Food and Agriculture Organization of the United Nations

South Sudan Crop Watch
Updates from 1st Dekad of March to 3rd Dekad of July 2019

***Disclaimer**: The authors would like to acknowledge the technical difficulties in conducting this analysis within a highly complex context. This report provides a first step in understanding the status of food crops in South Sudan. The information and views set out in this working paper are those of the authors and do not necessarily reflect the official opinion of FAO.*

Highlights

- The rainfall condition during the 2019 cropping season delayed by about two to four weeks resulting in late planting in many places. The first dekad of June showed above average rainfall over most cropping areas across South Sudan.
- Following the signing of the revitalised peace agreement in August 2018, there is slight improvement in the security situation in the country, which has encouraged voluntary returning of some farmers to their villages and accessing of far fields. This has contributed to the cultivation and planting of more fields, which may contribute to increased production.
- Despite the late planting of crops, the production prospects of the 2019 first season harvest in Greater Equatoria is estimated to be better than the previous year.
- There were only few cases of dry spells in the former Lakes State in June and former Unity State in July for about three weeks, resulting in replanting of crops.
- The above average rainfall of June has caused waterlogging and flooding in the low-lying areas of Abyei, parts of Jonglei and NBEG, with mild to serious damage on growing crops, and disruption of planting operations until the planting window of the season is over.
- Pest and disease infestations were generally within the normal range. However, the Fall Armyworm (FAW) infestation that appeared at the beginning of the season caused medium to serious impact on maize crops especially in Magwi, Bor and Wau. In most other areas, the anticipated damage by FAW decreased by the heavy rains that destroyed the larvae during the peak season, including in the main maize growing areas of Western Equatoria.
- Figures on planted area and yields of crops will be made available at the end of the year when most of the crops are harvested and the data collection is completed. While there are prospects for good production this year, situations may change rapidly depending on the rainfall condition in the coming weeks and months.

1. INTRODUCTION

The Crop Watch bulletin provides a general outlook on rainfall and crop performance in South Sudan and this report covers the period of March to July 2019. This report is based on crop planting assessments carried out in the field; crop monitoring reports from about 60 counties; remote-sensing products, including Normalized Difference Vegetation Index (NDVI), satellite-based rainfall estimates and data from locally installed rain gauges. Other sources such as the Vegetation Health Index (VHI) and the FAO's Agricultural Stress Index (ASI) are also used. The analysis examines rainfall and crop performance in bimodal and unimodal areas of South Sudan during the period under review. Despite the accuracy of this analysis, the performance of crops may change rapidly within a short time depending on the rainfall situation across the country. Lack of long-term series of rainfall data as well

as problems faced accessing information in most of the conflict-affected areas are some of the constraints faced in the production of this report.

2. RAINFALL AND CROP PERFORMANCE IN GREATER EQUATORIA

Over most areas of Greater Equatoria, the 2019 rainfall started late, by at least 2 – 4 weeks from the normal time, causing delayed planting of the main food crops. However, the amount and distribution of rainfall has improved greatly. Hence, better production of crops compared to the previous year is expected in the current season.

I) Former Western Equatoria State

Yambio, Maridi and Ibba: The 2019 rainfall started in the third dekad of March, while the effective rain started in April. There was no dry spell experienced and the overall rainfall was described by most farmers as average and better than last year. As a result, there was minimal or no replanting in most areas due to absence of prolonged dry spells, except few gap fillings due to rodents and grasshoppers.

Land clearing in the first season started in January and continued up to end of April in most places, while cultivation was accomplished from March to May 2019. The main crops planted in the season are maize, groundnuts, cassava, rice and vegetables. Most farmers use their own local seeds saved from the last year's harvest and others from market purchase. Few got their seeds from NGOs and kinship assistance. In Yambio County, farmers have planted more groundnuts than maize in the first planting season, while most farmers in Maridi and Ibba planted more maize and vegetables, with plans to plant groundnuts and sorghum in the second season.

Pests and diseases were reported to be within the normal range, with minimal damage on crops. However, there was Fall Armyworm (FAW) damage on maize, which was serious at the beginning, but decreased due to the heavy rains around mid-May. The heavy rains have killed the FAW, and the crops have recovered quickly.

In general, the performance of crops has been good due to the good amount and distribution of rainfall and hence better production of main crops is expected in the first season.

In Tambura, Ezo and Nzara: There has been significant improvement of rainfall compared to last year. Although rainfall started late across the State, the amount and distribution is generally very good and favourable for crops. Farmers described the rainfall as better than last year and there was no dry spell or any extreme event related to rainfall up to end of July. Cases of replanting and gap filling are very rare this year. Figure 1 shows the Rainfall and NDVI values for Western Equatoria up to third dekad of July 2019.

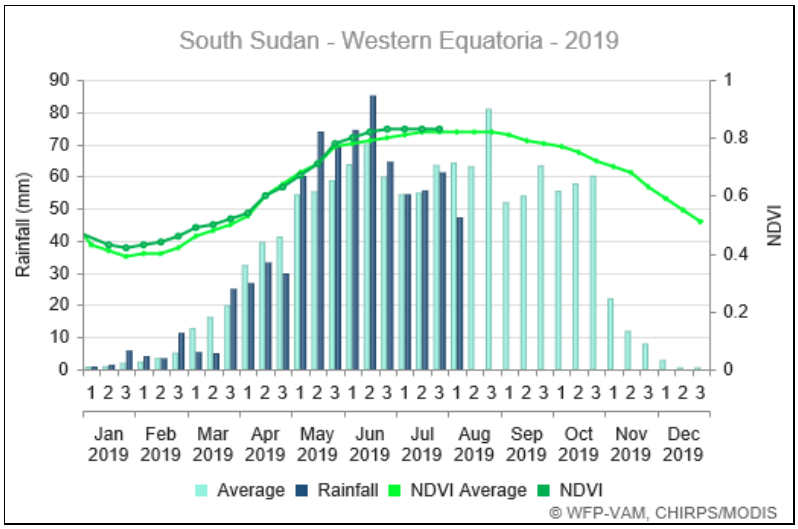

Figure 1. Rainfall and NDVI values for Western Equatoria - up to July 2019

Common pests are snails, millipedes, squirrels, monkeys, porcupines, bush rats, wild pigs, local birds and stem borers. Snails are reported to be serious in Tambura, while it is average in Nzara and Ezo this year. Rodents have also caused average damage on groundnuts. FAW, which was devastating last year, has been suppressed by the heavy rains this year. Hence, its effects on maize crop is minimal. Snails are controlled by mechanical collection, burning and burying or using saline solution (salts) to kill them.

Although rainfall started late, the first season production is expected to be promising due to the favourable growing conditions, especially the good rainfall performance, reduced impact of FAW and mild damage caused by other pests such as snails in few areas. Harvesting of first season maize and groundnuts is underway starting from mid-July, while that of rice and sesame is expected in October/November 2019. Considering the expected good production, commercial farmers who have larger fields and cooperatives may face the problem of processing and storage facilities for maize.

II) Former Central Equatoria State

The 2019 rainfall started late over most of the Central Equatoria State. Yei River received rains in late March and the amount was average to above average. Few areas reported dry spells that lasted two weeks with insignificant effects on crops. In Lainya, areas bordering Yei River County, namely Mukaya and Kupera received rainfall in late March, while areas closer to Juba such as Logwili and Bereka experienced a late onset of rainfall, in April. The amount of rainfall for Lainya is average and better than last year. In Morobo, the rainfall started earlier (late February) than in Yei and Lainya counties. In general, there was no dry spell, and the amount is average to above average this year.

With regard to access to near and far agricultural fields, Yei River, Lainya and Morobo are the most affected in Central Equatoria due to the continued conflict. Access to these areas by road was impossible. However, there has been some improvement with the revitalized peace agreement signed in 2018, which has brought hope to the people and resulted in the resumption of livelihood activities, among which is farming. Farmers who have cassava in far fields are facing serious transport problems due to insecurity on roads. Some IDPs and those in exile are now returning. Large number of returnees are recorded on a daily bases and this has resulted in the cultivation of more land, but with a high concentration of farming activities near the towns.

Planting in Yei River State started immediately after the onset of rains. Planting of maize, groundnuts and intercropping with cassava took place in March and April for Yei, Morobo and the western parts of Lainya. There was no significant dry spells and hence no reports of replanting or gap filling because of the reliable rainfall this year.

In Terekeka, the rains started in mid-April, and became effective in mid-May, which was a delay of about one month. There were no significant dry spells in Terekeka, while Juba County faced prolonged dry spells of about 21 days in June, around Lobonok Payam resulting in delayed cultivation. On the other hand, there were no reports of dry spells in Mangala, Lokiliri, and Lirya Payams. Overall, the rainfall performance in these areas and in most parts of Central Equatoria is considered average and better than last year.

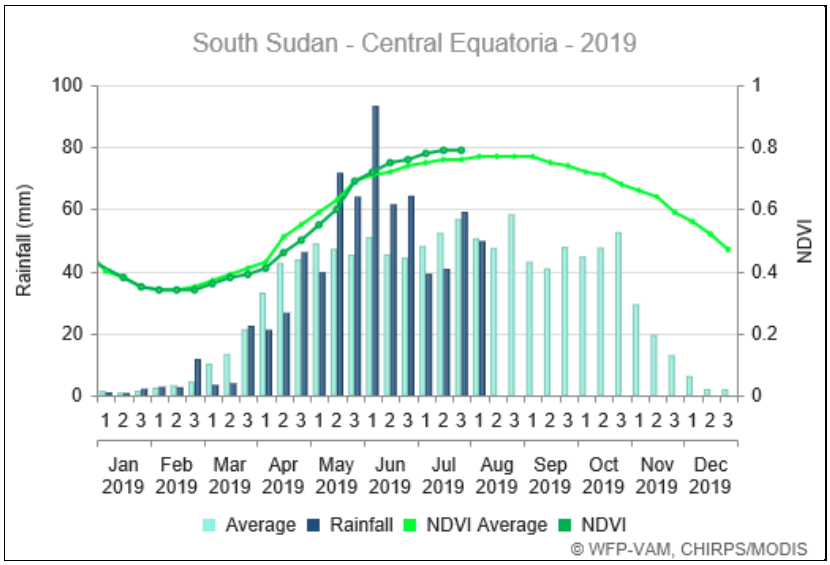

Figure 2. Rainfall and NDVI values for Central Equatoria - up to July 2019

Majority of farmers used their own saved seeds from the previous year (local seeds), supplemented with market purchases and kinship support. Planting started in the second week of May in Terekeka and Juba counties. There were no reports of replanting, except few gap filling due to some damage caused by pests such as grasshoppers. However, pests and diseases were reported to be at a minimal level during the first season, with mild infestation of FAW around Aru Junction and Tombek.

In general, crops in most of these areas are doing well due to good amount and distribution of rainfall, and low levels of pests and diseases. In many areas, groundnuts are at flowering and maturing stages, while sorghum and maize are at maturing and harvesting stages.

III) Eastern Equatoria State

Torit, Lopa/Lafon, Ikwoto, Magwi and Pageri: The first rains appeared around mid-April and the effective rains started in May. Farmers described the rainfall as late, and the amount in almost all of these areas was average, except in Lafon where there was flooding in the low-lying areas. There was a dry spell for 2-3 weeks in June in Mugali area affecting maize crops grown on the sandy soils, which are poor in retaining moisture. Land preparation and planting of sorghum, sesame was ongoing in Ikwotos, Torit, Magwi, and Mugali in July (which is early), despite the fact that most of the sorghum is normally planted in August. Maize is mostly at various stages that include flowering, maturing and

harvesting stages in July. Fresh maize consumption has started in July in Lopa/Lafon, Ifuho, Magwi, Pajok, Obbo, and Nimule, while the sorghum in Lopa/Lafon is at milking and maturity stage.

Land preparation and dry planting of sorghum started in February in Lopa/Lafon while in other locations, sorghum, maize, groundnuts, sesame, and cassava planting started in May 2019. The average cultivated area has slightly increased due to relative stability and the encouraging rainfall of this year.

The reported pests are FAW, termites, local birds, red monkeys, wild and domestic pigs, rodents, groundnut rosette virus, cassava mosaic virus, Striga, stalk borers and beetles, all with mild damage on crops. However, the effect of FAW is serious on lately planted maize (in June) particularly in Magwi.

Greater Kapoeta Region: The region comprises Kapoeta East, Kapoeta North, Kapoeta South and Budi counties. The rainfall started late in June and caused a delay in planting of crops across greater Kapoeta. The rainfall amount is rated as average to above average and better than the previous year. There are no reports of weather related catastrophe on crops including dry spells, waterlogging, flooding or hailstorm this year, up to the end of July. Average planted area is reported to be low which could be due to the prolonged lean season that caused physical weakness of the farmers, and shortage of seeds and tools.

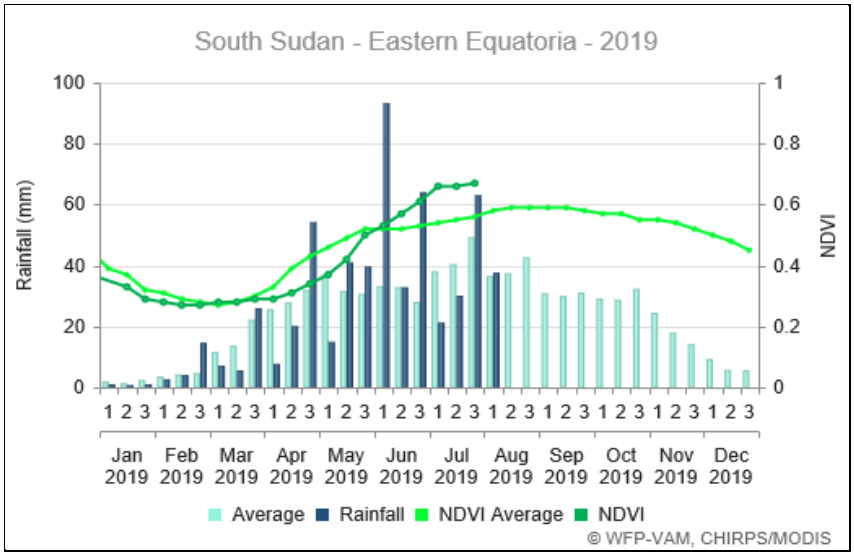

Figure 3. Rainfall and NDVI values for Eastern Equatoria - up to July 2019

Main types of crops grown in the area are sorghum, sesame and some maize crops. Majority of the farmers used purchased seeds, while others used seeds provided through FAO partners that included sorghum (Sesso variety), maize, sesame and assorted vegetables. Some farmers used their own saved seeds.

All crops were found to be vigorous due to the good amount and distribution of rains, and are free from pests and diseases. However, harvesting is expected to be late this year due to delayed planting, and will take place in September and October. However, production is expected to be better than the previous year, if events such as excessive rains or prolonged dry spells do not occur during the remaining growing period. There are no reports of serious pests on crops in Kapoeta.

Livestock body condition is poor due to insufficient pasture around homesteads. Large areas of grazing lands are invaded by congress weed (Parthenium), which has hampered pasture availability. There are no reports of disease outbreaks, except the normal presence of some common diseases. Returning of

migrating cattle to homesteads is delayed this year due to late onset of rainfall and poor development of pastures. Cattle raiding is reported to be increasing this year, probably due to the prolonged dry season.

3. RAINFALL AND CROP PERFORMANCE IN GREATER BAHR EL GHAZAL

I) Former Warrap State

Planting of the current season crops started on time due to timely appearance of the rainfall in early May. The main crops grown in Warrap include sorghum, sesame, maize and groundnuts.

There were 2 – 3 weeks of dry spells from late May up to mid-June, which then continued without break up to July. The short dry spell had minimal effect on crops. The amount of rainfall received during June and July is rated as average to above average. Therefore, this year's rainfall pattern is favourable for most cropping areas, especially for upland areas, while the lowland areas with poor drainage are affected by flooding/waterlogging. Crops in these low-lying areas are either flooded or waterlogged, which made it difficult for farmers to accomplish weeding, replanting and other cultural practices on time. Despite all these, many farmers attempted multiple replanting with some success of establishing crops. On the other hand, crops planted in upland areas are doing well, with positive prospects of production during the season.

Planting of sorghum, maize and sesame started simultaneously in May across the State, while planting of groundnuts was done in June and July. Planted area has increased this year compared to last year, mainly because of the price incentives offered to farmers last year by a project called 'purchase for development', implemented by World Vision with support from FAO (BRACE 1). Other factors that motivated farmers include, i) the good rains of the year, ii) the widespread utilization of ox-ploughs, including availability of rental services for ox cultivation. A good numbers of ox ploughs are being used in Warrap this year, with a cost of ploughing ranging from SSP 5 000 – 6 000 per feddan, compared to SSP 3 500 of last year.

With regard to tractors, there are about 81 government tractors provided to the whole of Warrap by the Government of the Republic of South Sudan (GRSS) in 2016, out of which only 19 are still functional. In addition, there are 30 privately owned functional tractors operating in Gogrial, Twic, Tonj and in the Abyei Administrative Area. The hiring rate for Government tractors is SSP 5 000 per feddan excluding fuel costs. The cost of a 20 litre jerrican of fuel that is provided by farmers is about SSP 5 000, making the total SSP 10 000 per feddan for Government tractors, and SSP 13 000 to 17 000 for private tractors, fuel inclusive. Last year, the Government and private tractors were charged at SSP 15 000 and 18 000 respectively. The cost of tractor hire did not show much increment this year due to availability of tractors and the low cost of fuel in local markets.

The occurrence of pests and diseases is within the normal range, and damage levels are minimal across the state, except some mild cases of FAW and stalk borers on maize and sorghum, millipedes on groundnuts, ants on seedlings and roaming livestock. Since Warrap has a high population of livestock, fencing around crop fields is usually practiced in order to prevent intruding animals from entering and damaging crops.

In general, this year's production is expected to be better than last year's in most areas of the state, with the exception of the flood-affected areas where relatively lower yields are expected due to damage on crops and disruption of weeding practices. Lower yields of groundnuts, sesame and maize are expected in these areas due to crop failure caused by waterlogging.

II) Former Western Bahr El Ghazal

Rainfall in most cropping areas of Western Bahr el Ghazal started in April and was average in amount. Although the effective rains appeared in July, the distribution was generally poor in many areas. This resulted in continuous planting and replanting of groundnuts up to July. In areas such as Bagare in Wau, planting started in May, while areas around Wau town planted their crops from June to July. In Bagare there has been slight increase in area planted this year due the relative stability of the area following the signing of the peace agreement in 2018. However, planted area in most places of WBEG has remained the same as last year or even lower in some conflict-affected areas.

Most farmers used their own saved seeds from the previous year supplemented with market purchases, kinship support and distribution by NGOs. Although there are few tractors, most of them were not utilized in areas where there was active conflict at the time of land preparation and planting. The cost of labour has drastically declined probably due to the economic problem that farmers are currently facing, which is exacerbated by the conflict. However, the traditional communal work is usually practised for seasonal agricultural activities.

There were no serious outbreaks of pests and diseases in the season. However, FAW was reported around Wau town with average to serious damage on late-planted maize. However, with the establishment of the rains in July, maize crops have recovered due the high intensity rains that killed the FAW larvae. The performance of groundnuts and sorghum is reported to be good. The prospects for the season are good if the rainfall continues to improve in the coming months and if farmers are able to weed their crops on time. Average production, similar or slightly higher than that of last year is expected in the state.

III) Former Lakes State

The 2019 rains started late compared to last year and the past five years. The onset of rains all over the State was in June with the exception of pockets of areas in Awerial, Rumbek North, Yirol East and Cueibet where the onset of rains was in early May. The amount of rainfall was generally poor at the beginning across the State; nevertheless, excessive rain that caused waterlogging was reported in Rumbek North and Awerial, in June. Rainfall distribution is also very poor in Rumbek Centre, Rumbek East, Cueibet, Yirol West, Yirol East and the northern parts of Wulu. As a result, there were up to four-weeks of dry spells in many areas of the State in May, thus delaying cultivation. Figure 4 shows the Agricultural Stress Index (ASI) for South Sudan, with Lakes more affected in May 2019.

Despite the very late start of the effective rainfall, the amount has improved since July and was reported to be average all over the State. Flooding of crop fields is reported in the lowland parts of Awerial and Rumbek North. FAW has seriously affected late-planted maize in many areas. In areas where crops were planted early in the season, green harvesting of groundnuts has started, especially in Wulu, Yirol West, parts of Awerial and Rumbek North. Early planted maize is harvested in Cueibet

and Rumbek North. Crop performance is generally good despite the delayed onset of rains in all the eight counties. Sorghum is at vegetative stage, sesame is at flowering stage and groundnut is almost ready for harvest in areas where early planting took place (Rumbek North, Rumbek East, Cueibet, Wulu, Yirol West and Awerial).

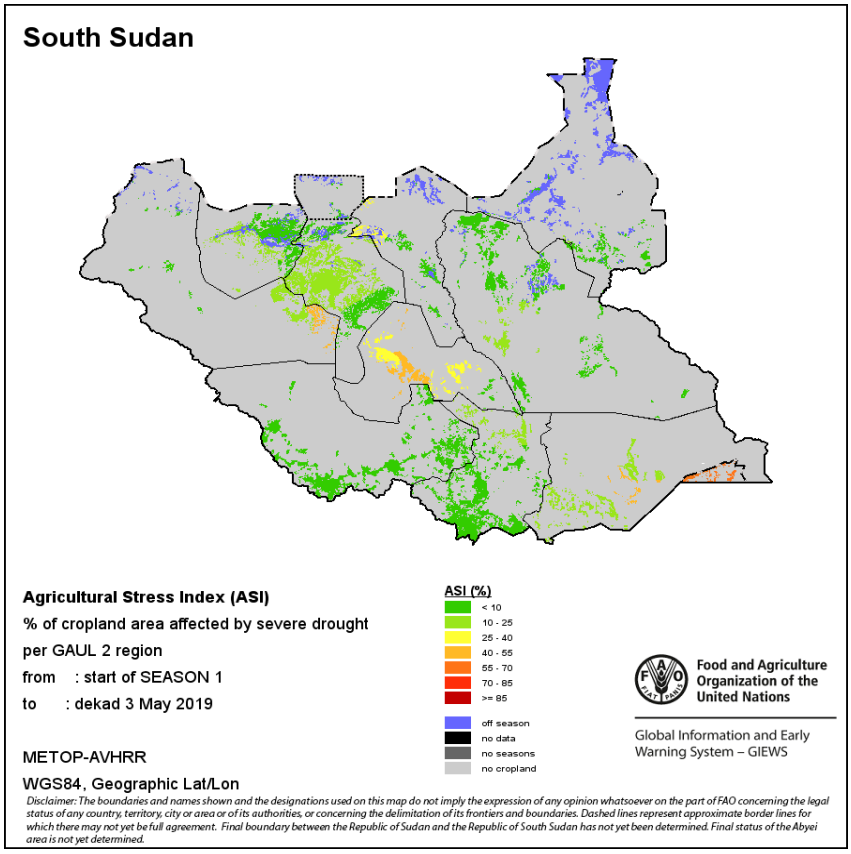

Figure 4. Agricultural stress index (ASI) during the 3rd dekad of May 2019

The main pests reported up to the end of July are millipedes on groundnuts, FAW on maize and termites on both groundnuts and sorghum. Porcupines and monkeys are reported to have caused mild damage on groundnuts in Wulu and Rumbek East.

IV) Former Northern Bahr el Ghazal (NBEG)

In NBEG, the seasonal rainfall started in early May, which is a normal starting time and the amount was above average at the beginning. There were no significant dry spells over most of the cropping areas, except in Aroyo County where there was a short dry spell. In general, there was excess rainfall in many parts of the State, resulting in flooding which has affected the lowland areas of Aweil West, North and East that caused waterlogging of planted and unplanted fields in May, June and July. This has discouraged farmers from planting and conducting cultural practices such as weeding. The Aweil Rice Scheme was seriously affected by the flooding and waterlogging of the whole farm. As a result, the scheme is not able to plant any rice during the current year, due to full inundation of the whole farm by water until the planting window was over.

Elsewhere, planting of sorghum started from mid-May and continued up to end of June, while groundnut planting started around mid-June and continued throughout July, and is expected to be completed in the first week of August. The performance of crops was generally good in NBEG state,

despite the flood damage in some low-lying areas of Aweil West, North, South and East. However, the overall area planted with crops could be lower than last year's mainly due to the impact of floods that hindered farming activities.

The common pests and diseases in the state include FAW, Striga, wild and domestic animals, among others. The level of infestation on sorghum was mild, but average on maize crops, especially of FAW. Aroyo was the most affected area by these pests.

4. RAINFALL AND CROP PERFORMANCE IN GREATER UPPER NILE

I) Former Jonglei State

The rainfall in Bor South started late in May, by at least two weeks, while land preparation started early, during the third week of April. The planted area has also slightly increased due to the positive impact of the peace agreement, which encouraged voluntary returning of some farmers to cultivate their land. For instance, 150 households in Kondek Boma in Makuac Payam came back and cultivated their land this year. Additionally, the areas of Baidid and Anyidi have registered newly cultivated areas, which were not there in 2018.

The June 2019 rains were heavy and resulted in flooding of some areas, which affected late-planted sorghum. However, the early-planted sorghum is at booting stage, while the groundnuts are pegging and doing well.

Although there was no serious outbreak of pests and diseases, damage by FAW was reported on maize crops planted along the Nile and few homesteads close to the river. The damage caused by FAW in these areas was serious, although the total maize area is small.

In Akobo, effective rains started in May and were late by about two weeks compared to the previous year when rains established in the first week of May. The amount of rainfall in June was below average and poorly distributed, which led to delayed planting by at least two weeks. This influenced some farmers to reduce their maize planted areas. The delay in rainfall resulted in an estimated 30 percent decrease in maize areas, which were replanted with sorghum crop, due to its relative tolerance to drought. According to the farmers, prospects for the season are generally good after improvement of the rains, and better production of sorghum is expected compared to last year.

The little rains of April have contributed to the improved availability of water and pasture for livestock. Additionally, there are no reports of livestock disease outbreaks, except for the occurrence of lumpy skin disease and foot and mouth disease, within the normal range.

II) Former Unity State

The rains in the former Unity State started in May, late by at least two weeks and established in June. Most of the counties that include Rubkona, Koch, Guit, Mayom, Abiemnhom and Pariang experienced dry spells in June for up to two weeks with some intermittent showers in between. Early planted maize and sorghum are at vegetative stage and doing well. Crops in the three counties of Mayendit, Leer and Panyijiar, which had no reports of dry spells, are performing well.

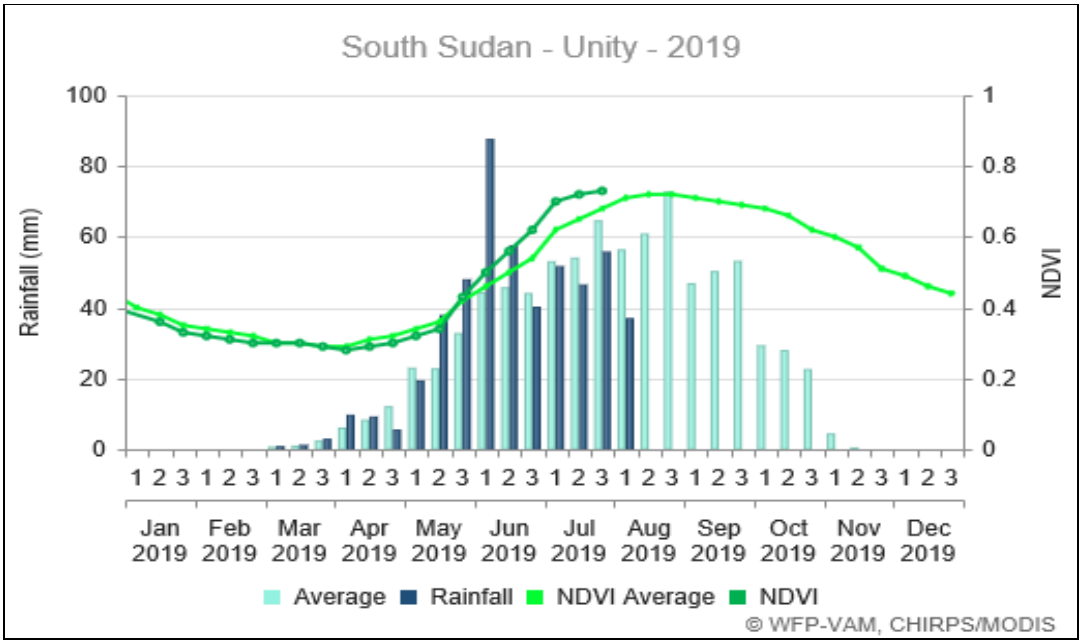

Figure 5.Rainfall and NDVI values for Unity, up to end of July 2019

Due to the slight delay of rainfall and the dry spells experienced in June, planting of crops has continued up to late July, especially for maize and other crops. With the optimism on the implementation of the revitalized peace agreement signed in 2018, farmers have increased their movement to far fields and cultivated more land this year. This has resulted in a slight increase in area cultivated, especially in Mayendit, Leer and Panyijiar counties. However, there is still no sign of returnees going back to their homes from the POCs.

Most farmers used their own seeds saved from the previous year and from the market purchases, while a few farmers in Rubkona, Guit, and Koch counties received improved seeds from NGOs. There are no tractors or ox-ploughs used in the area, only hand tools were used for digging as well as other cultural practices. There are no reports of floods up to the end of July across the State except in Mayendit where flooding occurred in June and affected three Payams, though they later receded. On the other hand, there were dry spells starting from the second week of July in most of the counties, except in Panyijiar, and these are likely to affect the productivity of crops, especially maize. Figure 5 above shows the Rainfall and NDVI values for Unity state.

There were few cases of FAW reported in Guit, Rubkona and Koch, but with mild effect on crops. The usual pests like birds, rats and foxes also had a mild effect on growing crops. Livestock health and body conditions across the state were reported to be normal due to adequate pasture and water availability in most places. There were no outbreaks of diseases, except the usual endemic diseases including CBPP, ECF, BQ and HS for cattle and PPR and CCPP for shoats and new castle disease for poultry.

III) Former Upper Nile State

In Maban, the rain started late, towards the end of May, as opposed to last year, when it started in March. Land preparation was done in April and planting commenced in the first week of June. However, the rains intensified in the first dekad of June causing waterlogging and flooding of some areas, especially in Bunj where maize suffered the effects of waterlogging. Most crops were at vegetative stage in July, while the planting of short-term sorghum continued up to the beginning of

August. There were no reports of disease and pest outbreaks but roaming pigs are reported to be causing mild to serious damage to crops.

Government tractors are not operational due to lack of spare parts; however private tractors are operational and hire rates for ploughing is about SSP 25 000 per feddan, compared to SSP 18 000 per feddan in the previous year. Labour cost for cultivating one feddan by hand is SSP 20 000 compared to SSP 15 000 in the previous year, while the cost of weeding is about SSP 16 000 compared to SSP 10 000 last year. The cost of seeds has also increased by at least 50 percent this year because of inflation and shortage of seeds, which could be due to depletion of household grain stocks before the start of the season. The cost of labour is expensive and majority of the households perform their agricultural activities using communal work.

Pasture and water are available due to better rains compared to last year, and there are no reports of livestock disease outbreaks during the season. This has contributed to good body conditions and an increase in the number of livestock in the area.

In Renk and Melut, the rains started in May, followed by short dry spells that affected early-planted crops (in May). The rainfall improved in June and July with normal distribution thus creating favourable conditions for crop production. The rainfall condition of the current season is considered better than last year, especially in Melut where there was a serious dry spell in the previous cropping year.

Most farmers started planting sorghum and groundnuts in early July, although there are farmers who started cultivation as soon as the rain started, in May, which was considered as early. In Renk, planting started in May when the rains started, but most farmers started planting in June due to lack of seeds.

There was a delay in the distribution of seeds, compared to last year, although last year's inputs were affected by dry spells. While the input distribution was limited to crop seeds, there is high demand for tools, especially malodas.

Livestock body condition is good as vaccination and treatment for diseases is ongoing under the Cross Border Project of FAO, in both Renk and Melut.

In general, the performance of crops in the current season is better than that of last year, despite the impact of late distribution of seeds, which might affect the productivity of crops.