South Sudan 2022 Crop and Food Security Assessment Mission (CFSAM)
Summary of findings

Highlights

- The 2022 net cereal production (after deduction of post-harvest losses and seed use) in the traditional sector is estimated at about 936 200 tonnes, 11.5 percent above the 2021 output and 15.8 percent above the average of the previous five years (2017-2021).
- Despite the slightly late onset of rainfall, the increase in cereal production compared to the previous year was driven by an expansion of harvested area and favourable rains over most cropping areas, which benefited yields.
- With a projected population of about 12.9 million in mid-2023, the overall cereal deficit in the January-December 2023 marketing year is estimated at about 485 400 tonnes, 10.2 percent below the deficit estimated for 2022, and two percent below the 2018-2022 average.
- The harvested area in 2022 is estimated at about 1 078 900 hectares, 8.4 percent above the 2021 levels and 15.8 percent above the average of the previous five years.
- The harvested area increase is mainly due to security improvements that prompted some displaced households to return to their places of origin and engage in agricultural activities as well as encouraging farmers to expand plantings to fields far from homesteads.
- At state level, substantial expansions in harvested area were recorded in Lakes, Warrap, and Western Bahr el Ghazal states, while it sharply declined in Unity State due to floods.
- River overflows and excessive rains in August and September 2022, particularly in the areas along the River Nile and its tributaries, triggered floods resulting in significant crop losses and livestock mortality despite mitigating strategies by farmers. Hence, several farmers did not attempt to plant in low-lying areas, sowing only on higher grounds.
- An estimated 130 000 hectares of cultivated land was damaged by floods, with an estimated loss of 65 000 tonnes of cereals. This will likely have negative consequences on food security of the affected populations.
- The areas most affected by the floods were Unity, Jonglei, Upper Nile and Northern Bahr el Ghazal states.
- In 2022, pests and diseases were within the normal range. Fall Armyworm and African Armyworm were reported in major maize growing areas across the country with mild-to-average impact on maize crops. However, intensification of rains from July to August 2022 reduced the infestations due to increased mortality of worms/moths.
- Weeds (Babashiro in Western Equatoria State, Congress Weed or Parthenium in Greater Kapoeta and Striga across the country) are expanding at an alarming rate, causing serious damage to crops. Adequate control measures need to be undertaken as the situation is likely to become unmanageable in the near future.
- Desert locusts were reported as migrating and did not settle on the ground, so no impact on crops was reported. However, tree locusts were reported in Renk County with moderate-to-serious impact on Gum Arabic trees.
- Quela quela birds caused **some** damage to sorghum crops in Renk's semi mechanized agriculture areas. Spraying was done in Sudan and South Sudan's commercial farms around Renk.
- Cassava rot disease was reported in Western Equatoria with serious impact on cassava tubers.
- Elephants damaged crops in Pageri, Moli, Opari, Kerepi and Loa areas of Eastern Equatoria State.
- Other pests and diseases including stem borers, rodents, aphids, green and variegated grasshoppers, millipedes, wild animals including monkeys and elephants, termites, snails and groundnut rosette virus and cassava mosaic virus were reported to be in the normal range, with a mild impact on crops.
- FAO and its partners provided animal health services through treatment and deworming campaigns in various counties of South Sudan, with an estimated 1.3 million animals treated for various diseases.
- A total of 596,000 animals, owned by 286,500 households were vaccinated against several diseases in 2022.

1. Background

Importance of the Crop and Food Security Assessment Mission (CFSAM)

- The primary purpose of a Crop and Food Security Assessment Mission (CFSAM) is to provide an accurate picture of the extent and severity of crop production shortfalls and food insecurity caused by man-made and/or natural disasters in a country, so that timely and appropriate actions can be taken by the government and the international community to minimize the impact of the crisis on affected populations.
- The CFSAM is conducted upon request of the government and it is an independent exercise jointly carried out by FAO and WFP through the close cooperation of an international team with national crop monitoring experts.
- The CFSAM report is the only independent annual report providing data on area planted, yields, and crop production in all the counties of South Sudan. These data are used to calculate the cereal net deficit/surplus, thus informing the decisions of the Government of South Sudan, policy makers and development partners in terms of project proposals/action plans to mitigate food shortages and food insecurity and thereby save lives.
- The findings of the CFSAM report are also used as key inputs for the Integrated Food Security Phase Classification (IPC) analysis.
- Key variables factored in the analysis include: population, average size of households, number of households, percentage of farming households, number of farming households, average yields per county (tonnes/ha), and average area planted per household in each county (ha/hh).

Methodology

The annual FAO/WFP Crop and Food Security Assessment Mission (CFSAM) analysis workshop was conducted from 1 to 16 December 2022 to estimate the cereal production in South Sudan during the 2022 agricultural year and assess the overall food security situation in the country. The CFSAM reviewed the findings of several crop assessment missions conducted at planting and harvest time from June to November 2022 in different agro ecological zones of the country. All assessment missions were carried out by a task force team that comprised staff from the Ministry of Agriculture and Food Security (MAFS), the National Bureau of Statistics (NBS), the Food and Agriculture Organization of the United Nations (FAO) and the respective State Ministries of Agriculture (SMoA). The assessment team members have been trained during the past years to conduct rapid assessments using established CFSAM instruments, protocols, and techniques, including walking transects, scoring standing crops, and livestock body conditions according to the Pictorial Evaluation Tool (PET), crop cuttings to assess yield, performing key informant interviews, and farmer case studies.

Until 2013, the production estimates were generated by a team of international specialists during a three-week mission to the country in December, working with staff from Ministry of Agriculture and Food Security (MAFS), National Bureau of Statistics (NBS) and FAO national staff. Since 2014, in a departure from the usual one-off CFSAM exercise at harvest time, several teams led by the members of a task force of selected specialists from MAFS, NBS and FAO national staff conducted a series of intermediate missions at planting and harvesting time. Currently, crop assessment is not a one-time operation, but follows a year-long roadmap, from land clearing to crop harvesting and storage. The final harvest time assessment and crop cutting (sampling) is conducted while crops are still in the field, just before harvest-time. As a result, all missions are scheduled to match the pertinent agricultural activities that occur at different times of the year in different cropping areas and agro ecological zones.

The two pillars of the current continued monitoring approach are:

1) *County Crop Monitoring Committees (CCMCs) at county level*: since 2016 FAO and MAFS have established 64 County Crop Monitoring Committees (CCMCs) with the aim of improving the local capacity to collect reliable data. In addition, FAO has recruited and deployed to its sub-offices 35 Agricultural and Extension Assistants (AEAs) to work closely with the CCMCs and strengthen the presence at field level to ensure the timely provision of information on the progress of the season and performance of crops. The European Union, through the FAO Representation in South Sudan, has financially supported all assessments and training activities for nearly a decade.

2) *Task Force-led missions at state and national level*: Task Force based crop assessments are carried out by senior national specialists of MAFS, NBS, State Ministries of Agriculture and FAO crop assessment team comprising of M&E staff and Agriculture Extension Assistants supervised by a senior agronomist. The broader coverage and the more in-depth analysis allowed by this approach have resulted in an improved quality and robustness of the CFSAM findings since 2016/2017.

Between June and November 2022, the Task Force-led crop assessment teams conducted 33 missions at planting and harvest times throughout the country. The assessment teams completed a total of 2 190 case studies, out of which 2 072 were farmers' interviews and 118 were key informant interviews with senior staff of State Ministries of Agriculture, Environment and Forestry (SMAEF), county officials and NGOs based in the field. In parallel, 5 093 interviews using tablets (4 530 farmers and 563 farmer interviews coupled with collection of farm geo-references using remote sensing tools) and 10 focus group discussions were carried out, a significant increase compared to the number of missions and interviews conducted over the past decade. The expanded geographic coverage of the assessment has resulted in a significant improvement of the quality and the robustness of the CFSAM results.

Despite the overall improvement in the security situation, there are still many inaccessible areas due to insecurity or physical access challenges. This has constrained the full execution of the seasonal crop monitoring plan, and field activities were carried out only in accessible areas of the ten states. As a result, in parts of Unity, Jonglei, Eastern and Western Equatoria states, access by Task Force teams has been precluded. To derive estimates in these areas, where risks to team safety due to insecurity were considered too severe to allow access at crucial times of the agricultural season, telephone interviews with key informants were used to understand the performance of the cropping season and derive the estimates. Information collected by CCMCs operating in insecure areas not accessible by the Task Force teams were sent to the crop assessment team in Juba through various means, including hand delivery of reports.

Challenges faced by the CFSAM

The main challenges of crop assessment in South Sudan include:

- Shortage of trained crop assessors, resulting in data inaccuracies and delays in assessments.
- Absence of an Annual Agricultural Survey carried out by the government. As a result, the CFSAM, instead of auditing existing crop production figures as per standard operating procedures, generates them.
- Despite institutional arrangements made since 2016, through establishing CCMCs, to collect and transfer seasonal crop/ agricultural information the capacity challenges remain.
- Presence of complex cropping patterns in South Sudan that need careful monitoring (double cropping, relay cropping[1], mixed cropping, ratooning[2]) etc.

Overlapping of planting and harvesting operations in various parts of the country due to the complex farming systems and different cropping calendars.

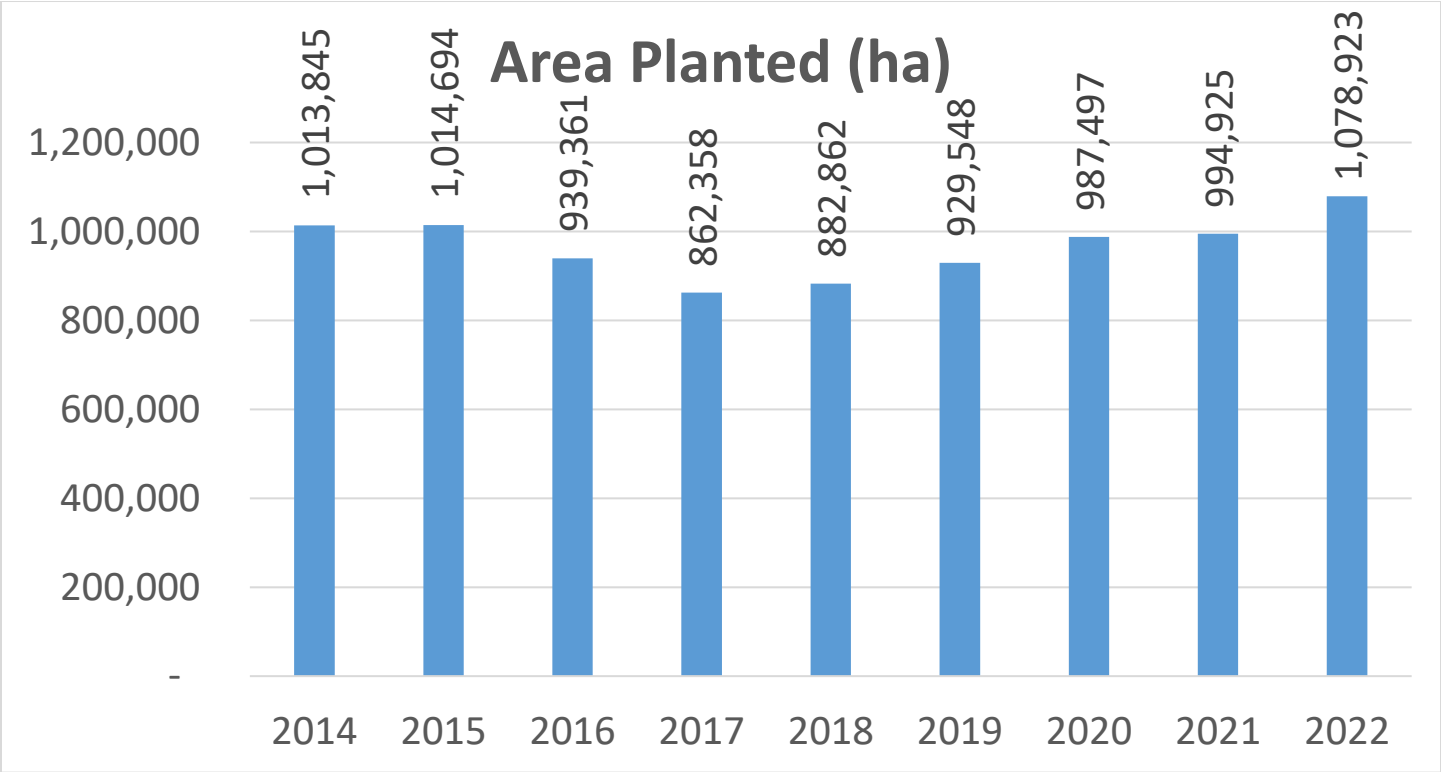
2. Main Findings

Harvested area in the traditional smallholder sector

In 2022, the harvested area increased compared to the previous year. The aggregate cereal harvested area in the traditional farming sector in 2022 is estimated at about 1 078 900 hectares, which is about 8.4 percent higher than last year's level, and the highest since 2014. Harvested area, after having substantially decreased between 2015 and 2017 due to the conflict, began an increasing trend in 2018, which continued in 2022, due to the signing of the Revitalized Agreement on the Resolution of the Conflict in the Republic of South Sudan (R-ARCSS), as the national conflict substantially decreased, remaining confined to few localized areas and partly shifting to increasingly politicised intercommunal clashes. According to the United Nations High Commissioner for Refugees (UNHCR), since the signing of the R-ARCSS, about 620 000 refugees have returned to South Sudan in a self-organized manner, with an estimated 157 920 refugees reported to having returned in 2022. These security improvements, in addition to prompting some displaced households to return to their places of origin and engage in agricultural activities, encouraged farmers to expand plantings to fields far from homesteads. High crop prices contributed to encourage farmers to increase production.

[1] Relay cropping is a type of double cropping, where the second crop is planted into the established first crop before it is harvested, rather than waiting until after harvest as in true double-cropping system.

[2] Ratooning is the harvesting of two crops in one cropping season by producing a second crop from the original stubble, which could provide higher resource use efficiency and economic benefit compared with direct sown crops.



However, outbreaks of organized violence at subnational level continue to occur, constraining agricultural activities. The most serious episodes are reported since August in Upper Nile State, and in December in Jonglei State and in the Greater Pibor Administrative Area, where they resulted in the displacement of an estimated 40 000 and 30 000 people respectively. In addition, severe floods since July affected about one million individuals, more than 70 percent of whom were residing in Northern Bahr el Ghazal, Unity and Upper Nile States, causing large-scale displacements of people and livestock.

At subnational level, significant increases in the 2022 harvested area compared to the previous year occurred in Warrap (+20.2 percent), Lakes (+16.2 percent), Upper Nile (+14.6 percent), Western Bahr el Ghazal (+13.2 percent), Jonglei (+9.6 percent), Central Equatoria (10.1 percent), and Western Equatoria (+8.7 percent) states. Conversely, the harvested area decreased in Unity (-9.7 percent), and Northern Bahr-el-Ghazal (-2.3 percent) states mainly due to flooding.

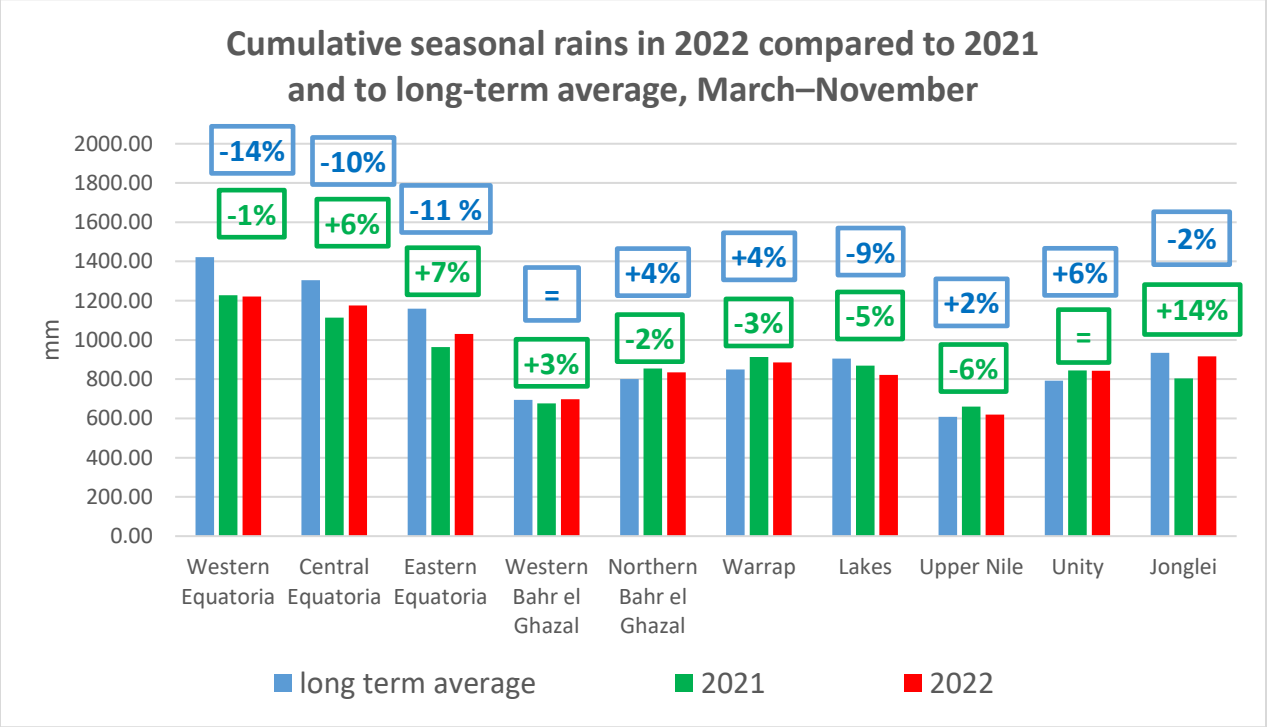
Factors affecting yields

a) **Rainfall**

The 2022 seasonal rainfall could be summarized as follows:

- ✓ The onset of seasonal rains was late by about two weeks in southern bimodal rainfall areas of the Greater Equatoria region, where they started in mid-April. However, it was early by about 2-3 weeks in central and northern unimodal rainfall areas, where scattered showers were received in April, and established in early May.
- ✓ Rainfall during the first half of the rainy season (April-June) was below average. Subsequently, improved rains from July onwards benefited crop development and lifted crop prospects but exacerbated floods.
- ✓ In bimodal rainfall areas, despite some rainfall deficits, the precipitation received was adequate for crop development and establishment, and crops performed well.
- ✓ In unimodal rainfall areas, a two to three-week dry spell from mid-May to early June necessitated replanting. Improved rains since June benefited the performance of replanted crops.

Overall, despite the early season rainfall deficits, 2022's rainy season had a better performance than the previous year. While the cumulative seasonal rains in some states were slightly lower than in 2021, the temporal distribution in 2022 was better than in 2021, when frequent dry spells affected crops throughout the rainy season.



b) **Inputs in the traditional sector**

In the traditional sector, manual labour and hand tools are the two main inputs. However, prices of hand tools and seeds have sharply increased in recent years due to the economic crisis and devaluation of the SSP.

There is a large number of tractors across the country, but most are not functional due to shortages and high cost of implements, spare parts, fuel and shortage of trained tractor operators.

The use of ox-ploughs is expanding, mainly in Lakes, Warrap, Northern Bahr el Ghazal, and Western Bahr el Ghazal states, which is an encouraging trend.

In 2022, the timely distribution of agricultural inputs by FAO and partners in most areas contributed to the increase in planted area.

c) **Pests, diseases and weeds**

The prevalence of pests and diseases in both bimodal and unimodal areas have been within the normal range. Fall Armyworm (FAW) was reported across the country with mild to average impact on maize crops. Intensification of rains in some areas from July to August reduced the impact of FAW due to increased insect mortality rates. Similarly, African armyworm was reported at planting time across the country, with moderate to serious impact on crops, but, similarly, the intensification of rains reduced infestation levels.

The invasive weed known as Babashiro (*Chromolaena odorata*) in Western Equatoria State, Congress Weed (Parthenium) in Greater Kapoeta and Striga (parasitic weed) across the country are expanding at an alarming rate causing serious damage to crops. Adequate control measures need to be undertaken as the situation is likely to become unmanageable in the near future and cause serious damage to crops. Adequate control measures need to be undertaken as the situation is likely to become unmanageable in the near future.

There were reports of desert locusts migrating, but they did not settle and thus caused no impact on crops. However, tree locusts were reported in Renk County with moderate impact on Gum Arabic trees. Quelea quelea birds caused some damage to sorghum crops in Renk's mechanized farming areas. However, pesticide spraying was performed in both Sudan and South Sudan's commercial farms around Renk, and the pest was controlled.

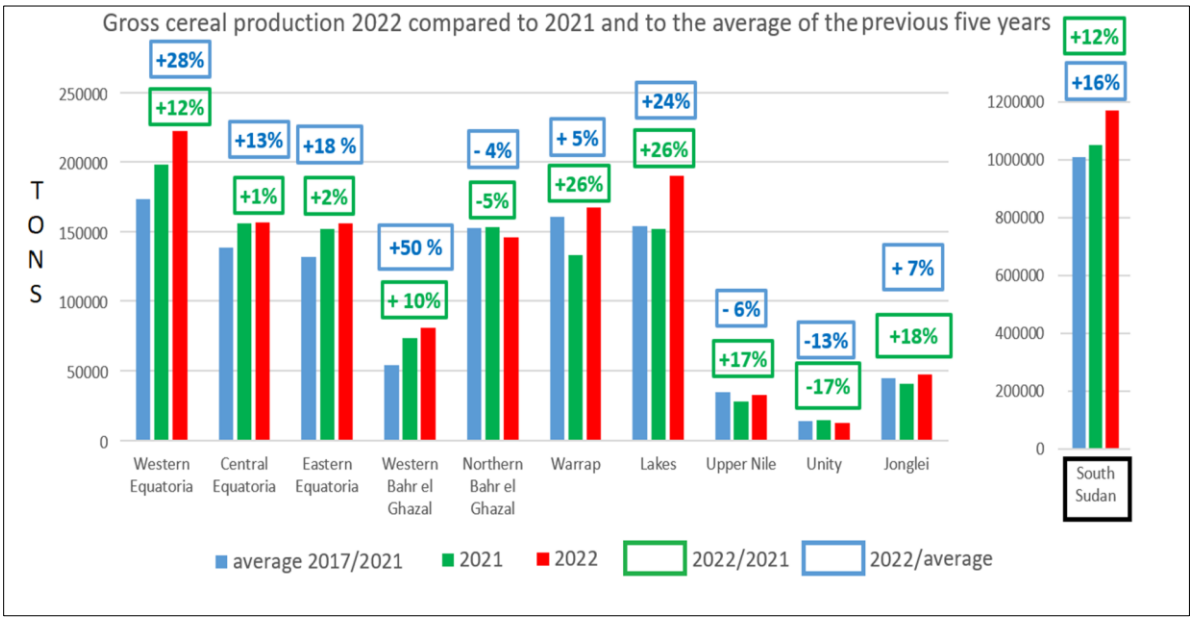
Cassava rot disease was reported in Western Equatoria with serious impact on cassava tubers.

Other pests and diseases including stem borers, rodents, aphids, green and variegated grasshoppers, millipedes, wild animals, termites, snails and groundnut rosette virus and cassava mosaic virus were reported to be within in the normal range, with a mild impact on crops.

Cereal yields, production and deficit in the traditional smallholder sector

As a result of favourable weather conditions and mild impact of pests and diseases, the average gross cereal yield in 2022 in the traditional sector is estimated at 1.08 tonne per hectare, about three percent higher than that of last year's estimate and similar to the average of the previous five years.

In turn, owing to increases in both yields and harvested area, the net cereal production in 2022, after reduction for post-harvest losses and seed use (for sowing in 2023) is estimated at about 936 200 tonnes available for local consumption, 11.5 percent up from the output obtained in 2021 and 15.84 percent above the average of the previous five years. Increases in production compared to 2021 were recorded in Lakes (+25 percent), Jonglei (+17.8 percent), Upper Nile (+16.8 percent), Warrap (+25.7 percent), Western Equatoria (+12.4 percent), Central Equatoria (+12.6 percent) and Western Bahr el Ghazal (+9.9 percent) States, while production decreased were recorded in Unity (-16.7 percent) and Northern Bahr el Ghazal (-4.6 percent) states, mainly due to floods.



Finally, the increase in aggregate cereal production in 2022 resulted in a reduction of the deficit forecast for 2023. With a projected population of about 12.9 million in mid-2023, the overall cereal deficit in the January-December 2023 marketing year is estimated at about 485 400 tonnes, 10.2 percent below the deficit estimated for 2022, and two percent below the 2018-2022 average.

Estimated cereal, yield, production, consumption and balance (traditional sector)

State/County	2022			2023	
	Gross yield (tonnes/ hectare)	Net cereal production (tonnes)	Population (mid-2023)	Cereal requirement (tonnes)	Surplus/ deficit (tonnes)
Central Equatoria	**1.4**	**91,030**	**1,238,240**	**158,702**	**-67,672**
Juba	1.3	20,953	458,445	64,183	-43,230
Kajo Keji1/	1.4	12,508	123,548	14,826	-2,318
Lainya1/	1.2	5,468	117,101	14,052	-8,584
Morobo1/	1.9	13,691	161,023	19,323	-5,631
Terekeka	1.0	16,841	189,544	22,746	-5,905
Yei1/	1.8	21,568	188,579	23,572	-2,004
Eastern Equatoria	**1.2**	**125,522**	**1,161,153**	**144,220**	**-18,698**
Budi	1.3	19,814	109,231	13,108	6,706
Ikotos	1.2	23,099	144,296	18,037	5,062
Kapoeta East	0.9	9,024	190,825	23,853	-14,829
Kapoeta North	0.9	6,926	120,891	15,112	-8,186
Kapoeta South	1.0	3,167	79,077	10,280	-7,113
Lafon	0.9	10,372	119,730	14,368	-3,996
Magwi1/	1.8	39,762	216,101	25,932	13,831
Torit	0.9	13,358	181,003	23,531	-10,172
Jonglei	**0.7**	**26,774**	**1,718,837**	**190,471**	**-163,696**
Akobo	1	7,519	213,928	23,533	-16,013
Ayod	0.5	396	200,096	22,011	-21,615
Bor South	0.8	8,765	279,512	32,143	-23,379
Duk	0.6	1,804	135,240	14,876	-13,072
Fangak	0.6	782	201,360	22,150	-21,367
Khorflus/Pigi/Canal	0.6	324	115,201	12,672	-12,348
Nyirol	0.6	1,902	203,896	22,429	-20,527
Twic East	-	-	140,316	15,435	-15,435
Uror	0.6	5,282	229,288	25,222	-19,940
Pibor Administrative Area	**0.85**	**11,332**	**318,604**	**38,232**	**-26,901**
Lakes	**1.2**	**152,367**	**1,431,627**	**157,481**	**-5,114**
Awerial	1.0	16,525	171,530	18,868	-2,343
Cueibet	1.2	32,328	218,811	24,069	8,259
Rumbek Centre	1.0	17,316	303,366	33,371	-16,055
Rumbek East	1.2	23,560	247,084	27,179	-3,620
Rumbek North	0.7	2,389	71,447	7,859	-5,470
Wulu	1.3	15,828	87,091	9,580	6,248
Yirol East	1.2	13,596	129,382	14,232	-637
Yirol West	1.4	30,826	202,917	22,322	8,505
Northern Bahr-el-Ghazal	**0.9**	**116,703**	**1,637,407**	**180,115**	**-63,411**
Aweil Centre	0.8	10,914	128,420	14,126	-3,212
Aweil East	0.7	31,300	643,484	70,783	-39,483
Aweil North	0.9	26,663	327,355	36,009	-9,346
Aweil South	0.7	9,891	175,014	19,252	-9,360
Aweil West	1.3	37,934	363,135	39,945	-2,011
Unity	**0.7**	**6,530**	**807,960**	**69,552**	**-63,022**
Guit	0.5	257	44,987	3,823	-3,567
Koch	0.8	1,494	143,707	12,215	-10,721
Leer	0.6	1,207	123,804	10,524	-9,317
Mayendit	0.8	1,154	100,792	8,568	-7,414
Mayom	0.6	1,724	199,633	16,969	-15,245
Panyijar	0.6	515	107,605	9,147	-8,632
Rubkona	0.7	179	87,432	8,306	-8,127
Ruweng Administrative Area	**0.9**	**3,281**	**189,572**	**16,113**	**-12,832**
Upper Nile	**0.7**	**25,992**	**1,163,482**	**100,503**	**-74,511**
Baliet	0.6	1,014	57,571	4,894	-3,880
Fashoda1/	0.5	433	55,253	4,697	-4,263
Longochuk	0.5	1394	86,981	7,393	-5,999

State/County	2022			2023	
	Gross yield (tonnes/ hectare)	Net cereal production (tonnes)	Population (mid-2023)	Cereal requirement (tonnes)	Surplus/ deficit (tonnes)
Luakpiny/Nasir	0.6	4,307	347,305	29,521	-25,214
Maban	0.5	1,303	68,622	5,833	-4,530
Maiwut	0.5	645	48,471	4,120	-3,475
Malakal	0.5	236	86,559	8,223	-7,987
Manyo	0.9	1,080	32,444	2,758	-1,678
Melut	0.8	3549	87,944	7,475	-3,926
Panyikang	0.7	435	28,583	2,430	-1,994
Renk	0.9	10078	148,409	13,357	-3,279
Ulang	0.5	1,517	115,341	9,804	-8,287
Western Bahr-el-Ghazal	**1.3**	**64,682**	**633,082**	**71,828**	**-7,146**
Jur River	1.1	17,034	184,830	20,332	-3,297
Raga	1.4	10,155	114,670	11,467	-1,312
Wau	1.3	37,492	333,583	40,029	-2,537
Warrap	**0.9**	**128,318**	**1,624,135**	**157,123**	**-28,805**
Gogrial East	0.8	7,378	160,189	15,218	-7,840
Gogrial West	1.0	53,336	398,212	41,813	11,523
Tonj East	0.6	5,454	136,532	13,653	-8,199
Tonj North	0.7	14,090	281,128	28,112	-14,022
Tonj South	0.9	14,630	151,072	13,596	1,034
Twic	1.0	33,429	497,003	44,731	-11,302
Abyei Administrative Area	**0.9**	**5,734**	**91,564**	**8,240**	**-2,506**
Western Equatoria	**1.5**	**177,942**	**889,973**	**129,046**	**48,896**
Ezo1/	1.8	30,739	123,126	17,853	12,886
Ibba1/	1.6	17,758	46,052	6,677	11,081
Maridi1/	1.7	18,505	89,427	12,967	5,538
Mundri East1/	1.0	5,658	69,030	10,009	-4,352
Mundri West1/	1.2	5,550	63,444	9,199	-3,649
Mvolo	0.9	5,982	99,687	14,455	-8,472
Nagero	1.0	1,411	16,742	2,428	-1,017
Nzara1/	1.9	31,154	69,207	10,035	21,119
Tambura1/	1.0	13,622	86,808	12,587	1,034
Yambio1/	1.4	47,563	226,452	32,835	14,728
Total	**1.1**	**936,207**	**12,905,639**	**1,421,627**	**-485,419**

Yield disaggregation

Over the past decades, the FAO/WFP Crop and Food Security Assessment Mission to South Sudan has estimated cereal production and assessed the overall food security situation in the country. The results of the annual crop assessments are reported as aggregate cereals in terms of planted area (hectare), yields (tonnes/hectare) and production (tonnes). However, several partners including MAFS, donors and NGO partners requested, at different times, for area coverage and yields of individual cereal crops for planning purposes. The major cereal crops in South Sudan include sorghum, maize, rice, finger millet and pearl millet. In the 2022 cropping season, extra efforts were made by the crop assessment team to develop a methodology to disaggregate figures of individual cereal crops. The team used their experience and fielded additional field missions to the states to fulfill the request for disaggregation of the major cereals. Since 2019, the CFSAM assessment teams have been able to calculate and separate the area planted with individual cereal crops, referred to as Crop Inventory.

Disaggregated area, yield, and production of cereals in 2022

CFSAM 2022				Disaggregated production from disaggregated yield (tons)						Final disaggregated yields by crop type (tons/ha)					
State/county	**Area (hectare)**	**Cereal yield tons/ha**	**Cereal gross production (tons)**	**Sorghum**	**Maize**	**Rice**	**Finger millet**	**Pearl millet**	**Total**	**Sorghum**	**Maize**	**Rice**	**Finger millet**	**Pearl millet**	**Average yield (t/ha)**
Central Equatoria	82,619	1.38	113,787	39,621	33,669	2,283	3,064	3,983	82,619	1.16	1.73	1.45	1.07	0.77	1.38
Eastern Equatoria	133,950	1.17	156,903	94,501	35,736	507	888	2,318	133,950	0.97	1.75	1.15	0.85	0.49	1.17
Jonglei	63,378	0.75	47,632	50,628	12,749	-	-	-	63,378	0.75	0.74				0.75
Lakes	161,687	1.18	190,458	124,856	8,819	-	-	28,013	161,687	1.17	2.02			0.93	1.18
N. Bahr al Ghazal	166,842	0.87	145,879	157,718	3,135	3,605	-	2,385	166,842	0.86	1.11	1.49		0.35	0.87
Unity	16,912	0.73	12,264	8,486	8,182	-	-	244	16,912	0.72	0.75			-	0.73
Upper Nile	48,454	0.67	32,490	29,728	18,461	-	-	265	48,454	0.68	0.66			-	0.67
W. Bahr al Ghazal	64,264	1.26	80,852	57,414	5,231	-	996	624	64,264	1.25	1.59		-	1.00	1.26
Warrap	187,497	0.89	167,565	163,235	12,380	2,136	-	9,746	187,497	0.95	1.00	-		-	0.89
Western Equatoria	153,319	1.45	222,427	33,282	80,938	27,984	10,675	438	153,319	0.96	1.67	1.44	1.41		1.45
SOUTH SUDAN	**1,078,923**	**1.08**	**1,170,259**	**759,469**	**219,300**	**36,515**	**15,624**	**48,015**	**1,078,923**	**0.98**	**1.48**	**1.36**	**1.22**	**0.65**	**1.08**

Mechanized sector

In the mechanized farming sector, mainly located in Renk and Melut counties of northernmost Upper Nile State, about 655 tractors were reported as available to support farming activities. Most of them, about 630, were brought from the Republic of Sudan by Sudanese farmers. Other commercial farms are in Northern Bahr el Ghazal including Ton Chol, Ayai – Danga, Aweil Rice Scheme and Udhum, where about 14 tractors are operating.

Over the past few years, the cultivated area and production of sesame has been increasing due to its high export demand and high prices. However, the area and production has declined since 2021 due to a serious pest that attacks and destroys the crop (leaf roller moth). Consequently, in Upper Nile, commercial farmers have partially shifted to sorghum cultivation in 2022, with an estimated 192 700 hectares of land planted with cereals, mainly sorghum, and an estimated 192 700 tons of cereal grain harvested (at one ton/hectare), more than 55 percent compared to 2021. As a result of the decline in planted area of sesame and by the shortage and ineffectiveness of pesticides purchased across the border which constrained control measures, sesame production decreased by nearly 50 percent compared to last year.

Almost all the sesame and sorghum produced from the mechanized farms have been sold in the Republic of Sudan. Sorghum production is constrained by Striga (parasitic weed) and other weeds due to lack of strategies to decrease infestation in all growing areas. By contrast, quelea quelea birds were controlled by aerial spraying using airplanes.

Animal health updates – (January to December 2022)

Provision of Animal Health Services: To support resilience building at the community level, FAO and partners worked with Community Animal Health Workers (CAHWs). In the absence of a fully functional government animal health service, these cadres are very important for delivering animal health services to communities. Between January and December 2022, FAO provided training/refresher training to 2 308 new and existing CAHWs and equipped them with veterinary kits to deliver animal health services and vaccinations to vulnerable agro-pastoralists.

Treatment and vaccination: FAO, Ministry of Livestock and Fisheries (MLF), State Ministry of Animal Resources, Fisheries and Tourism (SMARF&T) and partners provided animal health services through treatment and deworming campaigns and outpatient clinic operations in various counties of South Sudan. According to the passive and active surveillance reports that have been received from different states and administrative areas, a total of 1.3 million animals were treated and dewormed from different species namely cattle, sheep, goats, poultry, donkeys, horses, dogs, camels and other species.

A total of 8 596 000 animals, including 5 621 600 cattle, 1 606 000 goats, 1 206 000 sheep, 161 300 poultry, 624 dogs and 64 donkeys that are owned by 286 400 households (35 percent women-headed), were vaccinated against CBPP, BQ, Anthrax, HS, Newcastle, Rabies and LSD based on manufacturer protocols and species.

Food security and markets

Flooding was once again – for the fourth consecutive year - a major driver with respect to the food security outlook, with the flooded area expanding to both the east and west. This includes a number of areas not previously affected. Impacts with respect to food security include displacement and loss of access to livelihoods, disruption of production activities and barriers to physical movement.

While there was evidence of returns in some areas, including both IDP and refugee returnees, some areas saw additional new displacement. Central Equatoria was in the unique position of having significant numbers of both returns (IDPs and refugees) and new displacement.

Evidence from the Food Security and Nutrition Monitoring System (FSNMS) survey with respect to the ability of returnees to immediately restart their economic activities was mixed. The percentage of households engaging in agricultural was down with respect to last year in all but two states – Lakes State, which saw an increase and Eastern Equatoria where the participation rate remained the same. Others saw varying levels of decrease.

Weak market integration and the impacts of flooding and insecurity contributed to food insecurity in some locations and at some times of year. Barriers to movement of commodities contributed to temporary scarcity and price spikes in several

locations, most notably in the western portion of Upper Nile State and in Akobo. More temporary disruptions due to the impact of flooding on road conditions were seen in parts of Lakes State, particularly in Rumbek North.

In the January-March period, markets in Wau, Malakal, Akobo and Juba all saw cereal prices increase by 30 percent or more above the national average. In the April-June period, Mingkaman, Wunrok and Malakal all had prices that were between 15 and 30 percent above the national average, but during the July-September period the differences closed further as only Bor fit into that category. The October-December results saw price levels exceeding the national average by 30 percent or more in Malakal, Mingkaman and Wau.

Prices below the national average were most common in Northern Bahr el Ghazal and Warrap states, with the exception of Wunrok during the April-June period. Yida (Unity State), and Melut, Bunj and Renk (Upper Nile) markets also had prices below the national average during most of the year.

The effects of the Ukraine crisis on commodity prices had a significant impact on the general price level, including food prices. The impact on fuel prices in particular impacted consumer prices across the county. This was further aggravated by the substantial depreciation of the South Sudanese Pound, beginning in April, and continuing through the end of the year, which had a direct impact on the local price of imported goods. Overall, food prices increased consistently from April through November, before declining slightly in December.

The combined impacts of the various shocks led to an increased prevalence of Moderate and Severe Food Insecurity, over and above the high levels seen in 2021. Increased prices across the country and periods of physical scarcity in areas most effected by insecurity and/or transport constraints contributed to a decline in food access. While the production outlook may have improved somewhat over recent years, declining levels of humanitarian resources and the increased cost of commercial imports will make it more difficult to fill the deficit between local production and consumption requirements.