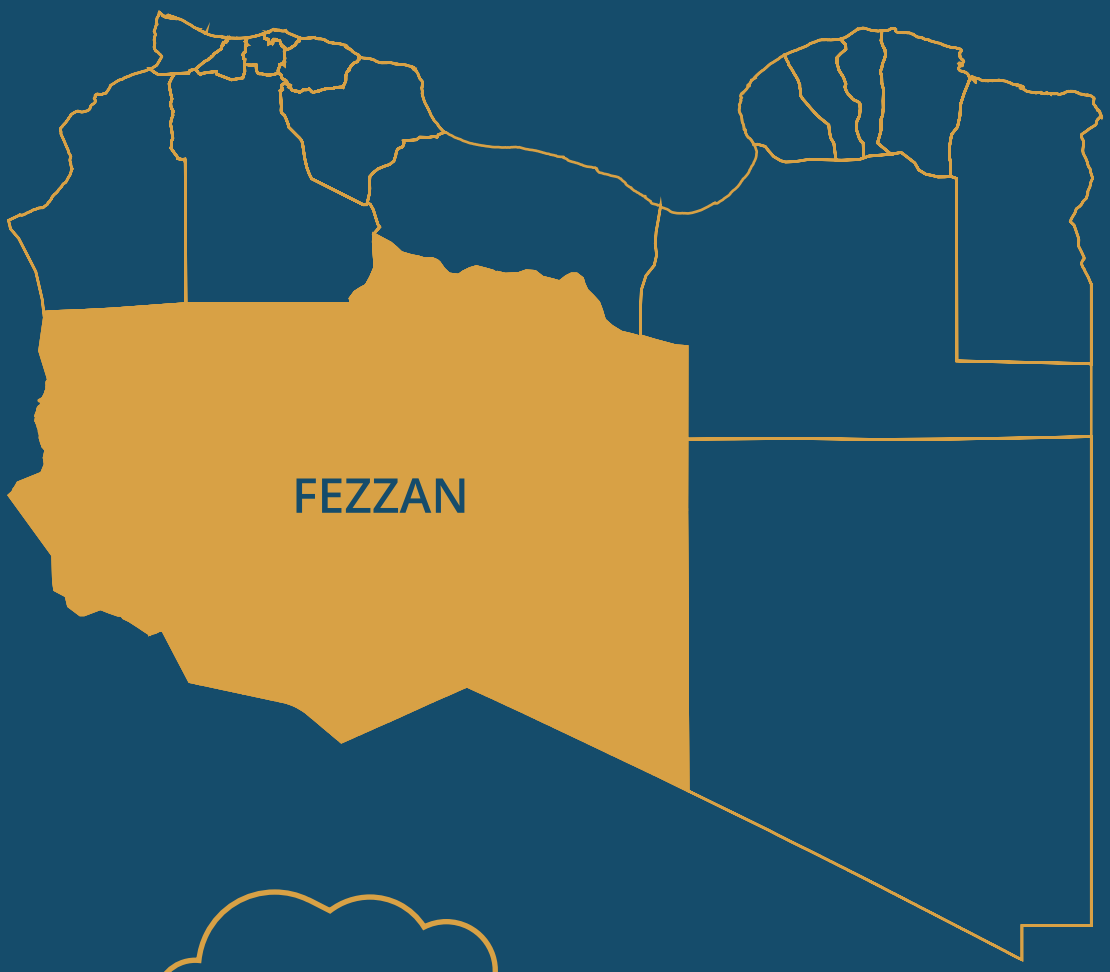
LIBYA

AGRICULTURE AND LIVELIHOOD NEEDS ASSESSMENT REPORT

A STUDY OF THE FEZZAN REGION

MARCH 2020



WFP
World Food Programme

FOREWORD AND ACKNOWLEDGEMENTS

This study was prepared by Daniele Barelli, Independent Consultant and Agricultural Livelihoods Needs Assessment Specialist, in collaboration with WFP Libya Programme Team.

The study was commissioned by the WFP Libya office. Technical support and advice were provided by this office, the WFP Regional Bureau in Cairo, WFP Headquarters and the FAO Regional Bureau in Cairo.

Particular thanks goes to the professional and timely work carried out by the independent non-governmental organization, Fezzan Libya Organization (FLO), which was responsible for the challenging field data collection for this study.

Much appreciation also goes to all people who were very supportive during the process of data collection, particularly the representatives of the Libyan Ministry of Agriculture.

Design and layout
George Kassab

TABLE OF CONTENTS

EXECUTIVE SUMMARY

RATIONALE OF THIS STUDY AND METHODOLOGY

Libya faces an unprecedented and protracted internal crisis caused by a civil war that affects the lives of millions of people in the country, including local populations and migrants from numerous countries. Due to multiple crises since 2011, livelihoods have been heavily affected, especially in rural areas of the country.

In order to understand the main impacts of the conflict on the agricultural sector and the people relying on it, the World Food Programme (WFP) decided to conduct an agriculture and livelihood needs assessment in the southern Fezzan region of Libya. This region remains extremely important for the country's agricultural production and, due to its geographical position, hosts many migrants and Internally Displaced Persons (IDPs), many of whom are employed in this sector.

This study was conducted over a three-month period (December 2019 - February 2020) and consisted of data collection, analysis and report writing. An independent international consultant was recruited to lead the assessment, working remotely with the direct support of the local Service Provider (SP), Fezzan Libya Organization (FLO). The SP was responsible for gathering field data. A mix of primary and secondary data collection methods were used in this assessment, including semi-structured interviews at the Household (HH) level, Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), Face-to-Face Interviews, as well as a comprehensive desk review of existing information. Farmers, IDPs, migrants, women involved in agriculture, traders, representatives of the Ministry of Agriculture (MoA), farmers' associations and food commodity and agricultural inputs vendors were interviewed during the assessment process. All six main administrative districts or Mantikas in the Fezzan region (Al-Jufra, Ghat, Murzuq, Sebha, Ubari, and Wadi Ash Shati) were assessed during the study

MAIN FINDINGS OF THIS STUDY

Despite the relatively small contribution of agriculture to Libya's GDP - less than 3 percent in 2011 - and although 75-80 percent of food requirements are imported from outside the country, the percentage of Libyans engaged in some form of agricultural production remains large, at 22 percent.

This study confirms that agriculture still represents an important source of income and food in all assessed areas of the Fezzan region. The interviewed farming population reported owning the majority of land they cultivate, whereas IDPs and migrants generally work on local farms, which in most cases are between 5-10 hectares (ha) in size. Some larger farms (above 10 ha) still exist, but they represent a small minority of all farms. IDPs and migrants are generally paid in cash and/ or in-kind (i.e. crops harvested) and their daily remuneration appears to be equal across the assessed areas. IDPs and migrants reported that the demand for labour in the agricultural sector remains high, which is the main reason why they continue working in this sector.

Women continue to increase their involvement in agriculture, especially since the crisis of 2014. They mainly work with land preparation and planting operations up to harvesting. They also play a major role in rearing animals, especially goats, sheep and poultry. The absence of both skilled and unskilled labour in the assessed areas and the lack of liquidity to pay for labour are the main reasons pushing women to support agricultural activities. It is important to note that women generally work on family farms, as the poor security situation in the country and local cultural norms do not allow women to work for other private farms.

According to most of the interviewed farming households, the protracted crisis in the country continues to push a large number of households (44 percent) to spend up to 75 percent of their income on food. The same respondents also reported that between 25 percent and 75 percent of the food they consume comes from their own production, especially vegetables, fruit and animal products. Other food commodities usually consumed (rice, pasta, flower, bread, oil, canned products) are purchased from shops and markets. Most of the HHs and people interviewed in FGDs and KIIs reported that the local population is consuming less preferred food and reducing the number of meals per day. These coping strategies help families to meet their food needs in the face of the protracted crises. As food in Libya is mainly imported, food price inflation is strongly affected by currency exchange rate dynamics, the country's import and tax policies and other import constraints.

MAIN CHALLENGES IDENTIFIED BY THIS STUDY

The results of this study show that a large proportion of the population involved in farming in the Fezzan region currently face serious challenges in continuing their operations. Many people were obliged to discontinue agricultural production, including crop and livestock production, because they did not have the means to endure through the crises. According to all stakeholders interviewed, the main obstacles to continuing farming operations are: 1) poor security situation affecting the overall agricultural value-chain, from production, to sales, storage and processing, 2) scarcity of water and fuel, coupled with an irregular electricity supply and frequent power outages, 3) lack of or high prices of agricultural inputs (i.e. seeds, fertilizers and pesticides), 4) lack of income available to purchase required agricultural inputs, equipment, and machinery, 5) difficulties in accessing markets and shops due to the lack of liquidity and transportation constraints, 6) absence of extension services and inoperability of farmer's associations; and 7) inconsistent exchange rate between the United States Dollar (USD) and the Libyan Dinar (LYD), due to the depreciation of the national currency and lack of bank liquidity for accessing loans and financial services.

CROP SUB-SECTOR OVERVIEW

Barley, wheat and vegetable/leguminous products (tomatoes, onions, beans, etc.) remain the main crops cultivated in the Fezzan region. Further crops include fruit trees (dates, citrus, olives, figs, and grapes) and other crops such as alfalfa and clover, generally used as fodder, melons and aromatic plants.

The agricultural sector relies mainly on groundwater for irrigation. In general, the government manages the water network on which farmers rely. Various machines, including electrical water pumps and generators are used to access and distribute this important resource. Fluctuations in electricity and power outages experienced by the population since before the start of the crisis of 2011 create many problems for irrigation and for the storage and conservation of harvested crops. In addition, many irrigation networks as well as private agricultural productive assets (e.g. large machinery) have been either vandalized and/or stolen by armed fighting groups, resulting in major losses for farming communities. In some markets and shops it is still possible to purchase new equipment and machinery in low quantities, yet the costs are very high, which the majority of the population cannot afford.

With regards to agricultural inputs the situation differs slightly, as access to good quality seeds, fertilizers and pesticides is not always possible. At times the availability of these inputs is very low and prices are very high. In addition, it is very rare to find improved seed varieties on the market. Hence, many farmers use their own seeds to cope with these limitations. The use of animal manure as fertilizer is widespread, since it is easier and cheaper to source. The proliferation of pests and diseases on crops also appears to be an increasing problem in the assessed areas.

LIVESTOCK SUB-SECTOR OVERVIEW

Sheep, goats and poultry, followed by camels and other livestock, including rabbits and cows are generally the most frequently bred livestock in the Fezzan region.

Access to safe pastureland, water and quality fodder are the main challenges for livestock keepers, as well as the lack of veterinary services and medicine, electricity, and refrigerators to store livestock products. Many people reported the loss of livestock since the start of the crisis in 2011, due to the inability to maintain herds, recurrent thefts, and high livestock mortality rates due to diseases. The scarcity of high quality fodder and animal medicines, combined with their high market prices inhibit many animal breeders from accessing these important inputs.

MARKET ACCESSIBILITY

Most food and agricultural/animal input requirements are imported from outside the country. The majority of these commodities are distributed from the northern Tripolitania region through the city of Sebha. The security situation in the country creates many obstacles for the transportation sector. The majority of the interviewed traders reported acting as wholesalers to transport most commodities (food and inputs) directly to shopkeepers and market vendors. The high price and frequent unavailability of fuel are the main constraints faced by traders, along with the poor security situation, which contribute to price increases at markets and shops and affect all commodities sold. The interviewed population reported challenges in accessing markets, mainly due to transport constraints, high market prices, lack of liquidity, and security issues. Many vendors of food commodities and agricultural inputs also reported an increase of payments on credit from the local population, especially since 2014.

MAIN NEEDS AND INTERVENTION

The graphic on the next page shows the main focus areas and suggested interventions for building a more resilient agricultural sector and for supporting the population by the protracted crisis. Some intervention mechanisms are also recommended to facilitate the preparation and implementation of those interventions.

AREA OF FOCUS — INTERVENTION MECHANISMS

1 BOOST AGRICULTURAL PRODUCTIVITY

In Kind | Voucher | Cash for Work | FFW | Government dialogue/support

SUGGESTED INTERVENTIONS

- Provision of free and subsidized good quality agricultural and livestock inputs (seeds, fertilizers, feed, etc.), including restocking of animal vaccines
- Provision of material and seedlings to reestablish nurseries for fruit production
- Restructure crop production sector (i.e. varieties, timing) towards climate smart agriculture

2 INFRASTRUCTURE SUPPORT

In Kind | Cash for Work | FFW

SUGGESTED INTERVENTIONS

- Improve access to irrigation and electricity through rehabilitation of governmental networks, equipment, machinery (generators, water pumps, etc.)
- Establish key critical processing facilities/ infrastructure (milling plant, slaughterhouses, packaging and storing etc.)
- Provision of solar water pumps and generators

3 IMPROVEMENT OF LOCAL SERVICES

Government dialogue/support

SUGGESTED INTERVENTIONS

- Enhance crop and animal extension services
- Facilitate access to formal low interest rate loans to restore the agriculture sector and sub-sectors

4 IMPROVED LIVELIHOODS / MARKET ACCESS

In Kind | Cash for Work | FFW | Government dialogue/support

SUGGESTED INTERVENTIONS

- Rebuild community agricultural infrastructure
- Provide skills development to support agriculture and complementary livelihood activities
- Improve market access by restoring roads in terms of security and improve transportation facilities at lower cost

5 CAPACITY DEVELOPMENT

In Kind

SUGGESTED INTERVENTIONS

- Conduct trainings on crop diversification, water-saving practices, pest and disease control
- Conduct trainings on livestock production, including disease prevention, composting, advanced rearing practices and livestock diversification (i.e. bee production)
- Train local stakeholders on best practices relating to new energy (e.g. solar) source maintenance

6 OTHERS

In Kind | Government dialogue/support

SUGGESTED INTERVENTIONS

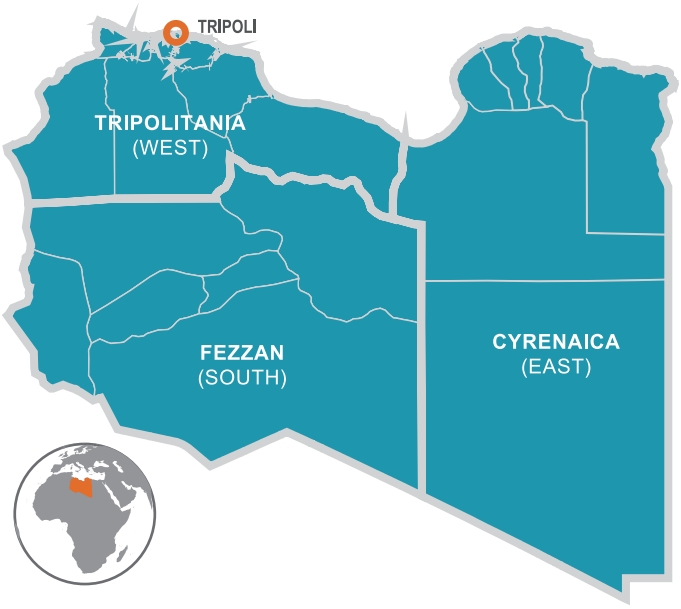
- Conduct an assessment on the status of irrigation in the Fezzan region
- Conduct a market assessment to verify the possibility of establishing a cash/ voucher mechanism for agricultural and livestock inputs
- Review relevant agricultural policies
- Support the rehabilitation of farmers' associations and the establishment of new ones
- Conduct scientific research and more in-depth studies to better understand issues related to soil and salinity, climate change and the spread of pests and diseases

In Kind | Voucher | Cash for Work | FFW Food for Work | Government dialogue/support

SECTION 1

Background, objectives and methodology of the assessment

1.1 Introduction



Libya, officially the State of Libya, is a country located in North Africa bordering the Mediterranean Sea in the north, Egypt to the East, Sudan to the southeast, Chad to the south, Niger to the southwest, Algeria to the west and Tunisia to the northwest. Most of the country lies in the Sahara Desert, while much of its population is concentered along the coast and in its immediate hinterland. Libya comprises three historical regions: Tripolitania in the west (where the capital Tripoli is located, along the Mediterranean coast), Cyrenaica in the east (where Benghazi, the 2nd largest city, is located) and Fezzan in the south (which includes Sebha and Al Khalij areas). Libya is the fourth largest country in Africa, and is the 16th largest country in the world.[1]

Libya has a mix of semi-arid and arid climatic conditions. Rainfall is very limited and its volume and distribution vary from year to year, primarily along the coastline. Consequently, agriculture is primarily dependent on irrigation. Groundwater represents the main source of water supply.

Since 2011 Libya faces armed conflicts affecting the lives of millions of people, including Libyans and migrants from neighboring countries. The crisis started with the destitution of the Government led by Muammar Geddafi. The transitional political process collapsed in July 2014, with a renewed outbreak of armed conflict dividing Libya into competing factions. Since 2014 until today fighting has continued across the country causing civilian causalities, displacement of people and the destruction of key networks and infrastructure, including those related to the agricultural sector.

The crisis has adversely affected 2.4 million people, about 40% of the population[2], with differentiated impacts by region, ethnic group, gender and age. More than 0.82 million people are in need of humanitarian assistance, including 413,000 migrants, refugees and asylum seekers, 97,000 Internally Displaced Persons (IDPs), 165,000 returnees and 148,000 non-displaced persons[3]. The majority of the people in need are men and boys (approximately 66%), while children make up one third of those needing assistance.[4]

Despite the Libyan economy primarily relying on the oil sector, which accounts for over half of GDP and 97% of exports[5], in 1958, before the era of oil wealth, agriculture supplied over 26% of GDP while Libya exported food. Although gross levels of agricultural production have remained relatively constant, increasing oil revenues have resulted in a decline in agriculture's overall share of national income. Thus, by 1962 agriculture was only responsible for 9% of Gross Domestic Product (GDP) and by 1978 this figure had tumbled to a mere 2%.[6]

> *"The crises have adversely affected 2.4 million people, about 40 percent of the population, with different impacts by region, ethnic group, gender and age"*

1 *"Demographic Yearbook (3) Pop., Rate of Pop. Increase, Surface Area & Density". United Nations Statistics Division.*

2 United States Agency for International Development, 2017. Libya – _Complex Emergency. Fact sheet no. 1, 2018. *https://www.usaid.gov/sites/default/files/documents/1866/libya_ce_fs01_12-01-2017.pdf.*

3 OCHA. 2018. 2019 Libya Humanitarian Needs Overview *https://reliefweb.int/sites/reliefweb.int/files/resources/2018_LBY_HNO_Final%20v2.1.pdf*

4 Ibid

5 "Oil production boosts Libya economy, instability hampers reconstruction" . *The daily Daily Star*, 20 October 2012

6 The Library of Congress Country Studies and the CIA World Factbook, 1987. https://www.photius.com/countries/libya/economy/libya_economy_agriculture.html

The share of agriculture in the economy has continued to remain low as the importance of oil rose. As a result, Libya continued to import 75%-80% of its food requirements from European and Arab countries with wheat, maize and their derived products (flower, pasta, etc.) being the main imported goods together with rice and vegetable oil.[7]

Despite agriculture's relatively small contribution to Libya's GDP at less than 3% in 2011[8], the proportion of Libyans engaged in some form of agricultural production is large, at 22%.[9] Before the 2011 crisis there were about 170,000 farm-holders, of which 39.4% were classified as full-time farmers. The rest were part-time farmers, since they continued to rely on rainfed agriculture that did not provide sufficient returns. Close to 90% of all farms were considered small (less than 20 ha), compared to 9% medium sized (20-100 ha) and 1% large farms (greater than 100 ha).[10]

This study was conducted by the World Food Programme (WFP) to better understand the impact caused by the conflict on the agricultural sector and on the people that rely on agriculture across different districts of the southern Fezzan region. This region remains one of the most important areas for agricultural production in the country and was identified as one of the regions where agriculture is most affected by recent crises.

> ***"Despite agriculture's relatively small contribution to Libya's GDP at less than 3 percent in 2011 , the proportion of Libyans and-non engaged in some form of agricultural production remains large, at 22 percent."***

7 FAO and WFP, 2011. Food Security in Libya – An Overview. https://documents.wfp.org/stellent/groups/public/documents/ena/wfp234964.pdf?_ga=1991382985.1480874782-2.269020344.83482810.1495913556
8 Ibid.
9 Libya Multi-Sector Needs Assessment, 2018 https://reliefweb.int/sites/reliefweb.int/files/resources/reach_lby_report_msna_february_2019_0.pdf
10 Ibid.

1.2 Conflict Situation

Libya has undergone several waves of conflict since the Arab Spring protests of 2011, which led to a civil war, foreign military intervention, and the ousting and death of former leader Muammar Gaddafi. The civil war's aftermath and the proliferation of armed groups led to violence and instability across the country, erupting into renewed civil war in 2014 and 2015. This led to the eventual divide of the country into the Tripoli-based Government of National Accord (GNA) led by Fayez Al Sarraj in the West and the Tobruk-based House of Representatives, which supports the Libyan Arab Armed Forces, also known as the Libyan National Army (LNA), led by General Khalifa Haftar in the East.

After approximately four years of stalemate between the rival parallel authorities, conflict intensified once again in April 2019 when the LNA launched an offensive to take western Libya, after having expanded its presence to the South of the country. This conflict continues with various international actors providing economic and material support to both sides.

Apart from foreign intervention, the prolonging of the conflict has been aided by several local dynamics, most notably the tribal nature of the Libyan context, insecurity that emerged within the four years of stalemate, and smaller conflicts between various armed groups.

Many in the Fezzan region perceive a lack of economic and social welfare investment in their area, saying this exacerbates an already deteriorating economic situation in southern Libya.

Access challenges to basic services, including water and electricity, has hindered the development of the agricultural and manufacturing sectors, both as a result of national and tribal conflicts and general insecurity. The same factors have resulted in a reduction in education and vocational training as well as high unemployment levels.

Islamic State re-emergence is a further challenge within this context. The group has recently appeared in Derna, southern Tripoli, Murzuq, Umm Aranib, and Sebha.

1.3 Objectives of the study

1.3.1 OVERALL OBJECTIVE

The overall objective is to understand the reasons that push households to cease or diminish their agricultural activities and to investigate the level of disruption caused by the crises. Results of this report are used to plan rehabilitation and intervention measures with local partners in order to support sustainable agricultural livelihoods and resilient agriculture in the Fezzan region.

PICTURE 1
Interviewing a livestock farmer in the Mantika of Ghat

1.3.2 SPECIFIC OBJECTIVES

1. Assess how the different societal groups, the local population (women, youth and other gender groups), IDPs from other parts of the country and migrants from outside of Libya contribute to the required agricultural labour/ workforce.

2. Understand the implications of the value-chain analysis from production for home-consumption to the sale of agricultural product for income-generation.

3. Comprehend market accessibility and existing dynamics for food commodities and agricultural inputs (how, quantities and which goods/ inputs arrive at local markets, costs to purchase goods and inputs, satisfaction of sellers and buyers in terms of product availability, quality, etc.).

4. Understand the population needs to support agricultural livelihoods.

1.4 Assessment Methodology

The assessment was conducted using a combination of primary and secondary data collection methods, with the aim of triangulating all information available and providing insights about the situation on the ground.

Data collection started in mid-December 2019 and was completed in mid-January 2020. The selection of the assessment locations was done with a focus on accessibility of the targeted areas, while avoiding security problems as much as possible. This study aimed to cover the most representative agricultural zones of the Fezzan region, including rural, urban and mixed-type villages and towns. Given that the geographical scope of this study is limited to the six main administrative districts or Mantikas assessed (Al-Jufra, Ghat, Murzuq, Sebha, Ubari, and Wadi Ash Shati), the findings are not intended to be representative of the overall status of the Fezzan region and the country.

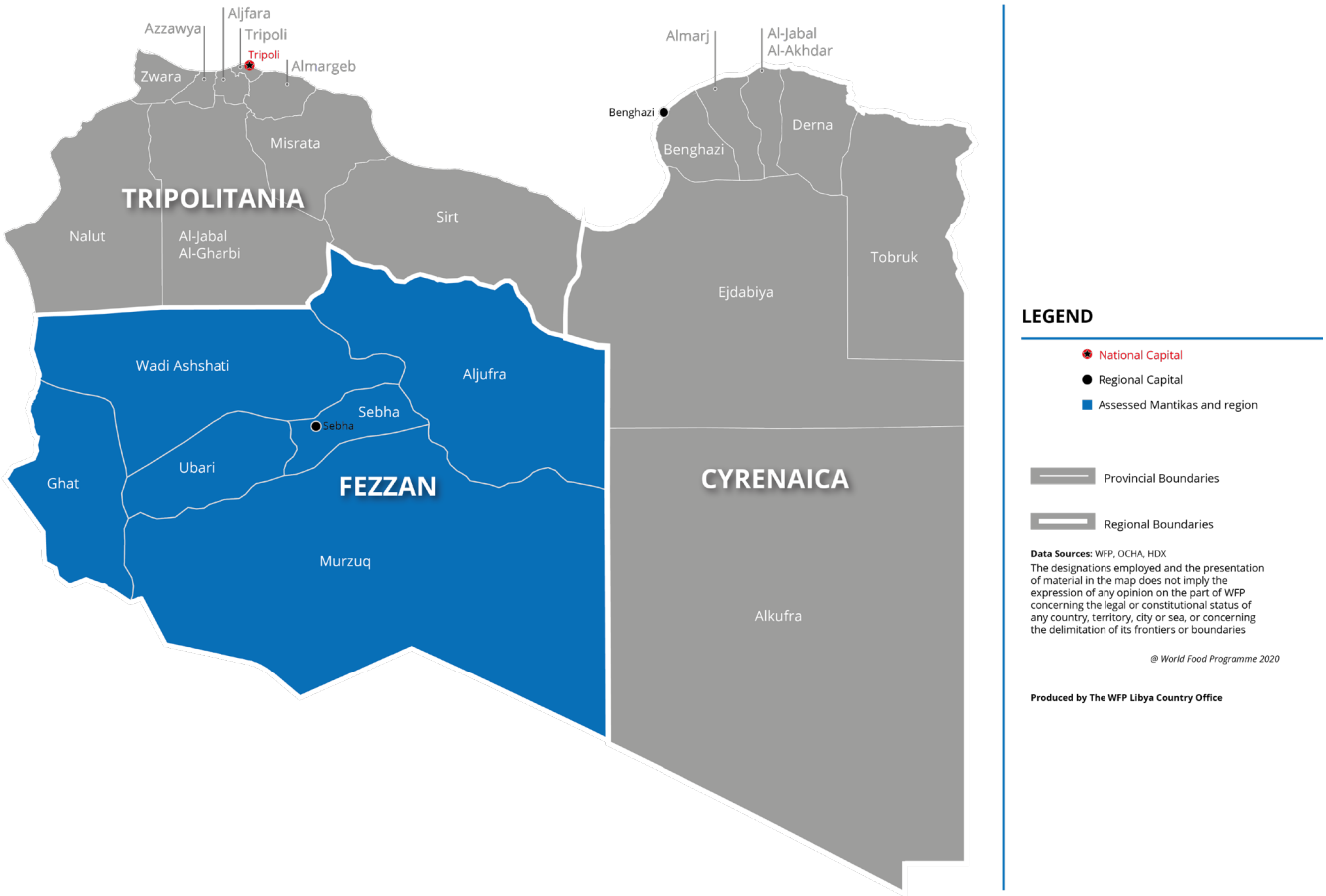
A national Service Provider (SP) was contracted by WFP for data collection. An Agriculture Assessment Specialist was recruited to lead the coordination of the assessment entailing the preparation of data collection tools, the remote supervision of the SP's work, the analysis of primary data collected, a desk review of secondary data and writing of the final assessment report. The Agriculture Assessment Specialist worked in close consultation with other WFP specialists.

Primary data collection mainly consisted of: 1) Semi-structured interviews, 2) Focus group Discussion (FGDs) and 3) Key Informant Interviews (KIIs).

1. **Semi-structured interviews:** These interviews were conducted at the household level and with representatives of farmer and livestock keepers (80 small-holders and 20 large-holders). Due to the small number of planned interviews (100 in total) and no statistical sample used to conduct the interviews, a random selection of the respondents was applied, following a transect walk approach.[1]
2. **Focus Group Discussions (FGDs):** Each focus group consisted of a minimum of 6-7 participants and a maximum of 10-12 participants. These

1 https://catcomm.org/transect-walk/

FIGURE 1
Map of the assessed Mantikas in Fezzan region
WFP Libya Country Office



PICTURE 2
Women participating in a focus group discussion
WFP Libya Country Office

discussions were held with the migrant population from outside of Libya, the IDPs coming from different parts of the country, and groups of women. The sites selected for the group discussions were chosen based on the availability of the respondents, their profile and access to the targeted areas.

3. **Key Informant Interviews (KIIs):** The key informant respondents were selected based on accessibility to the targeted areas (markets, cities, villages, commercial centers, etc.) and their availability to participate in the interviews. The respondents of these interviews were representatives of the Ministry of Agriculture (mainly extension workers and coordinators), vendors and traders of agricultural/ livestock inputs and food commodities, farmers and livestock keepers, as well as representatives of active or inactive farmers' associations.

As indicated by Table 1, both female and male respondents were considered for FDGs and KIIs. However, considering the local cultural norms, it was not possible to achieve equal representation of women compared to men during data collection. Despite this, there was strong attendance of women (110 females in total) during the various interviews undertaken.

Secondary data collection consisted of a review of articles, documents, previous studies and similar assessments conducted in Libya compiled by UN agencies, NGOs, academia, and the Ministry of Agriculture (MoA), amongst others.

TABLE 1
List and number of interviews conducted

Type of Interview	Main Respondent(s)	Gender Respondent		Number of interviews	Mantika Assessed
		Female	Male		
Semi-structured Interviews	Small-holder farmers and livestock keeper	11	69	80	Aliufra, Ghat, Murzuq, Sebha, Ubari, and Wadi Ash Shati
Semi-structured Interviews	Larger-holder farmers and livestock keeper	0	20	20	Same as above
Focus Group Discussions	Internally Displaced People (IDPs)	19	21	4	Murzuq, Sebha and Ubari
Focus Group Discussions	Migrants	0	47	4	Ghat, Murzuq, Sebha and Ubari
Focus Group Discussions	Women involved in agriculture	79	0	7	Aliufra, Ghat, Murzuq, Sebha, and Wadi Ash Shati
Key Informant Interviews	Ministry of Agriculture representatives	0	9	9	Aliufra, Ghat, Murzuq, Sebha, and Ubari
Key Informant Interviews	Traders of agricultural inputs and food commodities	0	5	5	Aliufra, Ghat, Murzuq, Sebha, and Ubari
Key Informant Interviews	Agriculture cooperative representatives	0	9	9	Aliufra, Ghat, Murzuq, Sebha, Ubari, and Wadi Ash Shati
Key Informant Interviews	Farmers and livestock keepers	1	7	8	Aliufra, Murzuq, Sebha, Ubari and Wadi Ash Shati
Key Informant Interviews	Vendors food commodities	0	9	9	Aliufra, Ghat, Murzuq, Sebha, and Ubari
Key Informant Interviews	Vendors agricultural inputs	0	8	8	Aliufra, Murzuq, Sebha, Ubari and Wadi Ash Shati
Total		**110**	**204**	**163**	

1.5 The role of Agriculture in Libya and the Fezzan Region

Before 2011, agriculture in Libya was highly subsidised, with the government providing agricultural inputs, machinery and other tools to the farmers at reduced cost or free of charge[1]. Many cooperatives and farmers' associations were constituted across the country to support farmers and livestock keepers through the assistance of MoA.

Wheat and barley are the major cereals grown in the country, together with different types of vegetables (tomatoes, onions, melons, etc.). Other important crops include dates, citrus, olives, grapes, and almonds. Livestock rearing is also common and during the 1980s it represented the largest income-generating activity in agricultural sector[2]. The Government instituted numerous measures designed to make the country self-sufficient in the production of meat, poultry, and dairy products. As a result, the number of sheep, cattle, and poultry slowly increased, while the number of goat and camel herds decreased. However, since the start of the crisis in 2011, the number of livestock also began to decline. Currently there is no reliable information related to livestock farming in terms of its contribution to GDP and the number of herds remaining.

Water scarcity remains one of the major limiting factors for the development of the agricultural sector in the country. The agricultural area developed for irrigation was about 470,000 ha, however only 240,000 ha were irrigated before the crisis of 2011.[3] It is now hard to estimate how many ha of land are currently cultivated.

With a population of 404,700, the Fezzan region has pre-desert and desert climatic conditions, with high temperatures and large daily thermal variations. Precipitation is rare and irregular and annual rainfall is extremely low. With very limited perennial water resources, **southern Libya relies almost completely on non-renewable groundwater resources, with over 99 percent of agriculture in the Fezzan region depending on groundwater.** According to the Ministry of Agriculture, the irrigated area in the Fezzan region is estimated at 114,000 ha in 2018.[4] Sprinkler irrigation systems are one of the most common types of irrigation (representing 38.8 percent of all irrigation systems in place), followed by drip irrigation (26.8 percent).[5] The majority of farmers in Fezzan relied on the government water network and electrical grid to access the necessary irrigation.

Agriculture in the Fezzan is concentrated in two areas:

- The **Jufrah Oasis** (around the city of Houn)
- The **Murzuq Basin** (around the cities of Brak, Ubari, Sebha and Murzuq)

The crops produced in this area consist of cereals, mainly wheat and barley – planted and harvested from October to May, vegetables, including tomatoes, onion, and potatoes – cultivated throughout the year depending on water availability, forage, primarily alfalfa – cultivated from September to November and February to April, and fruit trees, including olive, date, grape, citrus, as indicated in Table 2 and Figure 3.

TABLE 2

Crops distribution in Fezzan region (2018)

Crops	Area (thousand hectares)	% Area covered	Average number of crops cultivated
Cereal	29	25.4	3
Vegetables	30	26.3	16
Forage	23	20.3	2
Fruit trees	28	24.6	11
Others	4	3.5	7
Total	**114**	**100**	**39**

SOURCE: Ministry of Agriculture – Agriculture Research Centre 2018

1 Interviews with farmers' cooperatives and Ministry of Agriculture's representatives
2 Helen Chapin Metz, ed. Libya: A Country Study. Washington: GPO for the Library of Congress, 1987. http://countrystudies.us/libya/64.htm
3 FAO and WFP, 2011. Food Security in Libya – An Overview.
4 Ministry of Agriculture – Agriculture Research Centre 2018
5 Najem Embaraka, 2018 – PHD Thesis: *Plant Agriculture Production in Fazzan Province*

FIGURE 2

Map of the main agricultural areas in Fezzan region
WFP Regional Bureau Cairo - February 2020

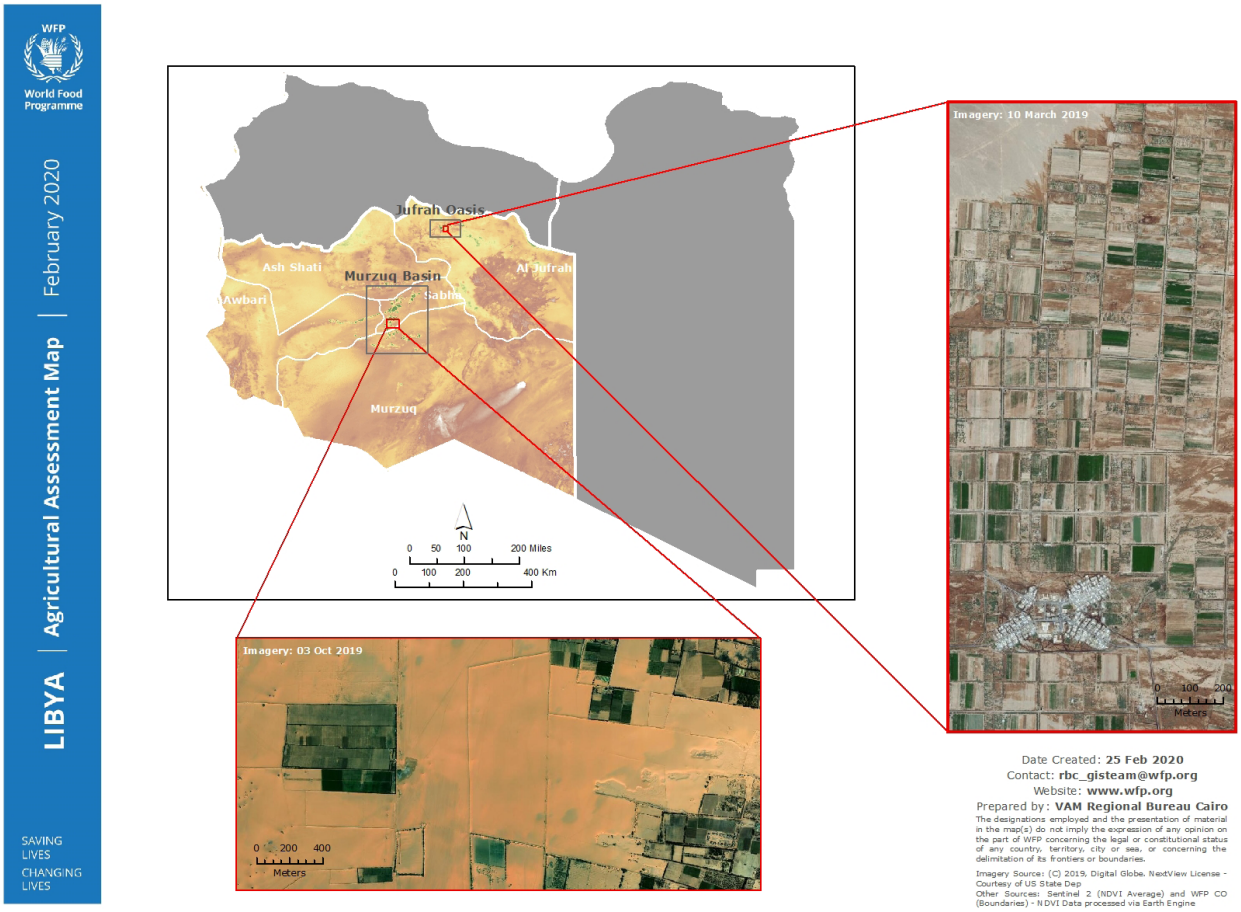
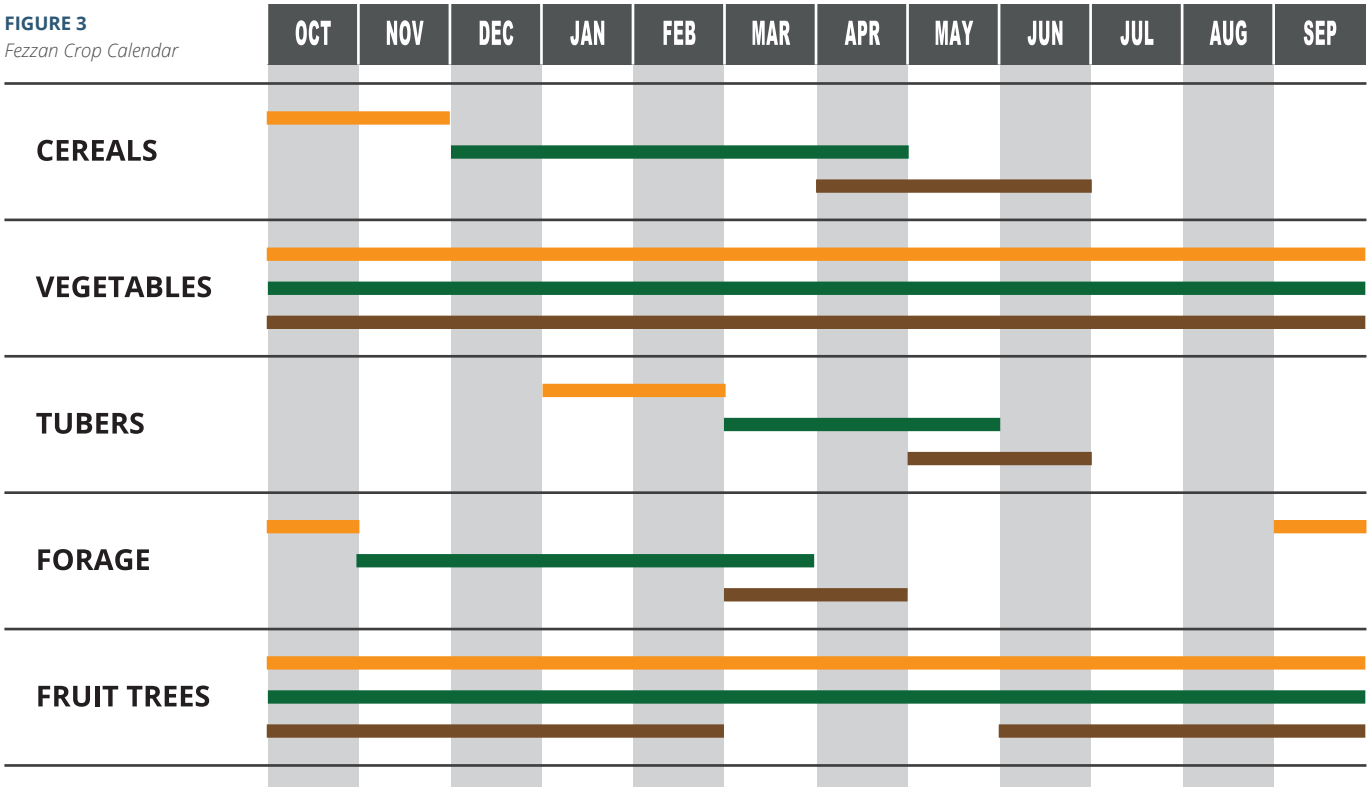


FIGURE 3

Fezzan Crop Calendar



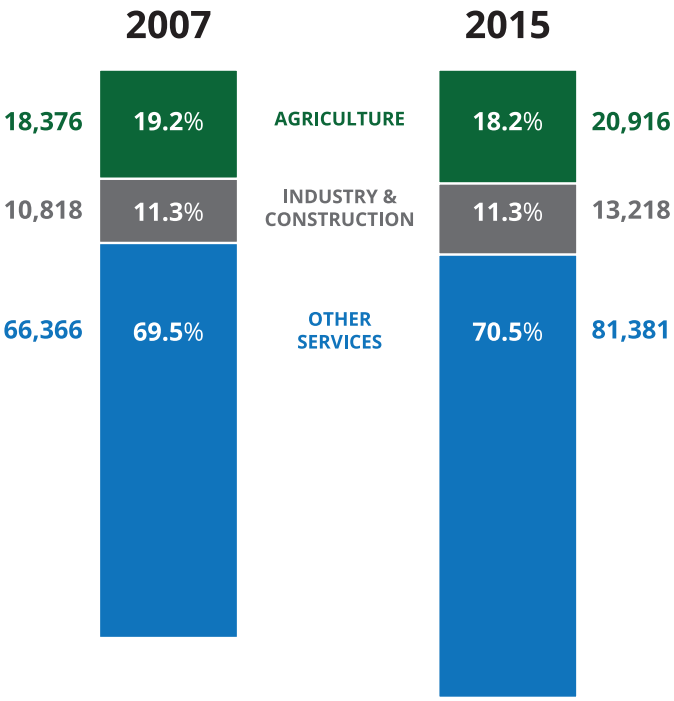
SOURCE: FAO/GIEWS

Sowing Growing Harvesting

The number of people employed in the agricultural sector in the Fezzan region, is shown in Figure 4 and compared to the industry/ construction sector and other services.[6] This number slightly increased from prior to the crises. This can be attributed to more people going back to agricultural activities in order to produce food for their HH consumption and to generate income. Agriculture in southern Libya also benefits from the work of migrants,[7] arriving from neighbouring countries.

Livestock production has also been an important pillar of Fezzan's agricultural sector. Cattle, goats, sheep and camels are the main livestock raised in southern Libya for supplying meat, wool, milk and skin. Animal husbandry continues to be an important source of income and food for the local population.

FIGURE 4
Number of employees and relative proportion by sector of interest



SOURCE: Ministry of Agriculture Livestock and Marine – Tripoli, 2015.

There are about 28 agricultural farmer's associations distributed among villages and cities in the south, which play an important role in providing farmers with equipment, seeds and machinery at lower prices than the market. These associations have also had the task of developing farmers' knowledge and to help farmers solve problems related to livestock and crop production.[8] However, since 2011, these associations have received less support from the Government and they continue to face several operational challenges, which pushed many to cease their activities.

Prior to 2011, there were thousands of hectares of state-owned farms in the Fezzan region, developed together with the Great Man-Made River Project (GMMRP) implemented by the Government in the 1980s.[9] This project aimed to make Libya self-sufficient in food production. Today, the state-owned projects in the South of Sebha are reported to be in disrepair due to the crisis.

PICTURE 3
Interviewing a farmer in the Mantika of Ghat

6 Education, health and security (teachers, doctors/ nurses, guards, etc.) are the main sub-sectors of interest when it comes to other services employment, together with trade and business (vendors in shops/ markets, etc.).
7 In this report the word "migrants" is used to indicate people coming from outside Libya
8 Najem Embaraka, 2018 – PHD Thesis: *Plant Agriculture Production in Fazzan Province*
9 http://www.great-man-made-river.algaddafi.org/great-man-made-river-gmmr--english

SECTION 2

The impact of the crises on different groups and livelihoods

This chapter provides an overview of the main socio-economic characteristics of local residents, migrants, and IDPs interviewed during this assessment and their involvement in agriculture. This information is intended to reinforce the background knowledge of the local context, better understand the impact of the crises on different social groups and support the analysis of the cropping and livestock needs covered in later sections of this report.

2.1 Profile of farming households interviewed

Most of the interviews conducted with farmers were done via HH level semi-structured interviews and face-to-face interviews. Murzuq was the *Mantika* with the largest number of interviews conducted across the Fezzan region. Murzuq is the largest *Mantika*, in the region as well as the region with the most prominent agricultural production.

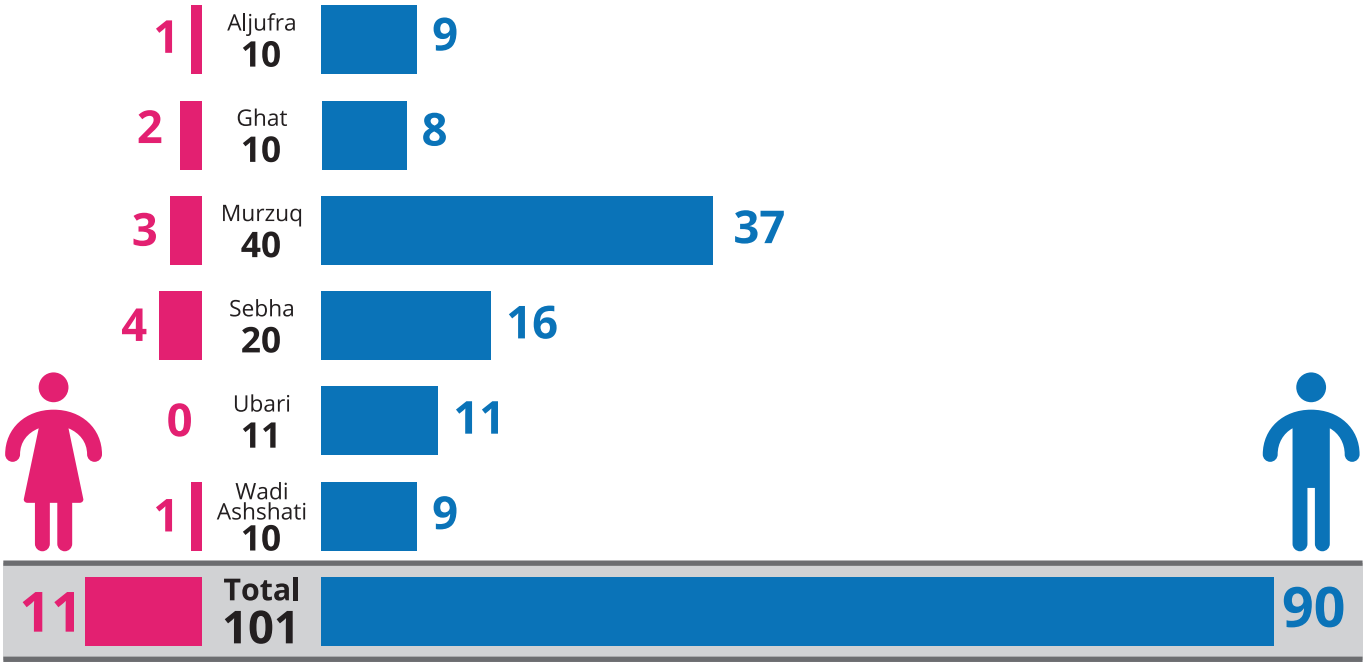
All areas assessed via semi-structured interviews generally reported no incidents due to armed fighting in the 30 days prior to the interviews. Only in Sebha, Murzuq and Ghat was sporadic fighting reported (by 50 percent, 27.5 percent and 10 percent of the respondents, respectively).

2.1.1 MAIN LIVELIHOOD ACTIVITIES AND RELATED INCOME GENERATION IN AGRICULTURE

According to the results of the HH and KII interviews with the Ministry of Agriculture, **about 80 percent of the farmers in the Fezzan were involved in crop production for their own consumption and income generation, with the remaining 20 percent involved in both crop production and livestock rearing.** Among the farmers there are people who invest mainly in crop production (for consumption and income generation) and keep additional livestock only for personal household consumption. However, there are also farmers who own a large number of animals and produce some crops for their own consumption to feed animals and/or generate income. It is generally rare, although possible, to have large privately-owned active farms, which simultaneously engage in both animal and crop production on a large-scale.[1]

The HH interviews also show that, in addition to agriculture, family members often generate income through employment in the public sector (various Ministries), in the security sector, and in some other freelance jobs (NGOs, UN, research institutions, etc.). Among the HHs assessed, many people reported that women earn an income, especially in the public sector, including education, health, and cleaning (i.e. teachers, nurses, and cleaners). This information clearly indicates that women significantly contribute to the HH's income generation.

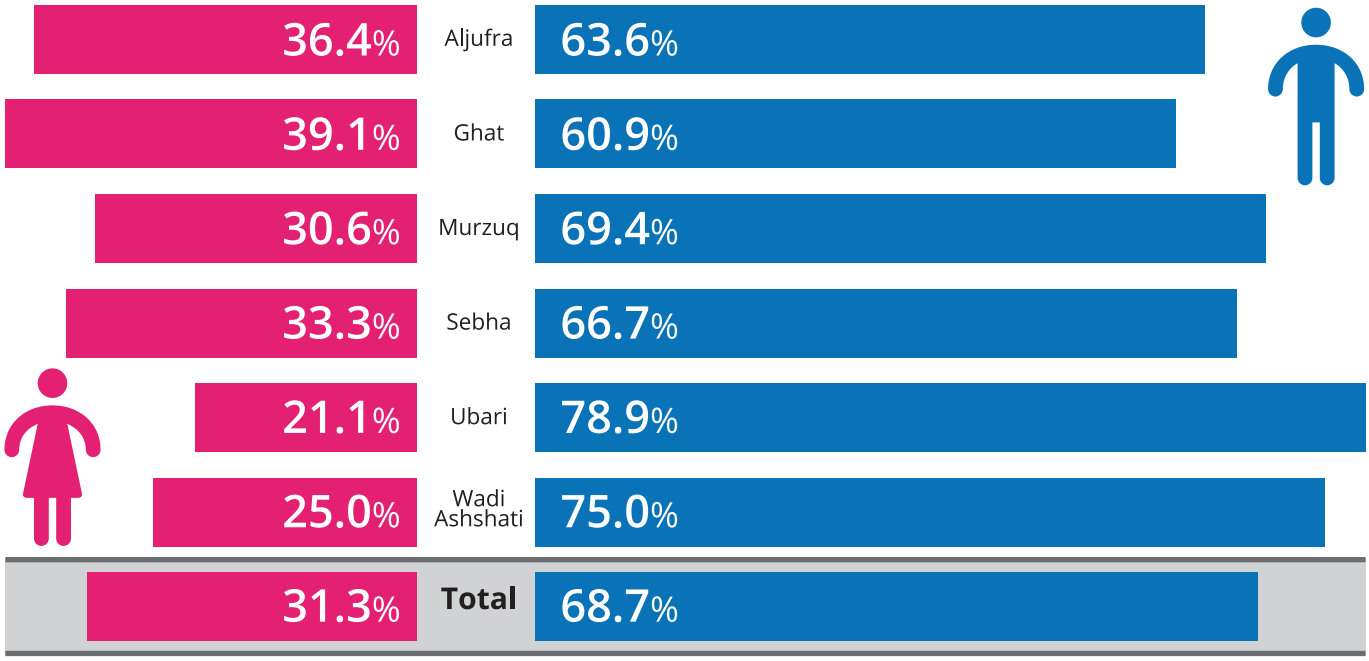
FIGURE 5
Number of household semi-structured interviews conducted with farming population



1 For large farms we intend those with a size above > 10 ha. Smaller farms are below < 10 ha.

FIGURE 6

Gender of people earning an income as reported by the interviewed households



The data analyzed also showed that a large number of farmers generally hire some agricultural labour, depending on the needs and seasonality of the activities to be conducted on the farms. Land preparation and harvesting are the activities requiring most labour support, followed by livestock rearing.

Lastly, most of the households interviewed in Ghat, Murzuq, Sebha and Wadi Ash Shati, reported not hosting any migrants from outside Libya, but rather a small number of IDPs and relatives due to the crisis in the country. However, it was reported by at least 50 percent of t**he respondents that migrants generally contribute to their HH budget by providing food and/or manpower in exchange for cash and accommodation.** Their contributions related to agricultural activities are land preparation and sowing, harvesting, and livestock rearing.

2.1.2 HOUSEHOLD EXPENDITURES AND COPING MECHANISMS

Of the HHs interviewed, **39.6 percent reported that they spend at least 50 percent of their monthly income on food, with 43.6 percent of HHs spending up to 75 percent of their income for the same purpose**. The data collected through the Multi-Sector Needs Assessment (MSNA) report of 2019 indicate that the largest HH expenses of the Fezzan region are, in order of importance: food, rent, cooking and vehicle fuel, and health-related expenditures. The same MSNA study shows that the top sources from which HHs typically acquire food are local markets, while the food is mainly purchased – in order of importance – with cash, cheque and credit.

The respondents of the HH interviews also indicated that up to 75 percent of the food they consume comes from their own production, especially vegetable, fruits and animal product. Other food commodities usually consumed (rice, pasta, flower, bread, oil, canned products) are purchased from shops and markets.

Most of the HHs and people interviewed through the FGDs and KIIs reported that the local population is consuming less preferred food and reducing the number of meals per day as coping strategies. People engage in these coping mechanisms because of 1) unproductive agriculture due to scarcity of water and electricity, inputs and the challenges caused by the prolonged crisis, 2) less income available to purchase the required amount of food, 3) the decreased availability of preferred food in shops/ markets and 4) the high increase and volatility of food commodity prices on the market. This is further aggravated by the high annual food inflation rate registered since the start of the crisis in 2011.

As food in Libya is mainly imported, food price inflation is strongly affected by currency exchange rate dynamics, the country's import and tax policies and other import constraints. Other macroeconomic factors that affect food inflation are the inconsistent exchange rate between the United States Dollar (USD) and the Libyan Dinar (LYD) due to the depreciation of the national currency and the lack of bank liquidity.

2.1.3 CHALLENGES IN ANNUAL CROP PRODUCTION

Groundwater remains the main source of irrigation in the Fezzan region and in Libya in general. **Most farmers, since before the crisis of 2011, were relying on the government water network and the national electrical grid to access irrigation.** Electricity is necessary to access the required water and distribute it for cultivation. However, the fluctuations in energy provision and power outages experienced since 2011, and the damage to the water networks, have caused water shortages that are considered the main challenge for crop production. The problem related to electricity reportedly existed even before the crisis of 2011 but the protracted conflict in the country has only further amplified this problem. Farmers also indicated that although irrigation networks existed prior to 2011, they always lacked proper government maintenance and follow-up work to expand their coverage and effectiveness.

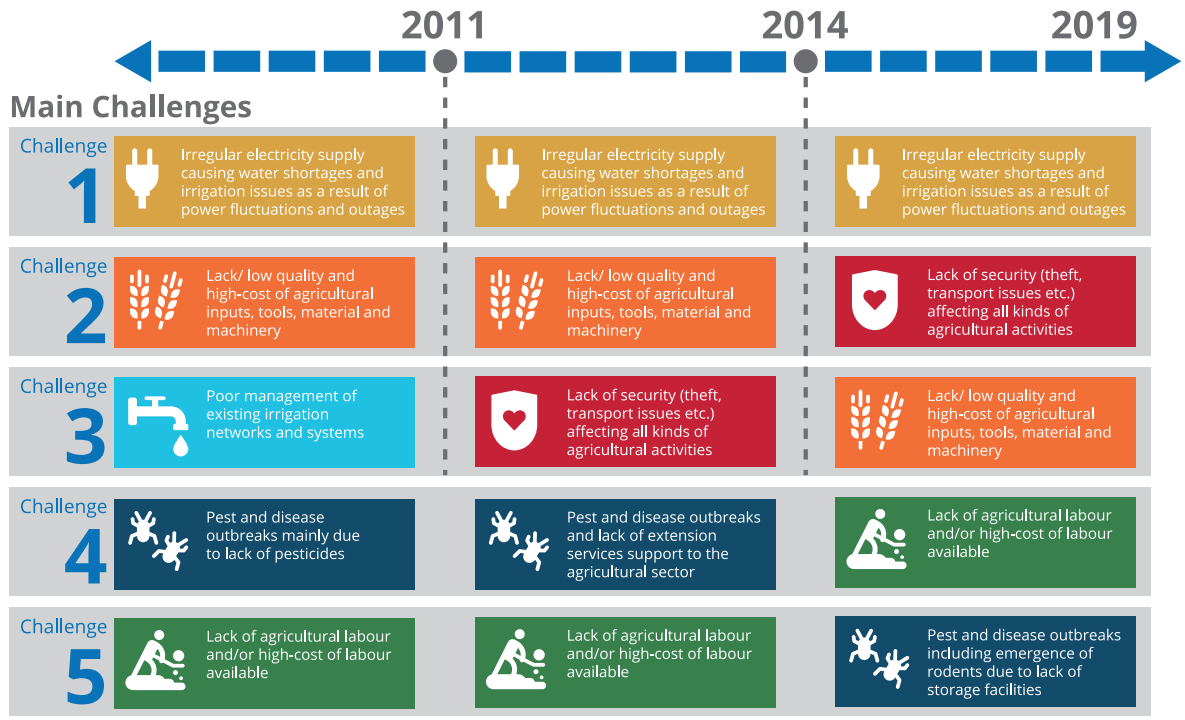
The second main challenge observed before the crisis of 2011 and until 2014 was the shortage and therefore the high cost of agricultural inputs, especially seeds, pesticides and fertilizers. This problem persists today, with a steady increase in prices and a decrease in the quality of these inputs. The same was reported for agricultural tools, materials, equipment and machinery.

Libya's internal conflict generated serious security issues, which were also mentioned as an important limiting factor to continuing and boosting agricultural production. Road ambush, transport constraints limiting access to markets, theft of materials, assets and equipment, have been reported as the main effects of the poor security situation.

Pests and diseases affecting crops and stocks of agricultural produce have been also reported as an issue affecting productivity. This also reportedly began before the beginning of the crisis of 2011. This is probably due to the lack of pesticides, their high cost, change in weather patterns, and the absence of safe and functional storage facilities and materials (bags, containers, etc.). Another main challenge mentioned by the farming HHs interviewed – especially those with access to larger agricultural land – was the lack of skilled agricultural labour and the high cost of available labour. This pattern remains relatively unchanged, with an overall reported lack of skilled and unskilled labor, which further increases labour costs.

Other challenges were also reported, including the lack of liquidity to maintain crop production, the shortage or high-price of fuel and limited, non-functional or non-existing processing facilities.

FIGURE 7
Main challenges in crop production reported by farming households

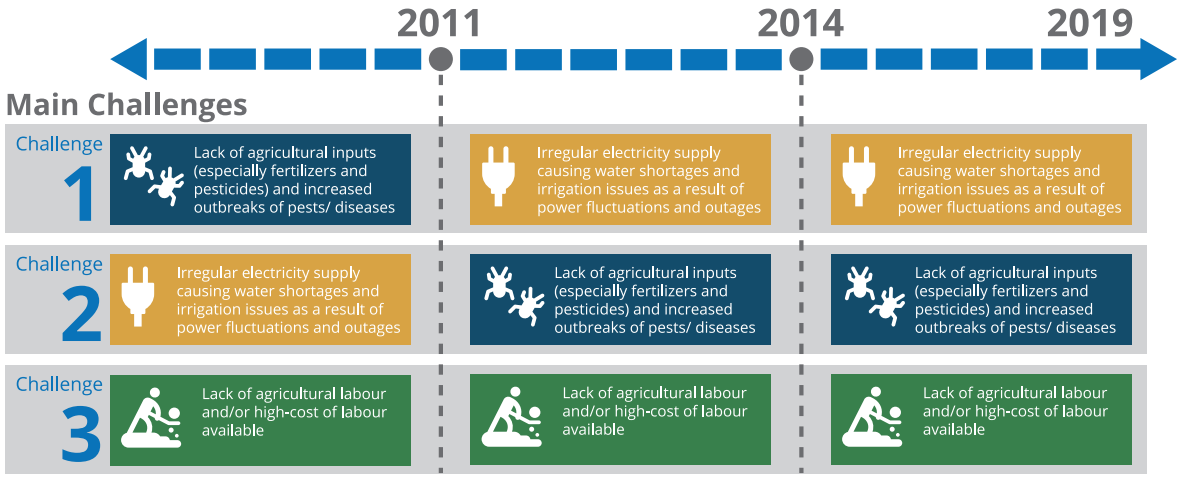


2.1.4 CHALLENGES IN FRUIT TREE/ PERMANENT CROP PRODUCTION

Similar to crop production, the main challenges experienced in fruit tree production since before 2011 were electricity fluctuations, which caused water shortages and irrigation interruptions, a lack of inputs, especially pesticides and fertilizers, which led to outbreaks of pests and diseases, and the absence and/or high cost of agricultural labour. The unavailability or high cost of seedlings and the difficulties in accessing the markets to sell agricultural products were also mentioned as a recurrent challenge, especially between 2014 and 2019.

FIGURE 8

Main challenges in fruit tree production reported by farming households

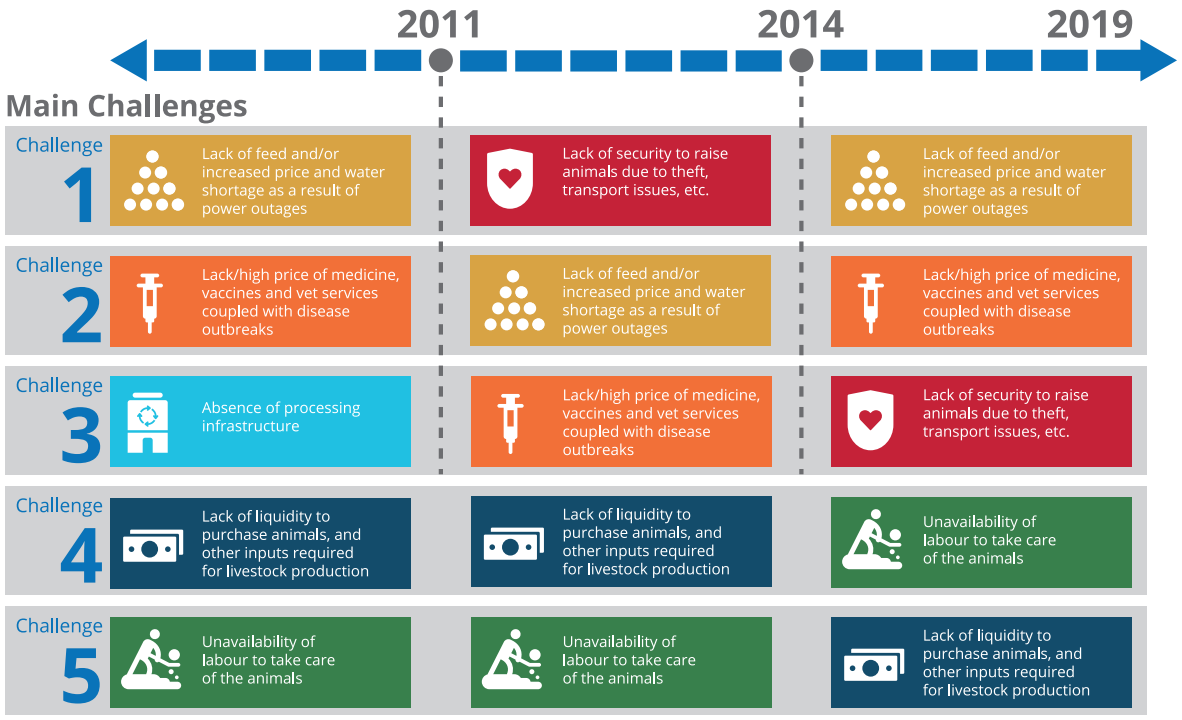


2.1.5 CHALLENGES IN LIVESTOCK PRODUCTION

The scarcity and increased price of fodder coupled with irregular or no access to water were mentioned as the main problems affecting livestock production. The lack of veterinary services, the outbreaks of disease and the unavailability and high price of veterinary drugs and vaccines were also described as important limiting factors for livestock production. The shortage of liquidity to buy necessary inputs, including medicine, fodder and live animals was experienced by most livestock herders prior to the crisis of 2011 up until today. Similar to crop and fruit tree production, the absence of labour for taking care of animals was also mentioned as one of the main constraints for productivity. High transportation costs and large distances to the markets were recorded as additional challenges in this sub-sector.

FIGURE 9

Main challenges in livestock production reported by farming households



2.1.6 MAIN CURRENT NEEDS TO CONDUCTING CROP/ FRUIT TREE PRODUCTION

The two most important needs reported were the necessity to resolve disruptions in electricity supply to access irrigation water, followed by the need for a steady supply of agricultural inputs, especially improved seeds and pesticides, with the objective to reduce pest and disease outbreak.

Many farmers also stressed the necessity of having renewed assistance from extension services, which are currently barely functional in most of the assessed area. The reactivation of agricultural associations seems to be very important, considering that these entities provide long-standing support to farmers in terms of access to subsidized agricultural inputs, technical guidance, and access to loans and other services. More skilled and unskilled labour is also required, together with a more reliable availability of agricultural materials, equipment, machinery and spare parts. Access to greater liquidity was also mentioned by some farmers as a prerequisite to resume their agricultural activities.

FIGURE 10

Main needs in crop/ fruit tree production reported by farming households

2.1.7 MAIN CURRENT NEEDS TO CONDUCTING LIVESTOCK PRODUCTION

Improved access to good quality feed (i.e. forage), veterinary drugs, vaccines and vet services at a reduced cost and/or free of charge are among the main current needs for livestock production. Many HHs reported that without the improvement of the security situation it would be hard to increase the number of animal herds and continue investing in this agricultural sub-sector. The provision of safe pastureland was also expressed as a main need, together with access of labour able to work on animal husbandry.

FIGURE 11

Main needs in livestock production reported by farming ouseholds

2.2 Profile of women involved in agriculture

According to respondents of the semi-structured interviews and FGDs with women, **the proportion of women involved in agriculture has increased steadily since 2011.** This is because households have less revenue and cash to pay for external workers, meaning more women are involved in agricultural activities. Women participate in land preparation, sowing, harvesting, processing and selling of agricultural and animal products. For women involved in crop production, vegetables, herbs and fruit trees such as figs were reported to be the crops most extensively cultivated. A large proportion of women actively contribute and engage in animal husbandry, mainly by breeding goats, sheep and poultry.

Due to the challenging security situation in the assessed areas and the local cultural and religious norms, women do not generally engage in paid seasonal/casual labour. **Women are largely involved in family farming activities and work in their husbands' or their relatives' land.** This means that in most cases, unless women belong to farming families, they will rarely engage in agricultural work for someone else. However, if women had safe access to larger portions of arable and/or pastureland, as well as assets (inputs, animals, tools, materials, etc.), they could benefit more from agricultural production, especially livestock rearing.

2.2.1 MAIN CURRENT CHALLENGES TO CONDUCTING CROP, FRUIT TREE AND LIVESTOCK PRODUCTION

Figure 12 shows the main challenges in conducting crop and livestock production, reported by women involved in agriculture in all *Mantikas* assessed in the Fezzan region – except for Ubari.

FIGURE 12

Main challenges in crop and livestock production resulted from FGDs with women

2.2.2 MAIN CURRENT NEEDS TO CONDUCTING CROP, FRUIT TREE AND LIVESTOCK PRODUCTION

Figure 13 shows the main needs expressed by women during the FGDs to restoring/ enhancing crop and livestock production.

FIGURE 13

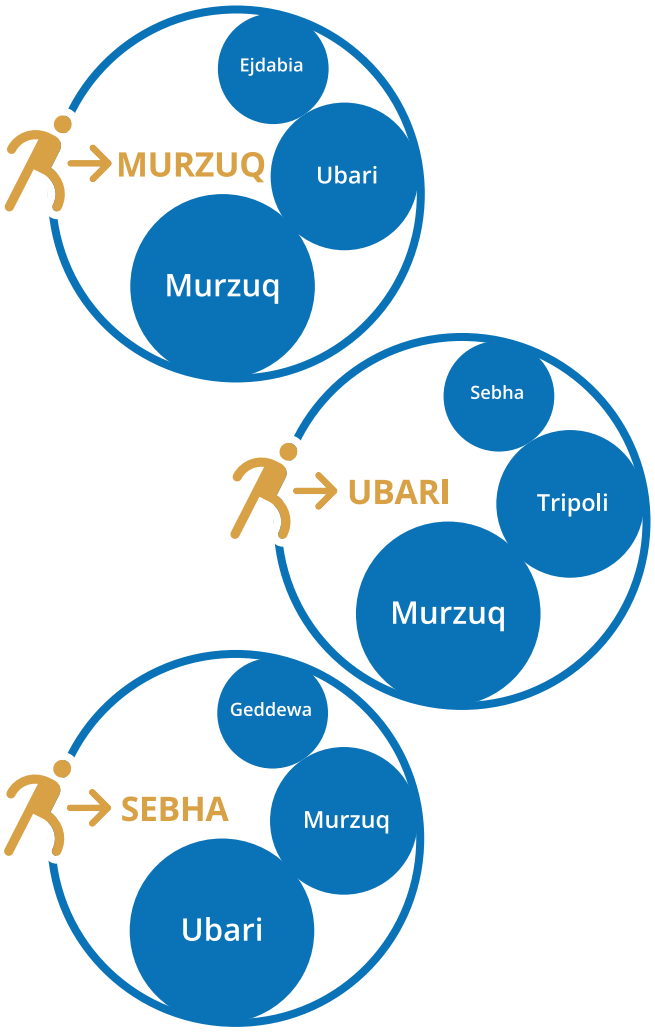
Main needs in crop and livestock production expressed by women during FGDs

2.3 IDPs' profiles and their involvement in agriculture

> *By working in agriculture, IDPs reported having better access to food and to generate income at a faster pace compared to other limited job opportunities*

IDPs from other parts of the country or within different areas of the governorates assessed since the crisis started in 2011 were mostly found as follows:

FIGURE 14
Main areas of origin of IDPs in the assessed Mantikas



SOURCE: Information collected through FGDs with IDPs

IDPs are involved in all stages of the crop cycle, from land preparation and fertilizer and pesticide application, until harvesting and selling of food commodities. Moreover, IDPs are often involved in livestock rearing. IDPs reported working in agricultural activities because they either had previous work experience in the sector, or because agriculture is considered one of the fields that do not require high educational qualifications. At the same time, there is a high demand of unskilled labour in the agricultural sector. **By working in agriculture, IDPs reported having better access to food and to generate income at a faster pace compared to other limited job opportunities.**

Compared to migrants, IDPs generally have good access to agricultural land because they possess Libyan nationality and can rent or purchase land much more easily. The lack of liquidity to access land and conduct agricultural activities remains an issue. Therefore, the majority of IDPs work full-time for larger farm owners or as seasonal casual labourers. Some IDPs confirmed residing on the farms where they permanently work, while most of them reported living outside the farms or the agricultural areas where they work in. Considering the unreliability and high cost of transportation, and the security issues the country is facing, many people cannot easily travel daily to their workplaces.

It was reported that the period between March-November is the peak of the annual demand of agricultural labour, as this period corresponds to the main season for cultivating cereal crops and vegetables, as well as harvesting fruit trees.

2.3.1 MAIN CURRENT CHALLENGES TO CONDUCTING CROP, FRUIT TREE AND LIVESTOCK PRODUCTION

According to the IDPs interviewed in Murzuq, Sebha and Ubari, the main challenges for crop and livestock production are:

FIGURE 15

Main challenges in crop and livestock production resulted from FGDs with IDPs

2.3.2 MAIN CURRENT NEEDS TO CONDUCTING CROP, FRUIT TREE AND LIVESTOCK PRODUCTION

Figure 16 shows the main needs expressed by IDPs during the FGDs to restoring/ enhancing crop and livestock production.

FIGURE 16

Main needs in crop and livestock production expressed by IDPs during FGDs

> IDPs reported that since 2011 they have not received any external assistance to boost their agricultural production

PICTURE 4

IDPs participating in a Focus Group Discussion in Murzuq

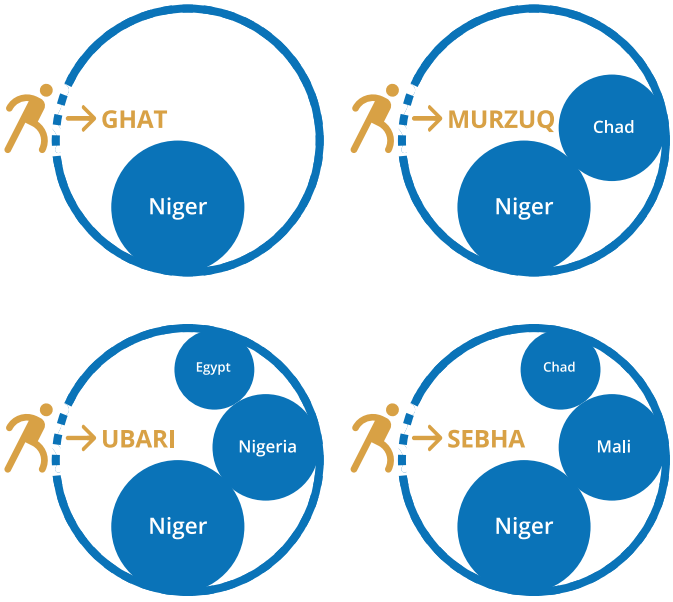
2.3 Migrants' profiles and their involvement in agriculture

"Similar to IDPs, the migrants interviewed reported not having received any form of external assistance targeting the agricultural sector since 2011"

Migrants travel to Libya for a variety of reasons, including the lack of job opportunities, insufficient household income, conflict, food insecurity and limited education opportunities at home.[2]

The involvement of migrants in agriculture in Libya is primarily seasonal, with people entering the country between April and November to harvest crops and fruits, including barley, wheat, grapes, dates and olives.[3] In addition to seasonal migrants, there are also migrants who live in Libya throughout the year and that depend exclusively on agriculture. In order of importance, Niger, Nigeria, Chad, Mali, Egypt and Senegal were reported to be the home country of most migrant workers in the assessed *Mantikas* of Ghat, Murzuq, Sebha and Ubari (Figure 17).[4]

FIGURE 17
Main countries of origin of migrants in the assessed Mantikas



SOURCE: Information collected through FGDs with migrants

Migrants are responsible for conducting many activities in crop production, from land preparation and the application of fertilizers and pesticides, to harvesting and selling of agricultural products. Migrant workers also breed livestock and either work as seasonal casual workers during specific periods of the year or they work throughout the year in the same farm where they are often hosted. They may also be involved in securing the farms and properties. If not hosted by the farms' owners, they live near the working place and they commute on a daily basis. According to the migrants interviewed, they do not have access to agricultural land. In some cases it may be possible to rent land; however, migrants do not have the necessary cash to pay for the land rental and buy all necessary means to cultivate or raise animals.

For the migrants interviewed, agriculture is one of the main sectors with a guaranteed income for those seeking to engage in casual labour in the Fezzan region, thus migrants end up working in this sector. Many migrants reported having previous experience in agriculture, so they already have the skills required to work in this sector. The daily average salary of a migrant working in agriculture is between 10 and 40 LYD on average (equivalent to approximately 7 to 28 USD),[5] for regular farming activities (land preparation, sowing seeds, fertilizer application, livestock rearing, etc.). The highest remuneration comes from olive and date harvesting, which pays up to 100-120 LYD per day. These daily salaries are in line with those reported by IDPs. The only issue raised by migrant is the delay in the payments of their salaries. According to some migrants, it can take quite a while to get the agreed compensation, especially if the payment is by cash.

Similar to IDPs, the migrants interviewed reported not having received any form of assistance targeting the agricultural sector since 2011.

2 WFP/IOM, Hunger and Displacement in Libya: A Joint Innovative Approach in Assessing Needs of Migrants, 2019.
3 FAO/ Middle East Consulting Solutions, 2018. Agriculture and Rural Livelihoods Assessment-Libya.
4 Information collected through FGDs with migrants
5 (1 USD corresponds to 1.41 LYB) - United Nations Exchange rate as of 1st February 2020 https://treasury.un.org/operationalrates/OperationalRates.php#L

2.4.1 MAIN CURRENT CHALLENGES TO CONDUCTING CROP, FRUIT TREE AND LIVESTOCK PRODUCTION

FIGURE 18

Main challenges in crop and livestock production resulted from FGDs with migrants

2.4.2 MAIN CURRENT NEEDS TO CONDUCTING CROP, FRUIT TREE AND LIVESTOCK PRODUCTION

FIGURE 19

Main needs in crop and livestock production expressed by migrants during FGD

PICTURE 5

Migrants participating in a Focus Group Discussion in Murzuq

SECTION 3

Crop analysis

This section presents the main features of the agriculture sector in the assessed Mantikas covering the period before the crises of 2011 until 2019. It includes an overview of land ownership, access to irrigation, agricultural inputs and sources, and the main crops and fruit trees produced. Additionally, this section outlines the overall challenges faced by the agricultural sector in relation to crop production; it also includes the perspectives of farmers' associations representatives.

3.1 Land Ownership

Household-level semi-structured interviews found there was no major difference in the type of land ownership prior to the start of the crises in 2011 until today. Across the six Mantikas assessed, most of the interviewed farmers reported owning the land they cultivate. Overall, the average size of cultivated land owned by small holders is between 5 and 10 acres.[1]

Many farmers indicated that they have access to agricultural land through sharecropping. This mechanism works using an informal contract, which can be done following one or more options below:

1. Workers can rent plots of land from the owner by paying a certain sum and keeping the whole harvested crop.
2. Workers work on the land and earn a fixed wage from the landowner, but keep some of the crops produced.
3. There is no money exchange between landowner and the worker; however, they keep a share of the crop production.

FIGURE 20
Main types of agricultural land ownership

AGRICULTURAL LAND OWNERSHIP

SOURCE: Information collected through FGDs with migrants

1 Information collected through KIIs with Ministry of Agriculture representatives

PICTURE 6
Face-to-face interview with a farmer and livestock keeper in Murzuq

Only in the Mantikas of Aljufra, Ghat and Sebha farmers reported cultivating land that belongs to the government through leasing agreements. However, this type of contract is more common with private landowners. During the KIIs with Ministry of Agriculture representatives, it was also reported that several farmers left agricultural land and activities, particularly between 2011 and 2014, as profits were low considering the high costs of production. This situation led to an increase of leasing of private agricultural land in the assessed areas.

The situation is slightly different for women involved in agriculture as in most cases women do not own land unless their husband passes away and there is no close relative to inherit the land.

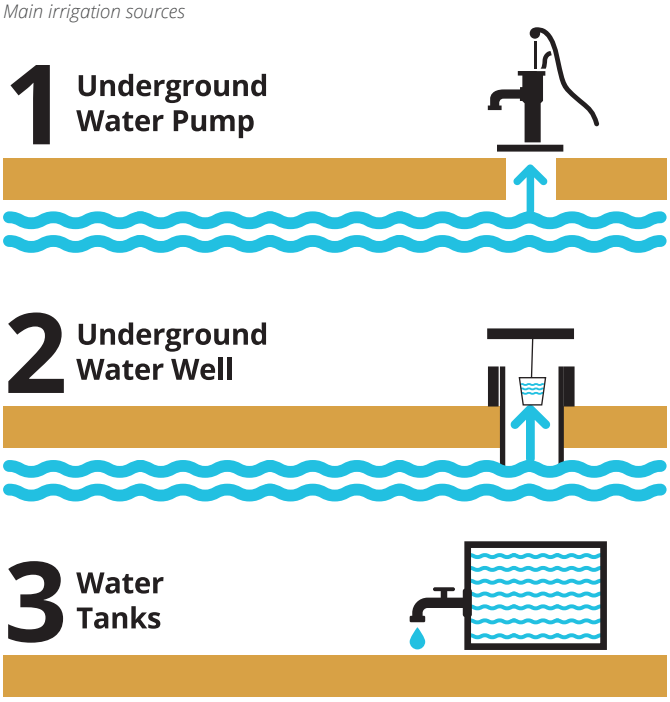
IDPs can legally access agricultural land through leasing, renting, as well as buying. However, most of them reported not having enough cash and therefore choosing the option of sharecropping. On the other hand, migrants cannot own land due to their foreign nationalities. Considering this, migrants usually choose sharecropping or work on farms owned by Libyans for cash.

3.2 Access to irrigation and main water sources

Water scarcity, poor irrigation networks, and national electrical power outages are among the main issues experienced by the farmers interviewed. These conditions persist, despite investments made by the government prior to the start of the crisis in 2011 to boost irrigation in the country and the Fezzan region (e.g. Great Man-Made River Project). The damage and destruction of the irrigation systems and equipment (pipes, pumps, networks, etc.) caused by the conflict, combined with increased theft and vandalism, have further exacerbated access to and the functionality of established irrigation systems.

Underground water accessed through pumping systems remains the main method used by most farmers to irrigate land, followed by water extracted from wells and water stored in tanks. Many farmers reported an increase in the use of water from wells because of the unreliable electricity supply from the national grid, the high cost and unavailability of fuel, and losses or damage to water pumps and electrical generators. However, accessing and distributing well water is less effective than using a water pump, according to farmers.

FIGURE 21
Main irrigation sources



3.3 Status of agricultural assets and infrastructure

3.3.1 AGRICULTURAL ASSETS

Based on the HH interviews, theft was determined to be the main cause of reported losses since 2011. In the Mantikas of Wadi Ash Shati, Ghat, Sebha and Murzuq, the greatest losses to agricultural assets were due to theft and vandalism. Most of the losses occurred due to poor security, lack of security personnel on affected farms or because of direct assaults by armed groups.

The most frequently lost assets include water pumps, electrical cables, generators, agricultural tools and machinery, followed by animals, fruit trees (uprooted or burned), and agricultural harvest. Farmers reported that most of the stolen larger machinery (e.g. tractors) were sold outside Libya, mainly in Chad and Niger.

FIGURE 22
Reported proportion of farming households with agricultural losses

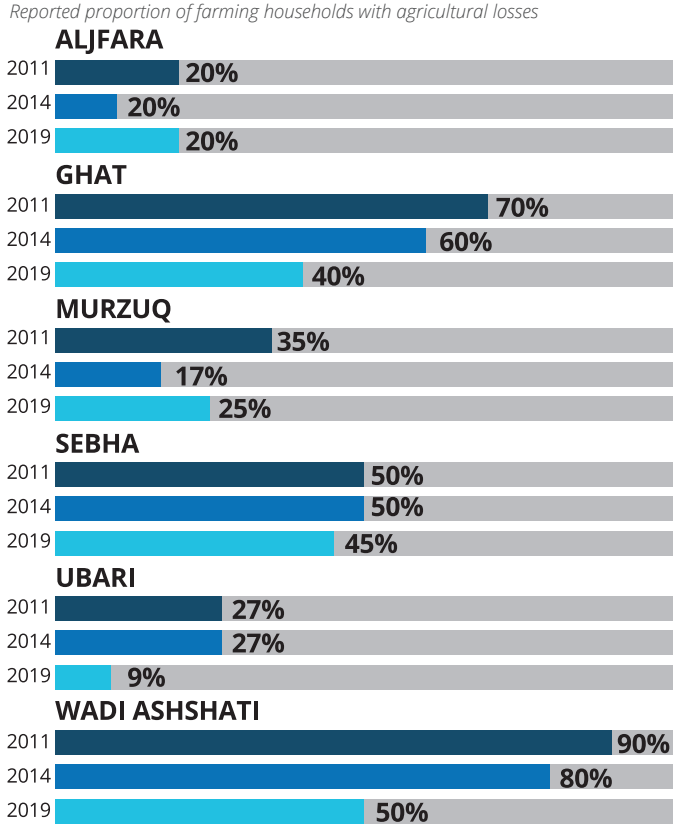


FIGURE 23
Main agricultural assets lost because of the crises

MAIN AGRICULTURAL ASSETS LOST IN BETWEEN 2011, 2014 AND 2019

1. Electrical cables/ wire and water pumps
2. Agricultural tools, machineries, machine spare parts and generators
3. Animals, fruit trees and crop harvest

3.3.2 AGRICULTURAL INFRASTRUCTURE

In addition to asset loss, the country's crisis led to the disruption of key agricultural infrastructure in the Fezzan region, including irrigation systems, storage and processing facilities for both crop and animal products. According to the KII and MoA representatives, there currently are no functional agricultural facilities across all Mantikas assessed. Hence, many people complained about the unavailability of facilities to safely store and process agricultural products. This is why most of the crop production requiring processing (wheat, barley, olives, etc.) in the Fezzan region is generally sold and transported to western Libya.[2] Attacks by pests such as rodents on stored products, especially cereals, were reported by many farmers. The need for refrigeration to store perishable products, particularly meat, milk and fresh produce, was also mentioned.

As irrigation systems have also been affected by the crises, most farmers reported on their inoperability due to the damage caused by theft and vandalism, as well as their poor maintenance since the time of their installment. According to farmers, some irrigation schemes and networks could be easily repaired by investing the required financial resources and technical know-how. This would guarantee an enormous benefit for the farming population.

2 Information collected through KIIs with Ministry of Agriculture representatives

3.4 Seed, fertilizers and pesticides

Since pre-2011 until today the majority of farmers in the Fezzan region rely mainly on local markets to purchase agricultural inputs.[3]

3.4.1 SEEDS AND SEEDLING AVAILABILITY AND SOURCES

With regards to seed security, many farmers confirmed that the main source of seeds are local markets. Since the crisis of 2014, it was often impossible to buy certified and improved seeds at the markets (e.g. drought and pest resistant cultivars) due to high costs and the unavailability of these inputs. As a result, many farmers started to increase the use of their own seeds or buy seeds on credit. Sometimes, depending on the crops, the use of their own seeds might result in the failure of production. Some of the seed varities used are less resistant to natural hazards such as drought, pests and disease, and therefore less productive compared to "improved" seeds.

FIGURE 24

Main seed sources

3 Information collected through semi-structured interviews and KIIs with MoA

Many respondents reported that it is very hard to access good quality seedlings for fruit trees at present. It is also very difficult to maintain and find functional nurseries, in light of the constraints resulting from the crises.

3.4.2 FERTILIZER USE AND ACCESS

Farmers, representatives of the MoA and vendors of agricultural inputs reported that the use of chemical fertilizers has never been widespread in Fezzan. Many farmers throughout the region mainly used animal manure for their crops, either produced or bought from neighboring farmers or markets. The increase in the use of fertilizers experienced soon after the conflict began in 2011 was mainly due to: 1) the deterioration of the security situation and reduction of herds which impeded the production of sufficient animal manure for selling and direct use, and 2) the loss of soil fertility due to drought, desertification, salinity infiltration and other biological factors.[4] Animal compost still remains very reliable and widely used in Fezzan today; although not all farmers can access fertilizers from conventional markets due to their high prices or irregular availability.

In recent years, some farmers have started to use more fertilizers to increase the yield.[5] However, they did not realize that the low productivity of their crops was not only due to scarce soil fertility, but mainly due to the spread of pests and diseases, the lack of water and recurrent droughts. These incorrect interpretations are the result of missing technical support and scientific research to better assist farmers in their agricultural choices and planning.

Another issue was the poor quality of available fertilizers after the start of the crisis of 2011. Farmers often bought fertilizers that were not 100 percent pure and highly contaminated. This issue increased the skepticism of farmers towards the reliability of fertilizers purchased on the markets.

3.4.3 PESTICIDE USE AND SOURCE

Pesticides are generally purchased from local markets. Due to the high price and low demand of pesticides, this commodity is not always available. Despite this, the use of pesticides appears to have increased in the past 4-5 years. The spread of pests and diseases on annual and perennial crops has increased during the past 5-10 years. The causes of the observed increases in pests and diseases remain unclear and further studies are required to determine the local factors that impact pest and disease development.

4 Information collected through semi-structured interviews and KIIs

5 Information collected through KIIs with Ministry of Agriculture representatives

3.5 Crop and fruit tree profiles

The area of land cultivated with annual crops, mainly cereals, vegetables, tubers and herbs, steadily decreased since the start of the crisis in 2011[6]. This is mainly due to the constraints caused by the conflict on agricultural and market activities. At the same time, the production of perennial crops such as fruit trees seems to have increased during the course of the conflict.[7] The main reasons behind this were attributed to the fact that perennial crops are generally less demanding in terms of water, inputs, soil conditions and labour, compared to annual crops. As a result, more people started to plant fruit trees and invest more land and resources on this type of production.

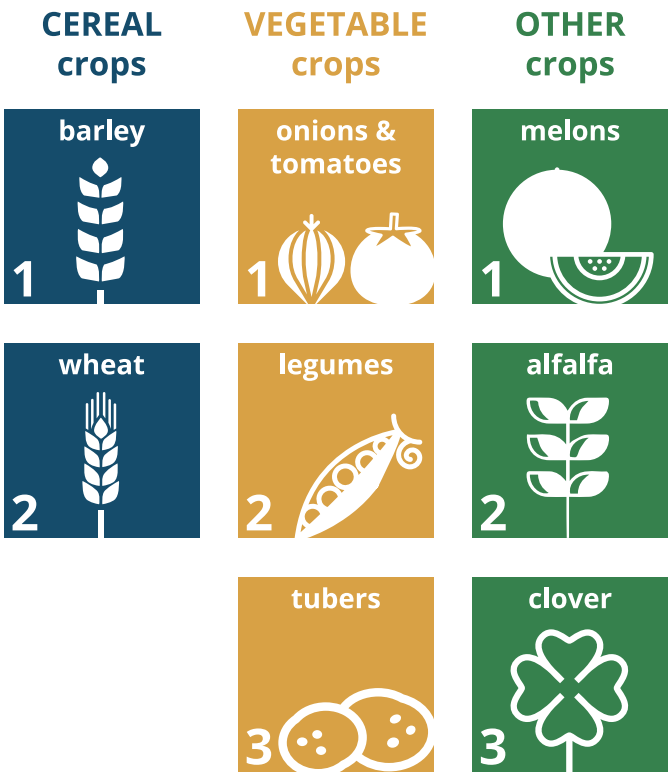
3.5.1 ANNUAL CROPS

Barley and wheat are the most widespread cereal cultivations in the Fezzan area; they are generally cultivated in all visited Mantikas[8]. Vegetables, onions and tomatoes, melons, leguminous crops (i.e. beans,) and potatoes are the most diffuse crops. Clover and alfalfa production is also very important and relatively widespread throughout the region. Clover is generally used as natural nitrogen fixing crop (i.e. green manure), weed suppressor, and for grazing. Cultivations of alfalfa are also common and mainly conducted for grazing and green manure purposes.

3.5.2 PERENNIAL CROPS

Citrus was reported to be the most widespread fruit tree crop, followed by dates, figs, olives and grapes. Prior to the start of the crisis in 2011, dates were the most widespread perennial crop. Soon after the crisis began, there was a decrease in the number of hectares of dates maintained and planted. This was mainly due to the high cost of specialized labour required, especially during harvest, and the large amount of work necessary to uphold date plantations. There are also other less widespread varieties of fruit trees, including apples and mangoes, which are grown in small quantities in the Fezzan region.

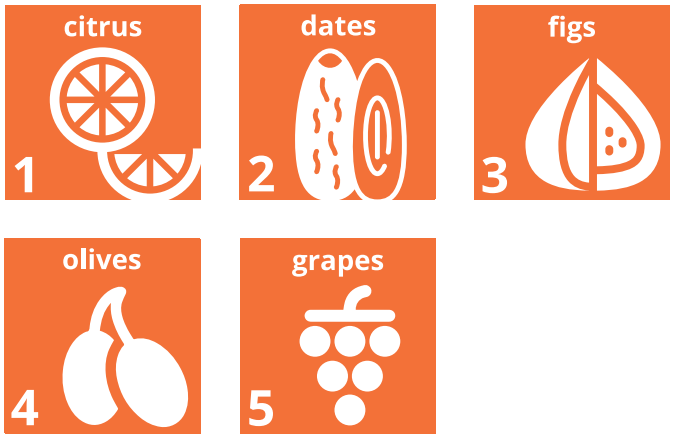
FIGURE 25
Main annual crops planted in Fezzan Region



3.5.3 CONCLUSION

Both crop and fruit tree productions in the Fezzan region face many constraints because of the effects of the prolonged crises in the country. Water shortages, the high cost and scarcity of good quality inputs, insufficient skilled and unskilled labour, the lack of liquidity and access to markets and poor security situation are among the main challenges experienced by the agricultural sub-sector. In addition, the insufficient amount of agricultural extension services and government support, are other important limiting factors for the sector to consider. What is clear is that adaptation mechanisms as a result of the various challenges included relying on imported food, and stopping or reducing agricultural activities.

FIGURE 26
Main perrenial crops planted in Fezzan Region



6 Information collected through HHs semi-structured interviews and KIIs with MoA representatives
7 Ibid
8 Ibid

THE EFFECT OF THE CRISIS ON FEZZAN FARMERS' ASSOCIATIONS

Farmers' associations have played an important role in supporting farming communities across Libya through the provision of technical know-how and assistance to farmers, and the procurement and distribution of subsidized inputs, tools, machinery. Many associations became non-operational because of the effects of prolonged conflicts in the country, including insufficient financial support from the Government since 2011.the provision of technical know-how and assistance to farmers, and the procurement and distribution of subsidized inputs, tools, machinery. Many associations became non-operational because of the effects of prolonged conflicts in the country, including insufficient financial support from the Government since 2011.

Interviews with farmers' associations found that the agriculture sector faces shortages of good quality inputs, tools and materials necessary for agriculture. This is further aggravated by the lack of and high price of transport to the markets, the absence of loans and credits from national financial institutions, and the deficiency of extension services. It is clear that more support is needed to ensure the survival and reconstitution of farmers' associations so that farmers can continue to rely on the services offered by these important entities.

TABLE 3
List of cooperatives interviewed during the assessment

Mantika	Name of the Cooperative	Year of Establishment	Operational
Aljufra	Agriculture Cooperative in Houn	2002	Yes
Ghat	Agricultural Cooperative Ghat Society	1972	Yes
Murzuq	Agriculture cooperative in Om Alaraneb	1982	No
Murzuq	Agricultural Cooperative of Algatroun	1972	No
Murzuq	Agriculture Cooperative in Wadi Etba	1967	No
Sebha	Agriculture Cooperative in Albouwanees	2013	Yes
Sebha	Agriculture Cooperative in Algurdha	1975	No
Ubari	Agriculture Cooperative of Ubari	1988	No
Wadi Ashshati	Agriculture Cooperative of Wadi Ashshati	1995	Yes

SECTION 4

Livestock production analysis

This section provides an overview of the livestock activities in the assessed areas. This section also addresses the role and current function of private livestock farms, analyses and discusses the main animals reared, type of products obtained, and the challenges faced by livestock keepers.

4.1 Livestock profile

There are two types of livestock keepers in the assessed area: One relies entirely on livestock production as their main livelihood and income-generating activity and the second includes farmers that own fewer livestock, mainly for personal household consumption.

Livestock is generally kept in the vicinity of farms and is moved from one grazing area to another when necessary. This is especially true for livestock farmers with many animals to feed, (mainly sheep and goats). Before 2011, some livestock keepers moved animals seasonally from one grazing area to another, but due to the insecurity they have generally stopped this practice.[1] For livestock keepers with smaller herds, animals graze freely around the farm when grazing land is available. These animals are secured in stables and fed accordingly at the end of each day. Chickens are generally kept in secured spaces throughout the day to avoid their escape and for an easier management.

Interviews with the farming HHs and MoA representatives showed that sheep, goats and chickens are the main animals raised to produce meat, milk, skin and wool. Camels are also widespread and are generally used for transportation, farming operations (i.e. tillage) and milk production. Many people also reported on the presence of beehives on their farms, which are mainly kept for honey production. In addition, some farms rear other animals such as rabbits, cattle, and pigeons mainly for meat and milk production.

FIGURE 27
Main livestock reared in Fezzan Region

1 FAO 2018, Agriculture and Rural Livelihood Needs Assessment – Libya

4.2 Livestock ownership

The steady decrease in the number of animal herds in most areas assessed is due to the effects of the protracted crises that has created many challenges for livestock keepers. The scarcity of water, power cuts impeding the safe preservation of products, together with the high cost and the lack of animal feed were mentioned as the main challenges for animal husbandry. Poor security that triggered the killing and theft of animals was another important factor that caused the reduction of animal numbers. Many people reported that they had to slaughter their animals for their own consumption and due to the lack of cash to buy animal products.[2] The absence of veterinary services, plus high costs and the scarcity of veterinary drugs, supplements and labour, were raised as additional major challenges for livestock keeping.

PICTURE 7
Interviewed livestock keeper in the Mantika of Ghat

4.3 Changes in livestock production

According to the interviews, most livestock products grown in the assessed areas are used for home consumption and for sale at local markets. It is very hard to store and preserve meat, milk, eggs and other perishable products for a long period of time. These products need to be consumed relatively quickly or sold to shopkeepers who have better access to storage facilities (i.e. refrigerators). According to farmers, livestock production has generally decreased since the start of the crisis in 2011, due to the factors described in the previous sections.

4.4 Conclusion

The livestock sub-sector remains an important livelihood, which provides a key source of animal proteins for the local population in the Fezzan. The effects caused by the conflicts have jeopardized the sustainability of this sub-sector, which is becoming more reliant on importing animal products and inputs from outside Libya (i.e. chicken meat, feed, drugs).[3] This trend needs to be addressed and reversed in order to avoid more people depending on the market to access animal products.

2 FAO 2018, Agriculture and Rural Livelihood Needs Assessment – Libya

3 Information collected through KII with vendors of food commodities

SECTION 5

Impacts on the agricultural market, prices, trading and value chain

This section discusses the overall trends of food commodities, agricultural and livestock input prices and their availability in local markets and shops. This section also describes the main challenges faced by farmers in accessing agricultural markets and shops as well as the constraints encountered by vendors and shopkeepers. Key challenges and bottlenecks of the agricultural value chain for the Fezzan are also discussed.

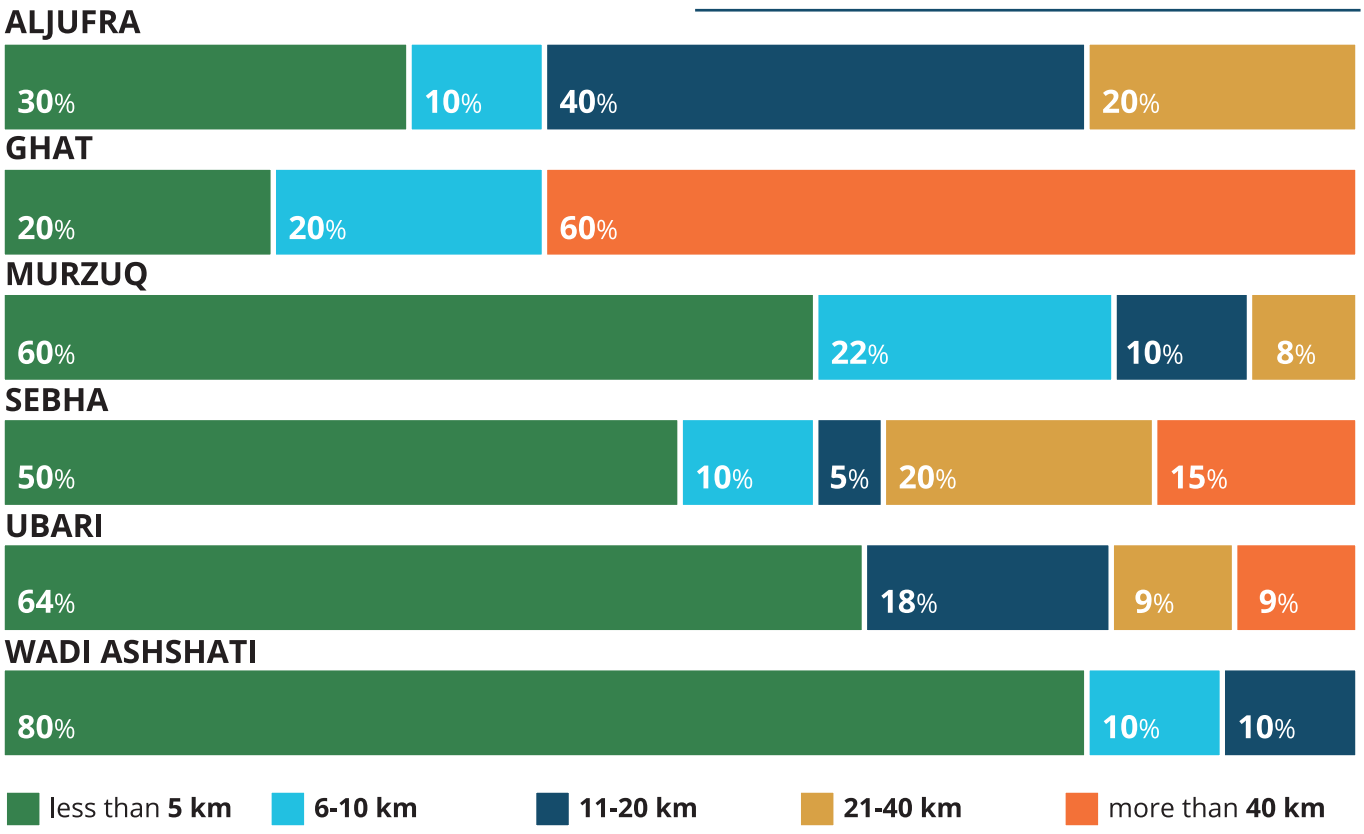
5.1 Market accessibility and constraints

The lack of liquidity to purchase agricultural and livestock inputs and food commodities is the main challenge raised by farmers, followed by shortages and high fuel prices. Many people reported that fuel is generally unavailable in public stations and that the price of fuel on the black market is very high. Security was also described as an important limiting factor inhibiting various operations. Roads are often quite dangerous to travel on, in light of potential assaults by armed groups resulting in robberies.

The high prices of commodities (both inputs and food in general) were also described as a deterring factor for people wanting to access markets/ shops. The high cost and unavailability of transportation, following high prices, fuel shortages and the distance to the nearest markets, are further constraints to accessing markets for the sale and purchase of commodities.

FIGURE 29
Main constraints to accessing agricultural/ livestock inputs and food commodities

FIGURE 28
Proportion of farming HHs interviewed reporting on the average distance to markets



5.2 Food commodity situation

5.2.1 AVAILABILITY OF FOOD COMMODITIES

Between 75 percent and 80 percent of the food consumed in Libya is imported from outside the country[1]. This means that consumers generally buy the food they consume in markets unless they are engaged in agricultural production. The majority of farmers in the Fezzan, generally smallholders, produce food for their own consumption, while a minority of larger farmers are able to sell their production surpluses to the local, regional and national markets.

Food is generally available in local stores and markets across the assessed Mantikas. As a result, the main issue is not the availability of food, but rather accessibility to food due to the limiting factors previously discussed and the high prices of food commodities.

Food commodity vendors revealed that the main imported food items sold in the markets and shops were rice, pasta, oil, canned tomatoes, flour, chicken and some fruits such as bananas and apples. There have been few changes to the main food imports since prior to the start of the crises in 2011.

The main countries of origin of these food commodities are Tunisia, Turkey, Italy, the United States and Egypt. Food commodities locally produced that are primary sold on markets are vegetables such as tomatoes, potatoes, onions, other leafy vegetables, fruits, animal products (eggs, milk and meat), as well as flour, bread, olive oil and canned water. Food commodities generally sold in regional and national markets are mainly cereals (wheat and barley) and dates.

Private traders reported being the main providers of food commodities that are generally sold in market and shops. Some vendors reported buying directly from farmers, however due to the crisis this mode of purchasing is very rare at present.

5.2.1 FOOD COMMODITY PRICES

There are several ongoing studies and monitoring activities in Libya that provide a good overview of the trends of food prices and availability on the markets, such as the Libya Joint Market Monitoring Initiative (JMMI). These trends are generally based on the calculation of the Minimum Expenditure Basket (MEB). The MEB represents the minimum culturally-adjusted group of food and non-food items required to support a six-person Libyan household for one month. The cost of the MEB can be used as a proxy for the financial burden households face in different locations throughout the country. The results of the JMMI assessment conducted in December 2019 showed that the average MEB cost of the Fezzan region for the 6 Mantikas assessed in this report was the highest in the country. The cities of Algatroun and Wadi Etba in Murzuq, had the highest MEB cost in Libya at 1,096 LYD and 959 LYD respectively, compared to the lowest MEB cost in the city of Sirte (621 LYD), in the Tripolitania region.[2]

Several interviews with farmers and vendors of food commodities confirmed that food prices have steadily increased since the beginning of the crisis in 2011. The reasons behind this increase are attributed to poor security, resulting in higher transport costs, and are exacerbated by shortages and high fuel prices. Most of the imported food as well as fuel distributed throughout the Fezzan region comes from the more distant northern Tripolitania region. Food vendors also attributed the price increases to the instability of the LYD against the USD.

It also important to note that before the crisis started in 2011, the Government in Libya subsidised food items such as flour and cooking oil. Despite some attempts to continue these subsidies, limited government financial resources resulted in a halting of this type of support for Libyans.

During the semi-structured HH interviews with farmers, respondents were asked whether they observed any change of the price of food commodities during the last 3-6 months of 2019. Most respondents reported increases in prices, except for Sebha. This is likely because Sebha is the main distribution point for food in the southern region of Libya, supplied directly from Tripoli, thus prices do not experience the same increases as in other parts of the Fezzan region.

Vendors of food commodities at markets also reported observing a reduction in the number of buyers since the crisis started; high prices are the primary reason behind this trend.

1 FAO and WFP, 2011. Food Security in Libya – An Overview.

2 https://www.impact-repository.org/document/reach/f11e9e01/REACH_LBY_Situation-overview_JMMI_December-2019.pdf

5.3 Agricultural and livestock inputs

5.3.1 AGRICULTURAL INPUTS, EQUIPMENT, TOOLS AND AVAILABILITY OF MACHINERY

The availability of agricultural inputs, including seeds, fertilizers, pesticides, tools, equipment and machines varied. Although in most of the assessed areas it was possible to find inputs, their availability is not always regular. Most products are imported from outside of Libya and then distributed across the country. The crisis has hampered access and the transport of good quality agricultural inputs. Many farmers reported purchasing inputs which were not 100 percent pure but rather mixed with other chemical constituents. The increased cost of inputs resulted in fewer people relying on the market to buy inputs.

At present, the main seed inputs sold at markets are barley, tomato, onion, clover, parsley and other vegetable crops.[3] Most of the seeds available at markets are non-improved seeds, according to the KIIs with vendors. It was possible to find some hybrid and Genetically Modified Organism (GMO) seeds.

With regards to fertilizers, urea, organic fertilizer and compost, as well as phosphorous and foliar fertilizers are sold at local markets.

Pesticides, including herbicides such as Roundup, were reported to be less available since 2011 and at the same time the costliest inputs. The lack of liquidity has reduced the demand for pesticides and therefore their availability on the market diminished. As a result of this, the quantity of pesticides in the markets assessed appears to be less compared to 2011, despite the increased demand during the past 4-5 years. This study found that vendors could provide more pesticides if there were more requests; however, the current economic situation does not allow for much investment in this type of commodity.

This assessment did not closely look at the availability of tools, machinery and equipment. However, the HHs interviewed indicated that accessibility to such commodities, especially tractors and other larger machinery, was heavily compromised due to the crises. As of today, households in Fezzan cannot easily afford to own or rent agricultural machinery. Some active farmers' associations and farmers of larger private lands can still access the necessary machinery; however, rental and usage prices are high.

Smaller agricultural tools and equipment, such as irrigation pipes and water pumps, are generally available in lower quantities, yet quite costly, according to the farmers and vendors interviewed. The interviewed vendors were also asked about the demand for agricultural inputs since 2011. The demand was reported to be very low, showing a decrease between 2011, 2014 and 2018 following the poor economic situation and the continued crisis in the country. In 2019, the demand for agricultural inputs started to increase again due to the improved security situation[4]. The greater stability of the LYD against the USD, peoples' willingness to conduct more agricultural activities, and the increased loss of soil fertility and proliferation of pests and diseases are additional factors increasing demand.[5] More vendors also started to provide these commodities on credit.

Most interviewed vendors reported that should the demand for agricultural inputs, tools and machinery increase, they will be able to provide these items.

5.3.2 AGRICULTURAL INPUTS, TOOLS AND MACHINERY PRICES

Prices of agricultural inputs, tools and machinery were reported to have generally increased since 2011. These commodities are mainly imported from outside of Libya, while the internal conflict led to an overall price increase. The causes of this increases are security, increased transport costs, distance from the main distribution centers (mainly Tripolitania region), instability of the exchange rate, and the reduction in the supply of inputs and machinery in Libya.

The interviewed farmers also explained that the prices of agricultural inputs for seeds, fertilizers and pesticides increased in the past 3-6 months across all Mantikas assessed.

5.3.3 LIVESTOCK INPUTS AND LIVE ANIMAL AVAILABILITY

The availability of livestock inputs, including animal feed, veterinary medicine, and vaccines was generally

3 Information collected through KIIs with vendors of agricultural inputs

4 Ibid
5 Ibid

reported to be insufficient since 2011. The main complaint raised by farmers is the lack of good quality feed to sustain animals and its price increase.

Interviewed vendors reported that the main feed sold at markets at present are various types of mixed forage (industrial compounds, white forage, etc.), together with barley bran and other locally-produced fodder which can be used to feed chickens and other birds, as well as sheep and goats.

With regard to animal drugs, the main ones sold at shops are antibiotics, generic medicines (e.g. dexamethasone), skin treatment products (i.e. sulfur ointment) and vermicides (i.e. evomec), as well as vitamins and amino acid supplements.

The demand for livestock inputs followed the same trend as that of agricultural inputs; however, in 2019 conditions started to improve as more people could afford livestock products and many vendors started to provide agricultural inputs on credit.[6]

Interviewed HHs reported that the availability of live animals across most Mantika is satisfactory, although not always regular. This creates some problems as people are not able to access live animals when needed.

5.3.4 LIVESTOCK PRICE INPUTS

Livestock input prices were reported to have generally increased since 2011 for the same reasons that food and agricultural input prices rose[7]. Prices continuously increased in the 3-6 months prior to the survey as reported by all HHs interviewed, except for those located in the Mantika of Sebha. Vendors of agricultural livestock inputs also confirmed this trend.

The same price increases during the past 3-6 months were also reported for live animals across all Mantikas, with the exception of Sebha. Most of the livestock inputs (i.e. feed, drugs, etc.) come from the northern region of Tripolitania. After that they are transferred to Sebha, and from Sebha distributed to other areas of the Fezzan. Transportation costs to Sebha are therefore less, which is why prices may be lower in Sebha compared to other Mantikas.

PICTURE 8
KII with a vendor of agricultural inputs in Sebha

6 Ibid
7 Information collected through HHs semi-structured interviews and KIIs with vendor of livestock inputs

5.4 Trading of agricultural inputs and food commodities

Vendors of agricultural/ livestock inputs and food items reported that agricultural traders transport most of these commodities from the northern region of Tripolitania to the Fezzan. Agricultural traders can solely act as transporters of commodities or simultaneously act as middlemen1. When acting as middlemen, traders buy commodities from producers or providers (farmers, private sector, government, etc.) to re-sell them to market vendors and shop keepers.

In the Fezzan region, middlemen and/ or traders are the main suppliers of imported products (food, agricultural inputs, animal drugs and feed). They mainly buy commodities from the northern region of Tripolitania, distribute the products to local vendors and shopkeepers and re-sell the products so they become available to consumers. This means that most crops produced in the assessed areas are not used for industrial processing, although there are local milling facilities which are mostly used for home-production by the local population.

Traders of agricultural commodities generally sell inputs, food items, and equipment (pipes, spare parts, etc.), as well as live livestock. Each trader has a specific specialization and focuses on both food commodities and inputs for crop or livestock production. It is generally rare to have traders who deal with a combination of commodities (e.g. food item and agricultural inputs).

Most interviewed traders are self-employed. In most Mantikas there is a higher proportion of self-employed traders than traders working for someone else. Most traders explained that the proportion of traders who rent transport is similar to that of traders who own transport (50-50). There are traders that work with other traders to share transportation, storage and security costs. When trips are long, larger traders often have armed security officers accompany the drivers, who work for them to bring commodities to identified shops and markets.

According to the interviewed traders, the payments to traders are generally done by cash in advance, cash after delivery, and a minority of payments are done on credit.

Traders also reported that farmers do not generally organize themselves in groups when it is time to sell their produce. This arrangement could indeed help to share the cost of transportation from the production areas to the markets. Only in Alijufra, one trader confirmed that some farmers adopt this type of arrangement.

Most traders, acting as wholesalers, reported delivering the items they transport directly to local shops and markets; however, a minority of traders indicated that they sell some commodities (i.e. food and agricultural inputs) directly to the local population.

The main challenges in trading commodities are security issues, buyers lacking liquidity, high fuel costs, high prices of some varieties of products sold by farmers and importers, as well as the instability of the exchange rate. Buyers also have difficulties in accessing markets.

1 https://www.oerafrica.org/FTPFolder/Agshare/Marketing%20and%20Price%20Analysis/role_of_middlemen_in_the_marketing_of_agricultural_commodities.html

5.5 Impact on value chains

A value chain in agriculture describes the range of activities and set of actors that bring agricultural produce, inputs and material from production to consumption, wherein at each stage value is added to the product. This assessment does not provide a full-fledged value chain-analysis as such. However, thanks to the data and information collected, it was possible to understand what occurs in relation to pre-production, production and post-production stages of the agriculture value chain in the assessed areas.

For both crop and livestock production the situation is relatively straightforward. For local production, farmers and livestock keepers locally produce goods via a series of activities (i.e. recruitment of labour, procurement of inputs and veterinary drugs (when accessible/ available), land preparation, maintenance of crops and animals through provision of water, applications of fertilizers and pesticides, feeding of animals, etc.). After that, they harvest the produce and sell it to the local middleman and/ or traders. Most of the time, the middleman and the trader are the same person. From these actors, the production is transferred (sold) to local sellers and shopkeepers, who directly re-sell to buyers. Due to the crisis there also limitations in the movements of the agricultural goods from the production areas to the market/ shop places. In fact, transport has been highly affected by the crisis in the country as already described (lack/ high cost of fuel, security issues, increased transportation costs, etc.).

Further constraints for the end-part of the value-chain process are the limitations that producers face with storing and preserving agricultural products following electricity shortages, power cuts and the absence of storage materials (bags, containers, refrigerators, etc.) and facilities. In addition, there are no functional industrial processing facilities for agricultural/ livestock products in the assessed areas despite small milling places. This often results in the direct sale of raw products to end consumers, although some locally-produced products can be processed at home.

SECTION 6

Recommendations for restoration of the agricultural sector

The findings of this study show that agriculture represents an important livelihood for many people in the assessed area (local population, migrants and IDPs). In line with all challenges and needs described in this report and based on the voices of the population and local key stakeholders consulted in this study, it is extremely important to plan for effective interventions to build a resilient agricultural sector in the Fezzan region. As it is impossible to predict the path of conflict in the future, it is necessary to support the agricultural sector and the people relying on this sector in the short, medium and long-term. This is very critical, considering that very limited assistance has been provided to the sector in the Fezzan region so far, both from governmental and non-governmental actors.

In line with the necessity for aid, and according to what has been observed on the ground, the next sections of the report summarize the main recovery and resilience interventions that should be undertaken in the Fezzan region in order to support the agricultural sector and all actors depending on it.

6.1 Short-term interventions

Recommended short-term agriculture interventions


Local Farmers


IDPs


Migrants


Women

CROPS					
Provision of good quality agricultural inputs, especially improved seeds, fertilizers and pesticides	In-kind / voucher	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Provision of material and seedlings to re-establish nurseries for fruit tree production	In-kind / voucher	All *Mantikas*	All *Mantikas*	All *Mantikas*	*None*
LIVESTOCK					
Restocking of animal vaccines (mainly chicken)	In-kind / voucher	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	*None*	All *Mantikas*
Provision of animal feed and critical veterinary drugs	In-kind / voucher	All *Mantikas*	All *Mantikas*	*None*	All *Mantikas*
Provision of construction material for the rehabilitation of animal shelters	In-kind / voucher	All *Mantikas* with exception of Sebha and Murzuq	All *Mantikas* with exception of Sebha and Murzuq	*None*	All *Mantikas* with exception of Sebha and Murzuq
CAPACITY STRENGTHENING					
Support the rehabilitation of farmers' associations and the establishment of new ones	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Support farmers and agro suppliers with credit facilities to improve access to inputs	Dialogue with governmental authorities and financial sector	All *Mantikas*	All *Mantikas*	*None*	All *Mantikas*
Support farmers in the formation of "sales group" to save on transportation costs	Dialogue with governmental authorities and private sector	All *Mantikas*	All *Mantikas*	*None*	All *Mantikas*
INFRASTRUCTURE					
Provision of storage materials (bag, water tanks, etc.)	In-kind / voucher	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha
Provision of solar water pumps	In-kind	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	*None*
Provision of solar refrigerator system	In-kind	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha
Provision of solar generators	In-kind	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha
Establishment of temporary storage facilities for crop and livestock production	In-kind / cash for work	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Dig new wells as temporary measure to overcome the issue of water	In-kind/ cash for work	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*

6.2 Recovery & sustainable interventions

Recommended medium-term agriculture recovery interventions


Local Farmers


IDPs


Migrants


Women

CROPS					
Promote alternative crops and more diversified cropping systems	In-kind/ capacity building	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Provision of subsidized agricultural inputs	In-kind	All *Mantikas*	All *Mantikas*	*None*	All *Mantikas*
Shift crop production towards climate change adapted varieties	Capacity building	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Restructure crop production sector (i.e. varieties, timing) towards climate smart agriculture	Capacity building	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Enhance crop extension services, especially through government	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Conduct trainings on crop diversification, water saving practices, pest and disease control through the Integrated Pest Management (IPM) approach, organic farming, and composting among others by taking into consideration farm field school methods and similar approaches	Capacity building	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
LIVESTOCK					
Restocking of vaccinated animals (sheep and goats)	In-kind	All *Mantikas* with exception of Sebha	All *Mantikas* with exception of Sebha	*None*	All *Mantikas* with exception of Sebha
Provision of subsidized feed and veterinary drugs	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	*None*	All *Mantikas*
Provision of material for beekeeping	In-kind	All *Mantikas*	All *Mantikas*	*None*	All *Mantikas*
Conduct trainings on livestock production, including disease prevention, composting, advanced rearing practices and livestock diversification (i.e. bee production)	Capacity building	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Enhance animal health services, especially through Government extension offices	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Construct water reservoirs to support livestock production	In-kind/ cash for work	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
LIVELIHOODS					
Rebuild community agricultural infrastructure	Cash for work	All *Mantikas* with exception of Sebha and Murzuq	All *Mantikas* with exception of Sebha and Murzuq	All *Mantikas* with exception of Sebha and Murzuq	All *Mantikas* with exception of Sebha and Murzuq
Provide skills development to support agriculture and complementary livelihood activities	Capacity building	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Improve market access by restoring roads in terms of security and improve transportation facilities	Dialogue with governmental authorities and private sector	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*

INFRASTRUCTURE

Repair key irrigation network and systems and provide the required equipment and material for their use	In-kind/ cash for work	All *Mantikas* with exception of Sebha and Murzuq	All *Mantikas* with exception of Sebha and Murzuq	All *Mantikas* with exception of Sebha and Murzuq	All *Mantikas* with exception of Sebha and Murzuq
Establish key critical processing facilities / infrastructure (milling plant, slaughterhouses, packaging and storing etc.)	Dialogue with governmental authorities and private sector	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*

ASSESSMENTS

Conduct an assessment on the status of irrigation in the Fezzan region	Self-funded or supported by other partners and donors	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Conduct a market assessment to verify the possibility of establishing cash/ voucher mechanisms for agricultural and livestock inputs	Self-funded or supported by other partners and donors	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*

Recommended long-term interventions for resilience

INFRASTRUCTURE

Repair key irrigation network and systems and provide the required equipment and material for their use	In-kind/ cash for work	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Establish key critical processing facilities / infrastructure (milling plant, slaughterhouses, packaging and storing etc.)	Dialogue with governmental authorities and private sector	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*

GENERAL

Improve security situation in relation to the agriculture sector (transportation, safeguard of productive assets, etc.)	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Facilitate access to formal low interest rate loans to restore the agriculture sector and sub-sectors	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	*None*	All *Mantikas*
Review relevant agricultural policies	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Conduct science-based research and more in-depth studies to better understand issues related to soil and salinity, climate change and spread of pests and diseases	Dialogue with academia, MoA and functional agricultural and environmental research institutes	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Improve the supply chain and added value of agriculture products to increase affected people's resilience.	Dialogue with governmental authorities and private sector	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Improve the supply of electricity and fuel	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*
Provision of subsidize agricultural tools and machineries	Dialogue with governmental authorities	All *Mantikas*	All *Mantikas*	All *Mantikas*	All *Mantikas*

LIST OF ACRONYMS

FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
GMO	Genetically Modified Organism
GDP	Gross Domestic Product
HHs	Households
IDPs	Internally Displaced Persons
KIIs	Key Informant Interviews
JMMI	Libya Joint Market Monitoring Initiative
LYD	Libyan Dinar
MEB	Minimum Expenditure Basket
MoA	Ministry of Agriculture
MSNA	Multi-sector Needs Assessment
SP	Service provider
USD	United States Dollar
WFP	United Nations World Food Programme

About WFP in Libya

WFP assists food insecure and vulnerable people in Libya, including crisis-affected Internally Displaced People (IDPs), returnees, non-displaced populations, refugees, asylum-seekers and migrants living in urban settings.

The operation works under its Interim Country Strategic Plan (ICSP), which helps WFP and its partners to work with the Libyan people to achieve zero hunger by 2030, in line with the Sustainable Development Goals (SDGs). The ICSP includes general food assistance and emergency food assistance as well as the implementation of programmes that include school feeding and food-for-training for resilience-building and the empowerment of youth and women. Amplified data collection, analysis, and reports like the one you are reading now are a result of WFP's investment in information to better inform needs and the response inside the country.

In Libya, WFP leads the Food Security Sector, the Logistics Sector, the Emergency Telecommunications Sector, and manages the UN Humanitarian Air Service (UNHAS) and the UN Hub in Benghazi.

wfp.libya@wfp.org

World Food Programme

LIBYA