start production at the beginning of July. Eighty-five per cent of the

irrigated cultivated areas depend on modern irrigation methods from wells, and 15 per cent rely on irrigation from Lake Qattinah and the Orontes River basin. This will continue even after government irrigation networks resume to work as tomato irrigation systems are exposed, and other irrigation systems cannot be applied.

All services and picking are carried out manually by agricultural workers. It is estimated that 40 per cent of them are from the region, and 60 per cent are migrants from other governorates. The workers are organized by a *shawish*, who provides workers and supervises their work to execute operations for a specified hourly wage.

Ninety-five per cent of farmers cultivate their holdings directly, and 5 per cent lease their land to tenant farmers who do not have their own holdings and cultivate the land at their benefit and expense.

To achieve high yields, farmers use large quantities of fertilizers and pesticides that have a negative environmental impact on soil and groundwater.

The average yield from the cultivation of tomatoes in the study area is 20-35 tons per hectare, 62 per cent of which is allocated for direct consumption and about 38 per cent for food processing and export.

(3) Marketing

The tomato harvest starts from the beginning of July and runs until September, the harvest is done manually and farmers contract with the *shawish* to provide the necessary seasonal labour.



Marketing tomatoes to wholesale markets - Marketing Packages - Homs - 2020

Production is sorted, classified and packed in the field by a group of seasonal workers with professional experience in sorting. The crop is then packaged (in Styrofoam - industrial cork) and marketed to traditional marketing channels, so 55 per cent goes to the central wholesale market in Homs, 7 per cent to emerging markets near production areas and the Syrian Trade Corporation, 20 per cent to sorting and packaging centres for export and 18 per cent to food industries. The produce marketed through these channels is then distributed to retail and semi-wholesale dealers, supermarkets, clubs, restaurants and hotels.

(b) *Production costs*

Table 34 shows the cost of tomato production in 2020 compared to 2010.

Table 34. Comparison of agricultural production costs of the tomato cropfor 2020 with 2010

			Unit: SYP/ha
Statement		2010	2020
	Ploughing, soil preparation and planting	20,390	73,409
	Fertilizing	2,300	20,437
	Weeding and transplanting	12,360	40,117
Agricultural operations	Watering	11,760	19,424
	Pest control	8,640	21,647
	Harvesting and picking	41,294	116,260
	Sorting and packing	3,613	20,091
	Crop transport	27,407	375,689
Total		127,764	687,074
	Seed and seedlings	25,000	238,706
	Organic fertilizer	8,333	234,683
Droduction inputs	Chemical fertilizer	23,130	229,430
Production inputs	Packages	35,576	340,900
	Diesel for irrigation	21,710	241,787
	Pest control substances	10,364	200,685
Total		124,113	1,486,191
Total operations and suppl	lies	251,877	2,173,265
Land rent (15 per cent of p	production)	5,012	300,000
Capital interest of 9.5 per	cent on supplies	6,245	169,688
Five per cent incidental ex	penditure for supplies	304,886	89,309
Total costs		52,318	2,632,262
Cost per kilogram		0.583	132

(c) *Yields*

Tomato yield in the target area is 20 to 35 tons per hectare, the average cost for 2020 is about 132 SYP/kg and the average wholesale sale is 155 SYP/kg.

The per capita demand for tomatoes for all uses is estimated at 31 kg annually. The studied area's production is not sufficient to meet the local demand, and so production from other regions and governorates is used to meet demand. Increasing the crop's economic efficiency and adjusting agricultural practices will lead to a larger cultivated area, higher production and increased productivity to meet local demand. This will also reduce transportation costs and overall production costs.

(d) Evaluating the tomato crop value chain from production to marketing

(1) Weaknesses

- a. Lower yield in the target area compared to other governorates;
- b. The crop is a delicate agricultural product that must be marketed immediately after harvesting. It cannot be stored to then be sold later on when it would be unavailable in the market;
- c. High rate of crop loss as a result of the lack of professional labour to provide good agricultural services, reliance on manual harvesting and visual sorting of production in the field, filling packages in the field, the lack of appropriate marketing packages to prevent product spoilage and freight vehicles inappropriate to transport agricultural produce;
- d. Eighty per cent of agricultural processes for the crop depend on manual labour, and the quality of production and profit are subject to the efficiency of labour used;
- e. High production costs due to the high prices of fertilizers, pesticides and labour, as well as high irrigation costs, as cultivated areas depend on irrigation from wells that use diesel to run pumps;
- f. The crop requires large quantities of fertilizers and pesticides to obtain adequate economic production, which requires implementation of programmes to rationalize fertilizer use and integrated pest control;
- g. Lack of marketing-friendly packaging and high packaging prices;
- h. Failure of food industry factories to absorb the surplus at peak production to balance supply and demand and reduce price collapses;
- i. Decline in exports due to the closure of border crossings;
- j. Inefficiency of the marketing system currently in place, which depends on supply and demand and is controlled by major traders.
- (2) Strengths
- a. Suitability of the crop to the environment and climate in the target area, which makes production competitive;
- b. The crop is an important component of the triple crop rotation (tomatoes, potatoes, wheat);
- c. Possibility of achieving high added value from the crop when promoting its industrial varieties;
- d. Possibility of reducing production costs by increasing the yield per unit area and rationalizing the use of production inputs of fertilizers and pesticides.

Table 35 details the policies and measures for the tomato crop that can be taken to address gaps at the value chain level.

Goal	Policies	Measures			
Increasing production and raising productivity	• Vertical development of production	 Develop agricultural practices in the region: Grow modern, high-yielding varieties adapted to climatic conditions and soil; Diversify the varieties cultivated (food, industrial, dual-purpose); Mechanize the agricultural process chain using agricultural mechanisms suitable for various processes (soil preparation, seedling cultivation, hoeing, incubation, pest control and fertilization, harvesting of crops for the food industry); Apply modern irrigation systems and meet water needs. Train agricultural workers capable of keeping pace with mechanization and new agricultural practices. 			
	• Reduction of production loss	 Mechanize cultivation and agricultural services; Use appropriate packaging to reduce mechanical damage to the crop provided it meets the specifications required for export markets; Establish state-of-the-art centres for sorting and packaging before export, under the technical specifications and quality standards required in target markets; Rehabilitate trucks and vehicles to be suitable for delicate agricultural products, replacing the open transportation of agricultural products and switching to covered; Regulate crop planting dates at reasonable intervals, to control marketing dates and limit the surplus at peak production; Train agricultural workers capable of carrying out agricultural operations to serve and gather the crop efficiently. 			
Reduction of production costs	 Increasing productivity; Regulating the production inputs; Developing the use of land resources; 	 Establish specialized nurseries for the production of seedlings instead of the traditional current output, which is carried out within field beds or in "styrofoam seedling trays" without observing the technical conditions for their production, and mixing the produced varieties; Providing soft agricultural loans from the Agricultural Bank per the actual costs of production to enable farmers to purchase all agricultural production inputs at the beginning of the agricultural 			

Goal	Policies	Measures
	 Developing the use of water resources. Developing a cooperative system. 	 season (seeds, fertilizers, pesticides, packages and diesel) and limit their exposure to market price fluctuations; Implement a crop rotation to reduce pest spread, maintain soil fertility and increase productivity; Use organic fertilizers to improve soil properties and fertility. This measure complements the livestock value chain for cows and poultry in the region as livestock waste can be used as an organic fertilizer;
Regulating marketing and raising the added value of the product	• Reducing the impact of market disruption on net profit.	 Regulate wholesale markets to effectively link production and marketing channels by: Regulating crop harvesting according to full maturity dates and in line with market needs; Developing a market information system to enables farmers to identify market needs for scheduling and marketing trends; Developing tomato manufacturing plants and increasing the manufacturing capacities for tomato molasses, dried tomatoes, sauces and other food products; Establishing a contracting system between farmers and marketing and manufacturing companies to cultivate varieties intended for manufacturing and for export that meet the tastes of consumers in target countries; Encouraging small and medium-sized enterprises to process the crop and package it in standard packages, and use it for rural industries; Training local workers, including women and young people, to set up production units to manufacture main and secondary products from the crop; Establishing centres to collect crop residues for manufacturing feed and production mixtures to create a suitable mix for mushroom production. Granting the product a certificate of quality, geographical identification of origin and a trademark specifying the product's technical specifications in terms of colour, taste and acidity.

6. Fruit Tree Value Chain - Apricots

Almond and apricot trees in 2019 represented 97.2 per cent of the total area planted with stone fruit in the target area, with 87.4 per cent planted with almonds and 9.9 per cent planted with apricots. The target area's production also accounted for 92.5 per cent of the region's almond production. We present the study of the apricot value chain, considering that the governorate ranks second in the production of apricots in the Syrian Arab Republic. The crop is economically viable as apricots are an important export and manufacturing commodity.

Figure 21 exhibits details of the preparation, production, processing and marketing of apricots in the study area and shows the size of the key players in the various stages.



Figure 21. Value chain of the apricot crop in the study area within Homs Governorate, 2019

(a) Stages of the apricot value chain

The apricot production chain consists of three main stages:

- (1) Preparation for planting: It includes the preparation for planting and agricultural services until the trees fruit, obtaining agricultural production inputs, providing agricultural production services and picking the fruit;
- (2) Production: It includes agricultural operations and agricultural services;
- (3) Marketing: it involves identifying marketing mechanisms and trends;
- (4) As for the fourth stage, shown in figure 21, it is not major and revolves around the possibility of increasing the added value of crop residues and loss of production.

(1) Preparation for planting

In 2018, farmers began to restore conflict-affected lands by uprooting dried tree remains and roots and planting apricot trees (areas planted with apples were replaced by apricots as they have better economic feasibility). Several varieties of apricots are currently grown (Tadmouri, Golden red, Golden yellow, French and a new early variety Basbousi); these are dual-purpose varieties that can be consumed fresh or used to manufacture jams and qamar al-din (apricot juice and fruit leather).

The establishment of fruit tree orchards requires allocating large financial resources to cover the costs of reclamation, replanting and the various agricultural services (cultivation, pruning, pest control, irrigation) over a period of 3-4 years, until fruit can be harvested.



Rehabilitation of damaged apricot orchards and planting vegetables between them until they begin fruiting – Al-Qusayr – 2020

Farmers can obtain an annual short-term loan from the Agricultural Cooperative Bank to cover the cost of agricultural services for apricot trees in the amount of 200,000 SYP/hectare. Farmers obtain 95 per cent of agricultural fertilizer and pesticide production inputs through the local market and the rest through the Cooperative Agricultural Bank. Eighty-five per cent of farmers rely on renting tractors for agricultural services.

Eighty per cent of farmers fall into the individual sector, and 20 per cent belong to the cooperative sector, but note that the cooperative sector does not provide any services.

Farmers obtain 10 per cent of the labour needed to serve and harvest the crop from the region, with the other 90 per cent of workers coming from north-eastern regions in the seasons of harvesting, packing and field sorting.



Use of modern irrigation when rehabilitating damaged apricot orchards - Al-Qusayr - 2020

(2) Production phase

The harvest of apricots in Al-Qusayr region begins in mid-May and runs through the end of June. The governorate's production in 2019 was 30,000 tons, declining in 2020 to about 5,000 tons due to climate change, namely the large difference between elevated daytime high temperatures and night-time low temperatures during the post-flowering period (the first phase of fruit formation, i.e. the nodes), which led to fruit drop.

The apricot value chain includes five major actors, with a number of subsidiary chains associated with the food industry and export packaging centres:

- The farmer, who serves the cultivated area together with his/her family members and hired labour;
- The trader who before harvesting agrees to purchase the crop from the farmer and is responsible for the harvesting, sorting, packaging and marketing. The trader's profit margin ranges between 25 and 35 per cent depending on the target markets;
- The merchant who owns fruit sorting and packaging plants and buys the crop directly from the farmer or the wholesale market in Homs city and emerging markets;
- The wholesaler at the wholesale market who buys the crop at auction "on the back of the car" directly from the market floor or deals with several farmers to guarantee marketing for their crop in exchange for a commission of 7-10 per cent;
- The broker-dealer for food industry factories and qamar al-din manufacturing plants who buys produce from farmers' land and wholesale markets.

(3) Marketing phase

The crop is marketed as follows:

- Direct marketing by the farmer: Some farmers sell their apricot production to the central wholesale market in Homs, either to a wholesaler at the market or by auctioning it "on the back of the car"; others sell their produce to traders and brokers from food industry factories or sorting and packaging brokers located in the region (most of them come from Rif Dimashq governorate, and they buy produce for food industry factories and qamar al-din manufacturing plants). Wholesalers buy the crop at auction in the market square "on the back of the car" and sell it themselves, to wholesale markets in other governorates and to semi-wholesalers, retailers, supermarkets, restaurants, hotels, agents of sorting and packaging centres, etc.
- Crop Leasing: One month before the crop ripens, a guarantor trader agrees with the farmer to buy the crop. The deal includes the farmer's commitment to continue providing agricultural services and irrigating cultivated land, leaving the farmer with a limited number of trees for family consumption. The trader protects the crop, provides packaging and arranges labour for the harvest, initial sorting in the field and packing in specified packages. The trader then markets the crop to other parties, as follows:
 - Sixty-five per cent of production is marketed for manufacturing, and is purchased by merchants from the Ghouta area of Damascus who manufacture qamar al-din and apricot jams, while the rest of the production is marketed for fresh consumption.
 - Before the conflict, 35 per cent of production was exported to Lebanon and the Gulf States. It was packed in temporary packaging centres set up during the harvest. The purchase price was then announced and farmers harvested the fruit and sold it to the merchant responsible for sorting, packing and loading it into refrigerators on site and shipping it directly for export. The village of Reblah in the Al-Qusayr region is the main centre for this.
 - Wholesalers from Rif Dimashq are middlemen specialized in marketing the produce for food factories and qamar al-din manufacturing factories located in Rif Dimashq. This year, farmers are selling production at 450 SYP/kg. Merchants arrange the necessary labour for picking, sorting and packing, and some buy the crop at the village-level marketing centre at 900 SYP/kg.
 - There are no factories for the manufacture of jams and qamar al-din in the target area, as climatic conditions and atmospheric humidity are not suitable for the requirements of apricot manufacturing and the production of qamar al-din, which is sundried.

(b) *Production costs*

Table 36 presents a comparison of apricot production costs in 2010 and 2020.

Unit: SYP/h				
Statement		2010	2020	
	Ploughing and tilling around trees	4,000	40,000	
	Preparing land for irrigation	2,000	18,000	
	Breeding and pruning	4,000	24,000	
	Collecting leftover pruning	600	3,500	
Agricultural operations	Fertilizing	800	4,000	
	Watering	9,800	66,875	
	Pest control	1,120	7,000	
	Harvesting	5,600	45,000	
	Crop transport	500	7,000	
Total		28,420	215,375	
	Organic fertilizer	20,000	20,000	
	Chemical fertilizer	80,000	85,000	
Production	Packages	15,000	80,000	
requirements	Diesel for irrigation	90,000	180,000	
	Pest control substances	25,000	20,000	
Total		230,000	385,000	
Total operations and sup	plies	258,420	600,375	
Rent (15 per cent of proc	luction)	4,335	86,700	
Capital interest of 9.5 pe	r cent on supplies	6,215	41,551	
Five per cent incidental e	expenditure for supplies	3,271	21,869	
Total costs		79,241	587,494	
Cost per kilogram		69	508	

 Table 36. Comparison of agricultural production costs for apricot fruit for 2020 with 2010

(c) *Yields*

Apricot yields in the target area are 3.7 tons per hectare, the average cost for 2020 was 508 SYP per kilogram and the wholesale price was 900 SYP per kilogram. However, the average wholesale for 2019 was 477 SYP per kilogram.

(d) *Challenges facing fruit trees value chains from production to marketing*

(1) Windows of vulnerability

a. Substantial capital is needed to cover the costs of reclaiming damaged lands and purchasing seedlings, and irrigation and agricultural services must be provided to the trees for a period of four years until they begin fruiting, with six more years until they begin the stage of economic fruiting;

- b. Almond trees are affected by climatic conditions, especially during the flowering period, and in some years they are exposed to frost that leads to the destruction of flowers. Climatic conditions can result in crop failure as in 2020, when the high temperature variation between night and day led to a loss of 80 per cent of production. In some years, strong June winds lead to fruit drop, high production losses and low prices due to a large proportion of produce being shifted to manufacturing and the inability to either market it fresh or export it (i.e. the inability to obtain attractive prices for the crop);
- c. Pest control sometimes fails due to the presence of pesticides that are ineffective or do not comply with standards, some of which are imported illegally to bypass sanctions imposed on the Syrian Arab Republic;
- d. Agricultural tractors and accessories that are not suitable for servicing fruit trees;
- e. Inadequate marketing channels to absorb production, where picking spans several days;
- f. Marketing of apricot production requires considerable effort, especially since 70 per cent of it is marketed fresh and 30 per cent is converted to the food industry, and the product can only be stored fresh for a few days;
- g. Unavailability of marketing-friendly packaging and high packaging prices;
- h. Lack of skilled agricultural labour in harvesting, sorting and packaging, resulting in a high proportion of product waste;
- i. Dependence on labour from the eastern region, which is highly paid;
- j. Unsuitable means of transport to market the delicate products, damage during transport and the high percentage of waste.
- (2) *Strengths*
- a. Suitability of the environment and climate for the cultivation of fruit trees and the competitive production when planting suitable varieties whose flowering dates after the last frost;
- b. Strong comparative advantages in production volumes, specifications and price; Homs Governorate comes second after Rif Dimashq in apricot production;
- c. High demand for the product in domestic, manufacturing and export markets;
- d. Ability to cultivate fruit trees in areas that cannot be used to grow other crops and vegetables;
- e. Good returns from fruit trade, especially from stoned fruits such as apricots, due to the presence of great market demand.

Table 37 presents the policies and measures that can be taken to address gaps in the apricot value chain.

Goal	Policies	Measures
Developing crop cultivation	• Enhancing comparative and competitive advantage	 Reclaim and rehabilitate damaged lands; Strengthen the role of agricultural research and agricultural extension to identify suitable species for the region that bloom after spring frosts;
Increasing production and raising productivity	• Vertical development of production	 Cultivate varieties suited to the region and in demand for direct consumption, manufacturing and export, in particular dual-purpose items (consumption and processing); Implement and automate modern irrigation systems.
	• Reduction of loss of production	 Use appropriate packaging to reduce mechanical damage to the crop; Establish state-of-the-art pre-export sorting and packaging centres under the specified specifications and quality standards required by target markets; Equip freight vehicles to be suitable for agricultural products and reduce the impact of weather factors on them during transport, especially since agricultural products are currently transported uncovered and unprotected; Train agricultural workers to carry out agricultural operations to efficiently service, harvest, sort and pack the crop in the field.
Reduction of production costs	 Increasing productivity; Regulating production inputs; Developing the use of water resources. 	 Establish specialized nurseries to produce productive seedlings of appropriate varieties; Provide soft agricultural loans from the Agricultural Bank based on the actual costs of production to enable farmers to purchase all production inputs at the beginning of the season (seeds, fertilizers, pesticides, packaging and diesel) and limit exposure to market price fluctuations; Use organic fertilizers to improve soil properties and fertility integrated with the cattle and poultry value chain in the region, as livestock waste can be used as organic fertilizer; Develop field irrigation systems using modern irrigation methods; Train workers to apply scientific methods in pruning fruit trees.
Regulating marketing and raising the added	• Reducing the impact of market	• Regulate wholesale markets to achieve effective linkages between production and marketing channels by:

 Table 37. Details of proposed policies and measures to enhance the apricot value chain

Goal	Policies	Measures
value of the product	disruption on net profit.	• Regulating crop harvesting according to full maturity dates and in line with market needs;
		• Developing a market information system that enables farmers to learn about market needs for scheduling and marketing trends;
		 Developing apricot manufacturing plants and increasing the processing capacity of qamar al-din, dried apricots and juices;
		 Encouraging small and medium-sized enterprises to process the crop and package it in standard packages and use it for rural industries;
		 Training local workers, including women and young people, to set up production units to manufacture the main and secondary products of the crop;
		• Granting product quality certificates, certificates of geographical origin and a marketing brand that document its comparative and competitive advantages in its specifications.

7. Livestock Value Chain - Cows

The target area has a good number of livestock herds, especially cows, as well as poultry, beekeeping and fish farms. Many farmers are interested in raising cows both for food and for daily income from the sale of milk. Cattle farming is supported by the fact that the region is renowned for cultivating a large number of crops and has large quantities of feed for animals, the nutritional value of which can be raised through modern methods of manufacturing feed mixtures, which also help increase productivity per animal.

Figure 22 presents details of breeding, production (milk and meat) and marketing of the bovine value chain in study areas and shows the size of key players at different stages.



Figure 22. Value chain for raising cows in the study area in Homs Governorate for 2019

(a) Stages of breeding and production

The cattle production and marketing chain consists of the following three phases:

- (1) Phase I includes the provision of supplies such as feed, health care, veterinary care and labour;
- (2) Phase II includes production of marketable products;
- (3) Phase III involves marketing the production: fresh milk and live cows and calves.
- (1) Obtaining production inputs

Cattle feed accounts for 70 per cent of production costs. During the 11-month fattening period, a single calf needs about 2 tons of fodder consisting of different components (60 per cent barley, 25 per cent soy cake, 15 per cent bran). Dairy cows each require 6.5 tons of "ready-to-milk" feed each year (a mixture of barley, soy cake and bran for milking).

Sixty-five per cent of farmers purchase feed through the Multi-Purpose Farmer Society associated with the General Feed Corporation of the Ministry of Agriculture (ready-made milk feed). They receive enough feed to cover 30-50 per cent of the dairy herd's needs for feed, with the rest obtained from feed traders, from their own production or purchased from local farmers. In 2020, the price of "dairy feed" was around 350,000 SYP per ton.

Farmers face major challenges in securing the necessary fodder, as the fodder trade suffers from disorganization and instability. Feed prices are linked to the prices of components, which in turn fluctuate according to the exchange rate of the Syrian pound against the dollar. Feed prices also fluctuate according to the quantities imported and available in the market, particularly since they depend on imported soy cake, bran (a residue of wheat milling) controlled by traders, and barley, the price of which is linked to the balance of supply and demand. Since feed accounts for 70 per cent of the cost, the prices of milk and live calves are directly related to the price of feed.

Veterinary care is provided by veterinarians present in the area, some of whom work for the veterinary unit of the Agricultural Directorate in the governorate and some of whom are self-employed. Veterinarians are paid at a rate of 30-35 per cent of the value of the medicine or vaccine provided. Veterinary units carry out preventive and curative vaccination of cows free of charge and periodically.

The headquarters of the General Establishment for Cattle, which is affiliated with the Ministry of Agriculture, has a number of modern cattle stations located in Hama governorate close to the area (45 km north). The Foundation works on cattle farming, provides extension to farmers and sells inseminated heifers when available.



Cattle farming – Al-Qusayr – 2020

(2) Production

Cows are raised in the study area within traditional barns that usually contain a space with a capacity of about 20-25 cows and an outdoor area with the necessary facilities (stall, feeder, drinker). The barn is attached to a fodder warehouse and a milking room. Eighty-five per cent of cows are raised in barns containing a herd of 10-20 cows and about six calves, and 15 per cent of breeding barns include a small herd of 1-5 cows and one calf.



Cattle barns are distributed across the targeted administrative areas as shown by figure 23.

Figure 23. Chart of the number of cows in the target area, 2019

Source: Agricultural Statistical Group - Directorate of Agriculture and Agricultural Reform, Homs.

Farming is concentrated in Homs, then Taldou, followed by Al Qusayr and then Al-Rastan areas. There is a correlation between the scale of livestock farming and the volume of forage crops grown in each region. The volume of agricultural waste from winter and summer vegetable cultivation in each of them plays a role in supporting cow farming.

There are no specialized livestock cooperatives; rather, multi-purpose cooperatives obtain feed from the General Establishment for Feed of the Ministry of Agriculture. The breakdown of livestock farming between the cooperative and individual sectors is shown in figure 24.



Figure 24. Cooperative vs. individual herds in the study area, 2019

Source: Agricultural Statistical Group - Directorate of Agriculture and Agricultural Reform, Homs.

The Holstein breed of cattle produced under the Genetic Improvement Programme has been adapted to the local environment. Cows are usually purchased as inseminated heifers during the last two months of pregnancy so that they can immediately enter production by giving birth and producing milk.



Cattle farming – Al-Rastan – 2020

The gestation period of cows is nine months, and the lactation period is about 300 days per year, with between 3.5 to 4.5 tons of milk produced per cow per year. Cows have one birth per year, and some breeders sell new-born calves to be fattened by other operators, while others fatten their own calves over an 11-month period to then be sold once they weigh 400 kilograms. Heifers are inseminated at the age of 16-18 months and weight of at least 300 kilos.



Displaced people raising cows in unfinished residential quarters – Al-Rastan – Tsenin – 2020

(3) *Marketing*

a. Marketing of milk

More than 95 per cent of farmers use automated milking with specialized single-cow milking machines, and the milk produced is sold to collectors, with prices determined based on supply and demand. Prices do not directly take into account the cost of production or the fat content (the average price from 2019 through May 2020 was lucrative). Farmers do not process milk and instead sell it fresh.



Milking machine widely used in the region – Taldou – 2020

Milk collectors sell production to small manufacturing units usually located on the outskirts of residential neighbourhoods or retail shops that sell fresh milk. These traders have contracts with milk processing plants producing dairy products, cheeses, cottage cheese, cream, etc. The price is determined according to the market demand for milk, and the daily production of dairy products, cottage cheese and cream is marketed through contracts between processers and wholesalers, retailers and supermarkets. A portion of processed cheeses is marketed daily to the same outlets, with the rest stored in special refrigerators to be sold throughout the year.

The price of milk is linked to the ups and downs of feed prices. Prices also vary according to breeding costs and the amount of milk produced, with prices also varying in summer and autumn versus winter and spring.

Table 38 provides a breakdown of the quantities of meat and milk produced and the amounts used in food processing at the administrative district level.

	Unit: Ion							
Area	Meat	Milk	Fresh	For ghee	For butter	For cheese	For yoghurt	Other products
Homs	1,014	35,064	11,220	5,260	1,052	8,766	7,013	1,753
Taldou	392	13,563	4,340	2,034	407	3,391	2,713	678
Al- Rastan	248	8,591	2,749	1,289	258	2,148	1,718	430
Al- Qusayr	314	10,849	3,472	1,627	325	4,717	2,170	-1,462
Total	1,968	68,066	21,781	10,210	2,042	19,021	13,613	4,323

 Table 38. Beef and cow milk production and use in processed goods in the study area

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Source: Agricultural Statistical Group - Directorate of Agriculture and Agricultural Reform, Homs.

Milk is transported in specialized unrefrigerated containers and open or closed uncooled freight cars, resulting in a high level of bacterial load and reduced potential for processing.

The price of milk stored in refrigerators increases according to the number of storage days to account for the cost of storage. If there is high market demand, profit margins can increase accordingly.

Farmers sell fresh milk and do not process it. This is due to many factors, including lack of equipment necessary for processing, unavailability of refrigerators to store products, inability to market the product to central markets daily, lack of dealers to collect dairy products daily as soon as they are processed and lack of confidence in their ability to compete in the market against the production of dairy processing plants that have consistent marketing.

b. Marketing of live animals

The solvency of farmers is one of the most important determinants of their ability to keep newborn calves, as farmers need substantial capital to secure the required fodder to feed the herd, especially as fodder dealers stopped selling on credit since the beginning of the conflict, instead selling on the basis of payment before delivery. The size of barns is also a determining factor in the ability to keep new-born calves.

Inseminated heifers are sold two months before they give birth, at which point they achieve the highest possible price. Calves are also sold at the age of two months for fattening in other facilities, or they are fattened for 11 months, reaching a weight of more than 400 kilograms, which is the appropriate weight to be sold for slaughter. Animals weighing 500 kilograms or more are also sold. Sales occur either at the livestock market in the village of Deir Baalba or to a breeder or farmer at the district level, and live animals are usually sold to livestock traders in the area. Prices are determined by the prevailing prices in the region and according to the supply and demand and the animal's quality and health.

The price per kilogram of live calves in May 2020 was about 4,100 Syrian pounds, and the price of a fertilized cow was 1.5-2 million Syrian pounds. Dairy cows are priced according to the amount of milk they produce daily, and their prices are 2.5-4 million Syrian pounds per cow.

Traders slaughter calves and other animals in slaughterhouses licensed and subject to the directorates' supervision of internal trade and consumer protection in the governorate (there is a government slaughterhouse and other private slaughterhouses in the governorate). Then the traders sell the meat to wholesalers of slaughtered animals. By-products (leather, hoofs, internal viscera) are sold directly to users, who in turn use them for new production chains (no statistics exist).

Slaughterhouse wholesalers buy live animals from live animal wholesalers and sell the slaughtered animals as "bone-in meat" to retailers and manufacturers at prevailing prices set by supply and demand. Slaughtered animals are also sold to meat processing plants for mortadella and meats for restaurants; in return, traders receive a 5-7 per cent commission on the amount. Slaughtered animal dealers are the source of marketing information for farmers, processors and retailers of meat, and it is worth noting that meat is transported in regular, unrefrigerated cars.

Retailers purchase slaughtered animals from wholesalers at prices set by the wholesaler and sell them in turn to consumers after adding a profit margin determined by supply and demand, usually in the range of 8-20 per cent. Some retailers buy live animals directly from farmers and slaughter and sell them in order to achieve a larger profit margin, plus additional income for the leather, viscera and by-products from which they make sausages, hamburgers, etc. However, these operators do not have completely sanitary conditions especially as there is no refrigeration during slaughter and preparation.

The Directorate of Domestic Trade, Consumer Protection and Local Administration issues an indicative price bulletin for "bone-in meat" and "deboned meat" as well as all livestock products such as dairy, cheese and others. This bulletin is the basis for pricing in the retail market. However, on the ground, product prices vary between rural and urban areas according to the balance of supply and demand, and according to consumption rates, as prices increase during holidays and social occasions.

In light of the smuggling of many animals to neighbouring countries and the 45 per cent reduction in the size of the herd, competition among producers has become virtually non-existent due to the high demand. The decline in the quantity of milk produced has prompted milk processors to use imported and skimmed milk as a major part of manufacturing. The mix varies by manufacturer and by production season, with the percentage of fresh milk increasing during February, March and April because of the availability of sheep milk at that time.

The prices of red meat such as beef, veal and lamb have witnessed a dramatic increase during the conflict, with milk prices having increased 9-fold and veal prices 43-fold. This increase is due to increased demand for meat, which will double if exceptional measures are taken to improve income levels.

(b) Challenges to the cattle value chain from production to marketing

Cattle farming in the study area is characterized by several strengths and some weaknesses. The marketing chain contains a large number of links involving a number of traders, which increases commissions, lowers profit margins for producers and raises prices for consumers.

- (1) Weaknesses during production
 - a. Lack of pure breeds that achieve high and balanced productivity, as it is noticed that the milk yields of breeds used vary greatly from animal to animal;

- b. High production costs as a result of high feed prices;
- c. Disruption of the feed market and high prices in parallel with high inflation, while not achieving quality standards;
- d. Reliance on dry feed and the inability to provide green fodder;
- e. Continuation of traditional breeding methods with cows exposed to diseases that impair productivity;
- f. Breeding pens that lack the substantive and technical standards necessary to meet the requirements of modern breeding;
- g. Persistence of smuggling that leads some breeders to sell part of their herds to cover the costs of farming and living;
- h. Volatility of milk and meat prices.
- (2) Weaknesses during marketing
 - a. Control of milk delivery dates and milk prices by milk collectors;
 - b. Degradation of specifications and quality of milk by the methods of collection, transportation and marketing, as milk is collected and transported to processing centres in unrefrigerated containers;
 - c. Lack of village-level milk collection centres to market milk and maintain quality;
 - d. Low production capacity of milk processing plants;
 - e. Production of large quantities of milk in local operations;
 - f. Lack of centres to check quality standards, analyse products, ensure minimum standards and grant quality certificates;
 - g. Lack of attention to advertising and promoting brands associated with livestock products;
 - h. Non-compliance of public and private slaughterhouses with technical standards and sanitary conditions of facilities and slaughter lines;
 - i. Inability of breeders to process milk due to the lack of machinery and supplies and the lack of refrigerators, thus reducing the benefit from increased added value.
- (3) *Strengths*
 - a. Good climate and environment for raising cows and fattening calves;
 - b. Proximity of farming and production areas to consumption and marketing centres in other governorates;

- c. Cattle farming does not require large areas of land or large quantities of water;
- d. High demand for red meat, dairy products and cheeses in local markets;
- e. Multiple and diverse sources of fodder (available in local markets, from the General Establishment of Feed at subsidized prices and from crop residues from the farmer's land itself or other nearby farms);
- f. Raising cattle provides rural families with a daily and permanent income from the sale of milk and calves, which is one factor making this sector economically sustainable;
- g. Most family members (and especially women) work in the care and milking of cows; if additional labour is needed, workers are available in the region;
- h. Cattle farming provides for the household's need for livestock products, which make up 45 per cent of food spending in rural areas;
- i. Health and veterinary care for the herd are provided by veterinarians working in the veterinary units of the Directorate of Agriculture or private clinics;
- j. Farmers already have sufficient knowledge of livestock farming and knowledge can be transferred to train new farmers;
- k. Cattle farming in the region has a comparative and competitive advantage in the breeding and production systems;
- 1. Added value can be captured by using livestock waste as organic fertilizer to improve fertility;
- m. Specialized government institutions are available in the region to provide support services, including three branches of the Agricultural Cooperative Bank to grant loans to purchase cows and supplies at favourable terms.

Table 39 presents the policies and measures that can be taken to address gaps in the cattle farming value chain.

Goal	Policies	Measures
Reducing production costs	 Increasing productivity; Providing feed; Protecting animal health; Developing barn designs. 	 Introduce feed crops such as vetch, gorse, alfalfa and clover in crop rotations; Provide soft loans to farmers from the Agricultural Bank and the Feed Trading Fund in accordance with the actual costs of production, to enable breeders to purchase feed; Provide appropriate agricultural machinery to collect crop residues and increase the nutritional value of feed;

Table 39. Details of proposed policies and measures to enhance the cattle farming value chain

Goal	Policies	Measures
		• Have agricultural research and extension agencies disseminate the types of fodder mixes that can be provided from regional forage crops and field crop residues, such as grass and leguminous crops, medicinal and aromatic plants and waste from olive pruning;
		• Spread the technique of sprouting barley in special containers to provide green fodder;
		• Develop a modern model breeding pen that meets general hygiene, health and nutritional requirements, isolate herds and expand open breeding grounds;
		• Train technical and professional workers to care for livestock.
	• Reducing feed waste;	• Deploy techniques to use processed feeds in the form of capsules or feed cubes instead of green feed;
	• Reducing the loss of milk.	• Set up centres to guarantee the purchase of milk products, including a laboratory for testing and pasteurization before transport to milk processing plants in special refrigerated cars.
Regulation	Increasing	• Process manure to use as organic fertilizer;
the market	added value;Limiting the	• Establish centres to collect organic waste from livestock and use it to produce biogas and organic fertilizer:
	impact of	 Train the labour needed to process livestock waste;
	market turmoil on net profit.	 http://metice.org/nonative products and us grass and regumbers crops, medicinal and aromatic plants and waste from olive pruning; Spread the technique of sprouting barley in special containers to provide green fodder; Develop a modern model breeding pen that meets general hygiene, health and nutritional requirements, isolate herds and expand open breeding grounds; Train technical and professional workers to care for livestock. Deploy techniques to use processed feeds in the form of capsules of feed cubes instead of green feed; Set up centres to guarantee the purchase of milk products, includin a laboratory for testing and pasteurization before transport to milk processing plants in special refrigerated cars. Process manure to use as organic fertilizer; Establish centres to collect organic waste from livestock and use it to produce biogas and organic fertilizer; Train the labour needed to process livestock waste; Encourage women and youth to set up production units for processing milk and livestock products, organize their production by agricultural associations or extension units, supervise their production techniques and grant them certificates of origin; Establish small and medium enterprises to collect and process milk within production units at the village level; Develop a market information system to enable farmers to learn about changes in the price of milk and live animals in the local market, as well as for milk processing plants to enable farmers to identify appropriate marketing channels and set marketing dates; Develop animal slaughterhouses and apply sanitary conditions within them; Price milk according to the fat content, not quantity; Increase the capacity of milk and meat processing plants; Establish a system of control, testing and certification of quality, geographical origin and brand and increase attention to product promotion; Have agricultu
		 Within production units at the village level; Develop a market information system to enable farmers to learn about changes in the price of milk and live animals in the local market, as well as for milk processing plants to enable farmers to identify appropriate marketing channels and set marketing dates;
		• Develop animal slaughterhouses and apply sanitary conditions within them;
		• Price milk according to the fat content, not quantity;
		• Increase the capacity of milk and meat processing plants;
		• Establish a system of control, testing and certification of quality, geographical origin and brand and increase attention to product promotion;
		• Have agricultural research and agricultural extension centres lead a training programme for farmers and agricultural workers on modern systems for raising animals and processing livestock products.
Growing the herd and	• Protecting the herd.	• Stop all kinds of smuggling of live animals, calves and fresh and processed milk;
increasing its		• Shut down unlicensed slaughterhouses;
number		• Implement programmes to immunize livestock from diseases.

8. Challenges common to all products in value chains within the target area

(a) *Weaknesses*

- (1) Weak production systems
 - a. Farmers do not comply with planting areas as specified in agricultural licenses issued by the Extension Unit. Excessive cultivation increases the quantities produced, floods the market and depresses prices;
 - b. Continued use of traditional agricultural systems and lack of expertise and the technical, material and financial resources to move to modern agriculture, which relies on modernization, mechanization, technology and innovation;
 - c. Suspension of government irrigation projects and the high cost of irrigation from wells using diesel-operated pumps (due to doubling of diesel prices), with a large gap between official and monopoly prices;
 - d. Failure to properly apply the extension and information given to farmers about agricultural systems, and failure to follow agricultural management in implementing the Integrated Pest Management Programme and the rational and specialized use of fertilizers, which has harmed agricultural production, decreased yields, increased production costs and put pressure on the environment;
 - e. Small size of holdings, production and marketing challenges from cultivating them, high production costs and low returns on investment;
 - f. Weak agricultural mechanization (in terms of quantity, type and quality) since before the conflict. This problem has been exacerbated by the decline of mechanization in the target area. Eighty-five per cent of farmers depend on rented machinery for agricultural services (which are still being implemented traditionally), with owners controlling the costs and dates of such services.
- (2) Weak support services
 - a. Dependence on importing 85 per cent of production inputs (seeds, pesticides, fertilizers), which means that the prices of these supplies are affected by fluctuations in international prices and the change in the exchange rates of the Syrian pound;
 - b. Poor financial capacity of farmers, leaving them unable to finance cultivation and servicing. Currently, farmers only have access to finance from the Agricultural Bank, wholesaler traders or financiers at an interest rate of 7-15 per cent;
 - c. Absence of specialized quality associations of major agricultural products to regulate production and marketing in accordance with government-mandated agricultural policies;
 - d. Lack of offices to regulate the use of agricultural labour and balance supply and

demand, and the dependence of farmers on seasonal agricultural workers from eastern governorates due to their low wages compared to local workers. This leads to people from the region seeking other jobs inside and outside the region or moving to neighbouring countries;

- e. Limited supply of skilled and specialized workers for planting, pruning, pest control, picking, harvesting, sorting and packaging, resulting in loss of production and deterioration of quality;
- f. Inability of agricultural cooperatives to achieve their objectives, with their work limited to providing in-kind agricultural loans from the Agricultural Bank of inputs for the production and marketing of strategic crop products, in addition to feed;
- g. The Agricultural Cooperative Bank's system of granting loans does not meet current requirements and farmers' desires to obtain medium and long-term loans to establish small and medium enterprises. Attention should be paid to the importance of addressing the problems of indebtedness, the guarantees required for loans, and the extent to which the Agricultural Bank continues to be relied on as the sole provider of agricultural loans.

Table 40 displays the high costs of agricultural production due to the high prices and monopoly of production inputs.

Item	Unit	Price (2010)	Price (2020)
Nitrogen fertilizer/urea fertilizer 46	SYP/ton	8,000	193,000
Phosphate fertilizer	SYP/ton	8,800	237,000
Potassium fertilizer	SYP/ton	15,500	412,000
Diesel	SYP/litre	25	185
Pesticides/relative measurement	SYP/litre	1,000	20,000-26,000
Transport of 30 km	SYP/vehicle (load up to 5 tons)	1,500	5,000-8,000
Agricultural labour	SYP/hour	50	350-500

Table 40. Change in official prices approved by the relevant ministries (Mafraq)for agricultural production inputs, 2010-2020

(3) Marketing

- a. Producers are subject to market forces and must sell their products at prevailing prices because of:
 - Lack of an effective price control system in the market and control over prices by major wholesalers through alliances between wholesalers in the governorates and the wholesale market in Homs;

- Absence of prior contracts between producers and those marketing the production;
- Failure to document the existing investment and commercial relations between the farmer and the merchant who finances the production inputs, leading farmers to be subject to the wholesaler's terms.
- b. The wholesale market continues to operate using traditional methods, as it is simply for trading products and lacks a system for managing and regulating the market and identifying the quantity of product brought in and sold and marketing trends as criteria for determining prices and commissions; additionally, the market lacks warehouses, refrigerators and sorting, packing and refrigerated shipping centres;
- c. Lack of a market information system providing information and statistics to help producers:
 - Learn about the standard product specifications and quality standards required for domestic and external markets;
 - Find out the prices of production inputs and agricultural products in target markets;
 - Learn about the quantities imported and exported and the estimated production in the region;
 - Learn about of target export markets and their needs for products and specifications;
 - Find out about possible interventions from the Government, agricultural cooperatives, associations and initiatives;
 - Increase farmers' ability to negotiate in wholesale markets.
- d. Lack of an integrated marketing system suitable for delicate agricultural products marketed fresh. Related to this matter are the types of packages used in packaging, the speed of marketing, the type and specifications of the vehicles shipping products, in order to preserve products and reduce waste;
- e. Exposure to economic decisions regarding whether to allow exports, which harms the balance of supply and demand and impacts product prices;
- f. Poor access to international markets since products, packages and packaging methods do not meet standard specifications and quality standards;
- g. Absence of specialized offices for monitoring and verifying compliance with specifications and issuing quality certificates, and the absence of laboratories to measure pesticides residues on products;
- h. Lack of attention to promoting Syrian products for export and lack of trade relations with global marketing companies;

- i. Insufficient experience in export and shipping operations and control of wholesalers over this activity;
- j. Decline in exported quantities as a result of international restrictions imposed on the Syrian Arab Republic;
- k. Continued inflation, high prices of production inputs and their impact on production and marketing costs;
- 1. Absence of a body representing farmers in the market, and their weak ability to negotiate for the highest possible price and improve their chances of increasing the price of their products.
- (4) Processing
- a. Prices fluctuate during the marketing period and decline to critical limits at the peak of production, as a result of:
 - Low capacities of the food industry;
 - Insufficient refrigerated storage capacity and high storage costs.
- b. Failure to achieve the potential added value of agricultural products due to the food industry's low productive capacities and the lack of advanced sorting and packaging centres.
- (b) *Strengths*
 - (1) Restoration and repair of damaged public irrigation networks by the Governorate's Water Resources Directorate in preparation for being put into operation in September, for the start of the 2020-2021 growing season;
 - (2) In 2019, the Ministry of Agriculture resumed implementation of the project to switch to modern irrigation and activated the Modern Irrigation Fund project, which works to grant farmers the necessary agricultural loans to finance the installation of modern irrigation networks, in addition to supporting farmers by exempting them from 50 per cent of the cost. Farmers currently have trouble providing the necessary guarantees for loans;
 - (3) Gradual return of farmers to the region, the start of the rehabilitation of destroyed agricultural productive assets and work to cultivate most agricultural holdings;
 - (4) Proximity of production areas to consumption areas, with the governorate's residents preferring local production. Existence of national demand for products for domestic consumption, export and manufacture;
 - (5) Re-opening of all shops selling agricultural inputs in production areas;
 - (6) Return of wholesale markets in the governorate to 85 per cent of their production capacity, and the strengthening of emerging sub-markets role to become wholesale markets

supportive of the central wholesale market in Homs;

- (7) Resumption of operations of the administrative units of all government institutions related to agricultural production in the region since 2018, in particular, agriculture departments and extension units, agricultural research centres, branches of Ministry of Agriculture institutions (seed multiplication, fodder, cows, poultry) and branches of the Agricultural Cooperative Bank;
- (8) Continued work by international and local organizations and civil society associations to provide support to the local community to secure livelihoods in general and agricultural livelihoods in particular;
- (9) Many employment opportunities for the population residing in the area, which are a major source of income for them;
- (10) Willingness of farmers to grow crops and accept modern agricultural practices recommended by importers of special agricultural production inputs, which improve production and increase productivity;
- (11) Availability of engineers, technicians and agricultural extension officers to guide farmers in farming and marketing methods;
- (12) Ability of the permanent and seasonal agricultural workforce in the region to have help from their children or workers coming from the north-eastern governorates.

Table 41 details policies and measures for all products considered that can be taken to address gaps in the value chain.

Goal	Policies	Measures
Regulating agricultural production	• Developing prevailing agricultural systems for plant and livestock production.	 Promote partnership with the local community to develop the agricultural production plan and identify types of crops that meet farmers' desires and conform to the overall strategy of the sector and the land and water resources allocated to agricultural production; Mechanize agricultural and marketing operations through: Establishing private-sector agricultural machinery companies that provide all agricultural machinery, equipment and modern accessories appropriate to the size of agricultural holdings and the nature of the soil and crops prevailing in the region, and operate agricultural machinery in accordance with standard conditions that achieve efficiency in agricultural processes and services, extraction, harvesting and automatic collection, in exchange for a set fee; Establishing state-of-the-art centres to sort, package and pack products according to the technical specifications required in destination markets;

Table 41. Possible	policies an	d specific r	neasures to	address gap	os in value	chains
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Goal	Policies	Measures	
		• Implementing the technological packages planned by agricultural research centres to manage crops and bridge the production gap between what farmers have achieved and the specifications in various production schedules.	
Sustaining land and water resources	• Regulating land and water resources.	 Apply crop rotations compatible with available land and water resources while achieving sustainability; Rehabilitate government irrigation networks and convert them into pressurized irrigation networks to reduce the proportion of water losses in the networks from 55 per cent to 35 per cent, and enable the conversion of irrigated areas to modern irrigation methods; Convert all irrigable areas in the region to modern irrigation methods to reduce waste in water resources and use the savings to increase irrigated areas, diversifying cultivated products, increasing productivity and increasing profits. This will have a positive impact on income levels and population stability. 	
Reducing production costs	• Implementin g technical crop management systems.	 Implement integrated pest management systems to reduce the quantities of pesticides used and thus reduce costs, reduce pesticide residues in produce and the soil, reduce environmental damage and provide healthy products for the population and products that can be exported to foreign markets. Implement a fertilizer application system based on soil analysis to determine the quantities of fertilizer that should be used for the highest possible yield without causing environmental damage or leaving residues on produce. Doing so will also reduce production costs; Develop the system of agricultural cooperatives and establish specialized unions to organize production and marketing and collaborate with the cooperative system to secure production and marketing supplies and perhaps collectively cultivate smallholdings. 	
Enhancing stability	 Organizing agricultural production; Strengthenin g protection measures. 	 Restore the Government's support services to plant and livestock farmers and increase their efficiency through the development of targeting methods and mechanisms; Prevent the smuggling of production inputs and agricultural products (to and from the country), as this harms the public treasury, prevents monitoring of compliance with specifications, allows for the introduction of plant and animal diseases and facilitates the spread of transboundary diseases to live animals and diseases common to humans and animals; Create agricultural product and crop insurance companies to address the risks to agricultural products from climatic conditions; Create a development bank in the target area to finance SMEs and productive units; Establish offices to regulate the use of agricultural labour to balance supply and demand, in terms of the type of work, technical skill and wages; 	

Goal	Policies	Measures	
		 Develop the Agricultural Cooperative Bank system to increase the number of medium- and long-term loans granted to farmers and address the problem of guarantees required for loans; Regulate the market for agricultural production inputs to limit price disruption and monopoly operations; Develop local production of production inputs such as fertilizers, seed, seedlings and fodder needed to keep pace with the revival of the region's agricultural sector. 	
Regulating the market	 Increasing added value; Reducing the impact of market disruption on net profit. 	 Rehabilitate and regulate wholesale markets; Regulate marketing as described in the next chapter (road map); Create a contractual system between producers and marketing entities to enforce the rights and duties on both sides of production and marketing; Establish specialized offices for control, verifying compliance and issuing quality certificates, and establish laboratories to measure pesticide residues in products; Promote Syrian products for export development and establish trade relations with global marketing companies; Increase the productive and storage capacities of food industries. 	
Growing the herd and increasing its number	• Protecting the herd.	 Stop smuggling operations of all kinds and forms of live animals, calves and fresh and processed milk; Shut down unlicensed slaughterhouses; Implement programmes to immunize livestock from diseases. 	

(d) *Challenges of changing value chain components*

The proposed special policies and measures face interlocking challenges that need to be considered in planning programmes and implementation mechanisms. The main challenges revolve around the following points:

- (1) Ability to modify producers' traditional behaviour in regulating production and marketing;
- (2) Value chains are managed through complex and interlocking relationships between partners in the supply of production inputs and the marketing of production, with these relations cemented by the fact they provide benefits to both sides. This means that any attempt to penetrate this structure will lead to disruption and reluctance before reaching stability;
- (3) Reinforcing the status of partners and teaching effective management are among the most important tools for addressing problems in value chains, but implementing this requires extensive financial resources and expertise;
- (4) Adapting to changing partnerships and markets is one of the biggest challenges limiting the flexibility to implement alternative measures;
- (5) Current marketing systems strengthen the role of traders in controlling prices and the

destinations of goods. Farmers abandon marketing initiatives because they are unaware of market information, trends and needs;

- (6) Farmers are dependent on marketing products in their raw form without processing due to the lack of supplies for processing and the unavailability of cold storage, in addition to their desire to obtain daily income from sale of their produce;
- (7) The institutional framework to reorganize value chains depends on the presence of an independent governmental body that regulates marketing, implements legislation, keeps pace with the regulatory, monitoring and evaluation stages, oversees private actors and establishes companies and institutions to regulate the market in all of its components and throughout the value chain;
- (8) Comparative advantage must be transformed into competitive advantage provided that stakeholders have the set of skills, technology, resources and capacities that the Government can coordinate and invest to achieve higher degrees of efficiency, productivity and quality. Crop distribution priorities are assessed according to comparative advantage and competitiveness and in proportion to the ability of natural resources to meet crop requirements and achieve sustainable and rational use, as well as by the size, importance, effects and patterns of product demand, the ability to realize added value and link agricultural production to provide materials needed for the industrial sector as well as by the strategic and competitive status of the crop in economic policies.

VI. The road map

A. Possible intervention to improve value chains in the study area

1. Market regulation

(a) Develop a region-specific strategy to regulate, link and integrate agricultural production and marketing to increase the added value of agricultural products and improve their returns;

- (b) Marketing.
- (1) Develop wholesale markets (in Homs, Khirbet Al-Teen, Al-Rastan, Al Rayyan) to market vegetables and fruits, develop livestock markets in terms of infrastructure, organization and management and equip markets with production units such as sorting lines, vegetable and fruit packing and refrigerated storage to resupply stock in time of scarce production;
- (2) Establish niche markets for agricultural products from smallholdings, heritage products from rural women and SME products (in larger villages) and link them to various marketing channels in major cities and provincial centres.

(c) Strengthen price control mechanisms and tools and reduce the role of traders' alliances in controlling prices, by:

- (1) Establishing a centre for market information, products and supplies by the private sector to create a better climate for the marketing process. This centre should include a database on the domestic and foreign market demand for products, incoming and outgoing quantities, purchase and sale prices, the direction of product marketing according to marketing channels and offers from wholesalers. This will contribute to lowering commissions by reducing the number of marketing links between the producer and the consumer;
- (2) Developing a contractual marketing system that ensures the provision of agricultural products destined for a specific marketing channel, to reduce the number of steps between the producer and the consumer, the amount of commissions, the number of times goods are transported and fees for loading and unloading and the proportion of production loss. The contractual regime includes regulation of the contract between the farmer and the producer wishing to market the production. If it is for the domestic market, the variety is determined and the marketer will finance the farmer's production to the trader. If the output is for the international market, the type, item and technical and technological specifications of the production are specified in the contract in terms of the kind of pesticides and fertilizers used to reach output that conforms to required specifications and quality standards. The marketer can provide the farmer with seeds, fertilizers and pesticides in exchange for the farmer's commitment to market their production;
- (3) Establishing and making available to farmers a statistical system of wholesale markets to control marketing schedules and trends and enhancing their ability to negotiate prices for their products.

2. Increasing added value

(a) Increase the processing capacities of food industry plants so that they can absorb surplus production, process it and achieve added value from it;

(b) Develop sorting and packaging centres for agricultural products that meet standard specifications for products and packaging for export according to target markets;

(c) Develop livestock and poultry slaughterhouses and link them to frozen packaging and conservation centres;

(d) Support the establishment of SMEs related to agricultural products and small food processing projects by rural women, regulate their marketing and link them to industrial, agricultural clusters.

3. Development of support services for farmers

(a) Prioritize specialized scientific research and marketing research to develop value chains;

(b) Develop agricultural extension methods, training and technical and vocational agricultural education to enable the dissemination of specific practices from agricultural research;

(c) Have seed importing companies play a greater role in extension and awareness-raising to farmers to disseminate technological packages compatible with imported items and obtain the highest possible productivity with balanced use of inputs;

(d) Identify crops and varieties with a comparative and competitive advantage that are profitable and suited to the region;

(e) Build a system of geographical indicators for products in order to plant crops based on comparative advantage and competitiveness;

(f) Establish the foundations for ensuring the continued availability of agricultural inputs (seed, fertilizer, feed, pesticides, veterinary medicines);

(g) Expand the work of agricultural cooperatives and grant them soft loans to enable them to lead investment projects to provide members with agricultural machinery, supplies and marketing;

(h) Develop financing systems and grant agricultural loans from the Agricultural Cooperative Bank, promote the expansion of banks and sources of finance and provide new banking products to promote the expansion and provision of new ones;

(i) Establish government or private offices to oversee agricultural supplies (analyse their compliance with standard specifications), monitor health aspects of agricultural products (analyse residues of pesticides and fertilizers in agricultural products), verify product standards to issue

certification of conformity, quality and geographical origin and market such products with trademarks to give them comparative advantage over other products and allow them to command higher prices;

(j) Develop appropriate transportation methods to market and maintain the vitality of agricultural products;

(k) Strengthen the role of private-sector companies engaged in the importation, production and trade of inputs in disseminating modern agricultural practices and technological packages for imported or produced items.

4. Increasing the efficiency of agricultural production

(a) Rehabilitate government irrigation projects, restart irrigation systems and convert exposed irrigation systems to modern pressurized irrigation systems;

(b) Promote the role of agricultural planning, scientific research and agricultural extension in the development of prevailing agricultural systems, localizing the results of scientific research and applying agricultural practices that optimize the use of natural resources, increase employment opportunities and improve income for farmers and users of agricultural value chains (diversification of suitable varieties, use of biofertilizers, application of modern farming methods, application of integrated pest management programmes, application of crop rotations);

(c) Introduce high-value crops into the crop rotation (medicinal and aromatic plants such as coriander, anise, nigella, fennel) and expand the cultivation of industrial and medicinal plants such as saffron, which require the existence of companies to guarantee marketing;

(d) Organize the agricultural labour market through the establishment of labour regulation offices in rural areas;

(e) Train specialized labour and organize their work through employment offices;

(f) Develop quarantine centres on the land borders between the Syrian Arab Republic and neighbouring countries to regulate the export and trade of agricultural products per the agricultural calendar, protecting the interests of both the country and its neighbours.

5. Development of livestock

(a) Regulate the trade, circulation and marketing of livestock fodder to achieve stability in terms of its quantity, quality and price;

(b) Enhance methods for the collection and use of crop residues to manufacture feed;

(c) Introduce methods to utilize livestock residues for the manufacture of safe organic fertilizers;

(d) Develop an integrated system to collect, analyse, test and price milk according to fat, and develop and diversify production and manufacturing lines for livestock products;

(e) Regulate the livestock product processing sector, prohibit unlicensed manufacturing workshops in the vicinity of cities, limit manufacturing to licensed factories and facilities and encourage SMEs to establish them;

(f) Organize livestock markets that continue to operate in traditional ways;

(g) Establish offices for monitoring and issuing quality and conformity certificates for livestock products;

(h) Develop a statistical system to track the growth of the herd and monitor its movement;

(i) Transition feed production towards capsules and reduce the sale of raw feed mixtures;

(j) Establish milk collection centres (cooperative or individual) that regulate the purchase and pricing of milk by fat and quality to enable breeders to market their products directly to sales centres;

(k) Develop advanced slaughterhouses and restrict slaughtering operations to licensed slaughterhouses;

(1) Establish specialized freezers to preserve frozen red and white meat and promote changes in eating habits to accommodate consumption of frozen meat;

(m) Improve the health and veterinary care system to reduce the spread of human-animal epidemics and diseases;

(n) Offer substantive and technical support for rural poultry farming, since it has low production costs and can provide food for rural families.

6. Organization of the labour force

(a) Organize the labour force through employment offices that balance supply and demand based on the type of work, professional competence, gender, age and effort. This stabilizes the agricultural labour force, ensures that demand is met, ensures the standards of skill and expertise, equitably distributes employment opportunities and guarantees workers' rights;

(b) Create knowledge networks or train individuals who may influence the knowledge and culture of the local population in order to develop knowledge and culture that promote the stability and development of society;

(c) Implement training programmes on modern agricultural methods and vocational literacy, with a focus on rural women and young people;

(d) Integrate women in rural areas into the labour market by training them to establish small enterprises and engage in crafts by exploiting local resources, to then be marketed by private entities.

7. Developing investment opportunities

(a) Establish specialized private sector companies to provide leased agricultural machinery, equipment and accessories for the mechanization of the production and marketing chain;

(b) Create centres to treat livestock waste, convert it into fertilizer and produce biogas from it;

(c) Establish centres to utilize harvest residues and crop residues to produce mushrooms;

(d) Establish centres to benefit from medicinal and aromatic plants and raise their added value by producing multiple commodities;

(e) Improve the business and investment climate in rural areas to provide an attractive environment for private investment in the manufacture of production inputs and ways to increase the added value of products;

(f) Utilize renewable energy systems to invest in solar energy to generate the electricity needed to operate irrigation pumps, and use agricultural waste to produce biogas, fertilizers and feed.

8. Development of legislation

(a) Establish private companies or enterprises to regulate internal and external marketing and prepare studies on the types and varieties demanded in markets, prices, consumer tastes, types of packaging to suit the products and required forms of packaging and display;

(b) Establish specialized quality associations for each of the major plant groups and each of the livestock sectors to regulate the sectors institutionally, productively and commercially in an integrated manner;

(c) Create the Labour Force Employment Office at the production area level;

(d) Develop laws and legislation promoting investment in the agricultural sector and components of value chains from processing, sorting, packaging, transportation and refrigerated storage;

(e) Form a private development bank at the district level and develop the operations of the agricultural bank.

B. Challenges to recovery

- 1. Limited water resources in the region allowing for irrigation of only 14 per cent of the cultivated area in the region, and limited potential of increasing productivity in rain-fed lands.
- 2. Restricted government investment to rehabilitate productive assets and damaged public and private agricultural infrastructure.

- 3. Social instability of the population due to the lack of basic services in the target areas, such as electricity, water, telephone and sanitation, and weak access to social, health and education services, with weak services even when they have been re-launched.
- 4. Decreased resilience as displaced persons and migrants acquired new customs and traditions, changed diets and consumption patterns and social behaviour that is incompatible with rural life.
- 5. Limited ability to organize work and link supply and demand since rural areas have lost a large proportion of young males.
- 6. Instability in the market for agricultural inputs (diesel, pesticides, fertilizers, seeds, fodder, packages) in terms of the quantity, type, quality, price and availability, and difficulty accessing them due to monopoly conditions.
- 7. Decrease in the possibility of developing a cooperative system to meet development needs.
- 8. Limited capacity to establish new agricultural banks; limited capacity of the Agricultural Cooperative Bank to provide agricultural loans to farmers; limited establishment of agricultural insurance banks, social safety nets and social protection instruments, which have become more necessary currently.
- 9. Lack of capacity for administrative, managerial and technical development of wholesale markets and the development of an integrated marketing system that reduces market price fluctuations in agricultural products and increases the added value of agricultural products.
- 10. Ability to achieve consistency in agricultural policies with polices in other sectors (policy harmonization).

C. Potential opportunities for recovery

- 1. Consensus of international organizations and institutions on the vital importance of reviving and protecting agricultural livelihoods through the rehabilitation of the agricultural sector.
- 2. Partial reactivation of services supporting agricultural production.
- 3. Integration of the region into rural development projects implemented by the government with funding from the International Fund for Agricultural Development (IFAD) (Livestock Development Project, Rural Livelihoods Enhancement Project). It also included projects for rural women's empowerment, family farming and developing food industries for rural women and linking them to central markets.
- 4. Return to the Modern Irrigation Project and providing farmers with modern irrigation loans with a 50 per cent subsidy.
- 5. Possibility of expanding livestock projects because the region is rich in pastures and provides large quantities of crop residues.

- 6. Availability of Agricultural Cooperative Bank branches within the region to provide loans to farmers on soft terms and at low interest rates.
- 7. Presence of the Agricultural Research Centre in the Jusiya El Khrab area in Al-Qusayr and the Research Centre in Mukhtariya in Homs region and their ability to hold training courses for farmers to eradicate professional illiteracy.
- 8. Presence of extension units in the region containing agricultural engineers who are able to organize agricultural production, lead intervention projects and implement specialized extension programmes.
- 9. Existence of a cooperative system that can be the key in developing productive, marketing and service cooperative work and creating appropriate new collaborative networks.
- 10. Availability of technical capabilities to spread modern agricultural practices to develop production and bridge the gap between research and farmers to enhance grain productivity and develop livestock husbandry.
- 11. Ability of the region to implement wind and solar-based renewable energy projects to generate electricity, agricultural waste recycling projects and others.
- 12. Flexibility of the region's resources to implement climate-smart agriculture programmes and achieve sustainable development goals.
- 13. Adaptability of farmers to conditions during the conflict. This was demonstrated by the modification of agricultural systems to grow crops that first meet farmers' own needs and market needs, according to available financial capabilities, production inputs and storage and marketing capacity.
- 14. Development of forms of intervention by United Nations organizations providing production grants for processing equipment, beekeeping projects and supplies to cultivate small holdings sufficient to meet the needs of the family.

Table 42 details policies and measures for early agricultural livelihoods recovery in the post-conflict period.

Objective	Measure	Relevant body	Timespan
Protecting resources	 Implement the Climate Change Response Programme and the Climate Smart Agriculture Programme; Implement the Food Security Programme; Implement the Water Security Programme; Reduce resource use violations and reduce violations of agricultural plans. 	Ministries of Agriculture, Water Resources, Local Administration and Environment	Short - Medium

Table 42. Policies and procedures for early agricultural livelihoods recovery in the post-conflict period

Objective	Measure	Relevant body	Timespan				
Production phase							
	• Rehabilitate damaged government irrigation networks (Upper Assi Irrigation Network, Homs-Hama Irrigation Network, Orontes Basin River Bed Irrigation Networks);	Ministry of Water Resources	Short				
Rehabilitating agricultural	• Convert networks in government irrigation projects to pressurized irrigation systems to reduce water losses from 55 per cent to 35 per cent;	Ministry of Water Resources	Medium - Long				
mitastructure	• Transfer all irrigated areas on wells to modern irrigation methods;	Ministry of Water Resources	Short - Medium				
	• Rehabilitate roads, electricity networks and drainage.	Local administrations	Short				
	 Identify crops and varieties with a comparative and competitive advantage and good profitability that are suited to the region; Establish a system of geographical indications for Syrian products; 	Ministry of Agriculture	Short - Medium				
	• Utilize agricultural practices (selection of varieties, fertilizer and pesticide standards, crop rotations, mechanization of agricultural processes) to achieve vertical development of production;						
	• Implement integrated pest management programmes and use safe organic and bio-fertilizers and pesticides that are less harmful to the environment;	Ministry of Agriculture	Short - Medium				
Reducing production costs while improving	• Develop means of collecting agricultural residues and using them in the manufacture of feed;	Ministry of Agriculture	Short - Medium				
the productivity and quality of agricultural products	• Provide production inputs in quantity and quality in a stable and sustainable manner at economical prices (fertilizers, seeds, feed, pesticides, packages, energy);	Ministries of Agriculture, Economy, Industry	Ongoing				
	• Foster the work of extension units to regulate production compatible with market needs and develop marketing extension systems;						
	• Employ modern livestock farming systems (use of barns for hygienic conditions for farming, selection and reproduction of high-yield breeds);	Ministry of Agriculture	Short - Medium				
	• Enhance veterinary services for the livestock sector and adopt a remote sensing programme to investigate diseases;	Ministry of Agriculture	Short - Medium				
	• Develop mechanisms and tools for milking, milk collection, quality testing, pricing and manufacturing;	Ministry of Agriculture	Short - Medium				
Objective	Measure	Relevant body	Timespan				
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	• Develop animal production research to improve breeds for meat and dairy;	Ministry of Agriculture	Short - Medium				
	• Strengthen programmes to protect livestock by maintaining preventive and therapeutic livestock immunization;	Ministry of Agriculture	Short - Medium				
	• Adopt a sophisticated technical statistical system for monitoring and evaluating livestock and monitoring growth, mobility and slaughtering.	Ministry of Agriculture	Short - Medium				
	• Bolster the role of agricultural associations in regulating production and marketing;	Farmers' Union	Ongoing				
Developing a cooperative system	• Support agricultural cooperatives via loans from the Agricultural Bank to enable them to own tractors to serve members;	Farmers' Union	Short - Medium				
	• Create cooperative marketing societies for member production.	Farmers' Union	Short - Medium				
	• Increase allocation of funds under the general State budget to rehabilitate damaged resources in the agricultural sector;	Ministry of Finance	Ongoing				
Davaloning	• Develop financing plans for farmers who have soft loans to rehabilitate damaged licensed wells, purchase tractors, strengthen livestock herds, repair livestock pens and damaged facilities, establish small and medium-sized enterprises, establish projects for rural women and develop agricultural facilities suitable for modern farming systems;	Agricultural Cooperative Bank	Short				
Developing financing systems	• Develop mechanisms for granting agricultural loans, reducing the guarantees required for loans and diversifying the sources and lenders granting loans;	Agricultural Cooperative Bank	Short				
	• Provide an attractive environment for private investors to encourage them to invest in the agricultural and related sectors (agribusiness, sorting and packaging, marketing companies, chilled storage);	Ministries of Finance and Economy	Ongoing				
	• Establish a rural bank to implement development programmes at the local level.	Ministry of Finance	Short				
Empowering the rural community and increasing the technical knowledge of stakeholders	• Disseminate appropriate agricultural practices based on the results of agricultural research and agricultural extension;	Ministry of Agriculture	Short - Medium				
	• Qualify and train farmers and agricultural workers technically and professionally in modern agricultural practices appropriate for each area of scientific research and agricultural extension;	Ministry of Agriculture	Short - Medium				

Objective	Measure	Relevant body	Timespan
	• Provide qualitative and specialized training of livestock in the breeding, marketing and processing stages, and quality skills;	Ministry of Agriculture	Ongoing
	• Establish private companies in each administrative region to rent agricultural machinery to farmers;	Ministry of Economy	Short - Medium
	• Regulate the employment of agricultural labour through employment offices that balance supply and demand.	Ministry of Social Affairs	Short - Medium
	Production marketing phase		
Developing financing systems	 Establish an information system that includes a database of demand for products in domestic and foreign markets, quantities imported and exported, purchase and sale prices, the direction of marketing products according to the marketing channels and offers by wholesalers, in order to reduce commissions through competition and lower prices by limiting the number of marketing links between the producer and the consumer; Create a statistical system for wholesale markets and make it available to farmers to control marketing schedules and trends and strengthen their ability to negotiate the price of their products; 	Ministry of Internal Trade	Short
	• Strengthen price monitoring mechanisms and tools, and reduce the role of merchant alliances in controlling prices;	Ministry of Internal Trade	Short
	• Establish production control centres and grant quality and geographical origin certificates.	Ministry of Internal Trade	Short - Medium
	• Form a qualitative union of producers that provides a marketing system for production, increases competitiveness and improves product efficiency, either by enhancing post-harvest operations or by manufacturing;	Ministry of Internal Trade	Short - Medium
Regulating the marketing of	• Develop wholesale markets (for vegetables and fruits, livestock markets) in terms of their infrastructure, organization and management;	Ministry of Internal Trade	Short - Medium
agricultural products	• Regulate and develop emerging wholesale markets at the regional level;	Ministry of Internal Trade	Short
	• Build a contractual marketing system that ensures the provision of agricultural products destined for a specific marketing channel;		
	• Establish milk collection centres (cooperative, or individual) which regulate the purchase and price of	Ministry of Internal Trade	Short

Objective	Measure	Relevant body	Timespan
	milk by fat and quality to enable farmers to market their production directly to sellers;		
	• Establish niche markets in rural heritage products and rural SME products for food industries and others;	Ministry of Internal Trade	Short - Medium
	• Form advanced agricultural marketing companies to regulate domestic and international marketing;	Ministry of Internal Trade	Short - Medium
	• Develop livestock and poultry slaughterhouses and establish centres for packaging and frozen preservation;	Local administration	Ongoing
	• Adopt alternative mechanisms and tools to regulate the feed market and promote price stability;	Ministry of Agriculture	Short
	• Develop sorting, packing and refrigerated storage centres to reduce mechanical damage to products and reduce waste;	Ministry of Internal Trade	Short
	• Increase the number of food industry factories to manufacture agricultural products;	Ministry of Industry	Ongoing
	• Improve harvesting, pre-sorting and field packing, develop quality agricultural transport vehicles and introduce refrigerated transport of livestock and delicate products;	Ministries of Agriculture and Transport	Ongoing
Raising the added	• Support the establishment of SMEs related to agricultural products and rural women's businesses for food processing and organize their marketing;	Ministries of Finance and Agriculture	Short
value of the product	• Develop agricultural quarantine centres on the land borders between the Syrian Arab Republic and neighbouring countries to regulate the export and trade of agricultural products per the agricultural calendar and protect the interests of the country and its neighbours;	Ministry of Agriculture	Short
	• Develop feed production towards capsule production and reduce the sale of raw feed mixtures;	Ministry of Agriculture	Short - Medium
	• Provide strategic feedstocks across the region;	Ministry of Agriculture	Short - Medium
	• Enable farmers to expand their productive activity and teach them to manufacture livestock products.	Ministry of Agriculture	Short - Medium
Developing legislation	• Develop legislation to encourage investment in the agricultural sector and the components of value chains from agriculture and production to marketing.	All stakeholders	Ongoing

D. Proposed pilot projects for the development of value chains in the target region

1. First project: Establish an agricultural mechanization service centre

Target area:

• Homs, Taldou, Al-Rastan, and Al-Qusayr.

Key objectives:

- Provide modern agricultural machinery suitable for the types of soil and crops specified in the crop rotation, as well as those suitable for mechanized production in small holdings;
- Mechanize all agricultural processes in the targeted value chains, shifting from semi-automated to fully automated cultivation;
- Perform agricultural work according to approved scientific and technical principles and standards;
- Overcome the difficulties faced by farmers in obtaining appropriate agricultural machinery (for soil, crops) at the right times and dates.

Secondary objectives:

- Cultivate all arable areas and smallholdings that farmers face difficulty in cultivating due to the lack of appropriate agricultural machinery;
- Empower farmers to make more efficient use of the production factors available to them.

Targeted production chains:

• Potatoes, tomatoes, medicinal and aromatic plants.

Proposed model activities:

- Provide agricultural machinery appropriate to soil types and types of crops grown within the crop rotation in the region;
- Provide agricultural technology systems accompanying agricultural machinery to control the quality of agricultural service (which depend on water and soil sensors to determine dates and quantities of irrigation, fertilization and weather tracking stations);
- Provide modern irrigation systems compatible with crop types and rent them to farmers;
- Carry out all agricultural processes and services for potato and tomato crops and medicinal and aromatic plants (soil processing machines for planting: multi-purpose tractors, laser soil levelling machines, tractor accessories for agricultural services: ploughs of all kinds, soil softening machines, planning machines and seed planting machines, hoeing, fertilizing and spraying machines, automatic harvesting, threshing and picking machines, harvesting and collecting tuber crops, etc.).

Expected results:

- Increased efficiency of use of production factors;
- Reduced production costs by: increasing agricultural production, increasing the yield achieved per unit area, applying scientific, technical and quantitative standards in the use of seed, fertilizers and pesticides, following integrated pest management programmes, implementing agricultural works according to specific standards, reducing the proportion of waste from agricultural production;
- Increasing farmers' income from cultivation of targeted crops and improving the standard of living;
- Increasing product competition with those from other regions as a result of developing agricultural production from targeted crops, and improving product quality;
- Changing and shifting employment opportunities after transitioning to automated work.

Actors:

- Ministry of Agriculture and Agrarian Reform: to draw up the legal framework for establishment and implementation and to lay the foundations for follow-up, monitoring and evaluation;
- Ministry of Local Administration: to grant unit building permits;
- Ministry of Economy and Trade: to grant import certificates;
- Ministry of Finance and the Agricultural Cooperative Bank: to organize partnerships between the Centre and the branch of the Bank on the one hand and farmers on the other to pay wages as part of loans in accordance with the schedule of need adopted by the bank;
- Private or cooperative sector: to establish unity;
- International and local organizations: to support training and qualification programmes and technical standards for employment;
- Farmers and stakeholders benefiting from the service.

Implementation and management mechanism:

- Establish an integrated model centre for agricultural machinery and accessories, and a repair and maintenance workshop;
- Determine the location of the centre so that it provides service to all farmers within common boundaries of the study area;
- Define technical standards for carrying out agricultural work;
- Set wages based on costs and profit margins;
- Centre provides service to individuals or cooperative farmers through agricultural cooperatives.

Sustainability:

- Continually renew agricultural tools used and keep pace with scientific development;
- Organize a contractual relationship with agricultural cooperatives and move to the collective cultivation of adjacent holdings.

Possible obstacles:

• Ability of the service centres to continually renew modern machinery and keep pace with scientific development.

Prerequisites to increase the chances of success:

- Prepare an integrated study for the project to determine the types of agricultural machinery and their capacity, the type of agricultural accessories appropriate to agricultural systems and the size of agricultural holdings;
- Conduct awareness-raising campaigns for farmers on the economic benefits and returns to be derived from the mechanization of agricultural operations and implement training on agricultural mechanization;
- Establish demonstration fields at the start of implementation;
- Provide mechanisms with operating costs commensurate with the financial capacities of farmers.

Opportunities to replicate activities:

• Implementation of the project in the target area is a nucleus that can then be develop and generalized to the rest of the governorate with further updating, management, administration and development.

2. Second project: Develop irrigation systems and convert open irrigation canals in government networks into pressurized systems in the study area

Target area:

• Homs, Taldou, Al-Rastan, and Al-Qusayr.

Key objectives:

- Manage water resources in the Assi Basin;
- Reduce the water deficit in the basin;
- Raise the efficiency of water resource utilization and reduce waste from evaporation and water loss;
- Convert all areas within government irrigation projects in the target area to modern, automated irrigation systems.

Secondary objectives:

- Achieve equitable distribution of water resources among farmers in accordance with the water budget and planned crop rotations;
- Stabilize crop rotations;
- Develop production and increase productivity of target crops;
- Create new job opportunities for the population as a result of the potential increase in irrigated areas.

Target production chains:

• Potatoes, medicinal and aromatic plants, tomatoes, fruit trees.

Proposed model activities:

- Prepare an integrated study to convert canals in government irrigation projects from open to pressurized in the Al-Qusayr region, as well as in the irrigation networks of the Hula Dam in the Taldou region, the Homs-Hama irrigation system and Lake Qattinah in the Homs and Al-Rastan regions;
- Provide funding for implementation;
- Convert all irrigated areas to modern irrigation systems suitable for the cultivation of target crops;
- Train farmers in the operation and use of modern irrigation systems;
- Coordinate and link between this project and the project to establish the Agricultural Mechanization Service Centre, which will provide modern irrigation systems that will be connected to the pressurized irrigation canal networks and used in field irrigation according to the type of crop planted.

Expected results:

- Irrigation regulated according to the specific water needs of each crop included in the crop rotation;
- Improved efficiency of the irrigation system to 75 per cent instead of the current 50 per cent;
- Reduced water deficit in the Al-Assi basin;
- Increased profits per unit area as a result of increased production from irrigated crops versus rain-fed;
- Increased incomes, with positive effects on stability.

Actors:

- Ministry of Water Resources Water Resources Authority;
- Ministry of Agriculture and Agrarian Reform Modern Irrigation Fund;
- Ministry of Industry Industrial Testing Centre;

- International organizations and supporting development funds: to implement development programmes and projects, provide funding and implement training and rehabilitation programmes;
- Private sector (technical study offices, modern irrigation processing companies and factories, importers of modern irrigation supplies);
- Farmers and rights holders.

Implementation and management mechanism:

- Funding for implementation is provided by the Ministry of Water Resources in coordination with the Ministry of Finance and International Funds;
- Regulating the relationship between project management, agricultural cooperative societies and the Agricultural Mechanization Unit to develop the existing cooperative system or create alternative cooperative relationships between the farmers themselves for the collective investment of adjacent properties while preserving their individual ownership.

Sustainability:

- Implement the water legislation in Law 31 of 2005, which applies to all surface and underground water sources to conserve water resources and reduce waste and depletion;
- Implement the Mandatory Transition to Modern Irrigation Law No. 20 of 2010;
- Continue agricultural research by conducting applied research to determine the most appropriate irrigation systems for each crop under cultivation.

Possible obstacles:

• Provide funding for implementation in the foreseeable future.

Prerequisites for increased chances of success:

- Provide adequate financial resources to rehabilitate canals in government irrigation projects in accordance with modern systems;
- Launch outreach and awareness programmes on the importance of using modern irrigation systems to reduce waste and preserve water resources for generations to come;
- Work in partnership with the community and stakeholders in planning and implementation.

Opportunities to replicate activities:

• Mainstream the irrigation system adopted in the study area to all water resources in the Assi Basin.

3. Third project: Develop wholesale and speciality markets

Target area:

• Homs, Taldou, Al-Rastan, and Al-Qusayr (Homs wholesale market, Khirbet Al-Teen wholesale market, Al-Rastan market, Al-Rayyan market, Al-Qusayr market).

Key objectives:

- Regulate the marketing of agricultural products within the targeted value chains;
- Reduce alliances between the major traders who control supply, demand and prices of agricultural products in wholesale markets.

Secondary objectives:

• Enable farmers to obtain the real prices for their products;

- Regulate productive and marketing relationships to ensure a reduction in the number of marketing links and brokers and reduced loss of agricultural products;
- Establish sorting, packing and refrigerated storage facilities within wholesale markets, link them with food industry plants to absorb and manufacture surplus production and add value;
- Develop methods of managing agricultural practices in the field and linking farmers and central markets to identify specifications that meet market needs.

Targeted production chains:

• Potatoes, medicinal and aromatic plants, tomatoes, fruit trees (but interest extends to all agricultural products).

Proposed model activities:

- Develop an integrated system for regulating, managing and operating wholesale markets in line with the regulations of developed countries;
- Upgrade the wholesale market in Khirbet Al-Teen Noor, which is a new up-to-date market that is in the process of being established;
- Develop the current mechanism for management of wholesale markets by the local administration by leasing stores and providing public services, to creating a body or company to regulate and manage the market and develop its operations;
- Establish refrigerated warehouses, a sophisticated centre for sorting, packaging, and packing vegetables and fruits and an office for localizing commercial relations between wholesale shops and food industry factories;
- Establish links between agricultural exporters and the control office in order to match specifications and grant quality certificates.

Expected results:

- Transformation of the Khirbet Al-Teen Noor market into a central market in Homs instead of the market currently located in the city centre of Homs and conversion of the central market in the city of Homs into a semi-wholesale market;
- Establishment of specialized marketing companies to regulate supply and demand of agricultural products by targeted marketing channels;
- Increased added value of products and reduced product waste through the provision of sorting, packing and cold storage centres for potatoes, and reduced transportation expenses to an off-market storage centre, in parallel with the establishment of commercial relations with tomato processing plants.

Actors:

- Ministry of Internal Trade and Consumer Protection and Ministry of Local Administration overseeing the functioning of wholesale markets: to regulate wholesale markets, set up offices for control, verification of specifications and issuance of quality certificates;
- Syrian General Trade Corporation;
- Wholesalers (private sector);
- Farmers and producers of crops, vegetables and fruits.

Implementation and management mechanism:

• Passing a law to regulate wholesale markets and their operation and functioning to prevent monopolization and control of markets at the expense of the producer and the consumer.

Sustainability:

• Implement permanent studies on the marketing of agricultural products, monitoring problems and challenges and finding solutions;

- Establish trade relations with friendly countries to export or trade agricultural products;
- Establish large marketing companies capable of absorbing agricultural products, organizing contracts with producers and establishing business relations with international marketing companies;
- Develop an integrated agricultural marketing system and market information system.

Possible obstacles:

• Ability to control market forces.

Prerequisites to increase the chances of success:

• Prepare an integrated market site study and identify additional facilities needed by the market (sorting and packaging centres, refrigerated warehouses, packing centres and offices to verify specifications and quality standards and issue certificates of origin).

Opportunities to replicate activities:

• Adopt the system as a practical model for wholesale markets in other governorates and establish transparent relations among them.

4. Fourth project: Establishing centres for collecting, drying, sorting and packaging of medicinal and aromatic plants

Target area:

• Homs, Al-Rastan.

Key objectives:

- Regulate the production, packaging and marketing of medicinal and aromatic plants;
- Take advantage of the comparative and competitive advantage of medicinal and aromatic plants cultivated in the region, and their productive flexibility since they can be cultivated either irrigated or rain-fed depending on the availability of water resources;
- Expand areas planted with medicinal and aromatic plants and diversify to include saffron, etc.;
- Achieve the specifications and quality standards required to meet market demand according to the marketing channel (oil extraction plants, medicine and pharmaceutical manufacturing, folk medicine, export, beverages).

Secondary objectives:

- Mechanize the production chain by moving from semi- to full automation;
- Replace traditional crop harvesting, collection and sun-drying in the field (resulting in the loss of a proportion of production and the loss of a proportion of volatile oils) with modern methods of gathering production in specialized centres for drying, maintaining the proportion of oils in products and reducing production losses.

Target production chains:

• Medicinal and aromatic plants.

Proposed model activities:

- Set up a centre to collect and dry production and perform threshing, sorting and screening;
- Create processing and packaging lines and adopting a brand and logo which state the geographical origin of the region's products;
- Install umbrellas to dry medicinal and aromatic crops;
- Build a laboratory to test for the ratios of active substances and determine the prices of products according to the ratios of active substances and quality;

- Establish a facility to extract active substances and oils from products;
- Link the project to the agricultural mechanization project and the transition from semi-mechanized to fully mechanized agriculture;
- Institute productive relationships between farmers and factories to extract active substances and oils and manufacture products.

Expected results:

- Increased production of medicinal and aromatic plants in the region and leveraging of their comparative and competitive advantage (anise, dry coriander, cumin, fennel, nigella, caraway, basil, saffron);
- Maintenance of the proportion of active substances and oils in plants with higher prices obtained for products;
- Provision of raw materials for the establishment of factories to extract the active ingredients and oils from medicinal and aromatic plants;
- Cessation of marketing of products in their raw form, with increased added value and increased returns on agricultural production;
- Compliance with specifications and quality standards for medicinal and aromatic products with increased added value.

Actors:

- Ministry of Agriculture and Agrarian Reform: to plan the cultivation of medicinal and aromatic plants and regulate production;
- Ministry of Economy and Trade: to grant export licences and special facilities to access foreign markets;
- Ministry of Industry: for industrial licensing, certification and quality standards control;
- Individual and cooperative farmers and stakeholders.

Implementation and management mechanism:

• Shareholding corporations.

Sustainability:

- Regulate contracts with aromatic oils from medicinal and aromatic plants;
- Increase the added value of products by establishing specialized wrapping, packing, packaging companies, and establishing product branding and certification of quality and geographical origin;
- Establish trade relations with allied and friendly countries for the export of products.

Possible obstacles:

• Unexpected.

Prerequisites to increase the chances of success:

- Mechanize agricultural operations for the entire production chain and link the project to agricultural mechanization units;
- Organize contracts between producers and receiving centres or active material extraction plants to determine the type of agricultural products and agricultural practices required to meet specifications and quality standards;
- Promote contract farming for oil extraction plants and sorting and packaging centres;
- Implement outreach and awareness-raising programmes on the importance of applying agricultural practices specific to each type of agricultural product to ensure that products meet quality standards and achieve added value.

Opportunities to replicate activities:

• Link the project with areas that grow medicinal and aromatic crops to provide raw materials for the continued operation of oil extraction plants and sorting and packaging plants throughout the year.

5. Fifth project: Produce seed potatoes using tissue culture techniques

Target area:

• Homs- Al-Qusayr - Al-Rastan.

Key objectives:

• Provide elite seed potatoes of local varieties at lower prices than imported seed potatoes.

Secondary objectives:

- Stop importing a proportion of seeds needed for the cultivation of planned areas;
- Reduce production costs, especially since seeds represent about 50 per cent of production costs (for seeds imported through the private sector);
- Reduce the amount of foreign exchange required to import seeds.

Target production chains:

• Potatoes.

Proposed model activities:

- Support the laboratory of the General Organization for Seed Multiplication with the necessary equipment for seed production or provide specific facilities for the private sector to invest in the production of these varieties in cooperation with the General Organization for Seed Multiplication;
- Increase the number of varieties produced (the final stages are currently underway to obtain nucleus seeds of two local varieties);
- Offer specialized vocational training to technical personnel working in the laboratory.

Expected results:

- Production to satisfy the study area's need for potato seeds in a type suitable for the area;
- Reduced production costs and increased planted areas as a result of increased opportunities for competition;
- Benefit from mechanization of agricultural processes in the production chain and provision of products that conform to specifications and quality standards.

Actors:

- Ministry of Agriculture and Agrarian Reform: General Organization for Seed Multiplication and the Agricultural Research Authority;
- International organizations: to support the implementation of the programme;
- Individual and cooperative farmers and stakeholders.

Implementation and management mechanism:

- Finance equipment, tools and technical training;
- Provide the necessary support from international organizations to implement the programme.

Sustainability:

- Expand tested items;
- Build on the expertise of international research centres.

Possible obstacles:

• Unspecified.

Prerequisites to increase the chances of success:

• Sign agreements with international research centres specializing in this area to implement a joint work programme.

Opportunities to replicate activities:

• Providing the necessary seed for all governorates in the future.

6. Sixth project: Develop specialized markets for rural products and industries

Target area:

• Homs, Taldou, Al-Rastan, and Al-Qusayr.

Key objectives:

- Provide channels for marketing rural products (such as tomatoes, apricots, medicinal and aromatic plants, milk and dairy products and rural poultry) and defunct rural industries (manufacturing of molasses, straw baskets, pottery, dried fruits, etc.);
- Market agricultural products from smallholdings and home gardens.

Secondary objectives:

- Stabilize rural communities and provide good incomes for them;
- Encourage people, especially rural women and youth, to make use of resources that are not being used when there are guaranteed marketing channels for their products.

Target production chains:

• Value chains for tomatoes, apricots, cows, medicinal and aromatic plants.

Proposed model activities:

- Establish a unit to set standard specifications and establish a system to control rural products, certify them, monitor quality and issue certification of the production brand for the target region;
- Link the unit with central marketing centres in the governorate centre;
- Participate in production and marketing fairs.

Expected results:

- Employment of rural women and youth in the region and encouraging them to establish SMEs to produce and manufacture rural products in accordance with specific standards;
- Resumed cultivation of small holdings and farming of small livestock herds;
- Taking advantage of idle productive capacities in rural areas and increased investment opportunities of smallholdings and available rural productive resources, which will have a positive impact on rural household income;
- Provision of specialized products that cater to the tastes of consumers who want rural products.

Actors:

- Ministry of Agriculture and Agrarian Reform: to regulate the cultivation of smallholdings;
- All community groups in the farming family;
- Rural women working in rural crafts;
- Farmers, smallholders, domestic farmers and family gardens.

Implementation and management mechanism:

- Independent private projects;
- Government-funded SMEs;
- Private companies.

Sustainability:

- Regulate agricultural production through contracts between farmers and parties involved in processing;
- Provide soft loans for the establishment of SMEs;
- Link production to marketing according to market demand;

• Pay attention to promotion, advertising, packaging and branding of the production area.

Possible obstacles:

• Unspecified.

Prerequisites to increase the chances of success:

- Prepare an integrated study on the rural professions in which the target region can specialize, and determine the market need for products in terms of quantity, specifications, marketing trends, production and marketing dates;
- Developing an integrated system to monitor production and verify compliance with specifications and quality standards;
- Hold training courses to follow scientific methods in production and manufacturing.

Opportunities to replicate activities:

• Link the project with the centres developed in other governorates.

7. Seventh project: Establish a unit to produce vegetable seedlings and prepare seeds for medicinal and aromatic plants

Target area:

• Homs, Taldou, Al-Rastan, and Al-Qusayr.

Key objectives:

- Produce vegetable seedlings of varieties suited to the area of tomatoes, eggplants, cabbage, cauliflower, peppers, etc.;
- Ensure seedlings have good production specifications and comply with established standards;
- Provide good medicinal and aromatic plant seeds free of impurities and pests, to be planted in planned areas.

Secondary objectives:

- Standardize cultivated varieties to processing varieties that meet the production capacity of the processing unit;
- Meet the market's need for trusted varieties;
- Guarantee production by growing reliable pest-free seeds.

Target production chains:

- Value chain of tomatoes and other vegetables that are grown from seedlings;
- Value chain of medicinal and aromatic plants.

Proposed model activities:

- Establish an advanced seedling production centre;
- Establish a centre to prepare medicinal and aromatic plant seeds and associated processes (screening, filtering, sterilization, packaging).

Expected results:

- Developed production and increased productivity through cultivation of varieties that are suitable and responsive to the needs of processing units for domestic and international/export markets;
- Specialized production for domestic markets, processing and export;
- Reduced production costs;

• Provision of employment opportunities for women and youth in the target area.

Actors:

- The Ministry of Agriculture and Agrarian Reform: to grant permits to establish a nursery;
- Ministry of Finance and the Agricultural Bank: to provide loans;
- Individual and cooperative farmers and stakeholders.

Implementation and management mechanism:

• Form a private company specializing in the production of seedlings and seeds.

Sustainability:

- Develop mechanisms for selecting seeds of medicinal and aromatic plants;
- Link agricultural mechanization units and the seedling production unit to mechanize the value chain and automate seedling production;
- Develop production mechanisms;
- Develop the varieties produced according to the need of the processing unit and market demand.

Possible obstacles:

• Unspecified.

Prerequisites to increase the chances of success:

- Provide a production control system;
- Provide seedlings and seeds at prices commensurate with the material capacities of farmers and according to the cost study;
- Implement vocational and professional training programmes to teach practices related to the mechanized cultivation of seedlings and the mechanization of the production process.

Opportunities to replicate activities:

• Depending on the change in the agricultural systems used.

8. Eighth Project: Establish a food industry production unit

Target area:

• Homs, Taldou, Al-Rastan, and Al-Qusayr.

Key objectives:

- Absorb the region's tomato crop and increase its added value by processing it, producing tomato molasses, ketchup, tomato juice, etc. and granting these products a trademark and certificates of geographical origin (the crop is currently transferred to neighbouring governorates for manufacture);
- Absorb the apricot crop increase its added value by sorting and packing a percentage of it for export and keeping the remainder to produce jam (the crop is currently transported to Rif Dimashq governorate for sorting and packaging for export and processing);
- Absorb other agricultural production that can be manufactured, prepacked and processed.

Secondary objectives:

- Optimize the use of the region's natural resources and increase the efficiency of agricultural systems;
- Reduce production costs of processed tomatoes and apricots by placing production within the growing area, thus reducing transportation costs and losses due to long-distance transportation;

- Increase cultivated areas and cultivate industrial varieties;
- Introduce modern agricultural methods, agricultural mechanization and modern techniques for production and processing.

Target production chains:

• Value chains of tomatoes and apricots, also including other agricultural products that are subject tto processing.

Proposed pilot activities:

- Establish a food industry unit to process agricultural products;
- Establish an advanced sorting and packaging centre for agricultural products.

Expected results:

- Expanded cultivation of processing and multipurpose varieties of tomatoes and apricots;
- Improved income and standard of living of the population as a result of stable production, marketing and added value to agricultural products in the region;
- Provision of employment opportunities for the labour force in the region, especially women and youth;
- Taking advantage of idle production capacities in rural areas and directing farmers to cultivate smallholdings that have sat fallow as a result of high production costs, the difficulty of marketing products to central wholesale markets and the inability to compete based on price.

Actors:

- Farmers and producers of vegetable and fruit crops;
- Farmers and smallholders.

Implementation and management mechanism:

• Establish a private company for food industries.

Sustainability:

• Regulate agricultural production through productive contracts between farmers and parties involved in processing;

Possible obstacles:

• Not expected.

Prerequisites to increase the chances of success:

- Link the agricultural production process through production and marketing contracts between producers and marketing companies to determine the types, specifications and quality standards required for agricultural products;
- Promote contractual farming;
- Implement outreach and awareness-raising programmes on the importance of applying agricultural practices specific to each type of agricultural product to ensure that products meet quality standards and generate added value;
- Implement training programmes for farmers to apply model agricultural practices appropriate to agricultural systems.

Opportunities to replicate activities:

• Link the project with the centres developed in other governorates.

9. Ninth project: Localize agricultural extension and agricultural research as a major tool for development

Target area:

• Homs, Taldou, Al-Rastan, and Al-Qusayr.

Key objectives:

• Publish the results of agricultural research on varieties, agricultural practices and agricultural systems appropriate to the region.

Secondary objectives:

- Regulate agricultural production to meet the need of the population for food and food industry plants for agricultural products;
- Monitor, study and develop solutions for problems facing the agricultural sector and challenges facing farmers;
- Address the problems facing the agricultural sector in the region.

Target production chains:

• Value chains of potatoes, tomatoes, fruit trees and cows. The project also includes other agricultural products that are subject to processing.

Proposed model activities:

- Rehabilitate agricultural research centres in Homs and Al-Qusayr regions;
- Rehabilitate extension units in Homs, Taldou, Al-Rastan and Al-Qusayr areas;
- Provide extension units with the necessary equipment and supplies to carry out their tasks;
- Provide funding from the Ministry of Finance and international organizations supporting agricultural research and extension centres.

Expected results:

- Developed production and increased agricultural productivity;
- Coordination between farmers and the units to be developed (agricultural mechanization, medicinal and aromatic plant centres, food industries, rural industries);
- Addressing agricultural problems facing farmers;
- Introduction and dissemination of new agricultural techniques through agricultural research centres regarding varieties suitable for the region;
- Training of farmers to integrate production and new production units with modernized agricultural practices.

Actors:

- Ministry of Agriculture and Agrarian Reform;
- Ministry of Finance;
- International organizations, international research centres and international universities;
- Individual and cooperative farmers and stakeholders.

Implementation and management mechanism:

• Provide the necessary funding for the rehabilitation, organization and adoption of new implementation programmes and the training of technical personnel working in extension units.

Sustainability:

• Develop agricultural training, development and extension programmes and adopt modern international methods of agricultural extension and regulation.

Possible obstacles:

• Failure to sustain funding.

Prerequisites to increase the chances of success:

- Establish an integrated strategy and identify the training and development needs of facilities, supplies and technical personnel;
- Coordinate between the newly developed productive units and the proposed projects to integrate the adoption of programmes and define qualification, training and extension programmes.

Opportunities to replicate activities:

• Link the project with the centres developed in other governorates.

Annexes

Annex 1. Some operating agencies and projects implemented in Homs Governorate

Area	Agency/Association/Organization	Type of support provided
	Syrian Arab Red Crescent	3-4 months of food baskets, medical assistance, vocational training courses
	Syrian Society for Social Development	Vocational training courses for women and men, financing small projects
	Al-Barr Association	Medical aid for a nominal fee
	Karim Association	Psychological support for children, educational courses for children
	United Nations Children's Fund	Renovation of schools and provision of school bags for children, educational courses for children
	Aoun Association	Medical benefit, health baskets, vocational training courses
Homs	Child Welfare Association	Medical needs courses, hearing aids, medical glasses, vocational training courses, simple toolkits for professionals
	United Nations Development Programme	Removal of rubble from the Homs Archaeological Market, paving of the market grounds, installation of a roof for the market
	Construction Association	Renovation of some houses, food aid once a year
	Danish Refugee Council	Professional courses, rehabilitation of shops, professional bags provided through partners
	UNHCR	Support for professional courses, provision of professional tool bags from local partners and provision of small business grants
	Syrian Arab Red Crescent	Repair and rehabilitation of drinking wells
Taldou	Aoun Society	Food baskets, psychological support, recreational activities in schools
	Al-Barr Association	Food baskets
	Family Planning Association	Child and pregnant women care services
Al- Rastan	Al-Barr Association	Medical services in clinics in small amounts
	Family Planning Association	Special in-kind aid (malnutrition in pregnant women)
	United Nations Children's Fund	Partial restoration of some schools
	Red Cross with UNHCR	Money to cover the penalty for failure to register births

Table of agencies operating in Homs Governorate and projects implemented by them²⁴

²⁴ Labor Market and Livelihoods Analysis - UNHCR - 2019.

Area	Agency/Association/Organization	Type of support provided
	Syrian Arab Red Crescent, World Food Programme	Food baskets, medical services, agricultural bag (seeds and inputs for gardens)
	Office of the United Nations High Commissioner for Refugees	Assistance materials in the housing sector (outdoor furniture)
	Saif Islamic Organization	Psychological support
	Danish Refugee Council	Extension of part of the irrigation water network, restoration of Al-Rastan Health Clinic
Al- Qusayr	Karim Association	Food baskets
	Syrian Society for Social Development	Vocational training, small project support, in-kind medical assistance
	Syria Trust for Development	Simple financial grants
All regions	Farmers' Union of the Governorate	Organization of the work of cooperative agricultural associations
	Chamber of Agriculture	Production grants for seeds, seedlings, irrigation systems and poultry

Annex 2. Some grants from international and local organizations and local Associations in Homs Governorate

Table of grants awarded in Homs Governorate 2011-2019

Year	Grantor	Type of grant	Number of beneficiaries
2011	Food and Agriculture Organization of the United Nations	Feed	1,510
2012	Food and Agriculture Organization of the United Nations	Feed	2,487
	Food and Agriculture Organization of	Barley seeds	481
2013	the United Nations	Sheep	86
	Syrian Commission	Sheep	60
2014	Food and Agriculture Organization of the United Nations	Chickens for raising	1,600
	Food and Agriculture Organization of	Barley seeds	750
	the United Nations	Livestock treatment	15,325
2015	Food and Agriculture Organization of the United Nations, Red Crescent	Wheat seeds	3,500
	Syrian Commission	Production project	47
	Red Crescent	Wheat seeds	750
		Sheep	200
	Syrian Commission	Production project	25
		Production project	17
	Food and Agriculture Organization of the United Nations	Feed	2,228
2016		Livestock treatment	3,834
	Food and Agriculture Organization of the United Nations, Aga Khan Foundation	Barley seeds	1,300
	Food and Agriculture Organization of the United Nations, Aga Khan, Chamber of Agriculture	Wheat seeds	2,700
2017	Ded Cressent	Wheat seeds	1,500
	Ked Crescent	Home garden	3,000
		Livestock treatment	7,201
	Food and Agriculture Organization of the United Nations	Summer vegetable seed	1,600
		Biogas production units	12

Year	Grantor	Type of grant	Number of beneficiaries
		Chickens for raising	250
	FAO in collaboration with the Beekeepers Union	Bee colonies	75
	United Nations Development	Garlic seeds	250
	Programme	Modern irrigation networks	1,900
	Beekeepers' Union in collaboration with the World Food Programme	Bee colonies	225
		200 sheep	Several sheep per beneficiary
	Red Crescent	233 well sinker	One sinker per beneficiary
		Barley seeds	1,000
		Wheat seeds	150
2018	FAO in cooperation with Aoun Association	1,000 modern irrigation networks	One network per beneficiary
	Food and Agriculture Organization of the United Nations	Treatment for 1,000 sheep	Multiple beneficiaries
		Food preparations	50
	Chamber of Agriculture in collaboration with the World Food Programme	Modern irrigation networks	1,200
2019		5,200 home gardens	One garden per beneficiary
	Red Crescent	Wheat seeds	1,000
		Barley seeds	1,000
	Food and Agriculture Organization of the United Nations	400 Modern Irrigation Network	One network per beneficiary
		Treatment for 1,000 sheep	Multiple beneficiaries
		Chickens for raising	150
		Aged wild thyme seedlings	200
	FAO in cooperation with the Arab Beekeepers Union	Bees	120

Year	Grantor	Type of grant	Number of beneficiaries
	Chamber of Agriculture in collaboration with the World Food Programme	Seven food processing units	Multiple beneficiaries
	Aga Khan Foundation	Support for recovery programmes	280
2020	Red Crescent	Sheep	400
	Chamber of Agriculture in collaboration with the World Food Programme	20 food processing units	Multiple beneficiaries
	Federation of Chambers of Agriculture in collaboration with the Food and Agriculture Organization of the United Nations	Fruit seedlings	560
	World Food Programme	1,000 home gardens	One garden per beneficiary
		Chicken	300

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