Food and Agriculture Organization of the United Nations

ISSN 2707-2479

# SPECIAL REPORT

## 2023 FAO CROP AND FOOD SUPPLY ASSESSMENT MISSION (CFSAM) TO THE REPUBLIC OF THE SUDAN

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Food and Agriculture Organization of the United Nations
Rome, 2024

Required citation:
FAO. 2024. *Special report – 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan. 19 March 2024*. CFSAMs Special Reports, 01/2024. Rome. https://doi.org/10.4060/cd0053en

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ISSN 2707-2479 [Print]
ISSN 2707-2487 [Online]

ISBN 978-92-5-138632-3

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# CONTENTS


**ABBREVIATIONS** ..... v

**HIGHLIGHTS** ..... 1

**OVERVIEW** ..... 3

**SOCIOECONOMIC CONTEXT** ..... 5

General ..... 5

Agriculture ..... 6

- Irrigated agriculture ..... 7
- Semi-mechanized rainfed agriculture ..... 7
- Traditional rainfed agriculture ..... 8

Livestock ..... 8

**MAIN FACTORS AFFECTING CEREAL PRODUCTION IN 2023/24** ..... 9

Rainfall ..... 9

Irrigation ..... 10

Agricultural finance and credit ..... 10

Agricultural inputs ..... 11

- Seeds ..... 11
- Agricultural machinery ..... 12
- Fertilizers and herbicides ..... 12
- Labour ..... 12
- Fuel ..... 13
- Crop pests and diseases ..... 13

**AGRICULTURAL PRODUCTION IN 2023/24** ..... 15

Area planted and harvested in 2023/24 ..... 15

Crop yields ..... 18

Cereal production ..... 18

Other crops ..... 22

- Sesame ..... 22
- Groundnuts ..... 23
- Sunflowers ..... 24
- Cotton ..... 25

Livestock ..... 26

**CEREAL SUPPLY/DEMAND SITUATION** ..... 27

Cereal supply/demand balance (January–December 2024) ..... 27

**RECOMMENDATIONS** ..... 29

Immediate actions ..... 29

- Life-saving assistance ..... 29

Recovery ..... 29

- Longer term livelihood support ..... 29

**ANNEXES ..... 32**

Annex 1. FAO CFSAM to the Republic of the Sudan, 2023 - Data needed from official sources, non-governmental organization (NGOs) and farmers ..... 32

Annex 2. FAO CFSAM to the Republic of the Sudan, 2023 - State level report format ..... 39

**NOTES ..... 41**

## Figures, tables and maps

### Figures

1. The Sudan – May–October cumulative rainfall in selected states ..... 9

### Tables

1 The Sudan – Finance to agriculture by the ABS and number of beneficiaries for summer crops ..... 11

2. The Sudan – Seeds distributed by FAO to smallholder farmers in traditional rainfed sector by state ..... 12

3. The Sudan (Gedaref State) – Costs of agricultural inputs during the 2022 and 2023 agricultural seasons ..... 13

4. The Sudan – Cereal area planted by state, scheme and sector ..... 16

5. The Sudan – Cereal area harvested by state, scheme and sector ..... 17

6. The Sudan – Cereal yields by state, scheme and sector ..... 19

7. The Sudan – Cereal production by state, scheme and sector ..... 20

8. The Sudan – Cereal production by sector ..... 21

9. The Sudan – Sorghum production by sector ..... 21

10. The Sudan – Millet production by sector ..... 21

11. The Sudan – Wheat production by sector ..... 21

12. The Sudan – Sesame production 2023/24 compared to 2022/23 and five-year average ..... 22

13. The Sudan – Groundnut production 2023/24 compared to 2022/23 and five-year average ..... 23

14. The Sudan – Sunflower production 2023/24 compared to 2022/23 and five-year average ..... 24

15. The Sudan – Cotton production 2023/24 compared to 2022/23 and five-year average ..... 25

16. The Sudan – National cereal supply/demand balance, January–December 2024 ..... 28

### Maps

1. The Sudan – Vegetation Health Index (VHI) ..... 10

# ABBREVIATIONS

| | |
|---|---|
| ABS | Agricultural Bank of Sudan |
| CFSAM | Crop and Food Supply Assessment Mission |
| DAP | di-ammonium phosphate |
| FAO | Food and Agriculture Organization of the United Nations |
| FEWS NET | Famine Early Warning System Network |
| FSTS | Food Security Technical Secretariat |
| GDP | gross domestic product |
| GIEWS | Global Information and Early Warning System on Food and Agriculture |
| IDP | internally displaced person |
| IMF | International Monetary Fund |
| IPC | Integrated Food Security Phase Classification |
| LTA | long-term average |
| mm | millimetres |
| MoA&F | Ministry of Agriculture and Forestry |
| MoAR&F | Ministry of Animal Resources and Fishery |
| NGOs | non-governmental organizations |
| PET | Pictorial Evaluation Tool |
| SDG | Sudanese pound |
| SRCo | Strategic Reserve Corporation |
| UN | United Nations |
| UNHCR | United Nations High Commissioner for Refugees |
| USAID | United States Agency for International Development |
| USD | United States dollar |
| VHI | Vegetation Health Index |
| WFP | World Food Programme |

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# HIGHLIGHTS

- National cereal production in 2023, including wheat crops to be harvested in March 2024, is estimated at about 4.1 million tonnes, 46 percent below the output obtained in the previous year and about 40 percent below the average of the previous five years.
- Sorghum production in 2023 is estimated at about 3 million tonnes, 42 percent lower than in 2022 and 34 percent below the average. Millet output is estimated at about 683 500 tonnes, 64 percent lower than the output obtained in 2022 and 60 percent below the average.
- Production of wheat, for harvesting in March 2024, is forecast at about 377 900 tonnes, about 20 percent lower than the previous year and 46 percent below the average.
- The significant decrease in total cereal production in 2023 was mainly due to the impact of the ongoing conflict on agricultural operations through insecurity as well as the limited availability and high prices of agricultural inputs.
- An erratic spatial and temporal distribution of seasonal rains, with prolonged dry spells in southeastern key-producing areas, affected yields and contributed to reduce crop production.
- The high prices of agricultural inputs, caused by a limited availability due to conflict-related reduced imports and disrupted internal trade flows, led to soaring costs of production.
- Although the number of vaccinated animals declined in 2023, animal body conditions and health were generally good, with no major disease outbreaks.
- Pasture and water availability was generally adequate at the time of the assessment, but it is unlikely that it may last until the start of the next rainy season in June 2024 due to insufficient rains. In some areas, the conflict limited movements of herds and constrained access to grazing resources.
- The 2023 production of sesame, sunflowers and cotton is estimated at below-average level, due to reduced planted and harvested areas and low yields, especially for cotton. Production of groundnuts has also decreased, mainly due to below-average yields.
- The depreciation of the Sudanese pound continued in 2023 due to the high demand of foreign currency to import essential goods no longer produced in the country following the severe damages caused by the conflict to the industrial sector.
- Prices of cereals surged in 2023 due to conflict-related trade disruptions, insufficient supply of grains and the continuous depreciation of the national currency. In December 2023, prices were up to twice their year-earlier levels.
- The annual average inflation rate surged from about 140 percent in 2022 to almost 260 percent in 2023, constraining households' purchasing power.

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# OVERVIEW

Between 2 and 17 January 2024, following a request by the Ministry of Agriculture and Forestry (MoA&F), the Food and Agriculture Organization of the United Nations (FAO), in close cooperation with the Food Security Technical Secretariat (FSTS) and the State Ministries of Agriculture, carried out its annual Crop and Food Supply Assessment Mission (CFSAM) to estimate the 2023 crop production and assess the food supply situation throughout the 18 states of the country.

As the ongoing conflict restricted the movement between and within some states, a revised approach was needed to implement the CFSAM. The core teams comprising members from the MoA&F, Ministry of Animal Resources and Fishery (MoAR&F), FSTS, Strategic Reserve Corporation (SRCo), FAO, WFP, FEWS NET and USAID, which usually visited the different states of the country, were substituted by state teams. Their composition varied among the different states based on the presence of officers from FSTS and MoA&F, which already relocated to various states throughout the country following the eruption of the conflict in the capital, Khartoum. The teams were supported by a national consultant who consolidated data and information.

The teams were provided by state authorities, mainly state ministries and irrigation schemes, with data and information on crop production and livestock conditions, including official estimates of planted and harvested area, yields and production of staple cereals and cash crops as well as information about the main factors affecting them. Where the security situation allowed, field visits were conducted to cross check official estimates provided by state authorities with information gathered through field inspections, rapid case studies with sample farmers and interviews with herders and traders. Unfortunately, it was not possible to gather evidence on livestock and pasture conditions assessed using the Pictorial Evaluation Tool (PET) methodology. Farmers and key informants provided

information on rainfall amounts and distribution, vegetation status, crop protection campaigns, livestock body condition and health and prices of the main crops and livestock. Unfortunately, it was not possible to obtain official information on the main socioeconomic indicators from the Central Bank of Sudan (CBoS), the Agricultural Bank of Sudan (ABS), the Central Bureau of Statistics (CBS) and the SRCo.

Due to the impossibility to obtain official data from the Sudan Meteorological Authority (SMA) and from most rain gauges across the country, satellite data and imagery were used to review the performance of the rainy season and the evolution of vegetation conditions during the year.

In all states, teams prepared state reports, which were aggregated and triangulated with secondary data and information from other sources, forming the basis of the CFSAM report. Data were compiled by state, crop and sub-sector (irrigated, rainfed mechanized and rainfed traditional) in order to provide the overall area, yield and production estimates. Using these data, a national cereal balance sheet was drawn up comparing the total cereal requirements for the 2024 marketing year (January/December) with the domestic cereal availability.

Cereal production in 2023/24 was severely affected by the conflict through insecurity and low availability and high prices of agricultural inputs, which had a significant impact on planted and harvested area as well as yields. The 2023 rainy season was characterized by an erratic spatial and temporal distribution, with dry spells reported in southeastern key-producing areas, which further constrained yields.

In 2023, most inputs, including fertilizers and herbicides, and agricultural machinery were very scarce and extremely expensive. In addition, they were often not available in a timely manner, thus delaying planting and other agricultural operations. Most farmers utilized seeds retained from the harvest of the previous year due to high market prices and absence of seeds distribution carried out by the Federal MoA&F. FAO distributed about 10 000 tonnes of certified seeds across the country. Labour was generally available, but at high prices due to increased cost of living.

Control operations of endemic pest and diseases were constrained by non-functionality of the Federal Plant Protection Directorate and state departments due to the ongoing conflict. However, no major pest and disease outbreaks were reported.

The national cereal production in 2023/24 (sorghum, millet and wheat) is estimated at about 4.1 million tonnes, 46 percent below the output obtained in the previous year and 41 percent below the average of the previous five years. Sorghum output is estimated at about 3 million tonnes, 42 percent lower than the level of the previous year and 34 percent below the average of the previous five years. Millet production is estimated at 683 542 tonnes, 64 percent lower than the output obtained in 2022 and 60 percent below the average of the previous five years. Production of wheat, to be harvested in March 2024, is forecast at about 377 900 tonnes, 21 percent below the previous year and 46 percent less than the past five-year average.

Although animal vaccination rates in 2023 were lower compared to the previous year, livestock health and body condition were generally good as no major disease outbreaks were reported. Pasture condition was assessed as fair to good at the time of the assessment, but the uneven seasonal rains allowed only a partial regeneration of the rangeland resources, which will not to be sufficient to sustain the livestock population until the start of the next rainy season in June 2024. A similar situation was reported for water. The conflict limited movements of herds and constrained access to pasture and water in conflict-affected areas.

Prices of locally produced sorghum and millet and mostly imported wheat surged in 2023 due to conflict-related trade disruptions, insufficient supply and the continuous depreciation of the national currency. The sharpest increases were recorded in Greater Darfur Region, in Greater Kordofan Region and in Khartoum State, where the conflict is more intense.

The cereal food use in 2024 has been estimated at about 7.3 million tonnes, using the end-2023 population which was adopted by the latest Integrated Food Security Phase Classification (IPC) analysis[i] and a per capita average consumption of 152 kg. The cereal import requirements for the 2024 marketing year (January/December) are forecast at 3.38 million tonnes, mainly 2.44 million tonnes of wheat, 662 000 tonnes of sorghum and some amounts of rice, millet and maize.

# SOCIOECONOMIC CONTEXT

## General

The conflict, which erupted between the Sudanese Armed Forces (SAF) and the paramilitary Rapid Support Forces (RSF) on 15 April 2023, had a dramatic impact on every socioeconomic domain. The war has caused widespread displacements, destroyed key infrastructure and constrained trade and production activities. Moreover, it disrupted access to public utilities, financial services and markets, hence, triggering considerable scarcity of goods and services, resulting in a dire food security situation.

As of early February 2024, the number of people displaced by the conflict was estimated at 6.1 million. With the number of people displaced before the eruption of hostilities estimated at about 3.8 million, the total number of internally displaced persons (IDPs) amounts to almost 10 million, making the Sudan the largest internal displacement crisis globally. In addition, 1.7 million people have fled to neighbouring countries, most of them to Chad, South Sudan and Egypt.

The country's population is estimated at 48.2 million. This figure is the same used for the latest IPC analysis, which factors in the impact of the conflict on the population's growth rate.

The country has been facing a deepening political and economic crisis over the last decade. Following the secession of South Sudan in 2011, the country lost a major source of fiscal revenue and export earnings, leading to a deterioration of macroeconomic conditions. Since then, increasing trade and current account deficits, severe shortages of foreign exchange reserves, rampant inflation and unsustainable debt levels have resulted in severe fiscal constraints. The scarcity of resources, compounded by weak revenue collection and heavy fuel subsidies, undermined public service delivery and access to government social protection, resulting in widespread socioeconomic vulnerability. The conflict has dramatically exacerbated these macroeconomic challenges.

Economic growth has been severely affected by the conflict, which has caused widespread destruction of infrastructure and physical capital. Productive capacity has suffered drastically also due to the displacement of skilled labour force. According to the Economist Intelligence Unit (EIU),[ii] the gross domestic product (GDP), after having declined by 1 percent in 2022, plunged by 12 percent in 2023. All sectors significantly contracted, with industry and services declining by 10 percent and agriculture decreasing by 15 percent.

The sharp decline of the domestic productive capacity of essential items including medicines, food and fuel, led boosted demand for United States dollars to source them from the international market. This, coupled with low foreign currency reserves, which were estimated at less than one month of imports at the start of 2023, resulted in a sharp depreciation of the Sudanese pound on the parallel market, and, according to WFP,[iii] in December 2023 the exchange rate was SDG 1 100/USD 1, compared

to SDG 603/USD 1 in March 2023, before the start of the conflict.

Prices of domestically produced sorghum and millet, and of wheat, mostly imported, surged in 2023 due to conflict-related trade disruptions, insufficient supplies and the continuous depreciation of the national currency. The sharpest increases were recorded in Greater Darfur Region, in Greater Kordofan Region and in Khartoum State, where the conflict is more intense. In December 2023, prices of sorghum, compared to 12 months earlier, were about 85 and 100 percent higher in Omdurman (Khartoum State) and in El Obeid (North Kordofan State), respectively. By contrast, prices were 10 and 25 percent higher year-on-year in El Gedaref (El Gedaref State) and in Port Sudan (Red Sea State), respectively, located in more secure areas. Prices of millet and wheat followed similar trends.

Imports of wheat grain sharply declined from 1.7 tonnes between January and September 2022 to about 790 000 tonnes in 2023, mainly reflecting the depreciation of the national currency that increased import costs. By contrast, imports of wheat flour, despite having also become costlier, increased from 127 000 tonnes between January and September 2022 to 206 000 tonnes in 2023 in order to compensate the reduction in local milling capacity due to widespread damage to facilities caused by the conflict.[1]

Increasing prices of food and non-food items led to a sharp increase in the general inflation. According to the International Monetary Fund (IMF),[iv] the yearly average inflation rate soared from the already high value of about 140 percent in 2022 to almost 260 percent in 2023.

The conflict, causing large-scale displacements and livelihood losses, and exacerbating macroeconomic challenges, has severely constrained food availability and access and resulted in a dire food security situation. According to the latest IPC analysis,[v] about 17.7 million people are estimated to face severe acute food insecurity between October 2023 and February 2024. This figure, which includes about 13 million people in IPC Phase 3 (Crisis) and about 5 million in IPC Phase 4 (Emergency) levels of acute food insecurity, amounts to 37 percent of the total population.

# Agriculture

The economy of the country is highly dependent on the agricultural sector, as nearly 65 percent of its population is engaged in agriculture, which is the main supplier of raw material to industries. The agricultural sector, including forestry, livestock and fishery, accounted for 16 percent of the GDP in 2021.

About 175 million feddans, equivalent to 73.5 million hectares, are suitable for agriculture and the average area sown is approximately 26 million hectares. The country's crop portfolio is quite diversified, including cereals (sorghum, millet, wheat, rice and maize), oilseeds (sesame, groundnuts and sunflowers), commercial crops (cotton and sugarcane), fodder crops (alfalfa, fodder sorghum and Rhodes grass), pulses (broad beans and pigeon peas) and horticultural crops (okra, onions, tomatoes, citrus, mango, etc.).

Moreover, land in the country is suitable for animal husbandry, with an estimated total livestock population in 2022 slightly above 111 million heads of cattle, sheep, goats, camels and others, mainly depending on natural grazing areas for feed and from hafirs,[2] rivers, seasonal streams and bore wells for water.

Crop production is practiced under three main patterns:

1. Irrigated agriculture, which includes:

    - large national irrigation schemes (Al Jazirah, Suki, New Halfa and Rahad) using river flows from the Nile River and its tributaries;

[1] About 40 percent of wheat milling capacity is located in Khartoum and has been rendered non-operational by the conflict.

[2] Artificial water catchments.

- large spate irrigation schemes (Gash and Tokar) using seasonal floods;

- small-scale irrigation along the banks of the Nile River and its tributaries.

2. Semi-mechanized rainfed agriculture.

3. Traditional rainfed agriculture.

Crop production in the rainfed sectors, which accounts on average about 95 percent of the planted area, records wide annual fluctuations as a result of erratic rainfall amounts and distribution, which can result in late sowing, prolonged dry spells, flooding from intense downpours and/or river overflows, the necessity to re-sow and, not uncommonly, complete crop failure. The situation in the irrigated sector, which on average accounts for the remaining 5 percent of the planted area, however, is usually much more predictable. Nevertheless, considered globally, yields are generally low in all sectors for several reasons in addition to rainfall. These include, *inter alia*, inadequate maintenance of irrigation canals, inefficient irrigation pumps, shortages of efficient, well-maintained farm machinery, shortages of credit and working capital, the use of low yielding crop varieties and low plant density with scarce availability of improved seeds, fertilizers and chemicals, and poor agricultural practices such as inadequate weed and pest control.

## Irrigated agriculture

The area under irrigation is estimated at about 1.6 million hectares (3.7 million feddans). Large-scale mechanized federal schemes account for about 1.26 million hectares (3 million feddans), including the Al Jazirah Scheme which, at approximately 1 million hectares (2.38 million feddans), is one of the largest irrigation schemes in the world. The irrigated sector is the main user of imported agricultural inputs as yields and, hence, production is more reliable. However, yields in the federal irrigated schemes remain low compared to world standards, largely due to the poor maintenance of canals, the low capacity of drainage systems and the shortage of efficient modern pumps.

The adoption of traditional agricultural practices does not allow to make the most efficient use of the constant water supply and exploit the full potential of more intensive farming. Irrigation water is mainly obtained from the Nile River and its tributaries by gravity or pumps and from spate flows from seasonal rivers in the Gash and Tokar deltas. The main crops grown in the irrigated sector include sugarcane, cotton, sorghum, groundnuts, wheat, legumes, spices, vegetables, fruits and green fodders. The irrigated sector also takes advantage of rain, especially during the establishment of the summer crops. For example, rain is estimated to provide up to 40 percent of the water requirements of crops in the Suki and in the Rahad Irrigation Schemes. Rain is important to reduce production costs of privately-owned irrigated smallholdings along the banks of the Nile River and its tributaries that depend on diesel-powered pumps.

## Semi-mechanized rainfed agriculture

In the semi-mechanized rainfed agriculture sector, mechanization is limited to land preparation, sowing and, only partially, to harvesting (sometimes also by using combined harvesters), while other agricultural operations are carried out manually. Semi-mechanized rainfed agriculture is practiced in a broad belt of 6.7 million hectares which runs mainly through Kassala, Gedaref, Blue Nile, Sennar, White Nile and South Kordofan states and receives annually more than 500 mm of rainfall on average. This belt is considered as the granary of the country, with sorghum accounting for about 80 percent of the total cultivated land and for about 45 percent of the country's requirements.

Sesame, sunflowers, millet and cotton are also grown. Farms in the semi-mechanized sector are frequently very large, with an average surface of 420 hectares and up to more than 50 000 hectares. Given the usually erratic nature of rainfall and, therefore, the possibility that yields could be very low, the system may be considered opportunistic, and operations are carried out as economically as possible. Standard crop varieties are sown using disc seeders with up to 30 discs with no application of fertilizer. If rains are favourable, yields of up to 1 tonne/hectare can be obtained, otherwise yields are much lower. In this case crops are usually not harvested and sold off as standing crops to pastoralists for grazing.

### Traditional rainfed agriculture

The traditional rainfed sector covers about 9 million hectares and occupies the largest number of farmers. The sector is characterized by small family units, farming from 2 to 50 hectares for both income and own consumption. On larger units, mechanization is used only for land preparation, but the rest of the agricultural operations remain prevalently manual. The traditional rainfed sector, although present in almost all states, prevails in western parts of the country, in Greater Darfur Region and in most of Greater Kordofan Region, where the main cereal crops grown are millet and sorghum. Use of inputs is low and yields are especially vulnerable to unfavourable rainfall. Other important crops in this sector include groundnuts, sesame, hibiscus (karkade), watermelon and gum arabic.

## Livestock

Livestock is raised in almost all parts of the country and animals are owned primarily by nomadic tribes. In 2023, the livestock population was estimated at about 111.8 million heads, comprising about 41.4 million sheep, 32.8 million goats, 32.7 million cattle and 5 million camels. Pastoralists efficiently use natural resources, moving herds around the country in response to weather conditions and availability of forage and water. The major problem faced by pastoralists is the loss of rangeland due to the expansion of mechanized farming. The traditional practice of farmers allowing herds to graze crop residues, with animals simultaneously fertilizing land, is declining as farmers prefer to sell their residues for cash. Clashes between pastoralists and farmers are common, even in years of good rainfall, prompting the government to set up committees in each state to resolve disputes.

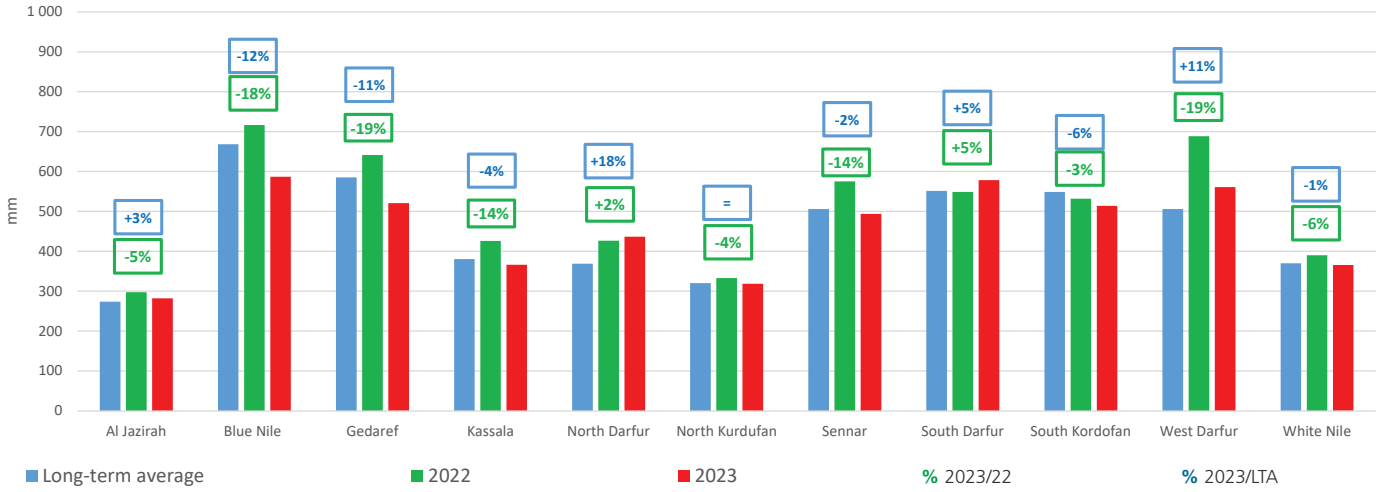
# MAIN FACTORS AFFECTING CEREAL PRODUCTION IN 2023/24

## Rainfall

With rainfed agriculture accounting for about 95 percent of the total cultivated area in the country, rainfall is the most important driver of national food crop production. Precipitation is crucial also in the irrigated sector as it supplements irrigation water and supports crop establishment and development.

According to remote sensing data,[3, vi] the rainy season in 2023 was characterized by an erratic spatial and temporal distribution of rainfall. Regarding the spatial distribution, the western part of the country received a cumulative rainfall amount higher than the previous year and the long-term average (LTA), while the eastern part of the country received a lower cumulative amount of rain compared to both the previous year and the LTA (Figure 1). Regarding the temporal distribution, in parts of the main producing areas of the southeast, localized dry spells reported during the main vegetative stages of crops constrained yields. By contrast, in western areas, the above-average rains benefited crop development, but triggered flash floods between July and September 2023 which resulted in localized crop losses.

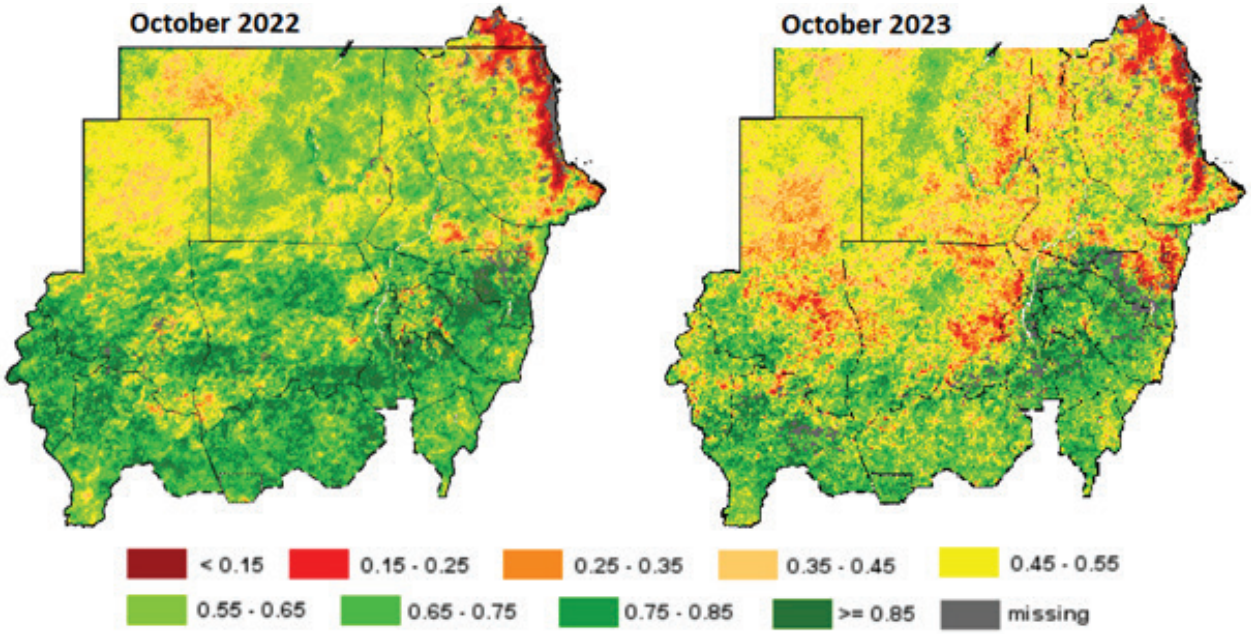
**Figure 1: The Sudan – May–October cumulative rainfall in selected states (mm and percent)**




Source: Authors' own elaboration based on the data provided by the World Food Programme (WFP), DataViz data to the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2023.

[3] Unfortunately, due to the conflict, it was possible to receive data collected by the ground stations only for some states, while for the majority of the states, ground information on weather was obtained only during field visits and interviews with key informants.

**Map 1: The Sudan – Vegetation Health Index (VHI)**




Notes: Based on FEWS NET RFE. WGS84, geographic Lat/Lon.

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Source: FAO. 2023. *Earth Observation*. Global Information and Early Warning System on Food and Agriculture (GIEWS). Rome. Cited December 2023. http://www.fao.org/giews/earthobservation/index.jsp?lang=en.

Due to rainfall deficits and to the spatial and temporal irregularities that characterized the rainy season in 2023, in October, before the start of the harvesting operations, vegetation conditions were worse than in the same period of the previous year (Figure 1).

## Irrigation

Normally, rainfall assists in the establishment of crops, reducing the burden on the irrigation system in July and August, while in September and October the required amount of water is supplied by a number (two to three) of scheduled irrigations. However, irrigation water is seldom sufficient for all the main crops (sorghum, groundnuts and cotton), particularly if the canals are not adequately de-silted and cleaned from weeds.

The conflict expanded in December 2023 to Al Jazirah State, where the homonymous irrigated scheme, by far the largest in the country, is located. Damages to irrigation infrastructures, storage facilities and standing crops are reported and the already poor prospects for the winter wheat harvest have further worsened. These developments are of particular concern due to the substantial wheat deficit of the country.

## Agricultural finance and credit

The provision of short-term agricultural credit mainly through the ABS and a number of commercial banks is a regular procedure in both irrigated and rainfed sectors. Loans to eligible farmers are provided through the interest-free Salam, with the ABS charges levied in-kind at a value fixed at planting time jointly by Ministry of Finance and Economic Planning (MoFEP), the SRCo, the ABS and farmers' associations. However, the provision of credit from the ABS is mainly dedicated to the entrepreneurial semi-mechanized rainfed sector. In 2023, the credit provided by ABS was severely affected by the ongoing conflict and disruption of ABS activities, with only SDG 41 098.73 million provided for the summer cropping season, almost 40 percent less than in 2022. Unfortunately, it was not possible to obtain exact information on the

**Table 1: The Sudan – Finance to agriculture by the ABS for summer crops (million SDG)**

| Region/State | 2020 | 2021 | 2022 |
|---|---|---|---|
| Eastern | 28 232.00 | 36 484.14 | 12 143.77 |
| Sennar and Blue Nile | 17 445.90 | 7 670.33 | 8 550.04 |
| White Nile | 8 119.60 | 9 067.73 | 3 673.03 |
| North Kordofan | 1 585.70 | 2 387.31 | - |
| South Kordofan | 3 488.60 | 3 722.18 | 4 196.16 |
| Al Jazirah | 2 228.20 | 6 669.60 | 5 429.08 |
| Darfur | 205.90 | 172.65 | 172.65 |
| Northern | 40.20 | - | 668.30 |
| River Nile | 252.60 | 986.37 | 6 163.42 |
| Red Sea | - | - | 265.94 |
| **Total** | **61 598.70** | **67 160.30** | **41 098.73** |

Note: Totals and percentages computed from unrounded data.
Source: Authors' own elaboration based on the data provided by the Agricultural Bank of Sudan (ABS) to the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

number of beneficiaries and on the area supported by the agricultural credit. At the time of the mission, no data was available also on the financing of the winter cropping season.

# Agricultural inputs

Generally, the availability of most agricultural inputs including seeds, fertilizers, herbicides, fuel and labour in 2023 was inadequate and at prices substantially higher than in 2022 across the country, as a direct or indirect effect of the conflict. Where seeds, fertilizers and machinery were available, they could not always be purchased in a timely manner and several farmers had to delay planting and other agricultural operations.

## Seeds

In 2023, the Federal MoA&F was not able to distribute any amount of seeds as a result of the ongoing conflict. As a result, it is reported that farmers relied mainly on seeds retained from the harvest of the previous year, with little quantities of seeds purchased at the local market at high prices. Based on the information collected during the CFSAM mission, the average price of seeds for main staple cereals was 63 percent higher compared to previous season. Unfortunately, it was not possible to verify that seeds available at local markets were certified, or at least of good quality.

Furthermore, more than 1 000 000 farmers, mainly in the traditional rainfed and in the irrigated sectors, were supported by seed distributions carried out by FAO, which provided about 10 290 tonnes of summer season certified seeds (Table 2), with an increase of about 90 percent compared to the amount distributed in 2022. Out of the total amount distributed, 10 085 tonnes were seeds of staple cereals (9 801 tonnes of sorghum and 284 tonnes of millet) and the remaining were small quantities of seeds of cash crops (groundnuts and sesame). The cost of summer season certified seeds procured by FAO is reported to vary between USD 1 500 and USD 1 800/tonne. The substantial amounts of seeds distributed by FAO in 2023, coupled with the provision of technical support, covered an estimated planted area of about 1 million hectares. The significant area planted with the distributed seeds, coupled with their high yield, ranging from 2 to 3 tonnes/hectare, contributed to mitigate the decline of the average sorghum yield, and ultimately, the decline of sorghum production caused by the conflict.

**Table 2: The Sudan – Seeds distributed by FAO to smallholder farmers in traditional rainfed sector by state (tonnes)**

| State | Sorghum | Millet | Groundnuts | Sesame | Total |
|---|---|---|---|---|---|
| Al Jazirah | 900.00 | - | - | - | 900.00 |
| Blue Nile | 800.00 | - | - | - | 800.00 |
| East Darfur | 264.00 | 79.20 | 12.20 | | 355.40 |
| Gedaref | 800.47 | - | - | 50.00 | 850.47 |
| Kassala | 600.00 | - | - | - | 600.00 |
| North Darfur | 356.00 | 68.35 | 32.60 | - | 456.95 |
| North Kordofan | 645.15 | 1.10 | - | - | 646.25 |
| Northern | 200.00 | - | - | - | 200.00 |
| Red Sea | 838.00 | 90.00 | - | - | 928.00 |
| River Nile | 200.00 | - | - | - | 200.00 |
| Sinnar | 1 700.00 | - | - | 50.00 | 1 750.00 |
| South Darfur | 186.62 | 45.00 | - | - | 231.62 |
| South Kordofan | 323.05 | - | - | - | 323.05 |
| West Darfur | 40.00 | - | - | - | 40.00 |
| West Kordofan | 345.00 | - | - | - | 345.00 |
| White Nile | 1 603.05 | - | - | 60.00 | 1 663.05 |
| **Total** | **9 801.34** | **283.65** | **44.8** | **160** | **10 289.79** |

Note: Totals computed from unrounded data.

Sources: Authors' own elaboration based on the data provided by the Agricultural Production General Directorate of the Ministry of Agriculture and Forests (MoAF) to the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

Furthermore, it is reported that WFP has supported farmers with wheat seeds, di-ammonium phosphate (DAP) and Urea fertilizers in Northern, Al Jazirah and River Nile states, sufficient for cultivation of 1 feddan per beneficiary. In Al Jazirah State, this distribution was sufficient for cultivation of about 65 500 feddans, representing 30 percent of the total area cultivated.

## Agricultural machinery

Agricultural machinery was not available in adequate numbers across the country especially in the areas directly affected by the conflict and, when available, the prices were very high. This forced many of the farmers that usually rent them to delay agricultural operations, or in some states to carry out the cultivation with animal power or manual equipment. The low availability and high operational costs were due to the high prices and difficult access to spare parts and fuel, but also to the dysfunctionality of public institutions and to the reluctancy of private service providers to operate under uncertain security conditions, also based on reports of some of the agricultural machines looted, stolen and destroyed.

## Fertilizers and herbicides

Fertilizers, pesticides and herbicides availability was generally low in several states and, when available, they were usually in insufficient quantities and at high prices. The lack of imports this year is an additional factor affecting the availability and prices of these inputs in local markets, as the available quantities currently on markets are reportedly stored from the previous season.

## Labour

Labour was generally available in the main producing areas, but wages were high due to increased cost of living. The cost of labour for the main manual agricultural operations, weeding and

**Table 3: The Sudan (Gedaref State) – Costs of agricultural inputs during the 2022 and 2023 agricultural seasons**

| Item | Price in SDG | | Percent change |
|---|---|---|---|
| | 2022 | 2023 | |
| **Tractors** | | | |
| Massey (second hand) | 6 000 000 | 8 000 000 | 33 |
| New Holland (new) | 11 000 000 | 14 000 000 | 27 |
| **Agricultural machinery** | | | |
| Sprayers (new) | 2 800 000 | 3 200 000 | 14 |
| Agriculture fuel (barrels) | 69 300 | 156 420 | 126 |
| Commercial fuel (litre) | 4 000 | 7 000 | 75 |
| Wide discs | 18 000 | 43 000 | 139 |
| **Fertilizers (50 kg/bag)** | | | |
| Urea | 18 000 | 40 000 | 122 |
| DAP | 23 000 | 47 000 | 104 |
| **Herbicides (main type)** | | | |
| 2-4D price/litre | 3 500 | 9 000 | 157 |
| Glyphosate/litre | 7 500 | 7 500 | - |
| **Seeds (main type)** | | | |
| Sorghum (tonne) | 300 000 | 700 000 | 133 |
| Millet (tonne) | 330 000 | 1 750 000 | 430 |
| Sesame (tonne) | 500 000 | 2 400 000 | 380 |
| Sunflower (tonne) | 3 400 000 | 9 250 000 | 172 |
| Cotton | 500 000 | 1 100 000 | 120 |
| **Empty sacks** | | | |
| 300 | 240 000 | 330 000 | 38 |
| **Labour** | | | |
| Average daily work | 3 000 | 3 500 | 17 |

Note: Totals and percentages computed from unrounded data.

Sources: Authors' own elaboration based on the data provided by the Agricultural Production General Directorate of the Ministry of Agriculture and Forests (MoAF) to the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

harvesting, in 2023 was on average 40 percent higher than in 2022. However, the large numbers of displaced people that fled from Khartoum mainly to southeastern agricultural areas, including Gedaref, Kassala and Sennar states, have actively engaged in agriculture for income generation, causing a saturation of the labour market with consequent lower wages compared to other states.

## Fuel

Market availability of fuel for agricultural operations was different amongst the different states. It was mostly unavailable in the areas directly involved by the conflict, such as Greater Darfur Region and North Kordofan State, but also in more secure areas like River Nile State. In some areas in Greater Darfur Region, fuel was available from neighbouring countries, especially Libya, but at very high prices. Fuel was generally available in other states, stable but in insufficient quantities and at high prices. The conflict exacerbated the escalation of fuel prices which began with the removal of government subsidies in June 2021, which caused fuel prices to double between the 2021 and the 2022 cropping seasons.

Table 3 illustrates the costs of the main items/operations in 2023 in Gedaref State, along with the percentage changes between the last two agricultural seasons.

## Crop pests and diseases

In the 2023 cropping season, no major outbreaks of pests and diseases were reported, with a mild impact on crops, despite the low to absent control activities conducted by the Federal Plant Protection Directorate and the state departments. The main pests reported were local birds, tree locust, rats, sorghum bugs and quelea. The presence of tree locusts was reported in 11 states, while quelea birds and desert locusts were reported in six states. Due to the closure of the Sudan's air space, it was not possible to operate aircrafts for aerial control of locusts and birds.

# AGRICULTURAL PRODUCTION IN 2023/24

## Area planted and harvested in 2023/24

The area planted with sorghum in 2023/24 is estimated at about 9.8 million hectares, about 1 percent higher than the previous year and the average of the previous five years. A reduction is reported in the semi-mechanized sector, where planted area declined by about 3 percent from the previous year and 9 percent from the average of the previous five years, mainly due to the reduction in the number of beneficiaries of agricultural financing and the high costs of production. Severe reductions are reported in Sennar and Blue Nile states, while North Kordofan and West Kordofan states reported no cultivation in the 2023 summer cropping season. By contrast, planted area increased in Gedaref State, which is reported to be 27 and 23 percent higher than last year and the five-years average, respectively.

The traditional sector reported an increase in planted area that was 7 and 14 percent higher than in the previous year and the five-year average, respectively, mainly due to an increase in Sennar State, where the planted area is reported to be three times higher than the previous year and more than four times higher than the five-year average due to the influx of internally displaced peoples, mainly from Khartoum State, which engaged in agricultural operations. The increase in planted area in Sennar State completely offset the sharp reduction observed in West, South and Central Darfur states due to prevailing insecurity constraining farmers' access to fields.

The area planted with millet is estimated at about 3.9 million hectares, 20 and 15 percent lower than the previous year and the average of the previous five years, respectively. The decrease is mainly due to reduced plantings in the traditional rainfed sector, which, on average, in the last five years accounted

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for 90 percent of the total planted area with millet. The sharpest decreases were recorded in West and Central Darfur states, partially offset by an increased planted area in Sennar and South Kordofan states.

The 2023/24 wheat crops were sown between early November and mid-December 2023, and the area planted by the end of December is estimated at 179 130 hectares, 7 and 38 percent down from the previous season and the average of the previous five years, respectively. The decrease follows the trend of the previous years, due to challenges in accessing agricultural finance, exacerbated by the disruption of agricultural bank activities, and difficulties to sell grains at competitive market prices.

The total area harvested of sorghum and millet was below its level a year earlier and compared to the average of the previous five years. The area harvested of sorghum was estimated at 6 million hectares, 17 and 21 percent down from the previous year and the average of the previous five years, respectively, while the area harvested with millet was estimated at 3 million hectares, 21 and 15 percent down from the previous year and the five-year average, respectively.

## Table 4: The Sudan – Cereal area planted by state, scheme and sector ('000 hectares)

| State/Scheme/ Sector | Sorghum | | | | | Millet | | | | | Wheat | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average |
| **Irrigated** | | | | | | | | | | | | | | | |
| Northern | 3.52 | 5.04 | 5.59 | 111 | 159 | - | - | - | - | - | 49.85 | 38.38 | 34.06 | 89 | 68 |
| River Nile | 37.54 | 34.40 | 4.75 | 14 | 13 | - | - | - | - | - | 20.16 | 14.69 | 20.37 | 139 | 101 |
| Khartoum | 1.49 | 1.41 | 0.42 | 30 | 28 | - | - | - | - | - | 0.46 | 0.21 | 0.00 | - | 0 |
| Al Jazirah | 124.15 | 105.84 | 134.40 | 127 | 108 | - | - | - | - | - | 152.52 | 92.36 | 92.40 | 100 | 61 |
| Suki | 12.18 | 12.60 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| Sennar | 26.71 | 26.88 | 41.08 | 153 | 154 | - | - | - | - | - | 0.68 | - | - | - | - |
| White Nile | 45.81 | 58.93 | 64.89 | 110 | 142 | - | - | - | - | - | 32.35 | 23.97 | 17.22 | 72 | 53 |
| Rahad | 27.97 | 25.62 | 31.12 | 121 | 111 | - | - | - | - | - | 0.59 | 0.00 | 0.00 | - | - |
| New Halfa | 23.27 | 20.58 | 23.48 | 114 | 101 | - | - | - | - | - | 28.98 | 23.09 | 15.08 | 65 | 52 |
| Gash | 41.66 | 25.62 | 13.86 | 54 | 33 | - | - | - | - | - | - | - | - | - | - |
| Kassala | 3.36 | 0.00 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| Tokar | 8.66 | 8.78 | 3.64 | 41 | 42 | 4.06 | 1.30 | 3.67 | 282 | 90 | - | - | - | - | - |
| North Kordofan | 7.90 | 9.24 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| **Total** | **364.22** | **334.93** | **323.23** | **97** | **89** | **4.06** | **1.30** | **3.67** | **282** | **90** | **285.60** | **192.71** | **179.13** | **93** | **63** |
| **Semi-mechanized** | | | | | | | | | | | | | | | |
| Sennar | 663.43 | 504.00 | 312.90 | 62 | 47 | 73.00 | 72.66 | 17.16 | 24 | 24 | - | - | - | - | - |
| White Nile | 461.96 | 581.49 | 490.56 | 84 | 106 | 21.76 | 0.00 | 49.35 | - | - | - | - | - | - | - |
| Blue Nile | 516.01 | 537.18 | 393.96 | 73 | 76 | 52.42 | 20.16 | 31.50 | 156 | 60 | - | - | - | - | - |
| Gedaref | 1 951.07 | 1 890.00 | 2 397.36 | 127 | 123 | 175.81 | 273.00 | 245.70 | 90 | 140 | - | - | - | - | - |
| Kassala | 522.14 | 643.02 | 420.00 | 65 | 80 | - | - | - | - | - | - | - | - | - | - |
| North Kordofan | 15.20 | 21.84 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| West Kordofan | 376.19 | 186.48 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| South Kordofan | 559.10 | 420.00 | 606.06 | 144 | 108 | 5.38 | - | 12.60 | 0 | - | - | - | - | - | - |
| **Total** | **5 065.11** | **4 784.01** | **4 620.84** | **97** | **91** | **328.36** | **365.82** | **356.31** | **97** | **109** | **-** | **-** | **-** | **-** | **-** |
| **Traditional rainfed** | | | | | | | | | | | | | | | |
| River Nile | 86.27 | 103.32 | 105.55 | 102 | 122 | - | - | - | - | - | - | - | - | - | - |
| Khartoum | 53.96 | 1.01 | 1.11 | 110 | 2 | - | - | - | - | - | - | - | - | - | - |
| Al Jazirah | 484.93 | 485.94 | 520.38 | 107 | 107 | 23.39 | 18.48 | 21.84 | 118 | 93 | - | - | - | - | - |
| Sennar | 234.28 | 336.84 | 996.16 | 296 | 425 | 66.61 | 65.52 | 220.09 | 336 | 330 | - | - | - | - | - |
| White Nile | 210.21 | 173.67 | 227.64 | 131 | 108 | 61.99 | 100.80 | 39.90 | 40 | 64 | - | - | - | - | - |
| Blue Nile | 149.60 | 250.74 | 114.24 | 46 | 76 | 33.43 | 10.50 | 10.50 | 100 | 31 | - | - | - | - | - |
| Kassala | 142.97 | 189.00 | 168.00 | 89 | 118 | 9.91 | 0.00 | 0.00 | 0 | 0 | - | - | - | - | - |
| Red Sea | 26.88 | 67.20 | 27.30 | 41 | 102 | 7.56 | 21.00 | 12.60 | 60 | 167 | - | - | - | - | - |
| North Kordofan | 466.62 | 357.00 | 501.86 | 141 | 108 | 712.24 | 693.00 | 489.23 | 71 | 69 | - | - | - | - | - |
| West Kordofan | 294.42 | 124.32 | 363.96 | 293 | 124 | 54.01 | 63.00 | 12.18 | 19 | 23 | - | - | - | - | - |
| South Kordofan | 204.37 | 168.00 | 204.96 | 122 | 100 | 518.28 | 525.00 | 616.14 | 117 | 119 | - | - | - | - | - |
| North Darfur | 247.63 | 287.28 | 317.06 | 110 | 128 | 892.18 | 833.70 | 812.95 | 98 | 91 | - | - | - | - | - |
| West Darfur | 224.53 | 210.42 | 12.60 | 6 | 6 | 428.65 | 284.76 | 84.00 | 29 | 20 | 0.84 | 0.00 | - | - | - |
| South Darfur | 673.85 | 666.96 | 459.06 | 69 | 68 | 698.29 | 712.74 | 581.70 | 82 | 83 | 1.01 | - | - | - | - |
| Central Darfur | 262.25 | 514.50 | 140.36 | 27 | 54 | 286.36 | 441.00 | 145.53 | 33 | 51 | - | 0.20 | - | - | - |
| East Darfur | 548.44 | 672.00 | 756.00 | 113 | 138 | 429.24 | 672.00 | 462.00 | 69 | 108 | - | - | - | - | - |
| **Total** | **4 311.21** | **4 608.20** | **4 916.24** | **107** | **114** | **4 222.15** | **4 441.50** | **3 508.66** | **79** | **83** | **1.85** | **0.20** | **0.00** | **-** | **-** |
| **Grand total** | **9 740.54** | **9 727.14** | **9 860.30** | **101** | **101** | **4 554.56** | **4 808.62** | **3 868.64** | **80** | **85** | **287.45** | **192.91** | **179.13** | **93** | **62** |

Note: Totals and percentages computed from unrounded data.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

## Table 5: The Sudan – Cereal area harvested by state, scheme and sector ('000 hectares)

| State/Scheme/ Sector | Sorghum | | | | | Millet | | | | | Wheat | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average |
| **Irrigated** | | | | | | | | | | | | | | | |
| Northern | 1.92 | 1.22 | 2.48 | 203 | 129 | - | - | - | - | - | 48.26 | 37.58 | 33.60 | 89 | 70 |
| River Nile | 32.50 | 34.40 | 4.63 | 13 | 14 | - | - | - | - | - | 19.59 | 14.39 | 20.37 | 142 | 104 |
| Khartoum | 1.41 | 1.43 | 0.40 | 28 | 28 | - | - | - | - | - | 0.46 | 0.20 | 0.00 | 0 | 0 |
| Al Jazirah | 99.17 | 33.85 | 117.60 | 347 | 119 | - | - | - | - | - | 147.75 | 90.36 | 75.60 | 84 | 51 |
| Suki | 8.90 | 10.08 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| Sennar | 24.30 | 22.68 | 24.19 | 107 | 100 | - | - | - | - | - | 0.60 | - | - | - | - |
| White Nile | 39.50 | 50.06 | 64.89 | 130 | 164 | - | - | - | - | - | 31.50 | 23.49 | 16.80 | 72 | 53 |
| Rahad | 23.65 | 18.27 | 31.12 | 170 | 132 | - | - | - | - | - | 0.58 | 0.00 | 0.00 | - | - |
| New Halfa | 20.92 | 18.90 | 23.10 | 122 | 110 | - | - | - | - | - | 28.21 | 22.59 | 14.99 | 66 | 53 |
| Gash | 39.14 | 24.78 | 12.60 | 51 | 32 | - | - | - | - | - | - | - | - | - | - |
| Kassala | 3.02 | 0.00 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| Tokar | 7.64 | 8.36 | 3.64 | 44 | 48 | 3.02 | 1.22 | 3.67 | 301 | 122 | - | - | - | - | - |
| North Kordofan | 6.85 | 9.24 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| **Total** | **308.92** | **233.27** | **284.66** | **122** | **92** | **3.02** | **1.22** | **3.67** | **301** | **122** | **276.95** | **188.62** | **161.36** | **86** | **58** |
| **Semi-mechanized** | | | | | | | | | | | | | | | |
| Sennar | 532.56 | 441.00 | 312.90 | 71 | 59 | 56.92 | 48.72 | 17.16 | 35 | 30 | - | - | - | - | - |
| White Nile | 357.97 | 407.02 | 147.00 | 36 | 41 | 18.29 | 0.00 | 9.79 | - | 54 | - | - | - | - | - |
| Blue Nile | 427.48 | 424.20 | 168.00 | 40 | 39 | 35.93 | 15.96 | 10.50 | 66 | 29 | - | - | - | - | - |
| Gedaref | 1 530.35 | 1 323.00 | 1 620.36 | 122 | 106 | 151.70 | 245.70 | 184.38 | 75 | 122 | - | - | - | - | - |
| Kassala | 399.95 | 588.00 | 84.00 | 14 | 21 | - | - | - | - | - | - | - | - | - | - |
| North Kordofan | 11.81 | 19.24 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| West Kordofan | 332.97 | 167.83 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| South Kordofan | 388.52 | 235.20 | 591.36 | 251 | 152 | 4.12 | 0.00 | 11.76 | - | 286 | - | - | - | - | - |
| **Total** | **3 981.61** | **3 605.49** | **2 923.62** | **81** | **73** | **266.95** | **310.38** | **233.58** | **75** | **87** | **-** | **-** | **-** | **-** | **-** |
| **Traditional rainfed** | | | | | | | | | | | | | | | |
| River Nile | 63.67 | 103.32 | 100.30 | 97 | 158 | - | - | - | - | - | - | - | - | - | - |
| Khartoum | 30.48 | 1.01 | 0.67 | 66 | 2 | - | - | - | - | - | - | - | - | - | - |
| Al Jazirah | 309.66 | 206.22 | 169.26 | 82 | 55 | 18.42 | 13.44 | 13.44 | 100 | 73 | - | - | - | - | - |
| Sennar | 170.77 | 212.10 | 658.48 | 310 | 386 | 49.94 | 35.70 | 169.19 | 474 | 339 | - | - | - | - | - |
| White Nile | 147.02 | 121.59 | 68.25 | 56 | 46 | 47.88 | 70.56 | 11.97 | 17 | 25 | - | - | - | - | - |
| Blue Nile | 112.98 | 188.16 | 60.69 | 32 | 54 | 24.78 | 7.98 | 6.30 | 79 | 25 | - | - | - | - | - |
| Kassala | 112.34 | 168.00 | 25.20 | 15 | 22 | 8.65 | 21.00 | 3.15 | 15 | 36 | - | - | - | - | - |
| Red Sea | 18.90 | 53.76 | 27.30 | 51 | 144 | 5.29 | 0.00 | 0.00 | 0 | 0 | - | - | - | - | - |
| North Kordofan | 339.11 | 321.30 | 301.51 | 94 | 89 | 519.54 | 623.70 | 242.89 | 39 | 47 | - | - | - | - | - |
| West Kordofan | 246.94 | 111.72 | 336.88 | 302 | 136 | 400.25 | 420.00 | 522.24 | 124 | 130 | - | - | - | - | - |
| South Kordofan | 159.39 | 133.77 | 173.04 | 129 | 109 | 39.31 | 44.10 | 12.18 | 28 | 31 | - | - | - | - | - |
| North Darfur | 166.78 | 172.20 | 269.89 | 157 | 162 | 632.90 | 666.96 | 691.03 | 104 | 109 | - | - | - | - | - |
| West Darfur | 185.54 | 157.92 | 0.00 | 0 | 0 | 360.47 | 199.37 | 0.00 | 0 | 0 | 0.67 | 0.00 | - | - | - |
| South Darfur | 541.72 | 527.10 | 418.32 | 79 | 77 | 565.32 | 541.80 | 500.60 | 92 | 89 | 0.84 | - | - | - | - |
| Central Darfur | 223.31 | 422.10 | 139.94 | 33 | 63 | 227.29 | 339.78 | 141.33 | 42 | 62 | - | 0.00 | - | - | - |
| East Darfur | 423.95 | 504.00 | 29.40 | 6 | 7 | 322.14 | 477.12 | 420.00 | 88 | 130 | - | - | - | - | - |
| **Total** | **3 252.57** | **3 404.27** | **2 779.13** | **82** | **85** | **3 222.18** | **3 461.51** | **2 734.32** | **79** | **85** | **1.51** | **0.00** | **0.00** | **-** | **-** |
| **Grand total** | **7 543.09** | **7 243.03** | **5 987.41** | **83** | **79** | **3 492.15** | **3 773.11** | **2 971.57** | **79** | **85** | **278.46** | **188.62** | **161.36** | **86** | **58** |

Note: Totals and percentages computed from unrounded data.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

The ratio of area harvested to area planted is 77 percent for millet, similar to the average of the previous five years; while it is only 61 percent for sorghum compared to a ratio of 77 percent in the previous five years.

The harvested area with wheat is forecast at 161 360 hectares, about 15 percent down from the previous year and 42 percent down from the five-year average, with a ratio on the planted area of about 90 percent, lower than the average of the previous five years reported at 97 percent.

## Crop yields

The average sorghum yield in 2023 is estimated at 0.51 tonnes/hectare, 30 percent lower than the yield obtained in 2022 and 17 percent lower than the five-year average. The below-average yield is a consequence of rainfall deficits and irregularities, and to the limited and untimely access to agricultural inputs. The increased plantings under a traditional low-yield subsistence agriculture regime carried out by people displaced from Khartoum have further contributed to the decrease in sorghum yield. In Sennar State, which this year was the main sorghum production area in the traditional sector, yields related to the traditional sector were 57 and 58 percent higher than last year and the average of the last five years, mainly due to a good performance of the rainy season.

The millet average yield is estimated at 0.23 tonnes/hectare, 54 and 53 percent, respectively, lower than the yield obtained in 2022 and the five-year average. This is mainly due to the severe decrease in yield observed in Greater Darfur and Greater Kordofan regions, especially in West and North Kordofan and South Darfur states.

Yields of wheat crops, grown under irrigation, are forecast at an average level of 2.34 tonnes/hectare.

The national production of sorghum and millet in 2023 is estimated at 3.74 million tonnes, 48 percent down from 2022 and 41 percent lower than the average of the previous five years. The substantial decrease in total production is mainly due to a decrease in yields, but also to a reduction in harvested area.

## Cereal production

Sorghum production is estimated at about 3 million tonnes, 42 and 34 percent, respectively, down from the previous year and the five year average. In the traditional sector, a 54 and 42 percent decrease compared to 2022 and the five-year average, respectively, is recorded. The most substantial production decrease is recorded in Greater Darfur Region, where the sorghum output is estimated at 248 760 tonnes, 82 and 78 percent down from the previous year and the five-year average, due to widespread and severe insecurity disrupting agricultural operations. A significant reduction is also observed in Greater Kordofan Region, another area severely affected by the conflict, where the output is estimated at 217 950 tonnes, 51 and 28 percent lower than last year and the average of the previous five years, respectively. The decreased output in western and southern regions of the Sudan is partly offset by the increased output in Sennar State, where the output is about 5 and 6 times the production in the previous season and the five-year average, respectively, due to expanded plantings and slightly above-average yields. The distribution of certified seeds by FAO partially offset the reduction in sorghum production.

National millet production is estimated at 683 542 tonnes, 64 and 60 percent down from the previous year and the five-years average. The sharpest reductions in production were recorded in western and southern regions of the country, due to prevailing insecurity. In Greater Darfur region, the output is estimated at 381 370 tonnes, about one-third of the output of last year and the five-year average, while in Greater Kordofan Region millet production is estimated at 94 420 tonnes, only about one-fifth of the high output obtained in 2022 and one-third of the previous five years.

Wheat production is forecast at about 377 900 tonnes, about 20 percent down from last year and nearly half the average of the previous five years, mainly as result of reduced planted and harvested areas.

## Table 6: The Sudan – Cereal yields by state, scheme and sector (tonnes/hectare)

| State/Scheme/ Sector | Sorghum | | | | | Millet | | | | | Wheat | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average |
| **Irrigated** | | | | | | | | | | | | | | | |
| Northern | 1.46 | 0.82 | 1.43 | 174 | 98 | - | - | - | - | - | 3.06 | 3.11 | 3.10 | 100 | 101 |
| River Nile | 2.36 | 2.78 | 1.93 | 69 | 82 | - | - | - | - | - | 2.54 | 2.38 | 2.86 | 120 | 112 |
| Khartoum | 1.14 | 0.70 | 0.35 | 50 | 31 | - | - | - | - | - | 1.95 | 2.45 | - | - | 0 |
| Al Jazirah | 2.30 | 2.14 | 2.36 | 110 | 103 | - | - | - | - | - | 2.39 | 2.38 | 1.90 | 80 | 80 |
| Suki | 1.84 | 1.59 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| Sennar | 1.39 | 2.16 | 0.86 | 40 | 62 | - | - | - | - | - | 2.05 | - | - | - | 0 |
| White Nile | 1.72 | 1.61 | 1.93 | 120 | 112 | - | - | - | - | - | 2.32 | 2.38 | 2.14 | 90 | 92 |
| Rahad | 2.18 | 1.07 | 1.71 | 160 | 78 | - | - | - | - | - | 2.05 | - | - | - | - |
| New Halfa | 1.89 | 1.29 | 1.71 | 133 | 91 | - | - | - | - | - | 2.38 | 2.38 | 2.38 | 100 | 100 |
| Gash | 1.69 | 1.93 | 1.07 | 56 | 63 | - | - | - | - | - | - | - | - | - | - |
| Kassala | 1.72 | 0.00 | 0.00 | - | - | - | - | - | - | - | - | - | - | - | - |
| Tokar | 1.46 | 1.50 | 1.71 | 114 | 117 | 0.94 | 0.86 | 1.71 | 200 | 183 | - | - | - | - | - |
| North Kordofan | 1.09 | 1.50 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| **Total** | **1.97** | **1.86** | **1.93** | **104** | **98** | **0.94** | **0.86** | **1.71** | **200** | **183** | **2.51** | **2.52** | **2.34** | **93** | **93** |
| **Semi-mechanized** | | | | | | | | | | | | | | | |
| Sennar | 0.47 | 0.97 | 0.54 | 55 | 113 | 0.54 | 0.72 | 0.43 | 60 | 80 | - | - | - | - | - |
| White Nile | 0.56 | 0.75 | 0.65 | 87 | 117 | 0.45 | 0.00 | 0.36 | - | - | - | - | - | - | - |
| Blue Nile | 0.61 | 0.97 | 0.64 | 66 | 105 | 0.38 | 0.69 | 0.32 | 47 | 85 | - | - | - | - | - |
| Gedaref | 0.48 | 0.43 | 0.46 | 108 | 96 | 0.40 | 0.36 | 0.43 | 118 | 108 | - | - | - | - | - |
| Kassala | 0.52 | 0.50 | 0.48 | 95 | 91 | - | - | - | - | - | - | - | - | - | - |
| North Kordofan | 0.49 | 0.64 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| West Kordofan | 0.53 | 0.69 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| South Kordofan | 0.38 | 0.64 | 0.31 | 48 | 81 | 0.19 | 0.00 | 0.48 | 0 | 245 | - | - | - | - | - |
| **Total** | **0.50** | **0.63** | **0.46** | **73** | **92** | **0.43** | **0.44** | **0.42** | **97** | **99** | **-** | **-** | **-** | **-** | **-** |
| **Traditional rainfed** | | | | | | | | | | | | | | | |
| River Nile | 0.89 | 0.70 | 1.07 | 153 | 121 | - | - | - | - | - | - | - | - | - | - |
| Khartoum | 0.62 | 0.40 | 0.21 | 54 | 35 | - | - | - | - | - | - | - | - | - | - |
| Al Jazirah | 0.66 | 0.73 | 0.32 | 44 | 48 | 0.53 | 0.55 | 0.32 | 59 | 61 | - | - | - | - | - |
| Sennar | 0.41 | 0.41 | 0.64 | 157 | 158 | 0.44 | 0.84 | 0.54 | 64 | 121 | - | - | - | - | - |
| White Nile | 0.51 | 0.86 | 0.66 | 77 | 130 | 0.43 | 0.48 | 0.36 | 75 | 82 | - | - | - | - | - |
| Blue Nile | 0.66 | 0.86 | 0.64 | 75 | 97 | 0.43 | 0.75 | 0.32 | 43 | 75 | - | - | - | - | - |
| Kassala | 0.43 | 0.45 | 0.43 | 95 | 99 | 0.36 | 0.43 | 0.43 | 100 | 118 | - | - | - | - | - |
| Red Sea | 0.57 | 0.60 | 0.48 | 80 | 84 | 0.23 | - | 0.00 | - | - | - | - | - | - | - |
| North Kordofan | 0.38 | 0.73 | 0.09 | 12 | 23 | 0.24 | 0.48 | 0.06 | 14 | 27 | - | - | - | - | - |
| West Kordofan | 0.39 | 0.86 | 0.29 | 34 | 74 | 0.39 | 0.44 | 0.14 | 32 | 36 | - | - | - | - | - |
| South Kordofan | 0.48 | 0.86 | 0.55 | 64 | 114 | 0.32 | 0.44 | 0.48 | 109 | 148 | - | - | - | - | - |
| North Darfur | 0.34 | 0.25 | 0.28 | 114 | 82 | 0.30 | 0.18 | 0.22 | 124 | 73 | - | - | - | - | - |
| West Darfur | 1.04 | 1.18 | 0.00 | 0 | 0 | 0.95 | 1.01 | 0.00 | 0 | 0 | 1.55 | - | - | - | - |
| South Darfur | 0.70 | 0.57 | 0.28 | 48 | 40 | 0.53 | 0.52 | 0.22 | 42 | 41 | 1.24 | - | - | - | - |
| Central Darfur | 1.15 | 1.29 | 0.40 | 31 | 35 | 0.99 | 0.95 | 0.42 | 45 | 43 | - | - | - | - | - |
| East Darfur | 0.64 | 0.64 | 0.05 | 7 | 7 | 0.51 | 0.54 | 0.14 | 27 | 28 | - | - | - | - | - |
| **Total** | **0.62** | **0.74** | **0.42** | **54** | **67** | **0.49** | **0.51** | **0.21** | **41** | **43** | **1.38** | **-** | **-** | **-** | **-** |
| **Grand total** | **0.61** | **0.72** | **0.51** | **69** | **83** | **0.49** | **0.51** | **0.23** | **46** | **47** | **2.50** | **2.52** | **2.34** | **93** | **94** |

Note: Totals and percentages computed from unrounded data.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

## Table 7: The Sudan – Cereal production by state, scheme and sector ('000 tonnes)

| State/ Scheme/Sector | Sorghum | | | | | Millet | | | | | Wheat | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average | 5-yr average 2018/19–2022/23 | 2022/23 | 2023/24 | 2023/24 as % 2022/23 | 2023/24 as % 5-yr average |
| **Irrigated** | | | | | | | | | | | | | | | |
| Northern | 2.80 | 1.00 | 3.50 | 354 | 127 | - | - | - | - | - | 147.49 | 116.82 | 104.00 | 89 | 71 |
| River Nile | 76.70 | 95.60 | 8.90 | 9 | 12 | - | - | - | - | - | 49.82 | 34.23 | 58.20 | 170 | 117 |
| Khartoum | 1.60 | 1.00 | 0.10 | 14 | 89 | - | - | - | - | - | 0.90 | 0.49 | 0.00 | - | 0 |
| Al Jazirah | 227.70 | 72.50 | 277.20 | 382 | 122 | - | - | - | - | - | 353.42 | 215.12 | 144.00 | 67 | 41 |
| Suki | 16.40 | 16.00 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| Sennar | 33.80 | 49.00 | 20.70 | 42 | 61 | - | - | - | - | - | 1.22 | 0.00 | 0.00 | | 0 |
| White Nile | 67.90 | 80.50 | 125.10 | 155 | 184 | - | - | - | - | - | 72.98 | 55.83 | 36.00 | 64 | 49 |
| Rahad | 51.70 | 19.60 | 53.40 | 273 | 103 | - | - | - | - | - | 1.20 | 0.00 | 0.00 | 0 | 0 |
| New Halfa | 39.50 | 24.30 | 39.60 | 163 | 100 | - | - | - | - | - | 67.17 | 53.78 | 35.70 | 66 | 53 |
| Gash | 66.10 | 47.80 | 13.50 | 28 | 20 | - | - | - | - | - | - | - | - | - | - |
| Kassala | 5.20 | 0.00 | 0.00 | - | - | - | - | - | - | - | - | - | - | - | - |
| Tokar | 11.20 | 12.50 | 6.20 | 50 | 56 | 2.80 | 1.04 | 6.29 | 603 | 222 | - | - | - | - | - |
| North Kordofan | 7.50 | 13.90 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| **Total** | **607.77** | **433.63** | **548.34** | **126** | **90** | **2.83** | **1.04** | **6.29** | **603** | **222** | **694.20** | **476.27** | **377.90** | **79** | **54** |
| **Semi-mechanized** | | | | | | | | | | | | | | | |
| Sennar | 252.90 | 429.45 | 167.63 | 39 | 66 | 30.67 | 34.92 | 7.35 | 21 | 24 | - | - | - | - | - |
| White Nile | 199.57 | 305.27 | 95.55 | 31 | 48 | 8.16 | 0.00 | 3.50 | - | 43 | - | - | - | - | - |
| Blue Nile | 260.62 | 413.09 | 108.00 | 26 | 41 | 13.51 | 10.98 | 3.38 | 31 | 25 | - | - | - | - | - |
| Gedaref | 740.75 | 567.00 | 752.31 | 133 | 102 | 60.41 | 89.51 | 79.02 | 88 | 131 | - | - | - | - | - |
| Kassala | 208.27 | 294.00 | 40.00 | 14 | 19 | - | - | - | - | - | - | - | - | - | - |
| North Kordofan | 5.78 | 12.37 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| West Kordofan | 175.10 | 115.48 | 0.00 | 0 | 0 | - | - | - | - | - | - | - | - | - | - |
| South Kordofan | 149.31 | 151.20 | 183.04 | 121 | 123 | 0.80 | 0.00 | 5.60 | | 700 | - | - | - | - | - |
| **Total** | **1 992.29** | **2 287.86** | **1 346.53** | **59** | **68** | **113.54** | **135.40** | **98.84** | **73** | **87** | **-** | **-** | **-** | **-** | **-** |
| **Traditional rainfed** | | | | | | | | | | | | | | | |
| River Nile | 56.59 | 72.60 | 107.50 | 148 | 189.9 | - | - | - | - | - | - | - | - | - | - |
| Khartoum | 18.81 | 0.40 | 0.10 | 36 | 1 | - | - | - | - | - | - | - | - | - | - |
| Al Jazirah | 205.85 | 150.20 | 54.40 | 36 | 26 | 9.76 | 7.36 | 4.32 | 59 | 44 | - | - | - | - | - |
| Sennar | 69.52 | 86.90 | 423.30 | 487 | 609 | 22.07 | 30.00 | 90.64 | 302 | 411 | - | - | - | - | - |
| White Nile | 74.60 | 104.20 | 45.00 | 43 | 60 | 20.74 | 33.60 | 4.28 | 13 | 21 | - | - | - | - | - |
| Blue Nile | 74.50 | 162.20 | 39.00 | 24 | 52 | 10.60 | 6.00 | 2.03 | 34 | 19 | - | - | - | - | - |
| Kassala | 48.78 | 76.00 | 10.80 | 14 | 22 | 3.14 | 9.00 | 1.35 | 15 | 43 | - | - | - | - | - |
| Red Sea | 10.76 | 32.00 | 13.10 | 41 | 121 | 1.24 | 0.00 | 0.00 | - | - | - | - | - | - | - |
| North Kordofan | 127.70 | 234.10 | 25.80 | 11 | 20 | 124.46 | 297.00 | 15.61 | 5 | 13 | - | - | - | - | - |
| West Kordofan | 96.99 | 95.80 | 97.40 | 102 | 100 | 155.40 | 183.00 | 73.01 | 40 | 47 | - | - | - | - | - |
| South Kordofan | 76.86 | 114.70 | 94.80 | 83 | 123 | 12.61 | 19.22 | 5.80 | 30 | 46 | - | - | - | - | - |
| North Darfur | 56.90 | 42.20 | 75.20 | 178 | 132 | 191.88 | 119.10 | 153.01 | 129 | 80 | - | - | - | - | - |
| West Darfur | 192.14 | 186.10 | 0.00 | 0 | 0 | 342.21 | 201.75 | 0.00 | 0 | 0 | 1.04 | - | - | - | - |
| South Darfur | 377.77 | 302.50 | 115.50 | 38 | 31 | 296.87 | 282.51 | 108.46 | 38 | 37 | 1.04 | - | - | - | - |
| Central Darfur | 257.75 | 542.70 | 56.60 | 10 | 22 | 223.98 | 323.60 | 59.90 | 19 | 27 | - | - | - | - | - |
| East Darfur | 269.44 | 324.00 | 1.40 | 0 | 1 | 164.60 | 255.60 | 60.00 | 24 | 37 | - | - | - | - | - |
| **Total** | **2 014.94** | **2 526.52** | **1 159.92** | **46** | **58** | **1 579.56** | **1 767.74** | **578.41** | **33** | **37** | **2.08** | **0.00** | **0.00** | **0** | **0** |
| **Grand total** | **4 615.01** | **5 248.00** | **3 054.79** | **58** | **66** | **1 695.94** | **1 904.18** | **683.54** | **36** | **40** | **696.28** | **476.27** | **377.90** | **79** | **54** |

Note: Totals and percentages computed from unrounded data.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

## Table 8: The Sudan – Cereal production by sector ('000 tonnes)

| Sector | Sorghum | | | Millet | | | Wheat | | |
|---|---|---|---|---|---|---|---|---|---|
| | Five-year average[1/] | 2022/23 | 2023/24 (forecast) | Five-year average[1/] | 2022/23 | 2023/24 (forecast) | Five-year average[1/] | 2022/23 | 2023/24 (forecast) |
| Irrigated | 607.77 | 433.63 | 548.34 | 2.83 | 1.04 | 6.29 | 694.20 | 476.27 | 377.90 |
| Semi-mechanized Rainfed | 1 992.29 | 2 287.86 | 1 346.53 | 113.54 | 135.40 | 98.84 | 0.00 | 0.00 | 0.00 |
| Traditional rainfed | 2 014.94 | 2 526.52 | 1 159.92 | 1 579.56 | 1 767.74 | 578.41 | 2.08 | 0.00 | 0.00 |
| **Total** | **4 615.01** | **5 248.00** | **3 054.79** | **1 695.94** | **1 904.18** | **683.54** | **696.28** | **476.27** | **377.90** |

Note: Totals computed from unrounded data.
[1/] 2018/19-2022/23 average.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 2024.

## Table 9: The Sudan – Sorghum production by sector

| Sector | Five-year average[1/] | | | 2022/23 | | | 2023/24 (forecast) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area[2/] | Production[2/] | Yields[2/] | Area[2/] | Production[2/] | Yields[2/] | Area[2/] | Production[2/] | Yields[2/] |
| Irrigated | 308.92 | 607.77 | 1.97 | 233.27 | 433.63 | 1.86 | 284.66 | 548.34 | 1.93 |
| Semi-mechanized Rainfed | 3 981.61 | 1 992.29 | 0.50 | 3 605.49 | 2 287.86 | 0.63 | 2 923.62 | 1 346.53 | 0.46 |
| Traditional rainfed | 3 252.57 | 2 014.94 | 0.62 | 3 404.27 | 2 526.52 | 0.77 | 2 779.13 | 1 159.92 | 0.42 |
| **Total** | **7 543.09** | **4 615.01** | **0.61** | **7 243.03** | **5 248.00** | **0.74** | **5 987.41** | **3 054.79** | **0.51** |

Note: Totals computed from unrounded data.
[1/] 2018/19–2022/23 average.
[2/] Area in '000 hectares, production in '000 tonnes and yields in tonnes/hectare.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 2024.

## Table 10: The Sudan – Millet production by sector

| Sector | Five-year average[1/] | | | 2022/23 | | | 2023/24 (forecast) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area[2/] | Production[2/] | Yields[2/] | Area[2/] | Production[2/] | Yields[2/] | Area[2/] | Production[2/] | Yields[2/] |
| Irrigated | 3.02 | 2.83 | 0.94 | 1.22 | 1.04 | 0.86 | 3.67 | 6.29 | 1.71 |
| Semi-mechanized Rainfed | 266.95 | 113.54 | 0.43 | 310.38 | 135.40 | 0.44 | 233.58 | 98.84 | 0.42 |
| Traditional rainfed | 3 222.18 | 1 579.56 | 0.49 | 3 461.51 | 1 767.74 | 0.51 | 2 734.32 | 578.41 | 0.21 |
| **Total** | **3 492.15** | **1 695.94** | **0.49** | **3 773.11** | **1 904.18** | **0.50** | **2 971.57** | **683.54** | **0.23** |

Note: Totals computed from unrounded data.
[1/] 2018/19-2022/23 average.
[2/] Area in '000 hectares, production in '000 tonnes and yields in tonnes/hectare.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 2024.

## Table 11: The Sudan – Wheat production by sector

| Sector | Five-year average[1/] | | | 2021/22 | | | 2022/23 (forecast) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area[2/] | Production[2/] | Yields[2/] | Area[2/] | Production[2/] | Yields[2/] | Area[2/] | Production[2/] | Yields[2/] |
| Irrigated | 276.95 | 694.20 | 2.51 | 188.62 | 476.3 | 2.51 | 161.36 | 377.90 | 2.34 |
| Semi-mechanized Rainfed | - | - | - | - | - | - | - | - | - |
| Traditional rainfed | 1.512 | 2.08 | 1.38 | 0.00 | 0.00 | 1.38 | 0.00 | 0.00 | 0.00 |
| **Total** | **278.5** | **696.3** | **2.50** | **188.6** | **476.3** | **2.52** | **161.4** | **377.9** | **2.34** |

Note: Totals computed from unrounded data.
[1/] 2018/19–2022/23 average.
[2/] Area in '000 hectares, production in '000 tonnes and yields in tonnes/hectare.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 2024.

# Other crops

## Sesame

Production of sesame in 2023/24 is estimated at about 600 091 tonnes, about 19 and 39 percent lower than in 2022/23 and the five-year average, respectively. The low output is mainly due to a reduced planted area, estimated at about 20 and 39 percent lower than in 2022/23 and the five-years average, respectively. The contraction in planting follows the decreasing trend already observed last year, when low market prices induced farmers to switch to other crops, mainly sorghum. The ongoing conflict exacerbated the planting contraction, which along with a reduction of yields of 10 percent compared with the previous year and the average of the previous five years, resulted in the output reduction.

**Table 12: The Sudan – Sesame production 2023/24 compared to 2022/23 and five-year average**

| State/Scheme/ Sector | Five-year average[1/] | | | | 2022/23 | | | | 2023/24 (forecast) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] |
| **Mechanized rainfed** | | | | | | | | | | | | |
| Sennar | 571.20 | 466.60 | 164.10 | 0.35 | 241.50 | 172.60 | 61.70 | 0.36 | 219.00 | 214.50 | 90.90 | 0.42 |
| White Nile | 203.80 | 136.20 | 39.50 | 0.29 | 195.70 | 97.80 | 26.10 | 0.27 | 147.40 | 140.10 | 44.40 | 0.32 |
| Blue Nile | 220.30 | 145.30 | 44.40 | 0.31 | 102.10 | 54.20 | 17.00 | 0.31 | 44.10 | 21.00 | 11.30 | 0.54 |
| Gedaref | 423.80 | 351.70 | 110.40 | 0.31 | 290.20 | 254.10 | 95.60 | 0.38 | 436.00 | 357.40 | 144.70 | 0.40 |
| Kassala | 155.40 | 106.50 | 26.90 | 0.25 | 126.00 | 117.60 | 40.30 | 0.34 | 52.50 | 26.30 | 5.60 | 0.21 |
| South Kordofan | 319.50 | 228.10 | 53.80 | 0.24 | 300.30 | 180.20 | 38.60 | 0.21 | 139.00 | 123.50 | 28.30 | 0.23 |
| **Total** | **1 894.10** | **1 434.40** | **439.10** | **0.31** | **1 255.80** | **876.50** | **279.30** | **0.32** | **1 038.00** | **882.80** | **325.20** | **0.37** |
| **Traditional rainfed** | | | | | | | | | | | | |
| Al Jazirah | 85.30 | 70.10 | 23.10 | 0.33 | 85.30 | 49.10 | 10.50 | 0.21 | 55.00 | 32.60 | 5.30 | 0.16 |
| Sennar | 34.90 | 30.20 | 12.80 | 0.43 | 42.40 | 31.90 | 15.00 | 0.47 | 157.60 | 121.80 | 51.60 | 0.42 |
| White Nile | 168.00 | 121.40 | 26.30 | 0.22 | 58.50 | 40.60 | 8.70 | 0.21 | 144.50 | 136.90 | 43.40 | 0.32 |
| Blue Nile | 59.00 | 39.50 | 15.70 | 0.40 | 101.60 | 47.90 | 25.00 | 0.52 | 8.40 | 5.30 | 2.80 | 0.54 |
| Kassala | 21.00 | 17.60 | 4.50 | 0.26 | 21.00 | 16.80 | 6.00 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| North Kordofan | 1 170.70 | 769.40 | 149.60 | 0.19 | 741.30 | 645.00 | 116.70 | 0.18 | 766.90 | 585.00 | 37.60 | 0.06 |
| South Kordofan | 199.60 | 134.90 | 37.40 | 0.28 | 161.70 | 97.00 | 31.20 | 0.32 | 54.20 | 54.20 | 19.60 | 0.36 |
| West Kordofan | 372.00 | 308.30 | 69.20 | 0.22 | 248.20 | 129.10 | 14.80 | 0.11 | 266.20 | 239.10 | 7.80 | 0.03 |
| North Darfur | 217.00 | 110.70 | 14.80 | 0.13 | 219.20 | 162.10 | 17.40 | 0.11 | 72.40 | 50.70 | 6.50 | 0.13 |
| South Darfur | 333.60 | 284.00 | 109.60 | 0.39 | 303.20 | 218.40 | 104.00 | 0.48 | 286.60 | 213.20 | 56.30 | 0.26 |
| West Darfur | 68.50 | 59.70 | 29.80 | 0.50 | 66.80 | 44.10 | 37.00 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| East Darfur | 135.10 | 99.90 | 27.50 | 0.28 | 336.00 | 231.80 | 61.30 | 0.26 | 33.60 | 14.70 | 0.20 | 0.01 |
| Central Darfur | 97.90 | 76.30 | 20.60 | 0.27 | 102.90 | 72.20 | 15.30 | 0.21 | 94.40 | 90.20 | 43.80 | 0.49 |
| **Total** | **2 962.30** | **2 121.90** | **541.00** | **0.25** | **2 488.20** | **1 786.10** | **462.70** | **0.26** | **1 939.80** | **1 543.50** | **274.90** | **0.18** |
| **Grand total** | **4 856.40** | **3 556.30** | **980.10** | **0.28** | **3 743.90** | **2 662.60** | **742.00** | **0.28** | **2 977.80** | **2 426.30** | **600.09** | **0.25** |

Note: Totals computed from unrounded data.
[1/] 2018/19–2022/23 average.
[2/] Area in '000 hectares, production in '000 tonnes and yields in tonnes/hectare.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

## Groundnuts

National production of groundnuts in 2023/24 is estimated at about 1.4 million tonnes, 48 percent down from the output obtained in previous year and 47 percent lower than the average of the previous five years. The main driver of the decrease is the reduction in the average yield, that is reported at 0.46 tonnes/hectare, 47 and 43 percent lower than last year and the five-years average, respectively. This is mainly due to reduced plantings in West and Central Darfur states, usually recording the highest yield in the country.

**Table 13: The Sudan – Groundnut production 2023/24 compared to 2022/23 and five-year average**

| State/Scheme/ Sector | Five-year average[1/] | | | | 2022/23 | | | | 2023/24 (forecast) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] |
| **Irrigated** | | | | | | | | | | | | |
| Northern | 0.30 | 0.30 | 0.40 | 1.43 | - | - | - | - | - | - | - | - |
| Al Jazirah | 57.80 | 47.50 | 108.90 | 2.29 | 44.10 | 13.40 | 14.40 | 1.07 | 25.20 | 21.00 | 54.00 | 2.57 |
| Rahad | 13.70 | 12.20 | 26.40 | 2.16 | 10.30 | 8.10 | 13.00 | 1.61 | 9.30 | 9.30 | 17.80 | 1.90 |
| New Halfa | 19.90 | 19.20 | 69.80 | 3.63 | 14.70 | 13.00 | 41.90 | 3.21 | 14.50 | 13.90 | 46.00 | 3.32 |
| **Total** | **91.70** | **79.10** | **205.40** | **2.60** | **69.10** | **34.50** | **69.20** | **2.01** | **49.00** | **44.20** | **117.80** | **2.67** |
| **Rainfed** | | | | | | | | | | | | |
| White Nile | 30.00 | 23.20 | 11.80 | 0.51 | 34.80 | 31.30 | 25.20 | 0.80 | 49.80 | 49.80 | 12.70 | 0.30 |
| Blue Nile | 0.50 | 0.40 | 0.20 | 0.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sennar | 2.60 | 2.40 | 1.00 | 0.41 | 13.00 | 12.20 | 5.00 | 0.41 | 20.80 | 20.60 | 28.70 | 1.40 |
| Gedaref | 39.60 | 34.30 | 23.40 | 0.68 | 37.00 | 34.90 | 23.20 | 0.67 | 58.00 | 55.00 | 31.40 | 0.60 |
| North Kordofan | 111.80 | 92.30 | 47.20 | 0.51 | 94.50 | 90.30 | 71.00 | 0.79 | 171.70 | 123.00 | 31.00 | 0.30 |
| South Kordofan | 55.60 | 43.90 | 29.80 | 0.68 | 71.40 | 57.10 | 42.80 | 0.75 | 22.30 | 22.30 | 28.80 | 1.30 |
| West Kordofan | 1 007.00 | 893.20 | 690.30 | 0.77 | 852.60 | 767.30 | 657.70 | 0.86 | 1 063.90 | 1 045.50 | 485.70 | 0.50 |
| North Darfur | 366.30 | 285.40 | 140.20 | 0.49 | 425.90 | 404.50 | 290.80 | 0.72 | 463.40 | 423.60 | 136.20 | 0.30 |
| South Darfur | 771.50 | 678.50 | 483.60 | 0.71 | 711.90 | 569.50 | 420.40 | 0.74 | 592.30 | 554.90 | 148.00 | 0.30 |
| West Darfur | 143.10 | 130.30 | 149.50 | 1.15 | 172.60 | 146.90 | 207.70 | 1.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| Central Darfur | 161.70 | 146.30 | 133.00 | 0.91 | 294.00 | 252.80 | 325.10 | 1.29 | 45.40 | 45.40 | 28.10 | 0.60 |
| East Darfur | 995.80 | 837.50 | 715.20 | 0.85 | 840.00 | 672.00 | 504.00 | 0.75 | 1 050.00 | 630.00 | 337.50 | 0.50 |
| **Total** | **3 685.30** | **3 167.80** | **2 425.30** | **0.77** | **3 547.70** | **3 038.80** | **2 572.90** | **0.85** | **3 537.50** | **2 970.00** | **1 268.00** | **0.43** |
| **Grand total** | **3 777.00** | **3 247.00** | **2 630.70** | **0.81** | **3 616.80** | **3 073.30** | **2 642.10** | **0.86** | **3 586.50** | **3 014.20** | **1 385.80** | **0.46** |

Note: Totals computed from unrounded data.
[1/] 2018/19–2022/23 average.
[2/] Area in '000 hectares, production in '000 tonnes and yields in tonnes/hectare.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

## Sunflowers

Sunflowers are grown under both irrigated and rainfed regimes in the semi-mechanized sector. This year they were cultivated only in White Nile, Blue Nile, Sennar and Gedaref states. Production in 2023/24 is estimated at about 40 015 tonnes, 48 percent below the output obtained in 2022/23 and 63 percent below the average of the previous five years. The reduced production is mainly due to a lower harvested area, estimated at about 39 and 54 percent below the previous year and the average of the previous five years, respectively. The average yield, reported at 0.52 tonnes/hectares, 15 percent lower than last year, also contributed to the decrease in production.

**Table 14: The Sudan – Sunflower production 2023/24 compared to 2022/23 and five-year average**

| State/Scheme/ Sector | Five-year average[1/] | | | | 2022/23 | | | | 2023/24 (forecast) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] |
| **Irrigated** | | | | | | | | | | | | |
| River Nile | 0.0 | 0.0 | 0.0 | 1.19 | - | - | - | - | - | - | - | - |
| Al Jazirah | - | - | 0.0 | - | - | - | - | - | - | - | - | - |
| White Nile | - | - | 0.0 | - | - | - | - | - | 0.1 | 0.1 | 0.1 | 0.95 |
| Khartoum | 0.2 | 0.1 | 0.0 | 0.00 | - | - | - | - | - | - | - | - |
| Sennar | 0.3 | 0.3 | 0.2 | 0.79 | - | - | - | - | - | - | - | - |
| Suki | 0.4 | 0.4 | 0.4 | 0.95 | - | - | - | - | - | - | - | - |
| Rahad | 2.6 | 2.3 | 3.2 | 1.43 | 0.4 | 0.4 | 0.4 | 1.14 | - | - | - | - |
| New Halfa | 0.4 | 0.4 | 0.7 | 1.87 | 0.1 | 0.1 | 0.1 | 1.43 | - | - | - | - |
| **Total** | **3.9** | **3.4** | **4.6** | **1.34** | **0.5** | **0.4** | **0.5** | **1.19** | **0.1** | **0.1** | **0.1** | **0.95** |
| **Percent** | **0.0** | **0.0** | **0.0** | **0.71** | **0.3** | **0.3** | **0.2** | **0.80** | **-** | **-** | **-** | **-** |
| **Rainfed** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| White Nile | 0.3 | 0.3 | 0.1 | 0.57 | - | - | - | - | 0.7 | 0.7 | 0.3 | 0.43 |
| Blue Nile | 122.5 | 102.1 | 65.2 | 0.64 | 84.0 | 66.4 | 45.0 | 0.68 | 84.0 | 25.2 | 13.5 | 0.54 |
| Sennar | 13.5 | 9.8 | 8.1 | 0.82 | 23.9 | 12.2 | 8.7 | 0.71 | 40.6 | 36.9 | 21.5 | 0.58 |
| Gedaref | 56.4 | 49.9 | 30.9 | 0.62 | 52.5 | 46.2 | 22.0 | 0.48 | 23.5 | 14.3 | 4.6 | 0.32 |
| South Kordofan | 0.8 | 0.8 | 0.3 | 0.42 | 2.1 | 2.1 | 1.3 | 0.60 | - | - | - | - |
| **Total** | **193.4** | **162.9** | **104.7** | **0.64** | **162.5** | **126.8** | **77.0** | **0.61** | **148.8** | **77.0** | **39.9** | **0.52** |
| **Grand total** | **197.3** | **166.3** | **109.3** | **0.66** | **163.0** | **127.3** | **77.5** | **0.61** | **148.9** | **77.2** | **40.0** | **0.52** |

Note: Totals computed from unrounded data.
[1/] 2018/19–2022/23 average.
[2/] Area in '000 hectares, production in '000 tonnes and yields in tonnes/hectare.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

## Cotton

National production of cotton in the season 2023/24 is estimated at 117 970 tonnes, 62 and 77 percent lower than the previous year and the average of the previous five years, respectively. The yield reported this year of 1.17 tonnes/hectare, 56 percent higher than last year, although 42 percent lower than the average of the previous five years, has been more than offset by the decrease in area planted and harvested. The area planted was estimated at 61 and 42 percent lower than last year and average of the previous five years, and the area harvested is estimated about one-fourth and one-third compared to last year and the average of the previous five years. The decrease in area cultivated is mainly due to the ongoing conflict, which limited the possibility to obtain commercial contracts and further increased production costs, therefore, limiting agricultural operations.

**Table 15: The Sudan – Cotton production 2023/24 compared to 2022/23 and five-year average**

| State/Scheme/ Sector | Five-year average[1/] | | | | 2022/23 | | | | 2023/24 (forecast) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] | Area[2/] planted | Area[2/] harvested | Production[2/] | Yields[2/] |
| **Irrigated** | | | | | | | | | | | | |
| Al Jazirah | 49.5 | 38.6 | 129.8 | 3.36 | 39.9 | 9.7 | 12.3 | 1.27 | 12.6 | 10.1 | 40.6 | 4.03 |
| Suki | 7.2 | 5.3 | 11.1 | 2.10 | 0.0 | 0.0 | 0.0 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 |
| Sennar | 18.2 | 16.5 | 31.9 | 1.93 | 9.7 | 8.4 | 9.0 | 1.07 | 1.1 | 1.0 | 1.4 | 1.34 |
| White Nile | 3.2 | 2.9 | 2.9 | 0.98 | 3.3 | 3.3 | 3.5 | 1.05 | 0.0 | 0.0 | 0.0 | 0.00 |
| Rahad | 22.1 | 17.8 | 39.9 | 2.25 | 16.1 | 10.8 | 14.6 | 1.34 | 7.4 | 7.4 | 15.1 | 2.05 |
| New Halfa | 16.8 | 15.0 | 48.8 | 3.24 | 16.4 | 14.3 | 47.6 | 3.33 | 4.7 | 4.6 | 9.8 | 2.11 |
| Tokar | 0.5 | 0.3 | 0.2 | 0.92 | 0.0 | 0.0 | 0.0 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 |
| Abu Habil | 0.7 | 0.7 | 1.0 | 1.36 | 1.5 | 1.5 | 1.3 | 0.86 | 0.0 | 0.0 | 0.0 | 0.00 |
| **Total** | **118.2** | **97.1** | **265.5** | **2.73** | **86.9** | **48.0** | **88.1** | **1.84** | **25.8** | **23.1** | **66.8** | **2.90** |
| **Rainfed** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| Sennar | 13.9 | 9.9 | 10.7 | 1.09 | 19.7 | 16.8 | 20.0 | 1.19 | 42.9 | 35.3 | 14.9 | 0.42 |
| White Nile | 34.7 | 32.9 | 77.4 | 2.35 | 0.0 | 0.0 | 0.0 | 0.00 | 0.1 | 0.1 | 0.1 | 0.92 |
| Blue Nile | 103.1 | 91.2 | 95.1 | 1.04 | 210.0 | 170.1 | 81.0 | 0.48 | 84.0 | 12.6 | 21.2 | 1.68 |
| Gedaref | 74.0 | 63.5 | 61.0 | 0.96 | 189.0 | 165.9 | 111.4 | 0.67 | 46.2 | 29.8 | 15.0 | 0.50 |
| South Kordofan | 1.7 | 1.7 | 1.4 | 0.83 | 8.4 | 8.4 | 7.0 | 0.83 | 0.0 | 0.0 | 0.0 | 0.00 |
| **Total** | **227.5** | **199.2** | **245.5** | **1.23** | **427.1** | **361.2** | **219.4** | **0.61** | **173.2** | **77.8** | **51.2** | **0.66** |
| **Grand total** | **345.6** | **296.4** | **511.0** | **1.72** | **514.0** | **409.2** | **307.5** | **0.75** | **199.0** | **100.9** | **118.0** | **1.17** |

Note: Totals computed from unrounded data.
[1/] 2018/19–2022/23 average.
[2/] Area in '000 hectares, production in '000 tonnes and yields in tonnes/hectare.
Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

## Livestock

The overall average livestock body condition (LBC) was assessed in 2023 as good, although due to the different approach to the assessment used this year and to the ongoing conflict, it was not possible to confirm the feedback received during the field visits through direct observation of LBC by using the PET.[vii]

Pasture availability was reported to be generally fair to good across the country at the time of the assessment, but not expected to last through the dry season in several states due to erratic seasonal rains which did not allow for a complete regeneration of rangeland resources. During the dry season, pasture availability will be further constrained by movement limitation across migratory routes due to prevailing insecurity. This limitation is going to affect both nomadic and sedentary herds as it increases pressure on accessible pasture, which is insufficient to sustain the number of animals currently grazing on them. This situation is further exacerbated in the states hosting herds that moved away from the conflict zones. Reportedly, some groups of herders have already been denied access to grazing areas in Greater Darfur Region. Access to grazing areas and crop residues may vary as the conflict evolves in the different areas of the country.

Water availability is reported to be fair to good across the country at the time of the assessment. However, due to the poor condition of water infrastructures, access constraints to some of the water resources due to movement limitations, water shortages for livestock are expected to start around March/April 2024.

No major outbreaks of pests and diseases were reported. However, some localized outbreaks of *peste des petits ruminants* (PPR), sheep pox, lumpy skin disease (LSD), foot-and-mouth disease (FMD), black quarter (BQ), tick-borne diseases and botulism are reported. Only limited quantities of vaccines and drugs stock from previous years were available in most states In addition, some of the available stocks will expire in the next months. As a result, it will not be possible to prevent or to respond to major outbreaks. There are reports of small quantities of animals vaccinated, but unfortunately no official report is provided by the MoAR&F.

# CEREAL SUPPLY/DEMAND SITUATION

## Cereal supply/demand balance (January–December 2024)

The national cereal supply/demand balance for the 2024 marketing year (January/December) is summarized in Table 17, with a breakdown by sorghum, millet, maize, wheat and rice. The balance is based on the mission's production estimates, including the forecast for the winter wheat crop, for harvest in March 2024, and the latest information on consumption, feed use, trade and stocks availability and plans. The following assumptions were used:

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- According to official information,[viii] cereal opening stocks in 2024 were estimated at about 284 000 tonnes, including 226 000 tonnes of sorghum stocked by the private sector and about 58 000 tonnes, mainly of sorghum, stocked by the Strategic Reserve Corporation.

- Total food use is estimated at 7.32 million tonnes, using the estimated population figure of 48.2 million as of end-2023 and that was adopted by the latest IPC analysis. Per capita average consumption is set at 152 kg of cereals per year, including 75 kg of sorghum, 58 kg of wheat, 16 kg of millet, 2 kg of rice and 1 kg of maize.

- Feed use is forecast at 152 740 tonnes, using an allocation of about 5 percent of sorghum production and 2 percent of millet production to feed use for livestock and poultry as in past years.

- Seed requirements for 2024 planting are estimated at about 122 000 tonnes on the basis of the average planted areas during the past three years and the recommended seed rate in the country. The following seed rates have been used: 7.5 kg/hectare for sorghum; 4 kg/hectare for millet; 20 kg/hectare for maize; 120 kg/hectare for wheat and 75 kg/hectare for rice.

- Post-harvest losses and other uses are estimated at 191 380 tonnes, with rates ranging from 5 percent for sorghum and millet, to 4 percent for maize, 2 percent for rice and 1 percent for wheat.

- Import requirements for the 2024 marketing year (January/December) are forecast at about 3.38 million tonnes, mainly wheat and sorghum, plus some amounts of millet, rice and maize .

## Table 16: The Sudan – National cereal supply/demand balance, January–December 2024 ('000 tonnes)

| | Sorghum | Millet | Maize | Wheat | Rice | Total |
|---|---|---|---|---|---|---|
| **Availability** | **3 329.14** | **683.54** | **6.00** | **387.90** | **22.15** | **4 428.73** |
| Production | 3 054.79 | 683.54 | 6.00 | 377.90 | 22.15 | 4 144.38 |
| Food assistance | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Opening stocks (SRCo) | 48.35 | 0.00 | 0.00 | 10.00 | 0.00 | 58.35 |
| Opening stocks (private) | 226.00 | 0.00 | 0.00 | 0.00 | 0.00 | 226.00 |
| **Total utilization** | **3 990.78** | **835.90** | **49.43** | **2 830.84** | **97.82** | **7 804.78** |
| Food use | 3 614.30 | 771.05 | 48.19 | 2 795.06 | 96.38 | 7 324.99 |
| Feed use | 152.74 | 13.67 | 0.00 | 0.00 | 0.00 | 166.41 |
| Seed requirements | 71.00 | 17.00 | 1.00 | 32.00 | 1.00 | 122.00 |
| Post-harvest losses and other uses | 152.74 | 34.18 | 0.24 | 3.78 | 0.44 | 191.38 |
| **Estimated import requirements** | **661.64** | **152.36** | **43.43** | **2 442.94** | **75.67** | **3 376.04** |

Note: Totals and percentages computed from unrounded data.

Source: Authors' own elaboration based on the data collected during the 2023 FAO Crop and Food Supply Assessment Mission (CFSAM) to the Republic of the Sudan, 2024.

# RECOMMENDATIONS

The aim of the following recommendations is to provide immediate response to the needs of the population most affected by acute food insecurity as well as to support the recovery of the agricultural sector, increasing food production and farmers' incomes, and enhancing efficiency along the value chain to reduce production costs.

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## Immediate actions

**Life-saving assistance**

- Provide urgent in-kind, life-saving food and agricultural assistance to populations facing severe acute food insecurity among residents, newly displaced, protracted IDPs and refugees.

- Provide cash and voucher assistance in areas where markets and supply chains are functioning to improve market access of vulnerable populations.

- Support production of key local staple cereals, mainly millet and sorghum, during the next planting season starting in June 2024 through the timely distribution of certified seeds. If it will not be possible to satisfy the needs through local purchases, it is advisable to source from neighbouring countries varieties of seeds suitable to the Sudan and perform early bulking/procuring to allow for their timely distribution.

- Provide time critical support to the livestock and fishery sectors.

## Recovery

**Longer-term livelihood support**

- Expand the national production capacity of improved seeds, to be then distributed to farmers in a timely manner.

- Improve the effectiveness of the National Plant Protection Department with the identification and treatment of pests and conduct capacity building programmes for state ministries.

- Support the SRCo to increase its stocking capacities in order to mitigate inter-annual cereal production fluctuations.

- Reduce illegal trade flows of food crops outside the country.

- Support availability of, and access to, agricultural inputs, including tools, machinery, fertilizers, pesticides and herbicides.

- Increase quality controls of chemical inputs available in the country.

- Provide technical support to the value chain of millet through extension services and awareness campaigns aiming to gradually increase millet consumption across the country, considering its high nutritive value and production potential.

- Increase the establishment of fire lines in grazing areas to reduce risks of pasture losses due to wild fires.

- Promote the sustainable production of staple cereals including sorghum and millet, and cash crops as sesame, for which the country has a comparative advantage, and local production is cheaper than imports.

- Explore and create awareness regarding innovative utilization of sorghum and millet, for example sorghum bread.

- Promote activities to increase profitability across the whole value chain (e.g., processing, better packaging, etc.) of main exportable agricultural commodities (livestock, cotton, gum arabic, sesame and groundnuts), but also of traditional staples such as sorghum and millet.

- Support MoA&F and state authorities, both financially and technically, to conduct surveys aiming at collection and validation of data regarding areas planted and harvested, yields, production and crop losses.

- Support the implementation of a comprehensive agriculture and livestock census to provide updated data and information.

- Evaluate the possibility for ABS to increase finances for smallholder farmers.

- Improve rehabilitation and maintenance of irrigation infrastructure (levelling, de-silting, cleaning and drainage) in the national schemes.

- Strengthen the technical capacity of agricultural extension services to farmers, including innovative and environment-friendly methodologies.

- Improve post-harvest management and enhance storage facilities at both household and community levels to reduce post-harvest losses.

- Strengthen monitoring of livestock body conditions and pasture availability with the support of quantitative tools already available in the country (Animal Feed Balance Sheet [AFBS], Predictive Livestock Early Warning Information System [PLEWS] and PET).

- Expand the application of water harvesting technology. It is recommended to repair and maintain the existing infrastructures and to build additional ones in order to increase water availability throughout the country and reduce overcrowding of animals.

- Implement measures to limit the expansion of cropping areas at the expense of pastures and forests.

- Improve the capacity of the Central Veterinary Research Laboratory, located in Soba Town, Khartoum State, to produce vaccines to fully cover the national requirements and reinforce decentralized veterinary services to ensure that vaccination campaigns are conducted effectively and efficiently.

- Ensure the collection, analysis and dissemination of timely and reliable food security data and information to inform decision making, and facilitate effective and timely interventions to mitigate food insecurity.

- Organize awareness sessions on peacebuilding in areas affected by recurrent conflicts.

# ANNEXES

# ANNEX 1

**FAO CFSAM to the Republic of the Sudan, 2023**
**Data needed from official sources, non-governmental organizations (NGOs) and farmers**

## CHECKLIST for CFSAM (December 2023)

### 1. Location

| | |
|---|---|
| Region/district | Informant |
| Village/locality | Position/post/occupation |
| Organization | Area-hectares<br>Number of households<br>Soils: Sandy, loamy, clay, rocky, mixed |

### 2. Type of crop production

| | | |
|---|---|---|
| Rainfed ☐ | Irrigated ☐ | Supplementary irrigation ☐ |

### 3. Growing conditions

***3.1. Rains (if rainfall data available copy over sheet – by dekad (10-day total) attach report***

| **Start** | | **Dry spells** | | **Rainfall amount compared to normal** | **Rainfall amount compared to previous year** |
|---|---|---|---|---|---|
| Early ☐<br>Normal ☐<br>Late ☐<br><br>Flood/water logging | Date | Month | Number of weeks | Below average ☐<br>Average ☐<br>Above average ☐ | Better ☐<br>Same ☐<br>Lower ☐ |

***3.2. Areas affected by flooding for the season 2022/23, according to crops***

| **Crop** | **Cultivated area (hectares)** | **Total area affected by the floods** | **Area that returned to the production cycle** | **Area that was completely out of the production cycle** | **Areas that have been replanted with the same crop** | **Areas that were replanted with other crops** |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |

**Causes of drowning (Percent of total affected area):**

| **Cause** | **Flood** | **Flash** | **Flood** | **Irrigation operations coincided with rainfall** | **Other (specify)** |
|---|---|---|---|---|---|
| | | | | | |

Water logging/damage timing (day/month).....
.....
The impact of flooding on the horticultural sector
.....
.....
The impact of flooding on livestock
.....
.....

***3.3. Irrigation***

| Type | Compared to previous year | | General observations regarding irrigation status (If lower or better why) |
|---|---|---|---|
| Pump ☐<br>Gravity ☐<br>Other ☐<br>(specify) | Amount ☐<br>Regularity ☐<br>Timing ☐<br>Cost ☐ | Lower ☐ Same ☐ Better ☐<br>Lower ☐ Same ☐ Better ☐<br>Lower ☐ Same ☐ Better ☐<br>Lower ☐ Same ☐ Better ☐ | |

**4. What are the main crops grown**

| Agricultural activities by crop | Sorghum | | Millet | | Sunflowers | | Cotton | | Sesame | | Groundnuts | | Other (specify) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| Own seeds (%) | | | | | | | | | | | | | | |
| Market seeds (%) | | | | | | | | | | | | | | |
| Improved seeds (%) | | | | | | | | | | | | | | |
| Digging/ Ploughing dates | | | | | | | | | | | | | | |
| Sowing date Sowing rates | | | | | | | | | | | | | | |
| Cultivation (hand, animal/ tractor) | | | | | | | | | | | | | | |
| Replanting times Replanting dates reason | | | | | | | | | | | | | | |
| Number of weeding | | | | | | | | | | | | | | |
| Spraying: Pesticides Herbicides | | | | | | | | | | | | | | |

**5. Area and crop status**

| Crop | | Sorghum | Millet | Sunflowers | Cotton | Sesame | Groundnuts |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Irrigated** area planted | 2023 | | | | | | |
| | 2022 | | | | | | |
| **Irrigated** area harvested (feddans) | 2023 | | | | | | |
| | 2022 | | | | | | |
| **Irrigated** average yields (kg/feddan) | 2023 | | | | | | |
| | 2022 | | | | | | |
| **Mechanized** area planted | 2023 | | | | | | |
| | 2022 | | | | | | |
| **Mechanized** area harvested (feddans) | 2023 | | | | | | |
| | 2022 | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Mechanized** average yields (kg/feddan) | 2023 | | | | | | |
| | 2022 | | | | | | |
| **Traditional** area planted | 2023 | | | | | | |
| | 2022 | | | | | | |
| **Traditional** area harvested (feddans) | 2023 | | | | | | |
| | 2022 | | | | | | |
| **Traditional** average yields | 2023 | | | | | | |
| | 2022 | | | | | | |
| Crop status compared to last year **Mechanized** average yield (kg/feddan) | Better | | | | | | |
| | Same | | | | | | |
| | Worse | | | | | | |

**6. Winter season 2022/23 plan and forecast**

| Crop | Targeted area (feddans) | | Area prepared (feddans) | Area sown so far | Area expected to be sown untill end of the season | | Area expected to be harvested | | Expected yields (kg/feddan) | | Reason for expansion/ contraction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2023 | 2022 | | | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

***7.1. Agricultural inputs availability***

| | Sufficient | Insufficient | Percent of increase or decrease from last year | **Remarks** (Explain reasons, main source and effect if insufficient) |
|---|---|---|---|---|
| Tractors available<br>Agricultural machinery availability ( combines +) | | | | |
| Fuel availability<br>Gasoline<br>Fuel cost | | | | |
| Spare parts availability | | | | |
| Agricultural tools availability | | | | |
| Manure availability:<br>*Main source:*<br>*Main types:* | | | | |
| Chemicals availability:<br>*Main source:*<br>*Main types:* | | | | |
| Herbicides availability:<br>*Main source:*<br>*Main types:*<br>Pesticides availability:<br>*Main source:*<br>*Main types:* | | | | |

| | | | | |
|---|---|---|---|---|
| Seeds availability:<br>*Main source:*<br>*Main types:*<br>*Quality:*<br>*Timeliness:* | | | | |
| Empty sacks availability: | | | | |
| Labour availability: | | | | |
| Credit/grants availability:<br>*Main source:* | | | | |

***7.2. Agricultural input costs***

| | **Current costs** | **Cost 12 months earlier** | **Trend: increasing, stable or declining** | **Remarks** (reasons for price trend) |
|---|---|---|---|---|
| Tractors available<br>Agricultural machinery:<br>*Main types:* | | | | |
| Fuel:<br>Gasoline<br>Fuel cost | | | | |
| Spare parts availability | | | | |
| Agricultural tools availability | | | | |
| Manure availability:<br>*Main types:* | | | | |
| Chemicals:<br>Fertilizers:<br>*Main types:* | | | | |
| Herbicides:<br>*Main types:*<br>Pesticides:<br>*Main types:* | | | | |
| Seeds:<br>*Main types:* | | | | |
| Empty sacks availability: | | | | |
| Labour: | | | | |
| Credit/grants:<br>*Cost-interest:* | | | | |

# ANNEX 1 *cont'd*

**8. Crop pests and diseases**

| | None | Crop affected | Control | | Level of damage | | |
|---|---|---|---|---|---|---|---|
| | | | Yes how? | No | Mild | Average | Serious |
| Desert locusts | | | | | | | |
| Quelea quelea migratory | | | | | | | |
| Armyworms | | | | | | | |
| Local birds | | | | | | | |
| Grasshoppers | | | | | | | |
| Tree locusts | | | | | | | |
| Rats | | | | | | | |
| Powder mildew | | | | | | | |
| Stalk borers | | | | | | | |
| Sorghum bugs | | | | | | | |
| Sorghum midge | | | | | | | |
| Smut | | | | | | | |
| Sesame gall midge | | | | | | | |
| Other | | | | | | | |

**9. Household livestock** (Condition: 1 = very poor; 5 = very good. Information from owners or key informants)
Mostly transhumant ☐ / Mostly sedentary ☐

| | Numbers of animals | Comparison with previous year | Body Condition (1-5) | Body Condition previous year | Main Diseases | Diseases previous year | Vaccination (yes/no - % - source) | Vaccination previous year (more, less, similar) | Drugs (availability, source, price) | Drugs previous year (more, less, similar) |
|---|---|---|---|---|---|---|---|---|---|---|
| Cattle | | | | | | | | | | |
| Sheep | | | | | | | | | | |
| Goats | | | | | | | | | | |
| Poultry | | | | | | | | | | |
| Camels | | | | | | | | | | |
| **Reason for expansion/ contraction of number of animals:** | | | | | | | | | | |
| ..... | | | | | | | | | | |
| ..... | | | | | | | | | | |

**10. Pasture and water for livestock** (Condition: 1 = very poor; 5 = very good. Information from owners or key informants)

| | **Condition** (1-5) | **Condition previous year** | **Accessibility** | **Movement (distances, frequency, timing vs normal)** | **Remarks** |
|---|---|---|---|---|---|
| Pasture | | | | | |
| Water | | | | | |

***10.1. Crop Prices*** (Information from farmers, traders, district/community-level key informants)

Market location:
Wholesale/retail:

| **Crop** | **Price (SDG/sack)** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Now** | **3 months ago** | **6 months ago** | **Last year** | **Trend** | **Supply** | **Sales** |
| Sorghum - *Feterita* | | | | | | | |
| Sorghum - white | | | | | | | |
| Millet | | | | | | | |
| Wheat | | | | | | | |
| Groundnuts | | | | | | | |
| Sesame (Kantar) | | | | | | | |

***10.2. Livestock Prices*** (Information from market observations, traders, district/community-level key informants in areas where livestock plays a major part in the local economy)

Market location:

| **Type** | **Price (SDG/head) – Average weight** | | | | |
|---|---|---|---|---|---|
| | Now | 3 months ago | 6 months ago | Last year | Trend |
| Calves | | | | | |
| Bulls | | | | | |
| Milking cows | | | | | |
| Sheep | | | | | |
| Goats | | | | | |
| Camels | | | | | |

**11. Public and commercial stocks of cereals** (Information from storekeepers or district officers of the relevant national agency, traders and grain mills)

Area/location:

| | **Current** | **One year ago** | **Storage type** | **Percent of storage losses expected** |
|---|---|---|---|---|
| Government stocks (tonnes) | | | | |
| Commercial stocks (tonnest) | | | | |
| Households' stocks | | | | |
| Current rate of off-take per month: | | | Current rate of replenishment: | |

**12. Impact of COVID-19 pandemic on**

***12.1. Crop production:***

……
……
……

***12.2. Livestock production:***

……
……
……

***12.3. Horticultural production:***

……
……
……

# ANNEX 1 *cont'd*

***13.1. The impact of the Ethiopian conflict on the position of agricultural workers in the border states***
***General remarks:***

.....
.....
.....

***13.2. The impact of tribal conflicts on the agricultural season and food security:***

.....
.....
.....

***13.3. The impact of conflicts between herders and farmers on the agricultural season and food security:***

.....
.....
.....

General remarks:

.....
.....
.....

# ANNEX 2

**FAO CFSAM to the Republic of the Sudan, 2023**
**State level report format**

The report is based on the information collected through the FAO CFSAM checklist. Information collected from different actors interviewed shall be summarized in the different report's section. Each section of this report provides a description of the minimal information that should be summarized, provided. Where possible information should be compared to last year.

| | |
|---|---|
| **State NAME** | |
| **DATE OF ASSESSMENT STARTED AND COMPLETED** | |

**TEAM MEMBERS**

| NAME | AGENCY | POSITION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**LIST OF LOCALITIES VISITED**

| Locality NAME | Contribution to Summer CROPS – planted area (percent) |
|---|---|
| | |
| | |
| | |
| | |

## 1. CROP REPORT:

In assessing summer crops, consideration should be given to both food and cash crops, including tubers (sweet potatoes, Irish potatoes), coffee and vegetables, where appropriate.

### 1.1. Weather conditions:

**Give details of weather conditions**, including the onset, quantity, distribution and duration. Explain if there were any adverse weather conditions such as sandstorms, floods, flash floods, dry spells, etc.
All information, when possible, should be compared to the previous season.

Rainfall: .....
Starting compared with previous year and LTA and when started:.....
When ended (Date and month):.....
Rainfall quantities: compared to last year and LTA (copy over sheet- by-month and station compared to last year):.....
Dry spells (When, where, period, impact):.....
Water logging (When, where, period, impact):.....
.....
.....
.....

### 1.2. Planted area and timeliness of planting

**How does the area planted for summer crops compare with normal (refer the checklist)**? Was planting generally undertaken on time? If there were major declines in planted area or significant delays in planting, indicate the localities which were most affected. Indicate the extent as well as the main reasons of the decline and the delay. Explain at what **phonological stages** are the crops.

-Please use the attached tables for comparison:.....
--Justification for the decrease or increase:.....
---Table shows the area planted, area harvested, production and the average yield for all cro
ps:.....
Crop stages:
.....
.....
.....

### 1.3. Agricultural inputs

Comment on the availability, accessibility and cost of the main agricultural input utilized in the production system of the state, with comparison with the previous year:.....
.....
.....
.....
.....

### 2. LIVESTOCK CONDITIONS

**Comment on the current availability and access of pasture and drinking water for livestock.** How does it compare to the normal for this time of the year? Mention the areas most affected by access constraints, shortages of pasture and drinking water and its extent. Give an overall assessment of the current livestock body condition, numbers and health situation. Highlight any abnormality (disease outbreaks, out migration, influx of livestock from neighbouring areas, animal mortality, change in body condition and herd size, etc.) and identify the affected localities. Conflicts, theft, fire hazards:
.....
.....
.....
.....

### 3. MARKET CONDITION

**How do current prices of staple foods compare to the usual prices at this time of the year?** Are supplies unusually high or low? In which localities? Are there any factors that might restrict people's physical access to food, livestock or labour markets? Out of the normal grain, livestock, labour or other markets that people go to are any of them inaccessible by some members of the community? Explain. Provide an assessment of market conditions focusing on any major irregularities in price, supply and demand of *food, livestock, waged labour and petty commodity markets.* Identify affected localities.

..... Access to market and food:.....
.....Prices (crops and livestock)—Now, 3 month, last year.....
..... supply and demand.....
.....
.....
.....

### 4. ADDITIONAL NOTES

In the space provided below make any additional comments, which you feel are relevant but have not been included in the report above, e.g., pests and diseases, labour availability and costs.
..... Credit and finance:--Amount, Area financed, Number of beneficiaries.....
..... Pests and diseases.....
..... Others (COVID-19 pandemic - Tribal conflict):.....
.....

### 5. COMMENTS AND RECOMMENDATION

Please provide recommendations in order of intervention and to strengthen production to improve food security and enhance market functioning at state level:
.....
.....
.....
.....

### 6. FEEDBACK AND RECOMMENDATIONS ON THE APPROPRIATE TIME OF ASSESSMENT

.....Timing:.....
..... Observations and comments.....
.....
.....
.....

# NOTES


i. **IPC**. 2023. *Sudan - intense conflict and organized violence - leading to widespread displacement, economic crisis and disrupted food production - worsens acute food insecurity during typical harvest period*. IPC Acute food insecurity analysis. Integrated Food Security Phase Classification (IPC). 12 December 2023. https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Sudan_Acute_Food_Insecurity_Oct2023_Feb2024_Report.pdf.

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iv. **IMF**. 2022. *World Economic Outlook Database*. International Monetary Fund (IMF). District of Columbia (DC). Cited December 2023. https://www.imf.org/en/Publications/WEO/weo-database/2023/October.

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ISBN 978-92-5-138632-3 ISSN 2707-2479

9 789251 386323

CD0053EN/1/03.24