



Food and Agriculture Organization  
of the United Nations



# **SPECIAL REPORT**

**FAO MISSION TO ASSESS THE IMPACT OF THE  
FINANCIAL CRISIS ON AGRICULTURE IN  
THE REPUBLIC OF LEBANON**

**21 September 2020**



# IMPORTANT

This report is based on information valid at the time of its finalization in April 2020. Since then, many economic and social developments have taken place in the country. On 4 August 2020, a devastating explosion occurred in the Beirut Port, leaving some 200 people dead and over 6 000 people injured. The blast destroyed parts of the port including the bulk terminal and main grain silo, ruined neighbourhoods in the vicinity and caused material damages in the greater Beirut area. The explosion added another dimension to a multi-faceted crisis Lebanon had already been facing, as the COVID-19 pandemic has exacerbated the deterioration of economic conditions, with unemployment and poverty increasing and inflation rates skyrocketing. In July 2020 (last information available), consumer prices increased by over 112 percent compared to July 2019, while the food price inflation reached over 330 percent year on year. Nevertheless, the current report contains a valid description of the sector that can still be useful to inform policy decisions and provide background information on the agricultural sector in Lebanon.

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# ACRONYMS AND ABBREVIATIONS

ASPLANTE	Association of Importers and Distributors of Supplies for Agricultural Production in Lebanon
BdL	Banque du Liban
CAS	Central Administration of Statistics
CFSAM	Crop and Food Security Assessment Mission
COVID-19	Coronavirus disease 2019
CREAL	Centre de recherches et d'études agricoles libanais
CEDRE	Conférence économique pour le développement, par les réformes et avec les entreprises
EBRD	European Bank for Reconstruction and Development
EFTA	European Free Trade Association
EIU	Economist Intelligence Unit
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	Food and Agriculture Organization Corporate Statistical Database
FGDs	Focus Group Discussions
FMD	Foot and Mouth Disease
FTA	Free Trade Agreement
GAFTA	Greater Arab Free Trade Area
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GP	Green Plan
ICARDA	International Center for Agricultural Research in the Dry Areas
IDAL	Investment Development Authority of Lebanon
IMF	International Monetary Fund
LARI	Lebanese Agricultural Research Institute
LBP	Lebanese pounds
LCRP	Lebanon Crisis Response Plan
MFN	Most Favourite Nation
MoA	Ministry of Agriculture
MoET	Ministry of Economy and Trade
MSMEs	Micro-Small and Medium Enterprises
NDVI	Normalized Difference Vegetation Index
PPR	Peste des petits ruminants
UNHCR	United Nations High Commissioner for Refugees
SPS	Sanitary and Phytosanitary
SWAM	Action Document for Upgrading Solid Waste Management
USD	United States dollar
VoIP	Voice over Internet Protocol
WFP	World Food Programme
WTO	World Trade Organization
WTI	West Texas Intermediate



Source: United Nations, Department of Field Support Cartographic Section, 2010.



# HIGHLIGHTS

- Lebanon is an upper middle-income, open market economy that relies largely on inflows of remittances from diaspora and foreign investment for its economic growth. The country currently faces a major economic and financial crisis. On 17 October 2019, a countrywide unrest was triggered by the austerity measures proposed by the Government to contain the crisis.
- At the request of the Ministry of Agriculture, an FAO Mission visited Lebanon in February 2020 to assess the impact of the financial crisis on agriculture (in particular on agricultural input markets), evaluate the immediate needs of the sector and propose measures to intervene.
- Farmers, who mostly farm on a part-time basis, face high input costs and low output prices. Most inputs, including seeds, fertilizers, plant protection materials and feed ingredients are imported by private agri-business companies. National agricultural support programmes are limited and they do not necessarily target directly the poor farmers. As no formal agricultural credit is available, private agri-business companies have provided seasonal credit and extension services to farmers.
- Given restrictions on foreign currency transaction in place since October 2019, the economy has been moving from credit to cash, and from US dollars to Lebanese pounds. Agri-businesses and importers had their credit facilities closed, and have no longer full access to their US dollar accounts. New imports need to be funded with “fresh money” (US dollars obtained after November 2019) and require advance payments to foreign suppliers due to the low credit rating of Lebanon.
- Responding to the macro-economic situation, instead of selling on credit, as was customary in the past, importers and retailers selling agricultural inputs started to accept only payments in cash for their products. If customers lack US dollars in cash, importers accept payments in Lebanese pounds (LBP), but convert the amount using the exchange rates of the parallel market. As of mid-February 2020, the official exchange rate remained LBP 1 508 per US dollar (pegged since 1997), while on the parallel market USD 1 was traded for LBP 2 200. By early April 2020, LBP further depreciated on the parallel market to LBP 2 700 per 1 USD.
- At the time of the Mission in February, no immediate shortages of agricultural inputs were reported. Traders estimated that their current stocks should be sufficient to supply markets for three to four months. Since cash payments are required and payments in Lebanese pounds carry a premium depending on the exchange rate on the parallel market, many farmers lack cash to purchase the necessary inputs in adequate amounts. As a consequence, farmers have moved to just-in-time purchases.



- For the current season, cash strapped farmers have started to substitute, where possible, various inputs: manure or compost for compound fertilizer, saved seeds for certified ones. Overall, the agricultural sector has moved to a low input system, which is likely to result in lower yields and lower marketable production. On a positive note, the global economic slowdown resulting from the COVID-19 pandemic has compressed diesel prices, buffering some of the increased costs faced by farmers.
- In the near future, it will be necessary to provide liquidity to farmers, particularly to those whose income comes mainly or exclusively from agriculture to protect their livelihoods and maintain the production potential of the whole sector. The key recommendation of the Mission is to consider establishing a special facility with the Banque du Liban to allow imports of agricultural input partly paid at the official exchange rate. A similar facility already exists for imports of raw material for manufacturing. Given the presence of a fully functioning, but liquidity-deprived private sector, the direct distribution of inputs is discouraged. In the longer term, the current situation is an opportunity to rethink the role of the agricultural sector in the economy and inform the preparation of a new agricultural strategy.
- On 16 March 2020, the Government of Lebanon declared a State of General Mobilization in response to the COVID-19 pandemic, halting all non-essential commercial activity. The COVID-19 outbreak aggravates the already challenging situation and adds another layer to the existing structural problems the economy is facing.

# OVERVIEW

At the request of the Ministry of Agriculture (MoA) and in collaboration with the appropriate Government agencies, an FAO assessment Mission visited Lebanon between 2 and 13 February 2020 to conduct an examination of the impact of the economic and financial crisis on the domestic agricultural sector. The Mission put forward recommendations for appropriate actions to be taken by the Government and the international community to minimize the negative impacts of the crisis on the sector as well as agricultural livelihoods and to protect the most vulnerable in the immediate term.

## Objectives

The Mission strived to accomplish the following objectives:

- Assess the impact of the current macroeconomic and financial crisis on the agricultural sector, with a particular focus on imports of agricultural inputs.<sup>1</sup>
- Investigate the impact of the ongoing crisis on the access to domestic input markets in different geographic areas, with a view to determining the most appropriate modality to support the affected farmers.
- Through Focus Group Discussions (FGDs), assess the potential short- and medium-term impacts on farmers and to identify coping mechanisms adopted or planned by them.
- To the extent possible, analyze the impact on food security of farming households with emphasis on the most vulnerable rural communities hosting Syrian refugees.



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- Make recommendations to explore any feasible actions that could be taken, at policy level, to alleviate the situation.

As the Mission was fielded before the outbreak of the COVID-19 pandemic in late February, the detailed impact of COVID-19 on agriculture is beyond the scope of this Mission, but a short overview of the potential impacts on the sector is provided.

## Methodology

The Mission, composed of an international economist and a nationally recruited agronomist, and accompanied by the FAO Representative in the country when demanded by the protocol, held meetings with Government institutions, agencies and private companies in Beirut and elsewhere in the country. The Mission consulted about 50 experts from the MoA in Beirut as well as the departments of agriculture in various governorates; the Ministry of Economy and Trade (MoET); the national and regional chambers of

<sup>1</sup> The fisheries sector, with a total annual catch of 3 500 tonnes, was not considered in the assessment.

commerce, industry and agriculture; academia and think tanks; farmers' unions and syndicates as well as the private sector. The Mission visited the governorates of North Lebanon, Akkar, Beqa'a, Mount Lebanon and South Lebanon. The Director of the Department of Agriculture in Nabatieh provided necessary input to the Mission over the telephone.

Although the current economic conditions in the country affect all aspects of agriculture in both crop and livestock production, the Mission focused on agricultural input markets and the corresponding impact on farm production. The inclement winter weather and security conditions prevented the Mission from visiting wholesale markets but appropriate information was obtained from a variety of sources. As very similar concerns were brought up by a number of parties during the interviews, the Mission used

different sources to triangulate and validate the information received.

Prior to departure from the country, the Mission briefed senior management from the MoA on its main findings. The feedback from the briefing is incorporated in this report.

The report first briefly describes the main features of the Lebanese economy and its agricultural sector. It highlights the main economic and social challenges the country has been facing, particularly since October 2019. The main part of the report discusses the hardships stemming from the ongoing economic and financial crisis on the sector overall as well as on specific agricultural subsectors. A brief section summarizing the impact of the COVID-19 pandemic on Lebanese agriculture, which broke out after the Mission left the country, is presented towards the end of this report.

# ECONOMIC AND SOCIAL SITUATION

Lebanon is classified as an upper middle-income country. Even before the current economic and financial crisis, the growth of the country's economy relied largely on inflows of remittances from diaspora and foreign investments. The productive sectors remain underutilized while the less productive sectors, such as consumption and real estate, absorbed most of the inflows from the diaspora and other sources. In 2009, almost half of the Lebanese workers (46 percent) worked in services, followed by around one-third (27 percent) who worked in trade.<sup>2</sup>

While the real Gross Domestic Product (GDP) annual growth between 2006 and 2010 averaged 9.2 percent, it decreased to an average of 0.8 percent between 2015 and 2018. A report by the Bank of America estimates that the economy contracted by 4 percent in 2019 and a contraction of 20 percent is forecast in 2020.<sup>3</sup> The Central Administration of Statistics has switched from an annual to a quarterly system of national accounts in 2019 and it recognized an increased volatility of quarterly series. Estimates released in early February 2020 indicate that, in the second quarter of 2019, the volume of GDP was about 5 percent lower than in the same quarter of 2018 and, in the first quarter, it was 4 percent lower.

Both fiscal and current account deficits have been increasing. Public debt has been over 140 percent of the GDP since 2015 and it exceeded 154 percent in 2019, with fiscal deficits at 89 percent. The scheduled debt service consumes around 50 percent of the State revenues. Despite a range of *laissez-faire*



economic policies, in 2019 the country ranked 143<sup>rd</sup> among the 190 economies in the ease of doing business, one position down from 2018.<sup>4</sup>

While the quality of the public services has been decreasing, the cost of living and unemployment rates have been increasing, resulting in a large emigration of people and booming diaspora. The Lebanese population residing in the country is estimated at 5.4 million in 2020, while the diaspora includes about 8 to 10 million people.

Austerity measures, including proposed taxes on gasoline, tobacco and VoIP calls (Voice over Internet Protocol, such as WhatsApp), triggered a countrywide unrest on 17 October 2019. Protests about stagnant economy, high unemployment rates and corruption in the public sector contributed to a deepening of a major economic and financial crisis.

<sup>2</sup> CAS, 2010. Multiple Indicators Cluster Survey 2009. Beirut, CAS cited: <https://www.undp.org/content/dam/lebanon/docs/CrisisPreventionRecovery/SupplementArticles/16Supp/PEACE%20BUILDING2%2016%20july%202017%20p4.pdf>.

<sup>3</sup> As quoted in "Lebanon This Week", Issue 622, March 2-7, 2020, Economic Research and Analysis Department, Byblos Bank Ltd, Beirut, Lebanon.

<sup>4</sup> Trading Economics: <https://tradingeconomics.com/lebanon/ease-of-doing-business>.



The Lebanese pound has been officially pegged to the US dollar at about LBP 1 508 per US dollar since 1997 and both the US dollar and Lebanese pound were used interchangeably throughout the economy. Before the crisis, the economy was dollarized at over 70 percent. The interest rate paid on deposits in US dollars was between 9 and 12 percent, and the interest on deposits denominated in Lebanese pounds was 17 to 20 percent, thus encouraging depositors to keep their savings in various forms of bank deposits rather than in other investments.

With transfers from diaspora drying out and savers seeking to withdraw their deposits as a response to extensive inflation and potential economic collapse, banks have been in need of restocking their balance sheets. About 70 percent of the deposits in commercial banks are tied in State debt instruments.<sup>5</sup> Banks were closed during the protests. Upon opening, in an effort to preserve liquidity, the financial crisis and US dollar shortage prompted commercial banks to impose unofficial capital controls including a block on most transfers abroad<sup>6</sup> and strict caps on withdrawing dollars starting at USD 1 000 per week in November 2019, but declining to USD 100-200 per week by early March 2020.

Withdrawals in Lebanese pounds were also constrained, but those restrictions have eased with a new stock of money printed in late December 2019. Informal capital controls imposed by commercial banks are being challenged legally.

The economy, previously using both US dollars and Lebanese pounds interchangeably in a fixed exchange rate, has been moving towards an increased use of Lebanese pounds.<sup>7</sup> While the official rate remains unchanged, due to shortages of US dollars in the country the US dollar has

been trading at premium rates on the parallel market. Efforts by the Banque du Liban (BdL, the Central Bank) to set a ceiling on the parallel exchange rate on several occasions have not been successful. The parallel market continued to carry a premium of up to 90 percent over the official rate, reaching LBP 2 800 in the first week of April 2020.

In early March 2020, the Government announced that it would not reimburse a USD 1.2 billion Eurobond: the first sovereign default in the country's history. On 16 March 2020, the Government of Lebanon declared a State of Full Mobilization in response to the COVID-19 pandemic, halting all non-essential commercial activities. Accordingly, the Association of Banks in Lebanon announced the temporary closure of all banks in the country. Currency exchanges have continued trading informally.

In order to attract "fresh money", the Government is obliged to pay interest rates of up to 15 percent, draining the much-needed liquidity from the system which could be used to boost economic growth and provide incentives to businesses. As of mid-March 2020, the official devaluation of the currency was not broadly discussed. The lack of US dollars is likely to lead to an increased use of the Lebanese pound (so-called "lirification" of the economy).<sup>8</sup> Withdrawals from deposits in US dollar were allowed in Lebanese pounds at the official pegged exchange rate, implying a "haircut".<sup>9</sup>

As the confidence in the banking system has decreased, the economic crisis has deepened. Unemployment is high, particularly among young people, reaching over 40 percent in some governorates. The country also has very low participation of women in the workforce. Small enterprises dominate: around 90 percent of all

<sup>5</sup> Reuters: <https://www.reuters.com/article/us-lebanon-crisis-banks/bail-in-or-bail-out-lebanese-banks-in-need-of-rescue-as-crisis-bites-idUSKBN2050LH>.

<sup>6</sup> Reuters: <https://www.reuters.com/article/us-lebanon-crisis-banks/frustrated-lebanese-depositors-turn-rage-on-crisis-hit-banks-idUSKBN1ZG1BT>.

<sup>7</sup> Aljazeera: <https://www.aljazeera.com/ajimpact/legal-lebanon-banks-tighten-restrictions-200203163004785.html>.

<sup>8</sup> The official currency of Lebanon is the Lebanese pound, in Arabic Lebanese Lira.

<sup>9</sup> In finance, a haircut is the difference between the current market value of an asset and the value ascribed to that asset for purposes of calculating regulatory capital: [https://en.wikipedia.org/wiki/Haircut\\_\(finance\)](https://en.wikipedia.org/wiki/Haircut_(finance)).

establishments have less than five employees, while less than 0.5 percent of the enterprises employ more than 50 employees.<sup>10</sup> According to the 2018-2019 Labour Force and Household Living Conditions Survey,<sup>11</sup> almost 55 percent of the workforce in the country is informal.

The current financial crisis has put a vast credit crunch on Micro-Small and Medium Enterprises (MSMEs) that account for nearly 95 percent of all businesses and 50 percent of employment. While large companies might have more resources to bridge over a crisis, resilience and coping capacities of small businesses are not adequate. In fact, some businesses have already closed down, increasing the already high unemployment rates. To survive, others have cut salaries or decreased hours worked of their employees, resulting in decreased incomes.

The inflation rate in Lebanese pounds is increasing dramatically, effectively cutting salaries in half and decreasing the purchasing power of the population. The annual inflation rate increased to 10 percent in January 2020,<sup>12</sup> the highest rate since December 2012, up from 7 percent in December 2019 and 1.3 percent in October 2019. Prices increased faster for almost all categories, including housing and utilities (4.3 percent vs 1.3 percent in December), food and non-alcoholic beverages (14.5 percent vs 9.8 percent) and transport (18.2 percent vs 14.2 percent). The food price inflation is significantly above the levels of about 1 percent or less recorded between July and October 2019. Consumer prices have surged with the increasing prevalence of the parallel and market exchange rates which is making imports increasingly expensive.

Trade balance, reaching over LBP 7.5 billion in the third quarter of 2018, has narrowed to LBP 4.5 billion

in the fourth quarter of 2019 as informal capital controls were introduced by commercial banks. An acute shortage of US dollars threatened to disrupt supplies of imported gasoline, medicine and food.

The Government is seeking to unlock USD 11 billion in donor funds pledged at the 2018 CEDRE Conference (an international event in support of Lebanese development and reforms), but these pledges depend on a solid fiscal reform (EIU, February 2020). In February 2020, the Government also requested technical assistance from the International Monetary Fund (IMF).

The crisis resulted in further difficulties for both vulnerable Lebanese citizens and Syrian refugees in terms of livelihood opportunities, food security and access to basic services. In the medium to longer-term, the number of vulnerable families is likely to increase and the situation for those already living in poverty is expected to worsen. Although the country classifies as a middle-income country, about 1 million Lebanese people continue to live in conditions of poverty. Around 300 000 individuals live in extreme poverty and are unable to meet their most basic food and non-food needs. Most of the poor are in the North and Mount Lebanon governorates.<sup>13</sup>

An analysis of customs data from the Customs Administration, available at the time of writing until December 2019, indicates a slight decrease in imports of fruits, vegetables, cereals, grains, meat (fresh, frozen, refrigerated) and milk in the last quarter of 2019. The country imports small quantities of fresh milk, but large quantities of powdered milk. Total exports (all goods) increased slightly in the last quarter of 2019, but the increase was likely caused by re-exports of goods which had not been marketable in Lebanon, such as cars.

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<sup>10</sup> ERF. 2004. Micro and Small Enterprises in Lebanon. Research Report Series No 0417. Cairo, ERF cited: <https://www.undp.org/content/dam/lebanon/docs/CrisisPreventionRecovery/SupplementArticles/16Supp/PEACE%20BUILDING2%2016%20july%202017%20p4.pdf>.

<sup>11</sup> CAS: <http://www.cas.gov.lb/index.php/latest-news-en/212-2020-03-05-08-03-36>.

<sup>12</sup> CAS: <http://www.cas.gov.lb/index.php/latest-news-en/165-inflation-4>.

<sup>13</sup> UNDP: <https://www.undp.org/content/dam/lebanon/docs/CrisisPreventionRecovery/SupplementArticles/16Supp/PEACE%20BUILDING2%2016%20july%202017%20p4.pdf>.

According to the World Food Programme (WFP), basic consumer basket price increased by around 28 percent from mid-October to December 2019 (from LBP 37 700 to LBP 48 400), with further increases since then. In December 2019, the face transfer value of food assistance (LBP 40 500) did not cover the cost of a basic consumer basket. Prices of sugar and vegetable oil have increased by almost 40 percent since October 2019. While WFP is closely monitoring food prices and market availability, there is an urgent need to assess and monitor the impact of these developments on households' food insecurity. The increasing cost of living, including the rising costs of basic needs, is likely to have a negative impact on the livelihoods of casual labourers, including Syrian refugees.

## Impact of the crisis in the Syrian Arab Republic

Lebanese and Syrian economies have always been intertwined. Lebanon used road routes via the Syrian Arab Republic to export agricultural products to Iraq and the Gulf Cooperation Council (GCC) markets. The onset of the conflict in neighbouring Syrian Arab Republic in March 2011 aggregated the existing economic problems in Lebanon. A large number of Syrians sought refuge in other countries in the region, including Lebanon. As of February 2020, about 910 000 Syrian refugees were officially registered with United Nations High Commissioner for Refugees (UNHCR) in the country. The number

of registered refugees increased gradually since the beginning of the civil unrest in the Syrian Arab Republic until January 2015, when it reached 1.18 million, and the Government of Lebanon tightened of the entry and residency rules for Syrian nationals. The number of registered refugees has been decreasing also due to very slow-paced voluntary returns to the Syrian Arab Republic. On a per capita basis, Lebanon currently hosts the largest number of refugees in the world, with the registered Syrian refugees accounting for more than 20 percent of the total population. The massive influx of refugees has imposed enormous pressures on the country's physical and social infrastructure and has led to increasing tensions between the refugees and the host communities due to growing competition over jobs (lower skilled jobs in particular) and livelihoods.

The Lebanon Crisis Response Plan (LCRP) 2017-2020 estimated that there are about 3.3 million people in need of assistance in the country, including 1.5 million vulnerable Lebanese, 1.5 million displaced Syrians (including non registered refugees) and 300 000 Palestinian refugees. Syrian refugees often reside in rural areas with already challenging logistics of delivering basic services.

The WFP is providing mostly cash assistance to refugees to allow them to make their own food choices and support the local economy. Food items used for an in-kind distribution (such as school feeding programmes) are sourced locally.

# AGRICULTURE IN THE ECONOMY

The Lebanese economy, including the agricultural sector, is described in detail in the “Lebanon Economic Vision” prepared by McKinsey in 2018 at the request of the Council of Ministers from October 2017 with the aim “to grow GDP and create jobs through selecting productive sectors that could become competitive and understand the Government’s role in that regard”. The full report is publicly available on the website of the MoET<sup>14</sup> Therefore, the current document provides only a brief overview of the agricultural sector and strives to introduce details not stressed by the McKinsey report.

Although very diversified, agriculture plays a relatively minor economic role in the country, contributing about 5 percent of the GDP.<sup>15</sup> While 12 percent of the effective labour force works in agriculture on a full-time basis, an additional 13 percent, mostly unpaid family labour, is employed on a part-time or seasonal basis. The agri-food, a major and growing employer in the economy industry, contributes about 5 percent of the GDP. The rural population in Lebanon accounts for only 12 percent of the total and it is relatively poorer than the rest of the population. In the poorest regions of the country such as Akkar, Dinnyeh, the Northern Beqa’a and the South regions, agriculture-related activities account for up to 80 percent of the local GDP.

Although topographic conditions prevent large scale opportunities in agriculture, the mild climate, combined with fertile soil and adequate water resources, suggest a larger agricultural potential than currently utilized. Rebuilding and reconstruction



efforts following the Civil War did not consider exploiting the agricultural capacity of the country to be a priority. Most of the agricultural sector developed privately within the limitations of laws, regulations and institutions which put a greater weight to construction, banking and service sectors. The agricultural land area in Lebanon is around 332 000 hectares. About 232 000 hectares are cultivated,<sup>16</sup> out of which almost 113 000 hectares are irrigated. Most fertile land is concentrated in Beqa’a and Baalbeck-Hermel governorates (with about 43 percent of the total cultivated area) along with the coastal strip. Akkar and North governorates represent 26 percent of the usable agricultural area, while South and Nabatieh has 22 percent and Mount Lebanon 9 percent. More than half of the irrigated lands are in Baalback-Hermel and Beqa’a governorates. The fertile coastal plains account for substantial agricultural production that, given the increased urbanization and the high cost of land, is mainly carried out in greenhouses.

<sup>14</sup> Economic Lebanon Vision report: <https://www.economy.gov.lb/media/11893/20181022-1228full-report-en.pdf>.

<sup>15</sup> FAO, Lebanon: <http://www.fao.org/lebanon/fao-in-lebanon/lebanon-at-a-glance/fr/>.

<sup>16</sup> Data describing agriculture are from the 2010 Agricultural Census or 2016 Production Survey (both last available).

Agricultural production has shifted from cereals to specialized high-value fruits and vegetables.<sup>17</sup> About 54 percent of the total cropland is under permanent crops, 44 percent under temporary crops (cereals, potatoes, open field vegetables) and 2 percent under greenhouses. Almost 54 000 hectares are cultivated with olives and about 45 000 hectares with cereals. Perennial fruits and nut trees are grown on approximately 56 000 hectares and potatoes on 16 000 hectares. Only 4 500 hectares (approximately 2 percent of the temporary crops) are used for fodder crops.

Farms holdings are generally small, averaging 1.4 hectares (13.6 dunums). The size of a farm might is not the best indicator of its profitability: a farmer in a coastal area, cultivating early vegetables in greenhouses, is likely to have more profits than a farmer cultivating the same area with the same products in a different region but supplying goods to the market at the time of higher supply. About 70 percent of the farmers cultivate less than 1 hectare, while only 4 percent of the farms operate on more than 6 hectares. Larger farms, nonetheless, account for more than 40 percent of the agricultural area. About 9 percent of the farm operators are female and they cultivate 9 percent of the cultivated area. At the same time, many women involved mainly in the production of dairy products, food preserves and subsistence farming are marked by an increased incidence of poverty.

There are two broad types of agriculture: commercial agriculture which is generally efficient, export oriented, depending on adequate financial resources for investment, and runs as a business for profit. This type of agriculture covers around 25 percent of total agricultural holdings. It is based on the integration of pre-production and post-production agricultural activities. The second type of agriculture is practiced by most farmers and is mainly devoted to the preservation of cultural and family heritage. Considered as subsistence agriculture, it is practiced in smallholdings with limited investment or profit opportunities. Small farmers produce diverse agricultural products

and typically are engaged also in non-agricultural economic activities. Poorer rural households tend to rely more heavily on agriculture than better-off households. With increasing costs of production, income diversification and engagement in income-earning off-farm activities have become a necessity. Farms located close to urban centres, with better sources of livelihoods and employment options, tend to rely on off-farm employment and income and farming is only a part-time activity. They may have abandoned direct farming and instead rent out their land or enter into various forms of share-cropping. Farmers in more remote communities, with limited employment and livelihood options, tend to farm full time.

Given the prevalence of off-farm employment, up-to-date comprehensive statistics on human resources involved in the agricultural sector are not available. Between 20 and 25 percent of the active population is employed in agriculture on a full-time or part-time basis, including seasonal family labour. Over 20 percent of the household heads engaged in the sector are estimated to be highly vulnerable. According to the 2010 agricultural census, there are 195 000 farm operators in Lebanon, employing about 187 000 self-employed farmers and 23 000 full time hired workers. In addition, the sector employs 277 000 unpaid family workers on a part-time basis in addition to about 12.7 million person-days in seasonal work, equivalent to about 85 000 full-time seasonal workers (based on 150 work days per year). As such, the sector employs about one-quarter of the active labour force either on a full or part-time basis.

Most of Lebanese agriculture is characterized by high costs of production driven by high input prices, starting from fixed costs including rent of agricultural land as well as small-sized holdings which are unable to take advantage of the economies of scale. Only about 20 out of the 1 200 registered agricultural cooperatives are reported to be active (figure not verified by the Mission). Due to high production costs and low value of production, living in an uncertain economic environment with limited profits is not new for many farmers,

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<sup>17</sup> MEDRESET Working Papers No. 22, October 2018.



particularly the small ones. Farmers often perceive themselves as a target of traders who are earning high profit margins with limited spill-over effects to the farms. Local food production satisfies only 20 percent of the demand.<sup>18</sup> Agricultural exports in general consist of fruits and vegetables, raw tobacco, spices and live sheep.

A large number of Syrian refugees are located in the main agricultural areas of North and Beqa'a governorates, putting significant pressures on natural resources including farmlands, rangelands, groundwater and forests. Reports indicate that, following a collapse of the animal health system in the Syrian Arab Republic, there has been a higher incidence of outbreaks of animal diseases in Lebanon as a result of seasonal trans-boundary movements of livestock (mainly sheep) from the Syrian Arab Republic.

## Main agricultural policy instruments used in agriculture

The MoA formulated several programmes, including the "Development of the Agriculture Sector Strategy 2010-2014" and the "Ministry of Agriculture Strategy 2015-2019" to address some of the issues facing the sector. Broadly speaking, the 2015-2019 Strategy, extended to 2020, aims to:

1. Provide safe and quality food.
2. Improve the contribution of agriculture to the economic and social development of the country.
3. Promote the sustainable management of natural and genetic resources.

While intentions set up in the Strategy were very valid ones, efficient agricultural policies to achieve the goals do not appear to have been implemented.

One of the key challenges in agriculture is overcoming the seasonality-affected production cycle

and securing the cash flow necessary for agricultural production by providing accessible credit facilities for farmers. The bulk of the costs are disbursed early in the season for seeds, inputs, rental of machinery necessary to perform field operations, etc. while the revenues are only received at the harvest time at the end of the production cycle and usually used to pay off outstanding debts.

There is no active agricultural credit or agricultural development bank in the country. Some commercial banks, out of 65 commercial banks currently active in the country, provide credit accepting land as a collateral at very strict conditions. The *Banque du credit agricole*, one of the first institutions set up in 1926, closed down in 1977 in the early years of the Civil War. The country's efforts to revive a specialized agricultural bank to support farmers have never materialized. A law was passed to support agriculture in a public and private partnerships (20 percent of public capital and 80 percent private), but the Ministry of Finance at the time prioritized other sectors. Since the end of the Civil War in 1990, the agricultural sector has operated with no financial or enabling policy support from the Government.

### Commodity programmes

The financial support for production agriculture relies on two commodity support programmes, tobacco and wheat, both administered outside of the MoA<sup>19</sup> and payments are disbursed (often well) after the agricultural season is completed.

The Department of Tobacco Control in the Ministry of Finance administers a quota-based tobacco programme which guarantees the purchases of tobacco from farmers holding a quota of 4 dunums. Tobacco quotas can be traded. It is estimated that, in main tobacco producing governorate of Nabatieh, tobacco farmers (which constitute 40 percent of the total number of farmers in Nabatieh) rely only on agricultural income. Farmers growing tobacco use labour provided by poor families, especially women, working 12 to 14 hours per day. Most of the cigarette

<sup>18</sup> European Commission (2014), Action Document for Upgrading Solid Waste Management capacities in Beqa'a and Akkar regions in Lebanon (SWAM).

<sup>19</sup> Ministry of Economy and Trade, Lebanon: <http://www.economy.gov.lb/en/services/grain-and-sugar-beets>, accessed in February 2020, also lists sugar beets but the programme has been abolished several years ago.

tobacco is grown in Nabatieh, while “argyle shisha” tobacco is grown in Akkar and Beqa’a governorates. According to the 2010 census, the total area grown with tobacco was 8 344 hectares.

The MoET administers a wheat support programme and is also responsible for wheat imports as well as monitoring silos and the milling sector. The MoET usually keeps wheat stocks (both accrued domestically and imports) at a level to guarantee three to four months of consumption. Lebanon locally produces roughly equal amounts of hard and semi-hard varieties of wheat to be used as semolina, bulgur or freekeh.<sup>20</sup> Only about 20 percent of the total local wheat production is soft, also known as bread, milling or common wheat. Unlike durum wheat, soft wheat crops require the exposure to cold temperatures to trigger its reproduction stage.

The MoET on average purchases about 30 000 to 40 000 tonnes of local wheat per year, paying about LBP 590 000 per tonne for a total cost between LBP 18 to 19 billion. Wheat is then sold in a bidding process to millers at an average of LBP 320 000 per tonne. The large price differential is justified by the low quality of the procured wheat which is bagged but contains impurities and needs to be sieved.

To procure domestic wheat at a fixed price, every year the MoET launches a call for farmers to apply for wheat subsidies. At the time of the application, the farmers are not yet informed about the price at which they will sell to the Government. The call is open for two to three months, the 2020 call ended on 13 February. There is a small cost associated with the application but it is not deemed prohibitive. The MoET reviews all applications and, based on the estimated amount of wheat to be purchased, it prepares a purchasing price proposal which is then forwarded to the Council of Ministers. In previous years, the Council of Ministers endorsed the proposal, although there are reports (such as in 2019) that the purchasing price was increased by the Council of Ministers. Increasing guaranteed purchasing prices possibly puts an upward pressure

on the already high land rental values. The areas planted with wheat, whose production is submitted for purchase by the Government, are verified using remote sensing, usually in the month of May.

Although wheat imports were designed as necessary by the Government to avoid social unrest, traders, who are usually importing directly about 70 000 tonnes per year, are currently facing lack of hard currency as a result of capital control measures imposed since October 2019. According to the agreement with the BdL, traders should be getting 85 percent of their currency needs from the BdL and 15 percent from the parallel market. Reports indicate that it takes four weeks for BdL to sell traders USD at official rate, resulting in increased costs for importers required to pay demurrage, penalties at the ports, etc. Wheat imported under the auspices of the MoET is sold to millers at a subsidized price after the approval of the Council of Ministers. Only wheat grain is subsidized. Imports of wheat flour stopped in 2014. Total imports of flour do not exceed 7 percent of consumption.

Despite bakers’ costs increasing due to higher costs of imported items (such as fuel, plastic bags, etc.), according to an internal study done by the MoET, bakers are still operating with some profit and are encouraged by the MoET to not increase the prices of bread. The MoET has the right to influence bread prices and established a ceiling price of LBP 1 500 per kg of bread. However, there are reports that bakeries are not abiding by the ceiling price and have resorted to reducing the weight of a standard bread pack while keeping the ceiling price.

### **Other programmes**

In terms of other policy instruments different from commodity support programmes, there appears to be ad hoc distributions of inputs (when adequate funding is available) and limited infrastructure projects. The average total cost of the inputs distributed per year is estimated at about LBP 7 billion. The main objective of input distribution is the introduction and support of a wider use of new and advanced technologies by key

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<sup>20</sup> Freekeh is a product made from roasted green durum wheat.

farmers, rather than reaching the farmers in need. Some stakeholders questioned whether distributions follow clearly defined merit-based targeting criteria. The MoA has not provided any inputs during the last two years, but in previous years it distributed pesticides, pheromone traps and bio-pesticides trying to reach 20 to 30 percent of the total cultivated land with the aim to introduce improved techniques, good agricultural practices and, to a lesser extent, to reduce costs. Thus, reaching a bigger farmer significantly simplifies the distribution costs and logistics. Likewise, extension services provided by the MoA do not necessarily target the needy farmers by expanding good agricultural practices, but focus on introducing new practices and often lack the necessary follow up. About 70-80 percent of animal vaccines were provided by the MoA (also in cooperation with other agencies).

The Green Plan (GP) was established by MoA in 1963 to support investments in rural infrastructure.<sup>21</sup> The GP is a demand-driven matching grant programme that co-finances agricultural investments made by individuals and groups of farmers to study and execute land reclamation and land development projects, with a focus on supporting smallholders, particularly in hilly and deprived areas. Investments in terraces and water reservoirs allow farmers to grow high-value fruit trees and vegetables, using supplemental irrigation methods instead of the low-value rainfed cereals. Since its establishment, the GP has supported almost 68 000 farmers to invest in reclaiming abandoned lands, or rehabilitating and upgrading low productivity lands. The GP enabled to reclaim about 37 000 hectares of arable lands between 1965 and 2014 and it contributed to significantly increase the irrigation water storage capacity. The GP has also contributed to the construction of 283 rural roads for a total of 800 km.

Land reclamation and water harvesting works are funded by the GP on a cost-sharing basis, with grants disbursed after the completion of the work.

Cost-sharing arrangements include standardized contributions from the GP to support the investment work, with an aggregate lifetime ceiling for financial assistance per beneficiary and per plot area.<sup>22</sup> The grant applicants are requested to pay an amount equal to approximately 15 percent of the total value of the approved grant, prior to the grant approval which are not returned to the farmer, even if she/he completes the work.

Since 2014, the budget allocated to the GP has been drastically reduced. Total GP disbursements for land reclamation declined from about USD 10.2 million in 2011 to USD 2.4 million in 2014, with the number of beneficiaries declining from 2 757 to 646 during the same period. As a result, the total extent of GP-funded land reclamation projects declined from 457 hectares in 2011 to 197 hectares in 2014.

Several key informants interviewed by the Mission cited agricultural education, both on vocational and university levels, to be a stumbling block. There are seven vocation schools and four universities in the country. Curricula practiced, particularly in vocational (secondary) schools, often lack training in modern agricultural methods and students are exposed to minimal or no practical training on the field. Since agriculture and constructions are sectors where Syrians face the least obstacles to work, many young Syrian people seek to attend vocational schools for agriculture, increasing pressure on schools. FAO has been assisting the upgrading of agricultural schools. Every year, the four agricultural universities in the country prepare 20 to 25 graduates, but most of them seek employment in agriculture but not in active farming.

## Land rental

Related to small farm holdings are the high costs of land and high rental values. A land registry exists under the General Directorate of Land Registry and Cadastre in the Ministry of Finance, but it seems

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<sup>21</sup> The GP was established in 1963 with Decree No. 13335 as an autonomous entity under the auspices of the MoA. The GP operates from the headquarters located in Beirut and from eight regional offices covering the whole country. For more details refer to [www.greenplan.gov.lb](http://www.greenplan.gov.lb).

<sup>22</sup> The maximum ceiling of support is set at LBP 10 million (USD 6 633) per applicant or at LBP 30 million per plot.

to be targeting the needs of construction business more accurately than those of the agriculture and farming community.

Land is usually rented for a very short term (often only one season) and, compared to the value of agricultural production, carry exuberant rental values. The actual rental price depends on the proximity of water sources, presence of irrigation, whether there is already any crops cultivation on the ground. Very short-term rentals discourage any significant investment in land and focus only on short-term profits. High land rental rates increase the fixed costs of the farming households, even if they improve the financial well-being of landowners.

Land is rented per dunum (1 dunum equals 0.1 hectares). In central Beqa'a, before the onset of the financial crisis, 1 hectare with water sources already on the property was rented for USD 4 000 per season. In Akkar, where water is scarcer, 1 hectare was rented at LBP 2 to LBP 4 million per season, at official rates corresponding to USD 1 330-2 660. Greenhouses were rented at USD 3 500 per hectare per season. If there are no greenhouses on the land, the rental agreement might extend to three years to allow for investment in greenhouses, while land for open field crops is rented for one season only. The most expensive land is in coastal areas due to the direct competition between construction and agriculture. One hectare could be sold for as much as USD 1 million, with a rental tag of USD 4 000-5 000 per hectare per season.

Orchards tend to be rented for more than one year, in some cases extending to five years. Some olive groves, particularly in the south, are rented for a few weeks only to collect production while all other operations (pruning, fertilizing, etc.) are taken care of by the owners. Production, in cases of harvest only, is shared between the owner and the renter. Rental agreements are negotiated ahead of the season and some sources indicate that farmers decide in the summer whether to rent land for the next season.

Any changes to current rental arrangements would need to be introduced in a legislative manner, although most likely informal rental arrangements based on the currently applied practice would continue.

## Legal and fiscal status of agricultural farms

Registration of agricultural property remains optional. Large farms run on a commercial basis are registered with the Ministry of Finance and are subject to income taxes. Small farms are not subject to income taxes, but farmers and their workers are not eligible for any form of social protection. Agricultural workers are not covered by the Labour Law and, therefore, do not benefit from any labour benefits such as minimum wages, paid holidays, etc.

Many livestock farms are "informal" as they are lacking certification which would allow them to operate legitimately. Prevailing laws and regulations specifying, for example, a minimum distance from other settlements in the area and water sources, make it difficult for many livestock farms to obtain such certification. Inhabitants in rural areas can request the law enforcement to close uncertified livestock farms if they find them to be a nuisance in terms of noise, smell, etc. When clashes occur among farmers, the local department of the MoA can act as a mediator, for example, to suggest moving beehives to a different location on the farmer's property. Uncertified farms can still be supported by Government programmes such as vaccinations, input distributions, etc.

Partially related to registration, there is very limited traceability of agricultural products back to the farms. Farmers, particularly the small ones, are hesitant to embrace traceability, even if profitable, particularly for early adopters. Traceability would improve transparency on the local market as well as allow for more efficient exporting. In the longer term, however, if traceability is required from all farmers, there would be no profit advantage as it would no longer be a base for product differentiation.

## Main trade policy instruments used in agriculture

Lebanon is not a full member of the World Trade Organization (WTO) and has held a status of an accession country since 1999.<sup>23</sup> In 2018, the simple average applied Most Favourite Nation (MFN) tariff on agricultural imports was 15.4 percent, compared to the 4.1 percent applied on non-agricultural imports. Trade-weighted average tariff in 2017 was 9.1 percent for agricultural imports and 4.8 percent for non-agricultural imports.

Table 1 summarizes the frequency distribution of MFN-applied tariffs in 2018 and imports in 2017. For example, in 2017, 43.7 percent of agricultural imports entered the country duty free and 35.1 percent under a duty of less than 5 percent. While agricultural imports a small number of tariff lines exceeded 100 percent, non-agricultural products the highest tariff did not exceed 50 percent.

Table 2 lists the tariffs and imports by product groups. In 2018, the highest tariffs were applied to “Fruits, vegetables and plants” (221 percent, with an average of 33.4 percent), “dairy products”

(103 percent, with an average of 20 percent), “oilseeds, fats and oils” (83 percent, but with a low average of 5.5 percent), “cereals and preparations” and “animal products”. It is not clear whether earnings from duties collected are destined to support the agricultural sector.

The country signed Free Trade Agreements (FTAs)<sup>24</sup> with the European Union, European Free Trade Association (EFTA) and the Gulf Cooperation Countries (GCC). It is also a member of the Greater Arab Free Trade Area (GAFTA). Bilateral agreements were signed with 39 countries. FTAs usually include some concessions related to agricultural exports, usually perceived as a victory for the local farmers. For example, the 2005 FTA with the European Union guarantees 50 000 tonnes of potato exports per year. However, since signing the FTA agreement with the European Union, a total of only 20 000 tonnes of potatoes were exported to the European Union, an issue mostly attributable to lack of quality assurance in production practices.

The agricultural sector relies on protection measures by using import quotas and licenses, mostly on a seasonal basis, although some import licenses are also used in subsectors without an obvious

**Table 1: Lebanon - Frequency distribution of MFN-applied tariffs (2018) and imports (2017)**

Frequency distribution		Duty-free	0 <= 5	5 <= 10	10 <= 15	15 <= 25	25 <= 50	50 <= 100	> 100	NAV in %
		Tariff lines and import values (in %)								
Agricultural products										
Final bound										
MFN-applied	2018	22.3	49.2	0.7	3.2	6.4	7.3	10.5	0.5	10.3
Imports	2017	43.7	35.1	0.7	2.8	7.9	5.8	3.9	0.1	4.8
Non-Agricultural products										
Final bound										
MFN-applied	2018	42.3	47.1	3.5	2.5	3.6	0.9	0.1	0.0	5.6
Imports	2017	27.4	60.0	2.8	3.5	4.8	1.5	0.0	0.0	14.9

Source: WTO.

<sup>23</sup> Figures in this section are from WTO: [https://www.wto.org/english/res\\_e/statis\\_e/daily\\_update\\_e/tariff\\_profiles/LB\\_E.pdf](https://www.wto.org/english/res_e/statis_e/daily_update_e/tariff_profiles/LB_E.pdf).

<sup>24</sup> Ministry of Economy and Trade, Lebanon: <http://www.economy.gov.lb/en/what-we-provide/trade/foreign-trade-department/international-agreements/>.



seasonality, such as poultry. According to Article 2 of the Legislative Decree No. 31 “Determination of the function of the MoA” from 18 January 1955, the Minister of Agriculture may ban imports of agricultural and value-added food products if their entry is detrimental to the interests of Lebanese farmers and agriculture.

The country has a standing agreement with Egypt on potato imports and apple exports: Lebanon agrees to import a certain quantity of Egyptian potatoes and Egypt commits to importing a certain quantity of Lebanese apples. The quota is set up every year considering the prices of potatoes in Lebanon. Table 3 summarizes potato shipments from Egypt in the last three years.

**Table 2: Lebanon - Tariffs and imports (by product groups)**

Product groups	MFN-applied duties			Imports	
	Average	Duty free in %	Max	Share in %	Duty free in %
Animal products	7.8	8.6	70	2.6	86.8
Dairy products	20.0	16.7	103	1.6	23.8
Fruit, vegetables, plants	33.4	9.2	221	2.3	13.4
Coffee, tea	6.7	29.2	20	1.3	15.0
Cereals & preparations	8.4	22.2	76	4.1	49.1
Oilseeds, fats & oils	5.5	51.6	83	1.6	80.7
Sugars and confectionery	6.3	20.6	25	1.0	60.7
Beverages & tobacco	22.4	6.0	70	1.5	6.2
Cotton	0.0	100.0	0	0.0	100.0
Other agricultural products	4.4	39.2	70	0.5	5.1
Fish & fish products	5.0	1.2	20	0.8	13.4
Minerals & metals	4.2	39.1	75	15.9	40.2
Petroleum	4.0	10.0	5	20.3	38.0
Chemicals	2.5	61.2	20	13.7	20.1
Wood, paper, etc.	7.4	45.9	30	3.9	43.5
Textiles	2.4	83.4	40	1.7	60.2
Clothing	7.6	0	69	2.7	0
Leather, footwear, etc.	8.1	19.2	59	1.6	1.5
Non-electrical machinery	3.2	47.6	30	6.1	31.0
Electrical machinery	3.7	34.7	30	3.8	24.4
Transport equipment	4.1	18.9	15	9.6	1.5
Manufactures, n.e.s.	5.2	5.0	40	3.3	4.1

Source: WTO.

**Table 3: Lebanon - Potato shipments from Egypt**

Year	Quota window	Quantity (tonnes)
2017	2 February – 31 March	65 902
2018	12 February – 19 March	47 448
2019	31 January – 29 March	69 500

Source: Ministry of Agriculture, 2020.

For the 2020 quota, the MoA surveyed the prices of potatoes in various governorates in wholesale and retail markets. The wholesale price ranged from LBP 850 to LBP 1 100 per kg and the retail price from LBP 1 250 to LBP 1 500 per kg. The highest price of LBP 2 000 per kg was found on a wholesale market in Byblos in early February 2020. At the same time, about 13 000 tonnes of potatoes were estimated to be in cold storage in the country, satisfying domestic market needs for about three weeks. For the 2020 quota, the importation window was open from 6 February to 18 March in a total quantity of 35 000 tonnes, out of which 25 000 tonnes of table potatoes and 10 000 tonnes of potatoes for processing.

Border protection led to a rise of several industries. For example, wine imports from the European Union face a 30 percent duty, while a 75 percent duty is applied to wine imported from other countries. About 15 years ago, there were only seven or eight wineries, now there are 52 wineries in the country. The poultry industry also benefits from border protection, although at the same time it imports a large share of its inputs and open import licenses are also granted, at times creating confusion in the sector. Likewise, high import duties up to 70 percent are applied to imports of many fresh fruits and nuts that are also produced domestically, including bananas, apples, almonds, etc. Special treatment is granted to exports from the European Union and GAFTA.<sup>25</sup>

For any steps to limit food imports to the country (e.g., introduce higher tariffs, quotas, etc.), necessary steps have to originate in the MoA, which has the technical mandate, while legal aspects are followed by the MoET.

## Export orientation vs domestic market

Across the country there is a generally accepted sentiment that agricultural subsidies used by the main world trading partners are responsible for the

lack of competitiveness of the Lebanese agriculture. In other words, agricultural producers in foreign countries are perceived to receive large agricultural subsidies, which in turn decreases the cost of production and allow them to sell their products on international market at prices that are so low that Lebanese agriculture is unable to compete. The argument does not necessarily hold as numerous negotiation rounds in the WTO introduced a range of subsidy disciplines. In many cases, subsidies are decoupled from production levels. Even if trading countries would significantly subsidize production and exports of products, imports of cheaper agricultural and food products should ultimately benefit the consumers who take advantage of the lower prices.

Exporting Lebanese agricultural production is considered to be a more lucrative alternative than selling on the domestic markets due to price differentials. Exporting middlemen, aware of the quality requirements needed to avoid that the shipment is returned, tend to offer higher prices at the farm gate than the regular wholesale market targeting domestic consumption. However, many subsectors of Lebanese agricultural production, as well as part of the food industry, have been experiencing food safety and quality problems. Although many of the existing accredited laboratories in the country are on a solid level capable of conducting sophisticated composition and residue testing (for example, a laboratory in Tripoli can detect about 400 substances), there is a general underinvestment in food safety and quality.<sup>26</sup>

Following the onset for the Syrian conflict in 2011, which disrupted the main overland trade routes to the traditional export markets in GCC and Iraq, exporters had to look for alternative markets using more expensive freight options. Due to the limited shelf life, marine transportation is suitable only for exporting a few types of products, while more perishable produce would have to be transported by air, the high cost of which is prohibitive for many products.

<sup>25</sup> Customs Administration, Lebanon: [http://www.customs.gov.lb/Tariff/Tariff\\_Table.aspx?CH=8](http://www.customs.gov.lb/Tariff/Tariff_Table.aspx?CH=8).

<sup>26</sup> In 2007, Lebanon invested around USD 1.1 million in food safety programmes, which corresponded to only 4 percent of MoA budget, World Bank, 2010.

The Investment Development Authority of Lebanon (IDAL) has a budget of LBP 40 billion (USD 30 million) to provide export subsidies, but the decision to use its funds, which needs to be routed via the Council of Ministers and the Ministry of Finance, is lengthy. Resources are dispersed in Lebanese pounds although traders would prefer US dollars.

## Role of the private sector in agriculture

To partially enable the environment for primary agricultural production in the absence of formal access to agricultural credit and other support policies, the private sector, namely agricultural input firms, has stepped in to provide the necessary services to farmers. By extending credit facilities, the private sector has filled in for missing agricultural credit banks.

The private sector provides seeds, fertilizers, pesticides and irrigation networks, including fittings and designs. The sales of agricultural inputs are handled by formal importers (usually rather diversified agri-business firms), wholesalers and retailers. Importers have their own distribution networks with retail stores, but they also supply inputs to wholesalers, retailers and “key” commercial farmers. In addition to formal input importers, some commercial farmers are also engaged in importing and might sell their excess inputs to other farmers.

Before the onset of the financial crisis, the private sector used to import inputs (seeds, feed, fertilizers, pesticides, etc.) from abroad and to provide credit (from near cash, such as cheques payable in few months to one year to even two years) to farmers. A lot of arrears became uncollectable over the years, some due to failed crops in less favourable seasons, others to the deteriorating economic situation, particularly as Lebanon lost direct access to CGC markets following the onset of the conflict in the Syrian Arab Republic in 2011. The private sector responded by rescheduling the debt finance. To finance their credit to farmers, the private sector

had credit facilities with private banks in US dollars at an interest rate of 7-10 percent per year and lent to farmers at an interest rate of 15-20 percent.

Although the private sector’s input importers were the largest providers of seasonal credit to agricultural producers, additional sources of credit were provided by:

1. Wholesalers (or middlemen) who would forward farmers’ financial resources early in the season to guarantee cash flow. A farmer would repay with goods at harvest time, although the arrangement carried a risk of receiving a price lower than the going market price. The arrangement has been used particularly for vegetable growers.
2. Landowners or “investors in agriculture”, similar to contracting farmers. Contracted parties (farmers) provides labour only and keep a share of the production. In case of a failed or decreased crop, farmers’ losses are limited to labour only. Contracting is used mostly in the poultry sector and, to a smaller extent, in crop production, primarily for exports as means of controlling quality. In the poultry sector, which is dominated by three or four large companies, contracting companies provide small chicks, feed and vaccinations. In crop production, seeds and other inputs are provided.
3. Bank credit for large business farmers, especially for potato and onion growers.

The private sector’s input suppliers also provide a significant share of extension services to advise customers on the best agricultural practices, identify pests, specify dosage of pesticides, etc. Although direct consumers who purchase from input suppliers remain the priority group, advice is at times also offered to non-active farmers as the formal national extension system remains weak and technically not up to date with the inputs and technologies. In many districts, it was repeated that the MoA not always has sufficient operational resources, including vehicles and gasoline necessary to physically reach farmers.

# MAIN IMPACTS OF THE FINANCIAL CRISIS ON THE AGRICULTURAL SECTOR

Even before the current economic and financial crisis, the overall resilience of the agricultural sector was already tested by a lack of enabling environment and some structural issues that agriculture has been facing at least since the 1990s. In October 2019, the *Centre de Recherches et d'Etudes Agricoles Libanais* (CREAL) estimated that farmers owed about USD 80 million to retailers while retailers owed USD 60 million to banks and importers. Although the absolute figures were not verified, the entire sector, from farmers to retailers and importers, has been severely affected, all with different capacity to cope. This section looks at the impact at different stages of the agri-food value chain, while the next one investigates the impact by specific type of input (seeds, fertilizers, pesticides, etc.) on crops.

Since the Mission took place in February 2020, before the COVID-19 pandemic reached the country, a separate section at the end of this report provides a preliminary overview of the impact of the disease outbreak.

## Impacts at different stages of the agri-food value chain

During the Civil War from 1975 to 1990, the agricultural economy was running on cash. However, following the end of the war, short-term credit became predominant throughout the agri-food value chain system. Therefore, the current lack of credit facilities affects the entire financial cycle of the value chain from producers to retailers and wholesalers. This section looks at the impact on input suppliers (including retailers), farmers, wholesale markets and exporters.



## Impacts on input suppliers

Some private companies importing and providing inputs for agriculture reckoned that their business volumes declined already in 2019, resulting in a 50 percent turnover reduction because of the unfavourable conditions prevailing in Lebanese agriculture. Therefore, they entered the current situation already weakened. In addition, they did not have time to prepare any contingency planning given the lack of advance warning by the Government with the sudden imposition of capital control measures in October 2019.

Following the restriction on transfers of hard currency and limited availability of US dollar-denominated cash, importing companies in all sectors, including agriculture, lacked the hard currency needed to fulfill their import requirements and cover the commitments they made before the restrictions were put in place. Imports of crucial commodities, such as fuel, wheat and medicines, have been covered under a special importing regime in which the BdL guaranteed 85 percent of hard currency needs at the official rate of LBP 1 508

per US dollar, while the remaining 15 percent had to be purchased by importers on the parallel market. Reports indicate that the BdL has had difficulties providing the hard currency at the official rate to determined sectors and importers of the designated commodities were obliged to wait for a long time (often up to four weeks) to obtain the currency.

According to the Association of Importers and Distributors of Supplies for Agricultural Production in Lebanon (ASPLANTE), the country needs about USD 140 million worth of imported agricultural inputs to produce crops for an estimated value from USD 700-800 million, out of which goods worth some USD 200 million would be exported, basically covering the costs of inputs. While the Mission did not attempt to verify the estimates, it is accurate to say that the gains stemming from the agricultural inputs are significant.

Some stakeholders, including the MoA, local Chambers of Commerce and importers, requested that agricultural inputs (seeds, pesticides and fertilizers) are included in the list of special import arrangements given their strategic importance to ensure continuing food production in the country. However, the BdL lacked adequate resources to satisfy the needs. The BdL advised the importers to contact the European Bank for Reconstruction and Development (EBRD) to identify a solution, but the EBRD does not provide businesses with immediate liquidity. Instead, as part of its trade facilitation programme, the EBRD can provide "guarantees to the international confirming banks, taking the political and commercial payment risk of international trade transactions undertaken by the banks in the countries of operations (the issuing banks)".<sup>27</sup>

For all new orders placed by Lebanese importers, exporters now request "payment against documents" (also known as "cash against documents") before the goods are shipped since Lebanon's international credit rating decreased from B to CCC in November 2019.<sup>28</sup> Previously payments generally were done on delivery with an accompanying bank guarantee or a letter of credit. Several private agri-business companies, despite having some reserve funds, are running out of cash.

In addition to restrictions on the availability of hard currency introduced in November 2019, starting from September 2019, the banks cut their credit facilities to importers (as well as to other participants active on the market who were extending credit to their customers) by half and increased the interest rate to 15-22 percent from previous 7-10 percent. From 1 November 2019, credit facilities were closed completely without advance notice. Private companies were requested to pay back the facility with the interest rate of 15 to 22 percent on the remaining part. All measures were introduced with very little lead time, without any possibility to prepare for them. Trading companies were forced to suddenly move from long-term credit to cash without any advance notice. Given the outstanding amount of debt (actual figures are hard to be obtained due to business secrecy), even before the start of the crisis input providers contemplated a gradual shortening of the credit window from 12 to 9 to eventually 6 months credit (still sufficient to cover the cash flow needs for one agricultural season), but were forced to do so abruptly. The private companies that were providing credit to farmers in the past have reported to have lost 30-35 percent of their collaterals due to lack of payments.

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<sup>27</sup> EBRD: <https://www.ebrd.com/work-with-us/trade-facilitation-programme.html>.

<sup>28</sup> In February 2020, the credit ranking recovered marginally to CC with a negative outlook, thus the change having little impact on everyday business.



With a lead time from four to five months, a standard time in the input importing business to complete orders and receive shipments from abroad, some planning was done for the first part of the 2019/20 growing season. Input shipments were already delivered to the country or on their way, but not yet paid. Importers, who had to honour their commitments towards business partners for orders already placed, were faced with a situation where their credit facilities were cut, did not have access to their US dollar-denominated deposits and were requested to repay their outstanding credit facilities at rates much higher than before. Their costumers (farmers) also could not access their eventual deposits denominated in US dollars (if they had any) and could only pay in Lebanese pounds for inputs. At least a partial reimbursement of past arrears was also requested from the farmers since importers have been required to repay their debts (denominated in US dollars) to the banks. Sellers, on the other hand, had commitments denominated in US dollars and had to resort to purchasing at US dollars above the official exchange rate of LBP 1 508 per US dollar. Thus, using the official exchange rate of LBP 1 508, the private sector already took a haircut of 30 percent on the past credit it extended to its customers.

Not all input providers were extending credit, but the practice was quite widespread. Input providers who did not provide credit to their customers still faced challenges importing being unable to access their bank accounts denominated in US dollars and the pressure on bringing in “fresh money” to be able to pay for new imports and resorted to using the parallel exchange rate as well.

To cover their costs, input suppliers were forced to charge their customers prices denominated in US dollars and converted to Lebanese pounds using a market exchange rate, translating into an increase of between 30-50 percent for agricultural inputs compared to the previous

year only on the basis of the exchange rate fluctuation. Consequently, input companies have experienced a decreased volume of business while many of their expenses, such as labour, eventual rent for retail spaces, utilities, etc. remained unchanged. Depending on their previous arrangements, their expenses could be denominated in US dollars or Lebanese pounds. Some companies have accounts in US dollars abroad, but sell their products in Lebanese pounds and have difficulties accessing their US dollar accounts.

Volume decreases among input suppliers cannot be generalized and the actual declines might not yet be representative of the impact of the crisis since some orders might have been arranged earlier. Some input traders reported decreases of sales by 70 percent year on year in January 2020. This decrease could mean that the farmers purchased just the very necessary inputs such as seeds, replaced chemical fertilizers with organic alternatives and decide to purchase plant protection material only when needs arise.

In the past, the new import orders were financed by later payments based on guarantees. In the early days of the crisis, a payment required 80 percent cash and 20 percent from already existing deposits in the bank. As of early 2020, banks required 120 percent cash to release a payment abroad in US dollars covering 100 percent. Traders are constantly comparing various financing options, depending on the currency used and the type of payment. The most preferred payment is cash in US dollars, followed by cash in Lebanese pounds (using a market exchange rate). The third preference is for cheque in Lebanese pounds, while the least preferred method of payment is cheque in US dollars which is difficult to cash. Banks will not cash cheques denominated in US dollars immediately and money changers will charge a 30 percent fee. Some market participants accept cheques in US dollars and use them to settle old arrears.

Currently, the private sector, traditional provider of agricultural credit to farmers, is unable to continue this task for two main reasons:

1. Unavailability of credit facilities by the banks previously offered in US dollars and
2. Currency fluctuations as most of their costs are in US dollars and revenues in Lebanese pounds.

Input suppliers believe that the advance planning in which farmers and businesses were planning their needs for the entire agricultural season will be turning into a “just-in-time delivery”, possibly with higher transport costs and without taking advantage of any economies of scale due to bulk purchasing and advance orders.

At the time of the Mission, in the first two weeks of February 2020, there were no major problems related to shortages of inputs on the markets, although this was partially caused by a weak demand caused by lack of liquidity among farmers.

### **Impacts on farmers**

Even before the recent escalation of the economic and financial crisis, the production part of the agricultural sector was struggling due to the high costs of production and the low value of output. High production costs originate from high prices of variable inputs (seeds, fertilizers, plant protection materials, etc.), the high costs of land rental and the high price of energy linked to the spotty supply of electricity which has to be substituted by fuel-run generators. The low value for output at farm gate is often linked to the collusions between middlemen and wholesale that reduce profits for farmers. However, there is a mismatch between supply and demand as the varieties produced are not always

the ones desired by consumers. In addition, agricultural produce often experience quality and marketing issues.

While large commercial farms are usually efficiently run as businesses, small farms, including many of those that rely on farming income alone, do not use any cost and revenue accounting system. In the past, farmers would buy inputs on credit extended to them by input suppliers or wholesales and middlemen, and repay, even if not completely, after the harvest.

Farmers, although used to rough economic conditions from the past, have been further pressed by:

1. Lack of credit to purchase new inputs.
2. Being requested to pay old arrears, and
3. Having to purchase inputs in cash either at face value in US dollars or in Lebanese pounds using unofficial exchange rate.

Consequently, many farmers claimed to face an immediate liquidity problem of their own related to cash flow. Even farms run like businesses that used to plan ahead, in light of a limited liquidity and lack of credit facilities, have resorted to day-to-day planning. Time-sensitive agricultural operations, such as planting, feeding and veterinary treatment of the animals, treatment of eventual plant diseases, are in jeopardy.

Although the full impact of the financial crisis on agricultural production will be clear as the season progresses, it is very likely that:

- Due to liquidity and cash flow problems, yields are likely to decrease as farmers are moving

towards a low input agriculture choosing substitution for cheaper alternatives or decreasing quantities of inputs used, effectively moving from at times highly intense to low input agriculture.

- Farmers might have planted or are cultivating smaller areas as they are aware that they might not be able to afford the usual amount of inputs.
- Based on the supply and demand interaction on the market, as agricultural production is likely to decline and the demand for basic food commodities tends to be inelastic, it is expected that farm gate prices will increase compared to previous years. In this case, if higher crop and livestock product prices materialize, the areas planted in the next season may increase.
- However, production costs are likely to continue increasing in Lebanese pounds as cash payments in Lebanese pounds carry a premium, resulting in a downward pressure on farmers' income.

In January 2020, the CREAL estimated that, on average, the value of the 2020 agricultural production will decrease by about 38 percent, including a 47 percent decline in plant production and 26 percent in animal production.<sup>29</sup> The impact on production of wheat, potatoes, fruits and vegetables as well as livestock is discussed in a separate section of this report.

### **Impacts on wholesale markets and exporters**

There are two categories of traders: those that serve the local market and those that are packing

for exports, mainly to the Middle East. The post-harvest infrastructure (cold storage, packing facility) plays a major role in the value chain.

Wholesalers used to provide farmers with some financial resources early in the season to guarantee cash flow. The farmer would repay in-kind (as a portion of the output) at the time of the harvest, although the arrangement carried a risk of receiving a price lower than the going market price. Normally farmers deliver goods to the wholesale market which operates on a consignment basis. The farmer delivers the products to the wholesale market, but keeps the ownership of the goods until they are sold. Farmer receive a deferred payment for the goods after the deduction of a selling fee. Unlike the input suppliers who use both US dollars and Lebanese pounds interchangeably (albeit now using a higher exchange rate for the Lebanese pound), the wholesale markets rely on Lebanese Pound only. The wholesale operations are perceived as not completely transparent. In most cases, farmers deliver to wholesale markets without on-farm pick-up services. Some concerns were raised by various key informants about the need to supply farmers with small trucks to enable them to make deliveries.

Like input suppliers, wholesale traders were taking advantage of credit facilities offered by commercial banks. These credit facilities were interrupted and delayed payments to farmers, who need liquidity to buy inputs in cash, previously bought on credit from input suppliers or using credit from wholesalers. Farmers are also in need to repay their previous debts with their creditors who have been requested to repay their credit facilities from the past.

Reports indicate that there is a substantial need to enhance governance and transparency

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<sup>29</sup> American University of Beirut, full presentation: [https://www.aub.edu.lb/fafs/news/Pages/2020\\_RiadFouadSaade.aspx](https://www.aub.edu.lb/fafs/news/Pages/2020_RiadFouadSaade.aspx).

of wholesale markets as well as their physical infrastructure, hygiene and food safety conditions.

Export channels have never recovered to their status before the start of the civil war in 1975 and are currently the weakest link in the chain. A large

share of exports before the start of the Syrian crisis was exported via land to CGC countries and Iraq, and these routes have been disrupted. Exporters often took the role of “investors in agriculture”, like contracting farmers, providing seeds and other inputs.

# CROP PRODUCTION

Despite very limited new imports coming to the country since November 2019, the markets for agricultural inputs during the first half of February were well supplied with limited shortages of some products which were easily substitutable by others, often domestically sourced alternatives. The private importing companies believe that current stocks in the country will be able to cover domestic input needs for about two to three months as most orders for the current agricultural season were already placed when the financial crisis started. Planning for the next agricultural season usually takes place from September to November, with deliveries between November and January. Given the cash flow problems of their customers, importers have decided to focus on supplying the market with seeds, herbicides and specialized irrigation material instead of products with low-profit margins and easily substitutable inputs such as fertilizers or irrigation pipes. Nevertheless, farmers have lacked the adequate and accessible financial liquidity to purchase inputs whose prices remained in US dollar or were converted in Lebanese pounds using the exchange rate of the parallel market.

The average crop calendars for crops grown in open fields and in greenhouses are summarized in figures 1a, 1b and Figure 2, respectively. Small regional differences exist within the country.

## Seeds

### Cereals

To take advantage of the moisture provided by winter precipitation, wheat and barley are planted as winter cereals in November-December for harvesting from May to end-June. In 2015 and 2016 (last years for which production surveys were available at the time of the Mission), approximately 40 000 hectares were planted with



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wheat and 14 000 hectares with barley. Small quantities of other cereals, such as maize (about 1 000 hectares) are also grown and are usually used as fodder. Beqa'a, Baalbeck-Hermel and Akkar governorates account for over 85 percent of the cereal production in the country. One dunum of wheat, with supplemental irrigation, usually yields about 300 kg, corresponding to 3 tonnes per hectare.

As economic problems were likely to impact planting, reports indicate that the MoA requested the Lebanese Agricultural Research Institute (LARI) to distribute wheat seeds free of charge for the 2019/20 agricultural season. Some interviewed farmers raised concerns about the timeliness, quality and losses incurred in the distribution. It is not clear whether the amount distributed was adequate to cover the needs of the farmers.

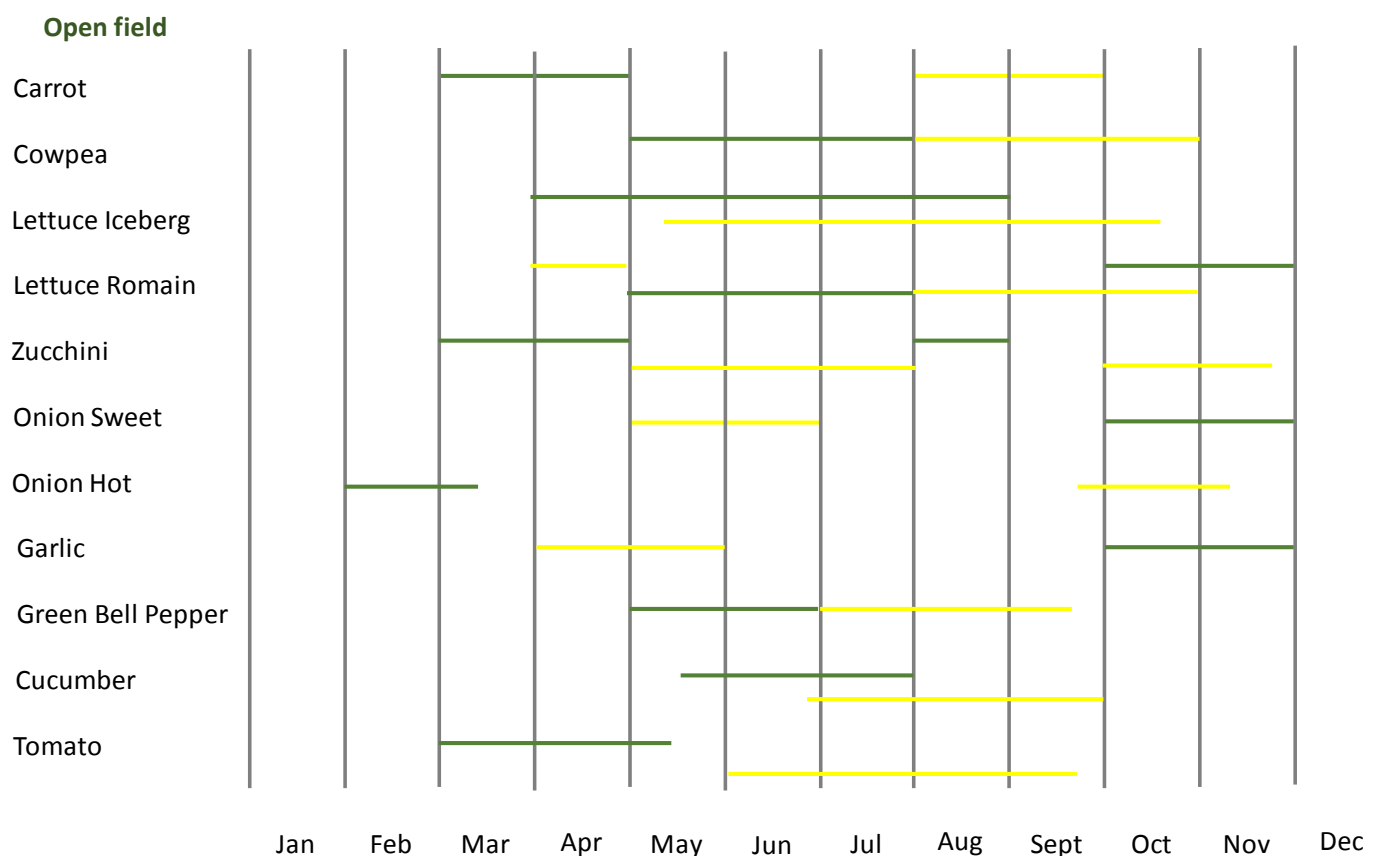
For the wheat support programme, the MoET in the past, on average, would receive about 700 applications from farmers growing wheat on 120 000 dunums (12 000 hectares). The Mission was informed that, on 7 February 2020, just a few days before the deadline of



13 February, only 250 applications covering an area of 50 000 dunums were received. The MoET attributed the declining interest to the impact of the economic situation and the inability of farmers to secure the other necessary inputs, even if the seeds were distributed. Although the financial crisis might have played a role in farmers' decision to not apply for the wheat subsidy, the fact that the farmers who committed to sell their 2019 output to the Government have not yet been paid, might have also influenced their decision. The 2019 season was characterized by unusual high temperatures in May that influenced the grain filling stage, resulting in a 70 percent decrease in production. The Council of Ministers approved an exceptional decision to disburse the decoupled payments for 90 000 dunums, paying LBP 125 000 per dunum of wheat and

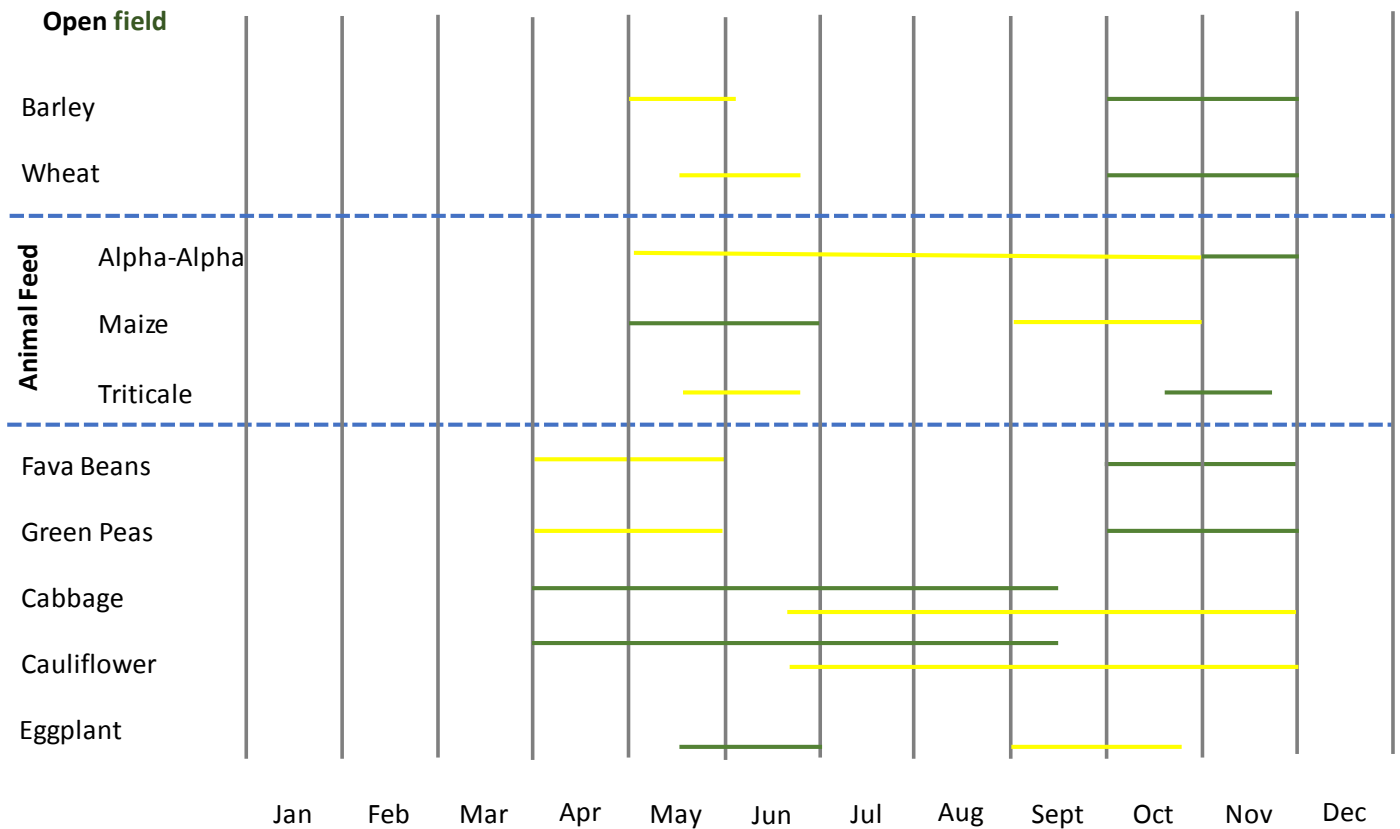
LBP 100 000 per barley.<sup>30</sup> However, the Court of Accounts dismissed this decision, and the future of the 2019 wheat payments is uncertain. The 2019 budget is now sealed while the 2020 budget was not yet available at the time of the deadline for applications. Notwithstanding the exceptional circumstances of 2019, the wheat payments were usually carried out late, which might be less than ideal in an environment that has moved to a cash economy. Moreover, another reason why farmers who planted wheat decided to not apply for the guaranteed price is that given the free distribution of wheat seeds for the 2019/20 season, the usual premium offered by the Government might have been offset by the cost of the seeds they did not have to purchase. Wheat purchasing prices are usually available in March.

**Figure 1a: Lebanon - Crop calendar for open field crops**



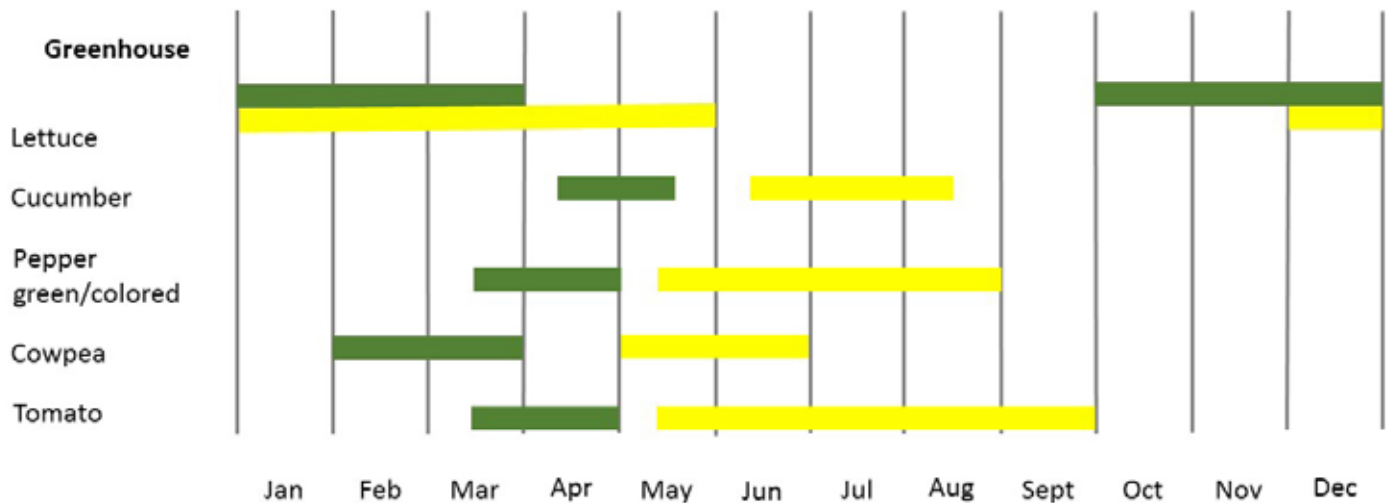
<sup>30</sup> Only very small quantities of barley are purchased by the Government.

**Figure 1b: Lebanon - Crop calendar for open field crops**



Source: FAO Mission, 2020.

**Figure 2: Lebanon - Crop calendar for greenhouse vegetables**



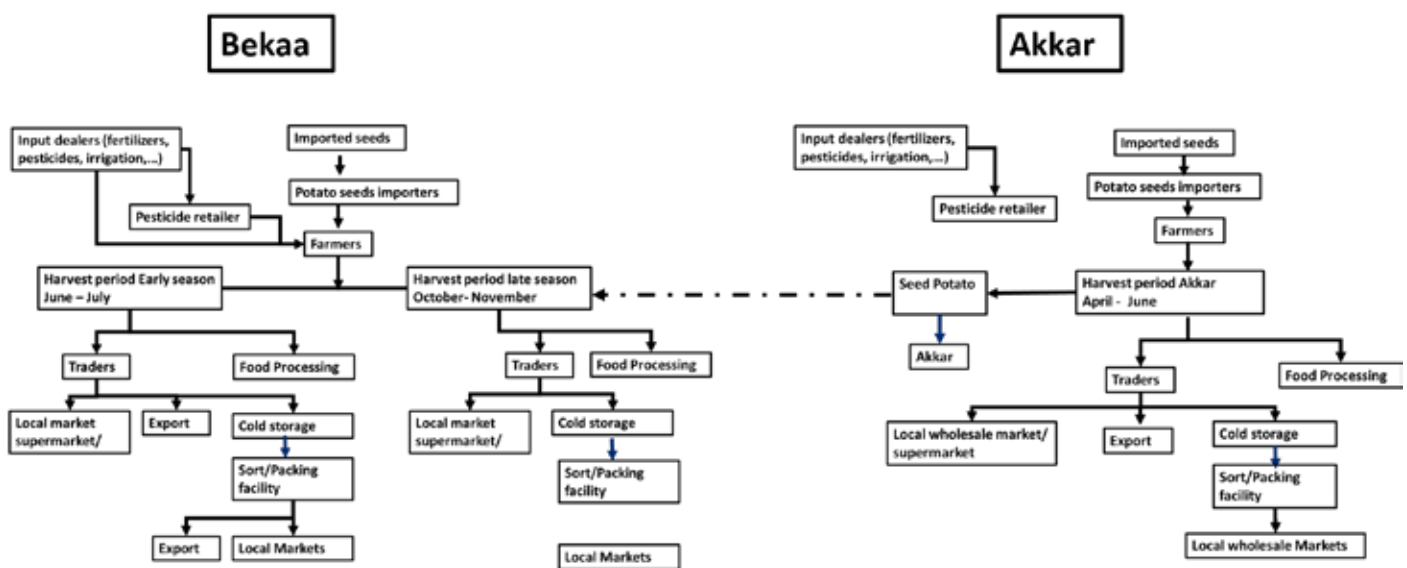
Source: FAO Mission, 2020.

## Potatoes

Farmers usually plant about 20 000-22 000 hectares of potatoes per year. Potatoes are grown in Akkar and Beqa'a governorates in different seasons. The season in Akkar Governorate, which benefits from winter rains, starts with planting in December for harvesting from early April to mid-June. Potatoes for food processing are on average about 10 percent of the total production in Akkar and are harvested towards the end of the harvesting window. The April harvest brings first "new" potatoes coming to the market, about 3 000-4 000 tonnes of which is used as seeds for late harvested potatoes in Beqa'a where there are two seasons: the first season is planted in February-March for harvest in June-July and the second season is planted from May for harvest in October-December. The low yields in Beqa'a are caused by the prevalence of clay soils and heat. "Late potatoes" require about 12-13 rounds of irrigation. The first round of irrigation takes place at pre-planting time in order to assure adequate soil moisture for germination. The irrigation starts at 10 hours per day, then extends to 12 hours and closes with 4 hours just before harvesting. In comparison, early potatoes require 6 rounds of irrigation with 6, 12 and 6 hours of irrigation per day. On average, early and late potatoes have similar fungicide and pesticide needs. The potato value chain in summarized in Figure 3.

The country does not produce certified potato seeds and there are no local gene banks or potato breeders. Certified potato seeds exclusively originate from the European Union, with two-thirds of the seeds coming from The Netherlands. Smaller quantities are imported from France, Denmark, Belgium, Germany and Luxembourg. Six importing companies dominate the market, although more entities are active, including some farmers. Importers are required to register with the MoA and must comply with a set of rules, including pre-approval by the country of origin, the import period, the size, Sanitary and Phytosanitary (SPS) certificates, etc. The country imports an average of 26 000 tonnes of potato seeds per year. Reports indicate that an average of about 3 000-4 000 tonnes of potato seeds are illegally re-exported to the Syrian Arab Republic, although some sources estimated that as much as 6 000 tonnes of potato seeds were illegally exported to the Syrian market in the past. In 2019, the country imported about 21 475 tonnes of potato seeds (Figure 4), about 20 percent below average. The decrease in the quantity of the imported potato seeds was relatively constrained as importers placed the orders and concluded the necessary letters of credit before 17 October 2019, as planting in Akkar starts in December. It was estimated that this year about 2 000 tonnes of potato seeds were re-exported to the Syrian Arab Republic.

**Figure 3: Lebanon - Value chain scheme for potatoes**



Source: FAO Mission, 2020.

For the 2019/20 season, prices of potato seeds were cheaper than previous year in US dollar terms, although prices in Lebanese pounds increased depending on the exchange rate used. One tonne of Spunta variety was selling for USD 950, with a decline from USD 1 250 previous year. One tonne of Agria variety was selling for USD 1 100, down from USD 1 500.

In Akkar Governorate, the acute shortage of potato seeds did not materialize. In December 2019, about 650 farmers planted the usual amount of 5 000 tonnes of potato seeds on 3 000 hectares. Around 4 000 tonnes were table potatoes and 1 000 tonnes were destined for food processing. A total production between 75 000 and 100 000 tonnes is expected. The amount of certified potato seeds planted in Akkar is unclear and it is possible that some farmers planted their saved seeds, possibly resulting in lower yields.

The low prices of the 2019 production of late season potatoes and other crops have constrained the liquidity of farmers and their ability to purchase expensive inputs. Some sources consulted by the Mission indicated a large difference between farm gate, wholesale and retail prices of potatoes. In 2019, farmers were paid LBP 400 per kg at farm gate. The price

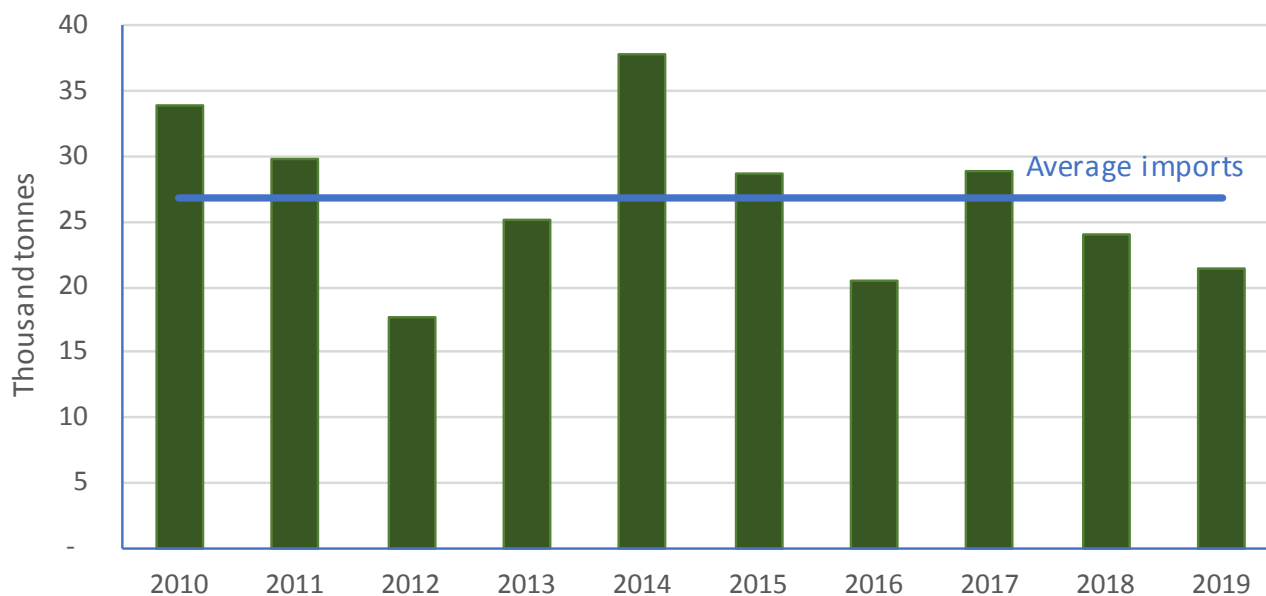
on the wholesale market increased to LBP 700, and 1 kg retailed at price levels above LBP 1 000. Some sources cited the production cost of 1 kg of potatoes to be around LBP 900.

## Vegetables

Vegetables (excluding potatoes) are grown on about 30 000 hectares in all governorates. The main varieties include tomatoes (over 5 000 hectares), cucumbers and onions (each over 3 000 hectares), followed by cabbage, lettuce, watermelon, eggplants, squash, haricot beans, green peas and fava beans (each over 1 000 hectares). Cultivation of vegetables is practiced in both open field and greenhouses.

The cost of production in open fields is about three times less expensive than the cost of production in greenhouses, where fertilizer requirements are higher, plastic sheets need to be replaced every three years, etc. Vegetables (mostly tomatoes and cucumbers) in the greenhouses are mainly cultivated in the coastal areas of the south, followed by Beqa'a Governorate and the northern part of the country. In the southern part of the country, farmers can plant two seasons in greenhouses, with the first planting in December-January. Given the limited seasonal supply, the first vegetables produced in the south get the highest price on the market and, as the season progresses and the availability of products increases, prices decrease, declining for tomatoes

**Figure 4: Lebanon – Potato seed imports (2010-2019)**



Source: Customs Administration, 2020.

from LBP 1 000 per kg to as low as LBP 200 per kg. In the northern part of the country, planting in the greenhouses starts in April for harvesting from June. In addition, the cost of production in the south and coastal areas is lower as no supplementary heating is needed.

The areas covered by greenhouses have been increasing in the last decade. In the coastal plains, the rapid and chaotic urban expansion has resulted in the loss of farmland and its fragmentation into very small units. In particular, production of citrus has been declining due to the aging of orchards and the loss of export potential due to reduced competitiveness of Lebanese citrus products. These developments have pushed numerous citrus growers to uproot their orchards and replace them with greenhouses to produce vegetables (such as tomatoes, cucumbers and eggplants) mostly for domestic consumption and mainly concentrated in the plain of Akkar and in the South. According to the latest statistics, the cultivated area under greenhouses increased from 3 800 hectares in 2010 to 4 261 hectares in 2016 (+13 percent), with the major increase recorded in Akkar from 1 560 hectares in 2010 to 2 078 hectares in 2016 (+ 33 percent). During the same period, the total citrus area in Akkar declined by about 60 percent, from 1 378 to 595 hectares.

Some increases in greenhouse areas have been also reported in Baalbeck-Hermel and North Lebanon governorates. In the northern part of the country, several greenhouses are operated by retired soldiers who are implementing new technologies they had

observed while in tour of duty. Many started with wooden frames for greenhouses and then moved to metal frames.

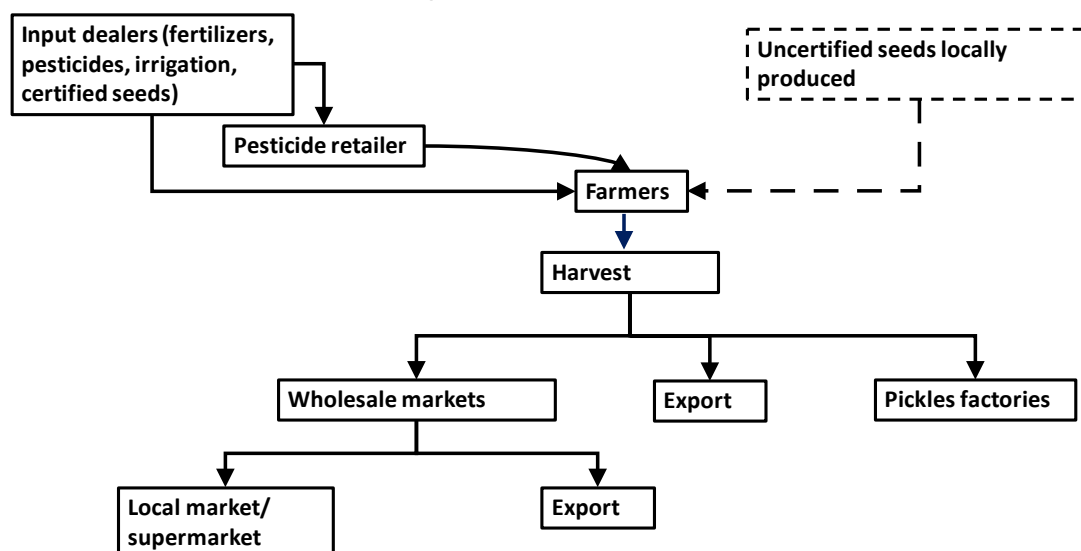
The value chain for vegetables (Figure 5) is similar across different types and production systems. Certified seeds are imported, while small quantities of uncertified seeds are available locally. Production is destined for the domestic market, export and processing.

Some farmers prepare their own seedlings, but often they buy only seeds from retailers from which, for a small fee, a local nursery prepares seedlings in hotbeds (special small tunnels to preparing and forcing seedlings).

Vegetable production is likely to be among the subsectors that are most constrained by the financial crisis due to its high input and irrigation requirements. Unlike production of wheat and potatoes where, as a last resort, saved seeds can be planted instead of certified seeds, even if they result in a lower yields, vegetable seeds are usually not saved and need to be bought fresh every year.

Production of tomatoes grown on open fields is likely to decrease up to 20 percent due to increased input costs. In some areas, farmers growing tomatoes in greenhouses might miss one season, particularly in the areas that also require heating, such as in Beqa'a or Akkar governorates. In Beqa'a, where one retailer normally sells about 2 000

**Figure 5: Lebanon - Value chain for vegetables**



Source: FAO Mission, 2020.



sachets of tomato seeds per season (each sachet contains 1 000 seeds), sales until mid-February 2020 have reached only about 100 sachets.

Farmers usually plant 7 tonnes of long day onion seeds and a smaller amount of short day onion seeds, both planted in January and February.<sup>31</sup> At end of 2019, the main importer of onion seeds, which normally supplies over 80 percent of needed seeds, imported only 2 tonnes instead of 5 due to concerns about farmers' liquidity to the purchase seeds. The company estimated that the total quantity of onion seeds available on the market was about 3 tonnes, most likely resulting in some shortages. Farmers that were unable to secure onion seeds were likely to grow other crops.

Some certified vegetable seeds could be in short supply but the speedy delivery using airfreight is possible should the need arise and financial resources are available.

While many of the vegetables grown in the country are "generic ones" suffering from lack of product differentiation, some specific products do stand out. For example, in Nabatieh Governorate, a specific type of rainfed yellow melon, highly demanded by consumers, is planted on 700 dunums. Plantings are prepared at the end of March and transferred to the open fields at the end of April or early May for harvesting after 70 days, approximately in early July. For 1 dunum, 500-700 seedlings are planted to achieve a production of about 1 tonne per dunum. Seeds are usually imported from Jordan and the final product is sold directly by farmers to consumers with no interference from a middleman. The direct purchasing farm gate price is USD 2 per kg, while other types of melons sell to a middleman at US cents 50 per kg.

## Fruit trees and olives

Fruit trees and olives are an important part of the Lebanese landscape and a significant source

of revenue. Fruit trees occupy an area of about 130 000 hectares and olives an additional 60 000 hectares. At 35 000 hectares, the largest area among fruit trees are pome and stone fruits, out of which more than 16 000 hectares are apples. About 10 000 hectares are planted with citrus and grapes, respectively, and 5 000 hectares with tropical fruits and nuts. Permanent crops are present in all governorates. Both small and larger farms cultivate fruit trees and olives. Table grapes are usually cultivated by small farmers with less than 3 hectares.

While few new permanent crops have been introduced in the coastal areas where the competition between agricultural land and construction is intense, new orchards (mostly stone fruits, olives and grapes) have been established in the highlands, shifting production patterns away from traditional crops. Existing orchards on the coastal and southern areas are mostly tropical fruits including bananas, citrus and avocados. Some products, such as avocados, are mostly produced for export.

While permanent crops need relatively low maintenance, missing crucial operations, such as timely fertilization, application of pesticides and other treatments, etc. or applying wrong proportions of chemicals or using an incorrect product will likely lower yields and further escalate already problematic quality issues. Farmers were slow to replant their orchards and olive groves even before the financial crisis; although it is likely that the replanting might come to a temporary halt.

Although climatic conditions are suitable for many types of permanent crops, there is a mismatch between supply and demand (both local and export) as most varieties produced by farmers are not strongly demanded by consumers. Traditional varieties are also low yielding and thus not providing adequate profit to the farmers. Currently cultivated varieties of apples, such as Stark or Golden, have

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<sup>31</sup> Different types of onions require different number of day light to grow a bulb. Long day onions require 14-16 hours of day light and short day 10-12 hours. Long day onions are more suitable for storage, while short day onions do not store well and are usually used for immediate consumption.

low yields and consumers do not prefer them as in the past. In addition, sorting is inadequate and there is no branding and traceability.

For example, the country produces more than 300 000 tonnes of apples per year and imports some small amounts of about 1 000 tonnes. Imported apples, branded, sorted and packed retail from LBP 5 000 to LBP 7 000 per kg, while local varieties are sold for only LBP 1 000 per kg. Key informants reported that a 20-kg box of apples being bought on the wholesale market t LBP 3 000 from the farmer, while 1 kg sells for LBP 1 500 in Beirut.

Fruits and vegetables have been traditional exports. With the land routes interrupted, produce is shipped mostly by sea or small shipments are made by air. However, as air shipments are expensive, they are suitable only for high value products. For exports, if the pesticide residues exceed the maximum standard, the entire shipment may be rejected and all farmers contributing to the shipment are penalized. A slow reintroduction of new, high yielding varieties of fruits, suitable for local climatic conditions and responding to consumers' taste, is needed. The private sector recognizes that it should have done more to achieve rejuvenation of varieties of fruit trees in the country.

## Fertilizers

According to the Food and Agriculture Organization Corporate Statistical Database (FAOSTAT), the country produced 110 000 tonnes of nutrient phosphate (P2O5) in 2017, with a gradual increase from the estimated 80 000 tonnes produced in 2013. Domestic sources mentioned that, in 2019, a local company produced 400 000 tonnes of nutrient phosphate, although this figure was not verified by the Mission. According to customs data, fertilizers are imported from a variety of sources: potassium sulphate is imported mostly from the European Union, diammonium phosphate from Tunisia and Morocco, and NPK from a variety of sources,

including the European Union, the United Arab Emirates, Ukraine, Turkey, Jordan, Norway and the Russian Federation. Finally, urea is sourced mostly from the Russian Federation, Egypt, the European Union and China (mainland).

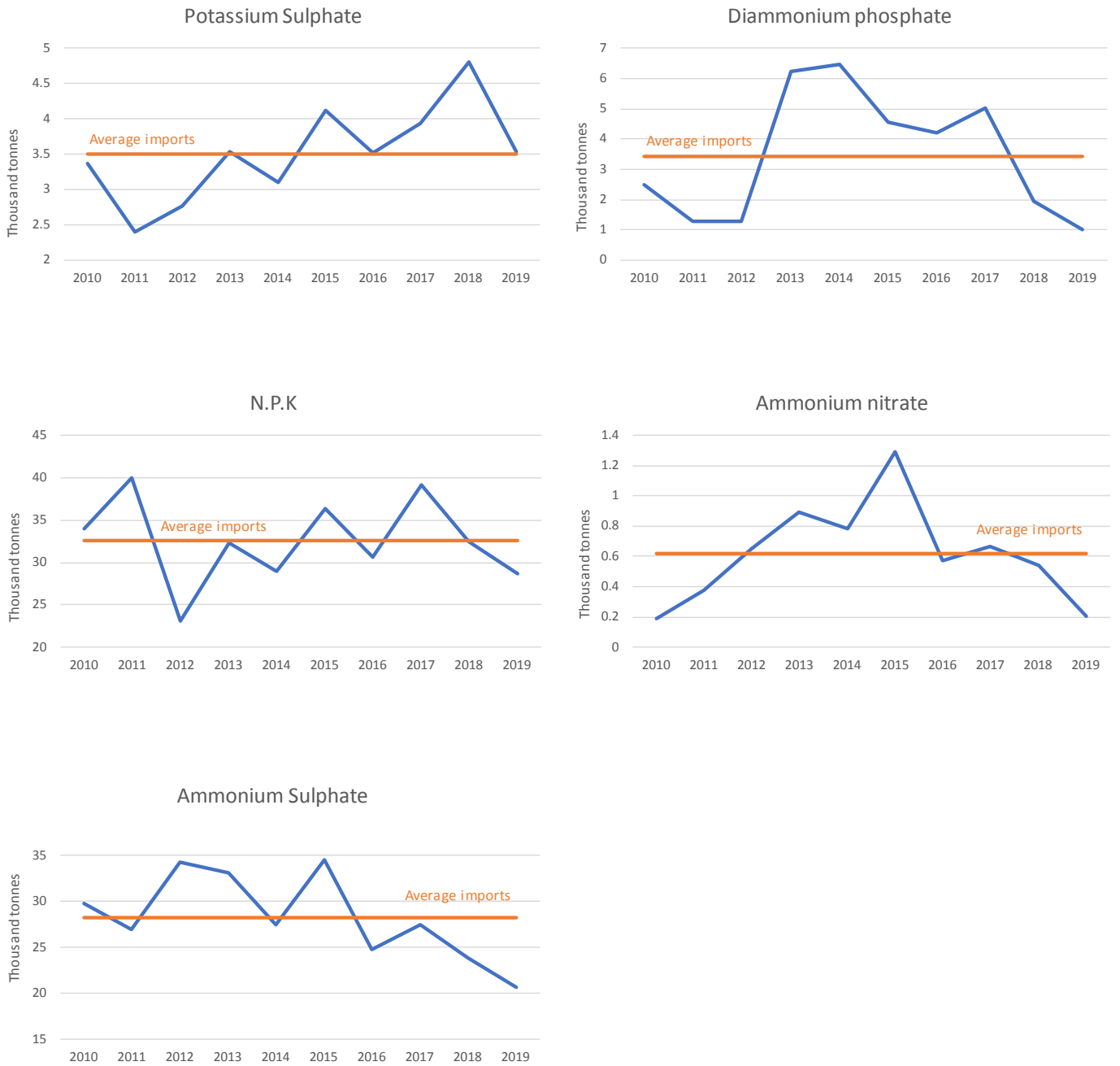
Given the tight situation that importers were facing in securing hard currency necessary to finance imports, they had to prioritize the inputs. As fertilizers were considered commodity imports with a low profit margin, many input companies decided not to import the whole range of fertilizers since November 2019. Figure 6 summarizes the developments in quantities imported in the last ten years and the average for the main groups of fertilizers. While average quantities of potassium sulphate were imported, imports of all other fertilizers were below average. In all cases, imports were below the levels of previous year.

By limiting the supply of fertilizers, the input importers have also alleged to "free" an amount of cash farmers that would have otherwise spent on fertilizers. In addition, importers claimed that if they had imported larger quantities of fertilizers which they would have been unable to sell due to cash constraints faced by their customers, they would unnecessarily tie their liquidity in stocks of goods. Given that properly stored granular fertilizers have a shelf life of several years, the reasons behind the decision not to import the usual quantities of fertilizer are purely economic.

Although the role of fertilizers in maintaining soil fertility and increasing yields is unquestionable, they can be replaced by locally-sourced substitutes, such as manure or compost, or a composite of local industrial phosphate mixed with local organic fertilizers. The local providers of manure and compost have so far fared quite well as their sales increased. Alternatively, given the liquidity problems farmers are facing, instead of applying complex fertilizers, they might apply only nitrate or superphosphate without potash.

Reports indicate that, at the time of the Mission, compound fertilizer was sold at LBP 1.5 million

**Figure 6: Lebanon - Imports of fertilizers (by type)**



Source: Customs Administration, 2020.

per tonne (equivalent to about USD 680 with the exchange rate of LBP 2 200 per US dollar), while good quality manure costs USD 160 per tonne. Prices of fertilizers in 2019 and 2020 are presented in Table 4.

## Plant protection materials

At the time of the Mission, the markets were sufficiently supplied with plant protection materials. As farmers moved away from advance to just-in-time purchases, the demand was lower than in the same period in the previous years. If the market had been as usual, some reports indicated that about 50 percent of the products would have been missing because very few new orders were placed and goods delivered since November. If there was a significant pest outbreak, it is likely that the country could run out of necessary plant protection items.

Figures 7-9 illustrate imports of plant protection materials in 2019. Above-average quantities of fungicides and herbicides were imported in 2019. Although the amount of insecticides was below the ten-year average, the amount was similar to the amount imported in the last five years.

Although some shortages in officially approved plant protection materials could occur, there are no direct shortages on the market due to the movement of the products from Turkey and the Syrian Arab Republic (discussed separately). Farmers also mentioned that the MoA had

forbidden to use a number of pesticides but did not offer farmers any suitable alternatives on terms of replacement. Those products remain available on the black market.

## Other inputs

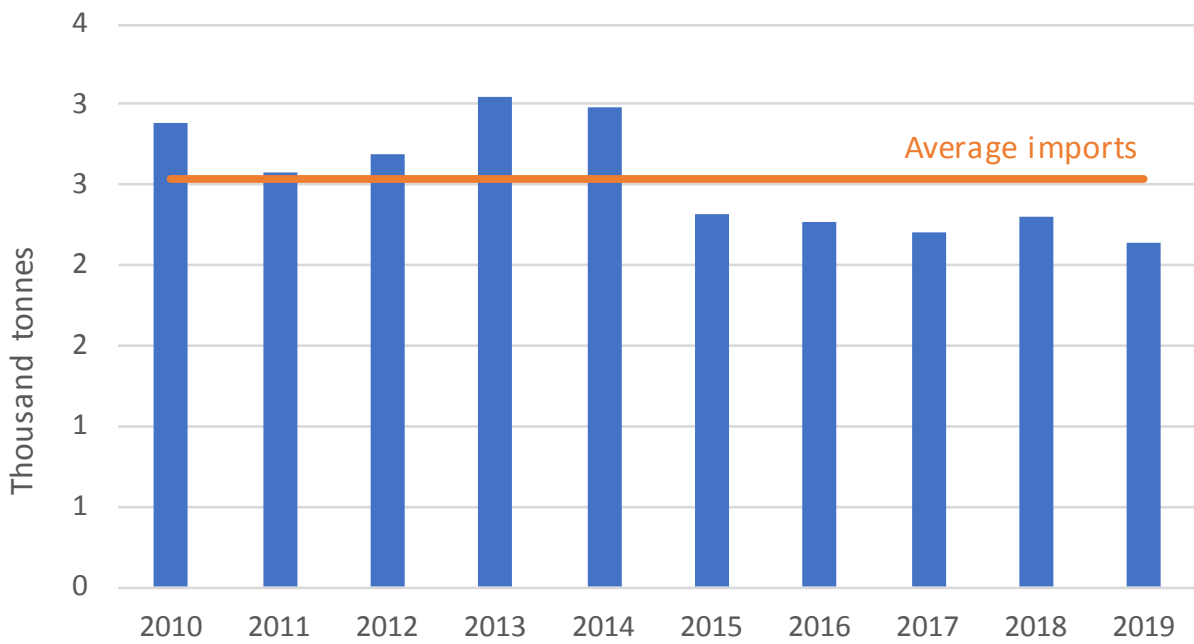
Despite some importers decided to not spend their liquidity on irrigation parts, it was reported that their availability on the market was adequate. Many elements, such as pipes of acceptable quality are locally produced, while the plastic pellets necessary for their production are imported. In addition, given other priorities, the small farmers might decide to not invest in irrigation and reuse old irrigation equipment. Irrigation methods have different efficiency and the life span of their infrastructure varies from two seasons for drip irrigation to 10-15 years for sprinklers. In the absence of hill lakes and reservoirs in the country, fields are mostly irrigated with ground water. With cultivation moving to mountain areas with deep water table, some wells are drilled as deep as 450 metres, increasing the fuel costs for farmers. Depending on the circumstances, a well can cost up to USD 9 000, adding the cost of a generator and the fuel necessary to run the pump the total is estimated at USD 20 000. On the other hand, the cost of building a dedicated point to catch rain-water to be used for irrigation is estimated at a maximum of USD 10 000.

**Table 4: Lebanon - Prices of fertilizers in 2019 and 2020 (USD/tonne)**

	2019	2020
Diammonium phosphate DAP	550	700
Soluble 20 20 20	1 800	2 000
Complex 12 12 17	780	850
Complex 15 15 15	725	800
Complex 12 6 24	800	850
Magnesium sulphate	400	650
Potassium nitrate	1 250	1 600
Potassium sulphate	800	1 000
Nitrate calcium	600	800
CalMag	640	800

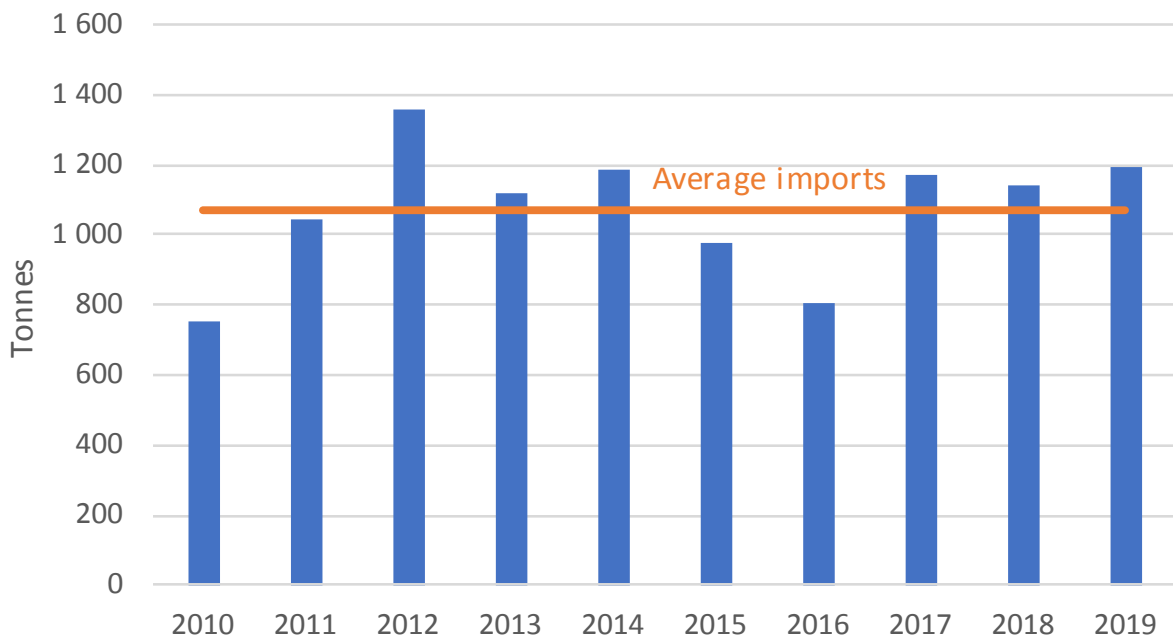
Source: FAO Mission, 2020.

**Figure 7: Lebanon – Imports of insecticides (HS 3808.91)**



Source: Customs Administration, 2020.

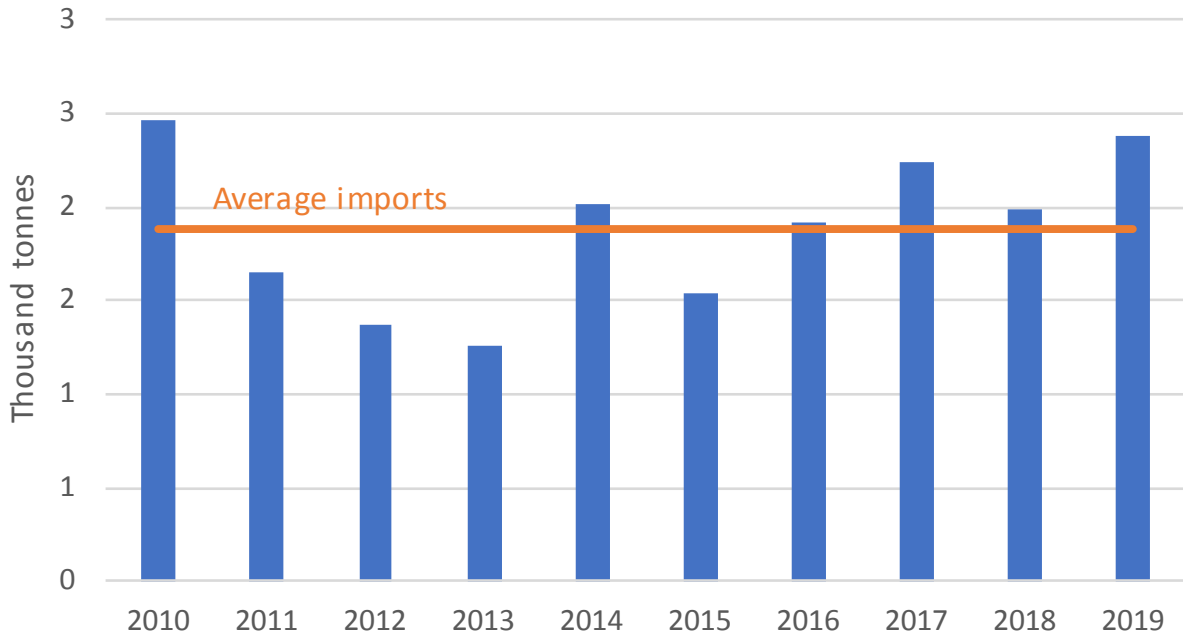
**Figure 8: Lebanon – Imports of fungicides (3808.92)**



Source: Customs Administration, 2020.



**Figure 9: Lebanon – Imports of herbicides, anti-sprouting products and plant-growth regulators (HS 3808.93)**



Source: Customs Administration, 2020.

In the current environment, farmers do not consider investing in new mechanization. The availability of used agricultural machinery is likely to increase in markets as farmers in need of cash liquidity may decide to sell their tractors and other vehicles and to opt for rentals. The rental costs of mechanization, apparently traditionally denominated in local currency and paid in cash upon completion of the operation, has not changed. The rental is usually adjusted for eventual changes in fuel prices. Tractor rental, with a driver and fuel included, costs LBP 7 500 per dunum for land preparation and LBP 15 000 per dunum of orchard tilling. The

price of used 48HP tractor is between LBP 6 and 9 million.

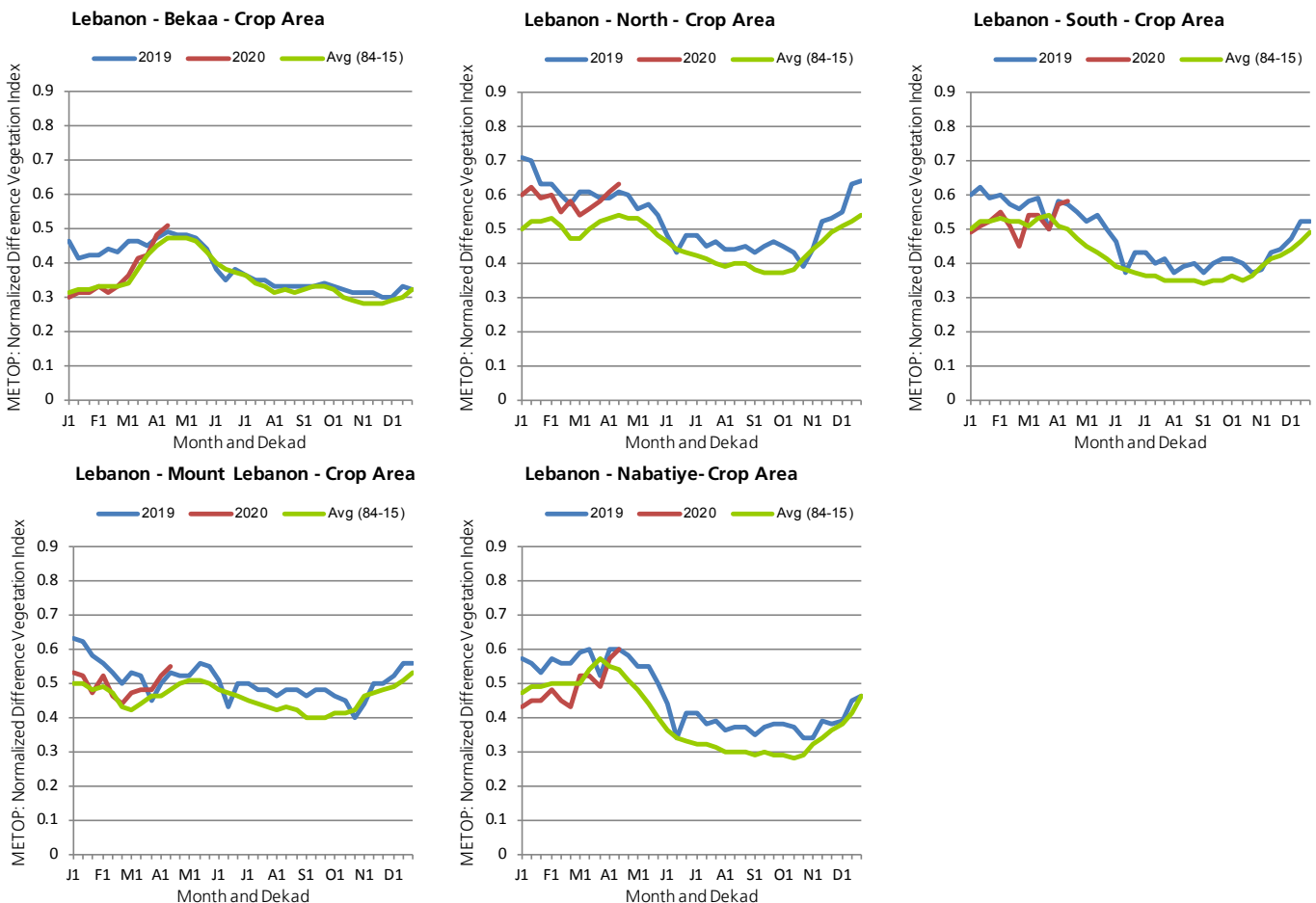
Food processing factories are relatively small. Potato processing facilities are located mainly in the North and Beqa'a governorates which are specialized in the production of potato chips and frozen fries. Despite some domestic production, food processing factories mostly rely on imported ingredients because of their uniform quality and steady supply. There is only one factory which makes glass by recycling used bottles, but some implied imports of glass bottles are cheaper. Other inputs into agro-processing, such as jars, lids and corks, all likely to run out unless new imports come in.

# REMOTE SENSING

The Mission heard anecdotal evidence that, at the time of the assessment in the first two weeks of February 2020, about 80 percent of the land was not yet cultivated, while last year at the same time only less than 30 percent had not yet been planted. The Mission triangulated the findings from the interviews with satellite images and, although this figure is likely to be over-estimated, the sector remains in a challenging situation. However, at this point it remains too early to assess the impact of the lower use of fertilizers, saved seeds and perhaps the untimely application of pesticides.



**Figure 10: Lebanon - Normalized Difference Vegetation Index (NDVI)**

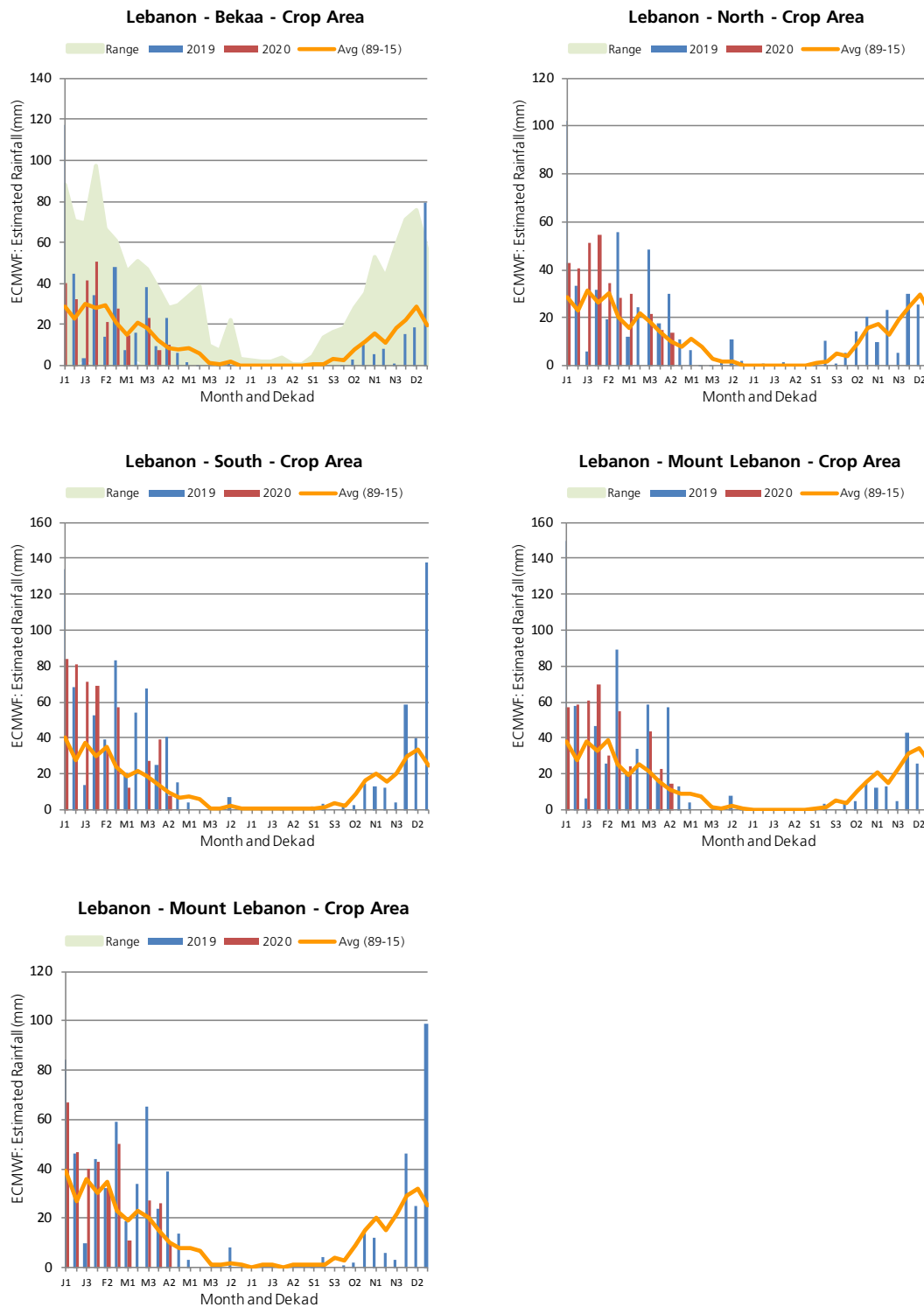


Source: FAO/GIEWS – Earth Observation: <http://www.fao.org/giews/earthobservation/country/index.jsp?lang=en&code=LBN>.

The Normalized Difference Vegetation Index (NDVI) at governorate level until the second decade of April 2020 (Figure 10) shows that, although in southern parts of the country (namely Nabatieh and South) in January and February the NDVI was below the long-term

average (1984-2015), it recovered in the first decade of March 2020. The below-average NDVI in early 2020 could have been caused by late plantings due to above-average precipitation across the country in the last months of 2019 and early 2020 (Figure 11).

**Figure 11: Lebanon - Rainfall distribution (2019-2020)**



Source: FAO/GIEWS – Earth Observation <http://www.fao.org/giews/earthobservation/country/index.jsp?lang=en&code=LBN>.

# LIVESTOCK

Cattle, sheep, goats and poultry are reared across the country. The country imports most inputs into livestock production, including a large share of feed.

The most numerous livestock flocks are goats (500 000 heads) and sheep (428 000 heads). The largest population of sheep is concentrated in Beqa'a and Baalbak-Hermel governorates, each one with over 140 000 heads. More than 100 000 goats are reared in Beqa'a, Baalbak-Hermel and Nabatieh governorates. Official data estimates that there are about 86 000 heads of cattle in the country, out of which 53 000 heads of dairy cows. Cattle is present across the country, with the highest concentration is in Beqa'a (25 000 heads), Akkar (17 000 heads) and Baalbak-Hermel (16 000 heads) governorates. There are 65 million of broilers and 2.7 million of laying hens. The largest broiler operations are in North (23 000 birds), Mount Lebanon (16 000 birds) and Baalbak-Hermel (10 000 heads) governorates, while almost 75 percent of the laying hens are concentrated in Akkar and Baalbak-Hermel governorates.

Based on the quantities of milk collected, the estimated number of over 50 000 dairy cows is deemed to be rather optimistic by many observers who claim that the national herd is between 25 000 and 30 000 dairy cows. Key informants believe that the number of dairy cows has been decreasing since the prices of milk decreased about four years ago. The current farm gate price of milk is between LBP 900 to LBP 1 000 per litre. Processing companies require certain standards, for example a minimal fat content of 3.6 percent and 3.2 percent protein per tank.<sup>32</sup>



The two largest farms in the country own together about 2 500-3 000 dairy cows, supplying about 30 percent of the total local fresh dairy. About seven to eight farms are estimated to have 250-300 cows. Farm with over 100 cows are able to exploit some economies of scale and be able to add some value to the raw milk by producing dairy products. Those knowledgeable about the sector estimate that with good management, before the crisis using the fixed exchange rate, a farmer could earn USD 1 000 per cow per calving season (equivalent to 14 months). Thus, after covering its cost of production, a farm with 35 cows could survive on dairy production alone without seeking employment in the non-farm sector. Small farms, usually in mixed setting, rear less than 25 cows, although most of them have less than 15 cows. Large, modern farms grow their own stock of feed (forages, straws, hay and silage) and produce on average about 33 litres of milk per cow per day. Small farms do not produce more than

<sup>32</sup> For example, average fat content in the European Union is about 3.7 percent and average protein content is 3.5 percent. The fat and protein content varies by season and depends on the composition of the feeding ration.

20-25 litres of milk per day and improper nutrition has also an impact on fat content. The coping and resilience capacity of the small farmers are more affected by the lack of economies of scale.

Even before the crisis, most dairy farmers were lacking adequate financial resources to expand their farms. Some farmers mentioned that milk collection and transport to collecting centres and factories were problematic. Although several milk collection centres have been established over the past few years, especially in Beqa'a Governorate, very few cooperatives operate in the sector.

The poultry industry is widespread in the country, with four to five large companies dominating the business. The companies operate their own farms, but also engage in contracting, referred to as "satellite farms". Almost all inputs to poultry production are imported. Producers have raised concerns about the difficulties in obtaining food safety certifications. The poultry sector's annual import needs (maize, soybeans, vaccines, breeding stock) is estimated at USD 175 million, without breaking down the needs between broiler and layer operations.

There are about 300 000 productive beehives in the country producing 2 000 tonnes of honey, concentrated mostly North (88 000), Mount Lebanon (77 000) and South (53 000). Beehives tend to be kept for family use and to sell for additional income. No specific crisis-related impact on beehives was mentioned, but it is reported that diseases and extensive use of pesticides in agriculture are destroying bees in every governorate.

## Feed

Natural conditions and prevailing farming system limit the domestic production of forage crops. For dairy cows, local feed crops include maize (mostly harvested as green for silage), "tibbel"<sup>33</sup> and alfalfa. Sheep, when not pasture-fed, are fed with a mix of hay, green fodder, grains and concentrate. Feed companies, given the high costs of transportation, tend to operate within their regions. There are five traders of silage in the country.

Large animal breeders cultivate some feed crops for direct consumption and for production of silage. Breeders often supplement their needs by purchasing imported feed due to its uniform and well-defined quality. To guarantee a steady flow of quality inputs, some feedlots and feed companies are engaged in contract farming, supplying seeds and other inputs to contract farmers which are committed to provide labour. As in other subsectors where contract farming is applied, the output is usually shared. Feed crop seeds also tend to be imported, often from Italy and Romania. However, expensive seeds (when denominated in Lebanese pounds) might limit the area planted with forage.

Before the crisis, livestock and poultry breeders often had open credit systems with their suppliers of feed which now are no longer available and, like in crop production, were required to settle their arrears. Farmers would settle their bills with the feed provider in regular intervals (e.g., once a month) for executed feed deliveries. The practice ended with the increasing liquidity constraints and since November 2019, all sales have to be settled in cash the same day the deliveries take place. Interviews carried out by the Mission with feed companies pointed out to relatively small (maximum 20 percent) decreases in volume in January 2020 compared to January 2019, but many large contracts for delivery in January 2020 were made before the full impact of the crisis. Consequently, planning for feed (including soybean meal, maize and concentrate) and other inputs (detergents, vaccines and semen) has changed from long term or seasonal to short term, even weekly. As elsewhere in the economy, import orders must be paid in advance, compared to on-delivery payments arrangements previously in use. The high prices are fostering development of alternatives and innovation: in the south, for example, reports indicate that farmers began to use banana leaves in animal feed rations to lower the cost of feed.

Although farmers have to purchase inputs in cash in US dollars or US dollars converted into Lebanese pounds using the exchange rate on the parallel market, the dairy factories pay their suppliers of milk in Lebanese pounds, partly in cash

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<sup>33</sup> Tibbel is a local feed which includes straw cut up into small pieces mixed with concentrate.



and partly in cheques payable in three months, putting further strain on their liquidity. Meat prices remain nominated in US dollars, although farmers are probably paid in Lebanese pounds given the shortages of hard currency. Some sources indicated that, since the onset of the crisis, about 70-80 dairy cows have been slaughtered every day because of the high prices of feed that force farmers to reduce the size of their herds. This estimate seems to be high as animals are considered to be a productive asset which is not easily replaced once retired from production. However, small farmers do occasionally sell a cow from their herd to improve liquidity and immediate cash flow. Meat from the slaughtered cows enters the food chain and keeps meat prices down.

Large farms have more opportunities to modify feeding rations according to decrease costs while maintaining nutritional value. Alfalfa (usually imported from Italy, Spain, Romania and Egypt at about USD 400-450 per tonne) is likely to be replaced by locally produced one (to the extent available), hay or straw. Using straw as a feed, however, is filling but less nutritious and will have an impact on the quality and quantity of milk. While rations of dairy cows can be optimized without including alfalfa, maize cannot be easily substituted in the daily ration.

Some respite to the high costs faced by the sector comes from cheap products from the Syrian Arab Republic, in particular barley for feed. The 2019 harvest was exceptional for barley in the Syrian Arab Republic owing to favourable weather conditions and, according to the 2019 FAO/WFP Crop and Food Security Assessment Mission (CFSAM), the barley production was estimated at 2 million tonnes, more than five times the drought-affected output in 2018 and over 150 percent higher than the pre-crisis levels. Although the decline in livestock numbers stabilized in the past years, the total number of cattle and small ruminants in the Syrian Arab Republic is still about 30 to 40 percent below the 2010 levels. Therefore, as the demand for barley for feed has decimated in the Syrian Arab Republic, farmers (as well as middlemen) are looking for outlets to sell barley before the new harvest in June 2020. Sources indicate that Syrian barley is entering

illegally into Lebanon and, as of early February, it was sold at USD 160 per tonne, transport and informal fees included. Barley imported legally is purchased at USD 230 per tonne (all included), assuming importers can secure fresh US dollars to finance their imports. In February 2019, imported barley was selling for USD 270 per tonne. Some owners of large dairy farms claimed that the quality of Syrian barley was not satisfactory, but there was still sufficient demand in Lebanon to justify imports from the country.

Some feed producers and traders have considered shortening working hours as a coping strategy to avoid firing employees. They are also looking for export opportunities of feed, mostly in Turkey, Jordan and Gulf countries. However, crossing the Syrian border remains problematic. Exports of silage to Jordan results in a loss of USD 10 per tonne, which is deemed a more positive outcome to an informal devaluation of at least 30 percent in a bank.

## Vaccines and other veterinary inputs

One of the main challenges of the livestock sector highlighted by the MoA was the lack of vaccines as the movement of animals across the border with the Syrian Arab Republic has increased the risk of transboundary infections. As there are no vaccine factories in the country, all vaccines are imported, mostly from the European Union and the Russian Federation. The MoA has tried to procure vaccines, but the response from the private sector was minimal due to uncertainty in the economy and historically belated payments by the Government for these services. The MoA estimates the needs at 350 000 doses of the *Peste des Petits Ruminants* (PPR) vaccine for goat and sheep plus 70 000 doses for cattle and 780 000 doses for goat and sheep for the Foot and Mouth Disease (FMD) vaccine (to be done twice a year). The MoA believes that farmers vaccinate their animals only when there is an official vaccination programme in place. Large farms, however, seem to prefer to have their vaccines supplied by the private sector rather than by the MoA due to concerns about the quality of the cold chain used and its general handling of the vaccines.

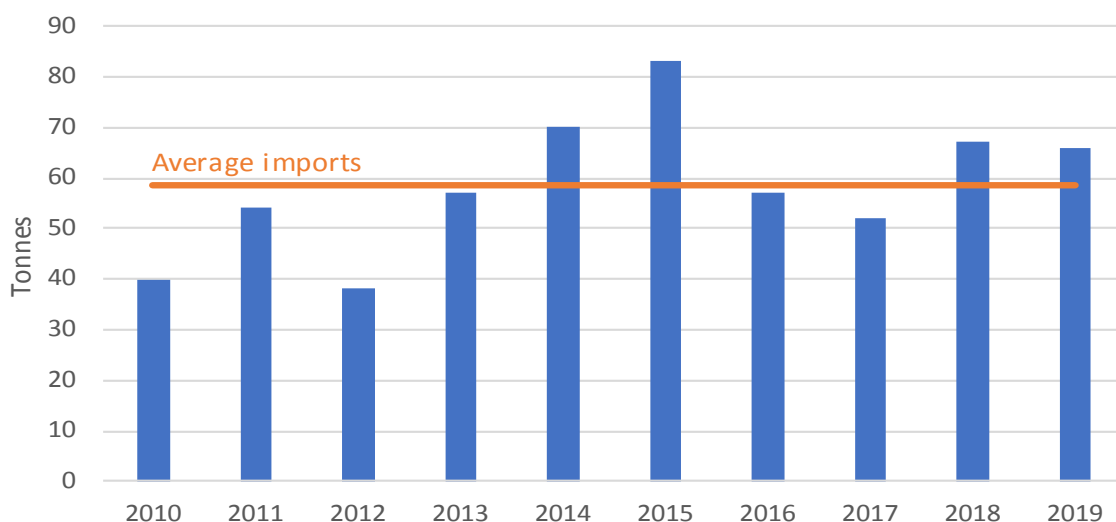
The Mission was unable to collect information on the actual doses of veterinary vaccines imported. Based on the review of customs data, the amount of veterinary drugs imported in 2019 exceeded the average (Figure 12). However, the total quantities in tonnes might not be the best estimates for analyzing availability of veterinary medicines on the domestic market.

The same argument of large farms preferring private providers of vaccines applies to semen, the quality of which is influenced by the lack of liquid nitrogen

and livestock breeders are concerned that they might waste days in case the artificial insemination is not successful. The private sector did not report any major shortage of semen, but breeders complained about the high costs.

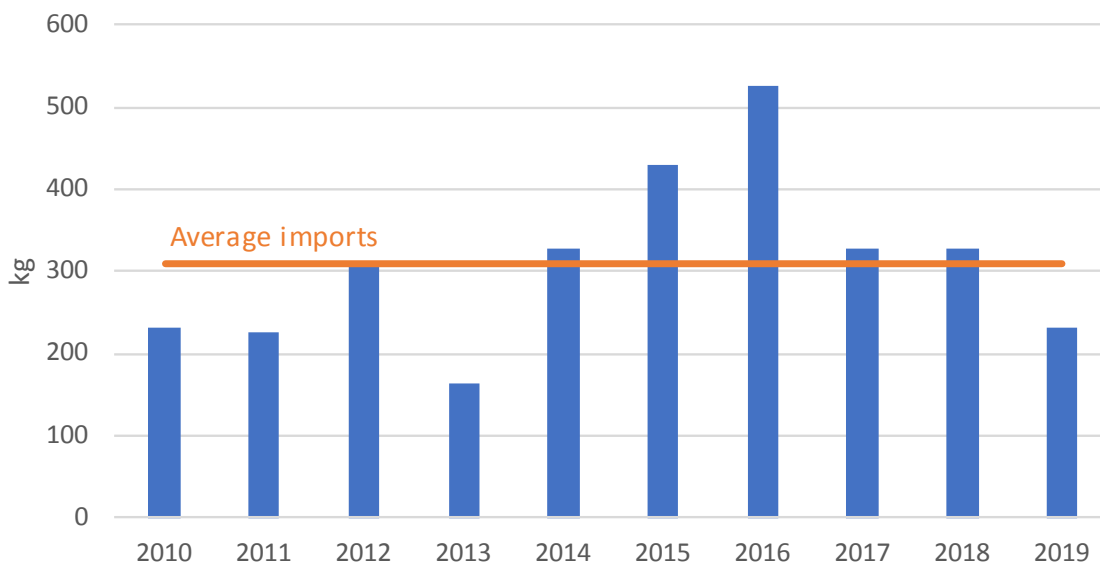
Figure 13 shows the annual imports of bovine semen. Since 2016, most bovine semen imports originated from Canada, with smaller amounts coming from the European Union. In 2019, 231 kg of bovine semen were imported, well below the average of 310 kg in the past ten years.

**Figure 12: Lebanon - Imports of vaccinations for veterinary medicine (HS 3002.30)**



Source: Customs Administration, 2020.

**Figure 13: Lebanon - Imports of bovine semen (HS 0511.10)**



Source: Customs Administration, 2020.

# IMPACT ON HIRED LABOUR

The Lebanese agriculture makes extensive use of hired labour. Hired labour is used to perform seasonal manual operations, but also to oversee day-to-day running of farms owned by absentee landlords who live and work in urban centres. Even many small farms tend to hire labour. Specialized operations, such as operating agricultural machinery, pruning of trees, etc. are usually performed by Lebanese workers. It is not foreseen that specialized operations would be affected by the impact of the financial crisis. Wages for specialized labour, payable in Lebanese pounds, so far have not changed compared to last year. Thus, service providers are affected, like the rest of the economy, by high inflation rates.

Although some poor Lebanese are hired as casual labour, for example to work in tobacco fields in Nabatieh Governorate, manual tasks are usually carried out by expatriates workers, mostly Syrians, but also from southeast Asia and other countries. The availability of Syrian manual labour has increased dramatically following the onset of the Syrian crisis.<sup>34</sup> However, Syrian seasonal workers have been legally present in the country at least since the 1960s, working primarily in construction and agriculture. At the height of reconstruction efforts in the 1990s, more than 1 million Syrian workers were present in Lebanon. According to the International Labour Organization (ILO), about 300 000 Syrian workers were in the country before the outbreak of the Syrian crisis. In theory, employment of Syrians is legally limited to construction, agriculture and cleaning services where there is a labour shortage as the occupations do not match the income



expectations and skills of much of the native Lebanese labour force.<sup>35</sup> However, getting a work permit is difficult.

Precise figures of seasonal Syrian labourers are not available as most of them are working informally, since under current regulations, would lose their refugee status if legally employed. According to FAO estimates from 2016, the total number of Syrian agricultural workers in Lebanon is around 70 000 to 90 000. Such employment arrangements are making refugees exposed to low wages and eventual exploitation. Syrian farm labour in Beqa'a Governorate in 2019 was paid from LBP 10 000 (female) to LBP 25 000 (male) per work day from 06:00 to 12:00. In the northern areas, with a poorer population, Syrian labour is paid between LBP 6 000 to LBP 15 000 per work day, depending on the type of work. If there is less demand for casual labour, wages are likely to be driven further down.

<sup>34</sup> ILO. 2015. Towards Decent Work in Lebanon: Issues and Challenges in Light of the Syrian Refugee Crisis, Beirut: International Labour Organization, Regional Office for Arab States cited: <https://www.undp.org/content/dam/lebanon/docs/CrisisPreventionRecovery/SupplementArticles/16Supp/PEACE%20BUILDING2%2016%20july%202017%20p4.pdf>.

<sup>35</sup> Al Zoubi, S.T., A. Aw-Hassan, and B. Dhehibi. 2019. Enhancing the Livelihood and Food Security of Syrian Refugees in Lebanon. Amman, Jordan, ICARDA: <https://repo.mel.cgiar.org/handle/20.500.11766/10065>.

Lower agricultural production is likely to reduce the demand for child labour in agriculture which, despite the efforts to bring it down, remains high. Consequently, families relying on earnings from child labour are likely to experience even higher financial insecurity. Nearly one-third of the agricultural labour in Beqa'a valley comprises of school age children between 8 and 14 years old, mainly girls.<sup>36</sup> Among school age children between 6 and 14 years old,

only one-third attend school and the rest were out of school, with the main reasons being to work in order to support their families, lack of facilities and difference in curricula.

A further decline in livelihood options for casual labour is likely to have additional consequences, not least on the environment, leading to increased illegal cutting, foraging of natural resources, etc.

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<sup>36</sup> Ibid.

# INFORMAL TRADE WITH THE SYRIAN ARAB REPUBLIC

Although informal trade flows from the Syrian Arab Republic (or transiting via the country) carries a negative connotation, they are often the only option for farmers to get affordable inputs and decrease their costs. In the past, Lebanese farmers reported that they used to rely heavily on Syrian highly subsidized agricultural inputs which are no longer available since the start of the crisis in the country. This has resulted in sharp increases in the costs of Lebanese agricultural production.

Lebanese importers and the MoA have complained about the subsidized goods being smuggled from the Syrian Arab Republic to Lebanon. However, as the ongoing conflict in the Syrian Arab Republic constrained its capacity to subsidize actual inputs,<sup>37</sup> it is likely that the products are only transiting through the country. Reports confirm that a large majority of inputs, such as pesticides, are brand name products originating in Turkey, many of which are also approved to be used in Lebanon. Turkey is a large market where agri-business companies are able to achieve economies of scale and offer volume based rebates, resulting in prices 30-40 percent lower than in Lebanon. A small subset of plant protection products that often arrives informally to Lebanon is banned in the country and Lebanese farmers have not been offered suitable, at least equally effective, alternatives.

An option to limit informal trade flows from the Syrian Arab Republic would be to decrease the costs of pesticides and other inputs in Lebanon. For pesticides, a conformity assessment carried out in the country is required by Lebanese authorities for agricultural protection materials (and any other



product entering the ports). Mutual recognition of conformity assessments issued by international certification bodies would decrease costs of introducing a new product on the market which could then be passed to consumers.

Many final consumers buy Syrian fruits and vegetables which are often lower priced. An example of field tomatoes was given: the cost of production of 1 kg of tomatoes in Lebanon is LBP 1 000, while 1 kg of Syrian field tomatoes can be purchased with home delivery for the same amount. The sample applies for fruits and citrus from coastal areas in the Syrian Arab Republic (mainly from Lattakia and Tartous governorates).

In general, a lot of economic malaise has been blamed on informal trade flows with the Syrian Arab Republic, including the low quality of some dairy products sold on the Lebanese market, seemingly produced from smuggled milk. Given the already low farm gate milk prices in Lebanon,

<sup>37</sup> For more detailed analysis of agriculture in the Syrian Arab Republic, refer to annual the Crop and Food Security Assessment Mission carried out jointly by FAO and WFP, 2019 report: <http://www.fao.org/3/ca5934EN/ca5934en.pdf>.

it seems unlikely that chilled raw milk would be imported from the Syrian Arab Republic. However, some producers of dairy products, being aware of the decreasing purchasing power of many segments of the Lebanese population, started to produce non-dairy cheese products based on hydro-generated fat and skim milk

powder in order to replace the more expensive genuine cheese.

Pastoralists with their flocks of sheep and goats from both sides of the border apparently are allowed to cross the border freely in search of pastures.



# IMPACT OF THE COVID-19 PANDEMIC

The first case of COVID-19 was detected in the country on 21 February 2020. On 16 March 2020, the Government of Lebanon declared a State of Full Mobilization in response to the COVID-19 pandemic, halting all non-essential commercial activity. The COVID-19 outbreak aggravates the already challenging situation and adds another layer to the existing structural problems the economy is facing.

According to the Government Decree, the Association of Banks in Lebanon announced the temporary closure of all banks. While the parallel market continues trading, the trading activity is likely to be much slower. Since importers and other market players need an inflow of US dollars to finance their imports, the closure of the banks is likely to restrict their ability to conduct business them even more, resulting in potential shortages of imported goods, amplified by general downturn in the world economy and potential disruptions to shipping. Should travel restrictions continue, the country will be affected by a loss of tourist revenues upsetting the livelihoods of many.

Although the farmers could continue their activities on the field, it might become more difficult to obtain the necessary inputs (assuming farmers have adequate liquidity to buy them). The impact of COVID-19 on wholesale markets remains to be seen, but it is likely that markets will continue operating on a smaller scale to avoid the high concentration of people which facilitates the transfer of the virus.

On the global level, the general economic slowdown put a downward pressure on oil prices. The world oil price West Texas Intermediate (WTI) decreased from USD 58.34 per barrel in January 2020 to USD 22.43



per barrel in March 2020, losing over 60 percent. Gasoline prices in Lebanon are fixed by a Cabinet Resolution, but diesel prices have been decreasing in the country. A 20-litre canister was selling for LBP 16 900 on 5 February. As of early April, its price decreased to LBP 10 700, although part of the decrease is likely to be seasonal owing to lower demand for heating fuel. The lower diesel price will at least partially buffer the higher prices of other inputs farmers are facing.

The price inflation, already pushed up by the lack of hard currency and parallel exchange rates, is likely to increase as the increasing demand for food items will put an upward pressure on prices. In the short term as panic-buying gets underway, retail - and possibly also wholesale - benefit temporarily. However, supply chain disruptions might prevent sufficient re-supply. Should more economic activities be closed in response to the virus, the purchasing power of customers is likely to decrease if their income and livelihoods are disrupted, having a ripple effect through the economy. While the resilience capacity of the rural areas, where residents can grow some of

their food, is generally higher, the situation for the urban poor could worsen significantly.

While a complete lockdown on the scale implemented elsewhere in the world might be possible in parts of the country, it is unlikely to be successful across all economic sectors in all parts of the country. In an informal economy and absence of any social safety net, many people have to continue working, increasing a risk that the pandemic would last longer.

The Government indicated that it would allocate to the Higher Relief Council about LBP 75 billion from the reserves of the 2020 budget in order to provide food and aid to help offset the social implications of the general mobilization in response to COVID-19. The Government has also expressed interest in receiving emergency financing of USD 500 million from the IMF to reduce the economic impact of the outbreak in the country.<sup>38</sup>

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<sup>38</sup> Byblos Bank, Economic Research & Analysis Department: <https://www.byblosbank.com/Library/Assets/Gallery/Publications/LebanonThisWeek/Lebanon%20This%20Week%20625.pdf>.

# CONCLUSIONS

Rebuilding and reconstruction efforts following the end of the 1975-1990 Civil War did not consider harnessing the agricultural potential of the country to be a priority. The economic and financial crisis, which has affected the country from October 2019, struck a sector which resilience had been already tested for many years, particularly due to the lack of enabling macro-economic and social environment and several structural issues. The agricultural sector in Lebanon, despite the country's strategic geographical location and its climate suitable to cultivate diverse crops, faces high costs of production and relatively low valued outputs. The current situation in the agricultural sector is best characterized by uncertainty.

As most agricultural inputs (fertilizers, agro-chemicals, seeds, animal feed, etc.) are imported, productive capacity of the agricultural sector is particularly affected by increasing input costs resulting from the rapid devaluation of the Lebanese pound on the parallel market and disruption in imports. As a result, farmers, already struggling with high production costs, were faced with sudden and substantial increases in input prices in the months leading to planting and crucial field operations. Suppliers have been requesting full cash payments rather than the usual end-of-season repayments of credit. Despite occasional shortages, markets were generally well supplied, and the main constraint was lack of financial resources in cash to purchase inputs in adequate quantities, forcing many farmers to use their own seeds, at the risk of getting much lower yields or to plant other crops. At the limit, high prices of inputs, combined with their eventual constrained availability, might result that some farmers miss the current planting



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season. The MoA managed to distribute wheat seeds free of charge to farmers in many areas in time for the wheat-sowing season. However, the limited availability of vegetable seeds, coupled with their high prices, might negatively affect vegetable production.

Although an official devaluation of the Lebanese pound is not envisaged for the moment, the de facto devaluation would make the exports of Lebanese products cheaper for potential buyers abroad and thus more competitive.

Not everybody is losing equally from the current situation. Entrepreneurs relying mostly on domestic inputs and using Lebanese pounds, such as producers of local products that may substitute imports such as compost and manure, are better off than others.

Nevertheless, in a crisis situation, agriculture remains one of the most resilient pillars of the economy as farmers continue producing at least for their own consumption, even if moving to

a low input type of agriculture. In immediate term, it is necessary to lessen the damage on agricultural livelihoods and maintain production potential of the land, where still possible, in the current season and allow farmers, particularly those who rely mostly on farming income, to continue farming. Failure to do so is likely to result in some farmers leaving their homesteads and contribute to the increases in poverty in the rural areas or in the cities. Given the lack of information on farm structure and almost no information on the share of farms with non-agricultural income (equivalent to “hobby farms”), targeting of any intervention to the most needy might necessitate differentiation on a geographical basis to target the areas with the highest concentrations of the poor (such as the Beqa’a valley and Akkar) which also coincide with the highest concentration of Syrian refugees.

However, any solutions to address the impact of the financial crisis on farmers in the short term (one to two seasons maximum) are unlikely to achieve any sustainable results unless there is a more structural change in the enabling environment. The current situation could serve as an opportunity to rethink the overall role, structure, and organization of the agricultural sector in the country.

The principal recommendation remains to create a facilitating macro-economic environment to allow the private sector and farmers to continue their operations. Addressing the root causes of the current economic and financial crisis, such as allowing transfers abroad and unlimited withdrawals, bringing the pegged and parallel exchange rate closer together to allow the markets to operate, etc. will benefit the entire economy.

## Measures under consideration by the Ministry of Agriculture<sup>39</sup>

In the light of developments in autumn 2019, which constrained the country’s ability to finance imports, the MoA expressed concerns about the overall food security situation in the country. Like the private sector, in the early days of the economic and financial dismay, the MoA sent a letter to the BdL requesting to facilitate the import of food products.

Responding to an expected decrease of food imports which would constrain the total domestic availability, the MoA has set up a food security committee. The main goals of the committee are to ensure production potential and adequate availability of food, achieve equilibrium between imports and exports, ensure norms, quality, and SPS conditions for agricultural products and promote sustainable production adapted to local conditions. The MoA recognizes that, given the natural constraints, the country is unlikely to become completely self-sufficient in food. The MoA started discussions with municipalities, regions, schools, chambers of commerce and the private sectors. Proposed initiatives include encouraging the cultivation of unused lands as well as backyard gardens and small-scale areas in privately owned outdoor spaces such as terraces.

Home and backyard gardening is also supported by municipalities which at times provide seeds. This initiative is more suitable for non-farming households as it contributes to improve their dietary diversity and to extend households’ food budget to other items. However, without some form of extension or instructions on other

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<sup>39</sup> This section summarizes the feedback obtained from various directorates of the MoA. At the time of writing of this report the MoA was still finalizing its official consolidated plan to address the impact of the economic crisis.

necessary agricultural inputs for urban and other non-farming households, such initiatives might not be successful. Even in the absence of any public support intervention, farming households have been already engaging in food production for their own consumption, although seed provision might have eased the financial burden.

The MoA stated that there is currently uncultivated land available and it is interested in encouraging landowners to put this land at the disposition of farmers at no cost immediately for the current season. Some interviewed key informants agreed that there is land available, but a large share of it would require some sort of land reclamation and that landowners expect to receive a market-based rental payment. Nevertheless, while sustainable increases of domestic production are a valid aim, the outcome is unlikely to be immediate and the idea should be further explored in the context of a medium to long-term agricultural strategy.

## Considerations of possible short-term interventions

The key policy recommendation by the Mission is to facilitate imports of agricultural inputs to the country by establishing a special facility with the BdL similar to that recently created for the imports of industrial raw materials. This facility covers USD 100 million worth of imports of raw materials and allows importers to exchange up to 85 percent of their foreign exchange needs at the official exchange rate while the remaining 15 percent of needed foreign currency is obtained from the parallel market. A similar facility for importers of agricultural inputs would allow input importers, retailers and farmers to continue their operations and maintain the production potential of the farms.

In the immediate term, interventions should focus at maintaining the production capacity of farming households that rely mostly on farming income and

increasing their resilience to prevent abandoning the sector. Some municipalities already stepped up their support to the farmers by providing partial financial support to buy seeds or distributed seeds or plants in kind.

An immediate intervention requested by many key informants was to universally subsidize the difference between the official pegged exchange rate and to one that is actually applied to purchase agricultural inputs. While appealing, the implementation is likely to be challenging and costly as it would benefit all farmers, including those who may not need it as they have sufficient resilience capacity to cope.

A more appropriate way to intervene would be to target help in order to safeguard the current agricultural season and to allow farmers to earn some income from farming. For both crop and livestock interventions, the private companies, including importers of agricultural inputs, are vibrant in the agricultural sector. Thus, although efforts might be underway to implement interventions that aim to target farmers (for example via direct distribution of inputs), it remains of crucial importance to include also the private sector as its operational capacity will facilitate the medium to longer-term recovery.

Any short term emergency-type intervention should be made, if possible, conditional to gradual improvements of the infrastructure and overall administrative structure of the agricultural sector by, for example, gradually leading to registering animals receiving emergency feed rations, introducing sustainability clauses into eventual input distributions schemes including vouchers, starting a farm registry programme, etc.

## Crop production

In crop production, the wettest months of the year which benefit crops sown in autumn have already passed. Any crops planted in spring and early



summer, even if there might be empty lands not planted because of the expensive agricultural inputs, require significant amounts of irrigation which result in increased production costs as most of the farmers rely on diesel fuel for pumping. Although appealing to improve self-sufficiency, in the current season for environmental reasons **it is not advisable to:**

1. Encourage planting of late potatoes because of high production costs due to irrigation needs. The estimated cost of production of late potatoes in Beqa'a is estimated in Table 5.
2. Encourage the planting of fodder crops (vetch, barley mix, mixed hay, maize for silage, triticale, oats, etc. for feed) in March-April. Fodder crops are best planted in October-November to take advantage on seasonal rains for harvesting in May and June. Feed crops planted in autumn can be cultivated without significant supplementary irrigation. For example, from alfalfa planted in October, a farmer can make four to five cuts. The one planted in March yields three to four cuts but required a lot of irrigation. Maize for silage is another suitable import substitution. Harvesting of silage maize starts in August and continues until October. Silage is ready to use after one month of maturing.

### **Vouchers to plant vegetables and other annual crops**

The timing and conditions are right for providing farmers with inputs for vegetable production in greenhouses and open fields, particularly in the northern part of the country, although geographical targeting remains to be clarified. Vegetables are mostly planted between March and May (for detailed crop calendar refer to Figure 1a and b and Figure 2). Farmers procure their own seeds and use local companies (nurseries) to prepare seedlings from the seeds provided by farmers. Given that markets in the country are functioning, vouchers for vegetable growers to purchase seeds and other inputs for a maximum value of USD 200 per farmer would allow planting one standard greenhouse with vegetables, inject liquidity in the faltering agri-business value chain (especially "fresh money" to importers), as well as provide additional business to nurseries.

Farmers usually do not plant the entire greenhouse with the same vegetables. A standard greenhouse (41.5 metres by 9 metres) can fit 1 050 plants of cucumber or tomatoes. Typically, farmers use 830 plants of tomatoes or cucumber and 220 plants of green bell peppers. The majority of greenhouses are single tunnels. In Beqa'a, eggplant is not cultivated under greenhouses, but in other parts of the country is. The cost of the seeds are summarized in Table 6.

**Table 5: Lebanon - Estimated cost of production of late potatoes in Beqa'a**

	USD/dunum
Land rental plus irrigation water	400
Labour <sup>1/</sup>	30
Fertilizers	220
Pesticides	40
Seeds	200
<b>TOTAL</b>	<b>890</b>

Source: FAO Mission, 2020.

<sup>1/</sup> Labour operations include deep plough, plough, fertilization, plough, and planting. Labour costs associated with harvesting activities not included.



**Table 6: Lebanon - Cost of seeds per greenhouse**

	Items	Cost of seeds/greenhouse (USD)
Tomato	830	75
Cucumber	830	150
Green bell pepper <sup>1/</sup>	220	10
Coloured bell pepper	220	12
Lettuce (Iceberg)	2 000	32
Lettuce (Romaine) Lump sum	-	12
Cowpea (kg)	2.5	25

Source: FAO Mission, 2020.

1/ Cultivated on the border of the greenhouse. One greenhouse can fit 1 050 plants.

The costs were calculated using the following market prices: USD 90 for 1 000 tomato seeds, USD 90 for 500 cucumber seeds, USD 45 for 1 000 green bell peppers, USD 55 for 2 000 coloured bell pepper seeds, USD 200 for 500 grams of lettuce (Romaine) seeds and USD 10 for 1 kg of cowpea seeds.

### Alternative crops

A promising venue in the short term is to increase the area planted with field grown aromatic plants with seemingly not yet tapped export potential. There appears to be export market for oregano, with Lebanese oregano selling at premium in Jordan. The price of oregano varies from USD 5 to USD 25 per kg, depending on the quality. Plants are produced using local seeds. Small quantities of oregano (under 5 kg) are considered to be for household consumption, while large amounts require licensing for export. Other spices, such as sage and thyme, could also be grown for exports. Wild aromatic plants in the forests and other areas are often harvested by the most vulnerable for income.

### Provide technical assistance for plant health

Given that public extension services are not working equally well across the country and the private sector is coping with the impact of a financial crisis, it is likely that plant health might be compromised, leading to additional losses.

While some pests are unpredictable and might not appear, it is very likely that assistance might be needed to carry out a *Xylella Fastidiosa* survey.

Some of the laboratories for organoleptic and chemical testing in the country are well equipped. However, since all diagnostic materials are imported, any disruption in their supply could affect the food chain. Current stocks are adequate for a few months and short term assistance would include replenishing the laboratories with disposable material.

### Livestock production

Larger livestock breeders with stronger resilience capacity are coping relatively well with the impact of the current economic situation, although their operations are less profitable than before and

are considering alternative cost-saving strategies as 2020 progresses. Smaller farmers, particularly those with less than 15 dairy cows, the most effected, might need assistance to protect their livelihoods until a comprehensive agricultural strategy specifying the priorities of the sector is established. Their immediate needs consist of concentrate feed, medications and vaccinations.

### **Feed**

Provision of feed vouchers to support the purchases of concentrate feed would temporarily help the smaller farmers<sup>40</sup> to ease the increasing costs of production. Table 7 illustrates examples of possible rations for cows for farms with less than ten cows.

Concentrate feed includes, in various proportions, maize, barley, wheat bran, cotton meal, soybean meal, vitamins and minerals (sodium bicarbonate, dicalcium phosphate, limestone). The annual needs per cow for herds of less than 15 cows in terms of medications and vaccinations are estimated at USD 50. If artificial insemination is included, the estimated cost increases to USD 180. The average milk yield in small herds is approximately 22 litres.

Covering about 50 percent of the concentrate needs using the first ration, feed vouchers could

be capped at 165 kg per month per cow for a period of three months for a total of 500 kg/cow. The cost of concentrate feed ranges from USD 320 to USD 400 per tonne. Thus, a voucher for USD 173 would cover 500 kg of concentrate feed (at USD 345 per tonne). A programme to distribute feed vouchers could target farmers with ten cows or less, but with a ceiling of USD 865 per farmer (USD 173 times five cows). Any farmer who owns more than ten cows will not be eligible for any support.

### **Vaccines and artificial insemination**

The MoA identified assistance with emergency vaccination to maintain the health of the national herd as a priority. A vaccination campaign might be feasible in a short term, particularly in cooperation with private veterinarians. As discussed earlier, the MoA estimated that it needs 350 000 doses of PPR vaccines for goats and sheep and for FMD twice per year vaccination, it needs 70 000 doses for cattle and 780 000 doses for goats and sheep. The MoA also identified artificial insemination, with an investment of USD 3 million for imports of semen and other necessary supplies, as a priority need to maintain production capacity. However, activities related to artificial insemination do not seem to constitute an urgent need.

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<sup>40</sup> Small-scale milk production is the dominant activity in Lebanese farms. In 2010, 90 percent of cattle farmers had between 1 and 15 heads of cattle: [http://www.animaweb.org/sites/default/files/lac\\_diagnosisreport\\_lebanon\\_en\\_final.pdf](http://www.animaweb.org/sites/default/files/lac_diagnosisreport_lebanon_en_final.pdf).

**Table 7: Lebanon - Examples of rations for farmers with less than ten cows**

	kg/day/cow	Cost	Unit	Cost (USD/day/cow)
<b>Ration I</b>				
Concentrate	11.0	345	USD/tonne	3.795
Alfalfa	1.0	350	USD/tonne	0.350
Maize silage	4.0	110	USD/tonne	0.440
Chopped straw	7.0	350 000	LBP/tonne	1.630
<b>TOTAL RATION I</b>				<b>6.220</b>
<b>Ration II</b>				
Concentrate	15.0	345	USD/tonne	5.175
Alfalfa	0.0	350	USD/tonne	0.000
Maize silage	0.0	110	USD/tonne	0.000
Chopped straw	7.0	350 000	LBP/tonne	1.630
<b>TOTAL RATION II</b>				<b>6.810</b>
<b>Ration III</b>				
Concentrate	13.0	345	USD/tonne	4.485
Alfalfa	2.5	350	USD/tonne	0.875
Maize silage	10.0	110	USD/tonne	1.100
Chopped straw	3.0	350 000	LBP/tonne	0.700
<b>TOTAL RATION III</b>				<b>7.160</b>

Source: FAO Mission, 2020.

Note: Official pegged exchange rate used to convert Lebanese pounds to US dollars.

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