Republic of Sudan

Ministry of Agriculture and Irrigation

Food Security Technical Secretariat (FSTS)

Assessment Mission Report 2013/2014

ANNUAL CROP AND FOOD SUPPLY ASSESSMENT MISSION For Sudan

January 2014

FSTS	Government Of Sudan	FAO	FEWS NET	USAID	WFP

SPECIAL REPORT

ANNUAL CROP AND FOOD SUPPLY ASSESSMENT MISSION, SUDAN

January 2014

This report has been compiled by Swithun Goodbody, Hassan Esh-Sheikh El-Bashir and Osman Ibrahim Mohamed with material and information from the Ministry of Agriculture and Irrigation, the Ministry of Livestock, Fisheries and Rangelands, the Humanitarian Aid Commission, the Strategic Reserve Corporation, Ministries of Agriculture in the 18 states of Sudan, the Sudan Meteorological Authority, FAO SUDAN(FSPSP) ,FAO Sudan (E the World Food Programme(WFP), the Famine Early Warning Systems Network (FEWS NET), and USAID. Other data and field summaries were provided by Assessment Mission team leaders. Since conditions may change rapidly, please contact the undersigned for further information if required.

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CONTENTS

ASSESSMENT MISSION HIGHLIGHTS 5
1. OVERVIEW 6
1.1. Assessment mission 6
1.2. Findings of assessment mission 6
2. SOCIO-ECONOMIC CONTEXT 8
2.1 General 8
2.2 Population 12
2.3 Agriculture 12
2.3.1 Irrigated sector 13
2.3.2 Semi-mechanized sector 13
2.3.3 Traditional sector 13
2.3.4 Livestock 14
3 AGRICULTURAL PRODUCTION 2012/13 14
3.1 Main factors affecting cereal production in 2012/13 14
3.1.1 Agricultural finance and credit 14
3.1.2 Rainfall 15
3.1.3 Area planted and harvested 17
3.1.4 Agricultural inputs 18
3.1.5 Weeds, pests and diseases 18
3.1.6 Crop yields 19
3.2 Sudan cereal production forecast 19
3.3 Other crops 24
3.3.1 Sesame 24
3.3.2 Groundnut 25
3.3.3 Sunflower 25
3.3.4 Sugar 26
3.3.5 Cotton 26
3.4 Livestock 27
4 CURRENT MARKET SITUATION 27
4.1 Cereal prices 27
4.2 Livestock prices 29
5. CEREAL SUPPLY/DEMAND BALANCE, 2012/13 29

Annex
Summary of Agricultural Situation by Region and State (Early December 2013)

ABBREVIATIONS AND ACRONYMS

ABS	Agricultural Bank of Sudan
CBOS	Central Bank of Sudan
CBS	Central Bureau of Statistics
CPI	Consumer Price Inflation
EIU	Economist Intelligence Unit
ERCU	Emergency and Rehabilitation Coordination Unit (FAO-Sudan)
FAO	Food and Agriculture Organization of the United Nations
FCB	Farmers Commercial Bank
FEWS NET	Famine Early Warning Systems Network
FSMS	Food Security Monitoring System
FSTS	Food Security Technical Secretariat
GDP	Gross Domestic Product
ha	hectare
HAC	Humanitarian Aid Commission
MoAI	Ministry of Agriculture and Irrigation
MoLFR	Ministry of Livestock, Fisheries and Rangelands
NDVI	Normalized difference vegetation index
NGO	Non-governmental organization
RFE	rainfall estimate
SDG	Sudanese pound
SRC	Strategic Reserve Corporation
t	tonne
UN	United Nations
USAID	United States Agency for International Development
USD	United States dollar
WFP	World Food Programme

ASSESSMENT MISSION HIGHLIGHTS

- Production of the three major cereals - sorghum, millet and wheat - for 2013/14 is estimated at 2.85 million tonnes which is only 48 percent of the 5.89 million tonnes achieved in 2012 and 68 percent of the five-year average of 4.19 million tonnes for 2008/09 - 2012/13.
- Poor rainfall, in terms of both distribution and quantity, was the overriding determinant of crop production in 2013. The rains arrived late, were excessive in some areas in August, and finished early.
- Planting was generally delayed because of the late arrival of the rains.
- Cultivated areas in the rainfed sector were less than the long-term average, and substantially less than those of 2012.
- Cultivated and harvested areas were further reduced in parts of Darfur and South Kordofan by the threat of conflict.
- Agricultural inputs were readily available, but expensive.
- The availability of agricultural credit was better than in previous years, but small farmers still cited inadequate access to credit as a major constraint to production.
- There was a shortage of labour in many states, and the cost of labour was universally high.
- The summer season was relatively free of crop pests and diseases.
- Irrigated sorghum production was similar to that of 2012, an increase in average yield compensating for a reduction in area.
- With high temperatures persisting into early December and delaying sowing, and with germination problems with seed delivered to Gezira, the area under wheat is likely to be smaller than it was in 2012/13.
- Sesame production was less than 75 percent of the recent long-term average and less than 37 percent of last year's production.
- Groundnut production, despite being much lower than in 2012, was more than 45 percent above the recent long-term average.
- There was in increase in cotton production compared with 2012, with production similar to the five-year average for 2005/06-2009/10. Yields this year were well above the five-year average, but this was counter-balanced by the area being only about half the five-year average.
- Livestock condition and health were good in early December. Pasture was generally satisfactory, and stock in most areas had adequate access to drinking water.
- Veterinary services were good and the ongoing vaccination programme reached an estimated 70 percent of all livestock.
- Grain prices remained unusually high at the beginning of December and in most markets had not exhibited the reduction that is normally expected prior to harvest.
- Livestock prices remained high until November, at which point they began to fall.

1. OVERVIEW

1.1. Assessment mission

Between 24 November and 7 December 2013, the Ministry of Agriculture and Irrigation (MoAI), assisted by the Food and Agriculture Organization of the United Nations (FAO), carried out its annual Assessment Mission to determine crop production and food supply throughout the 18 states of the Republic of Sudan. The mission consisted of six core teams consisting of members from the MoAI, the Food Security Technical Secretariat (FSTS) of the MoAI, the Ministry of Livestock, Fisheries and Rangelands (MoLFR), the Humanitarian Aid Commission (HAC), the Strategic Reserve Corporation (SRC), FAO, FEWS NET, WFP and USAID. Prior to departure, team members and representatives from WFP attended a preliminary workshop in Khartoum to standardize the methodology to be used in the field and to prepare teams for the visits.

Team visits are designed to a) collect data and information from state ministries, irrigation schemes, and enterprises; and, b) audit such data and information through observational transects, field observations, farmer interviews and independent key informant interviews. The combined quantitative / qualitative information from both primary and secondary sources allow teams to assess the current season's cereal (sorghum and millet) and other field crop production, and, where appropriate, forecast wheat production from areas being prepared for planting. The returning teams prepare summaries of data and information acquired during the visits for discussion and explanation in detailed debriefings before inclusion in the mission report. Data are compiled by state, crop and sub-sector (irrigated, semi-mechanized rainfed, and traditional rainfed) to give overall area and production estimates. From these data a national cereal balance sheet is drawn up comparing total cereal requirement for the coming marketing year with domestic cereal availability. The balance sheet gives an indication of whether the country is in surplus or deficit with regard to cereals, and hence of its import requirements.

This year's six mission teams received the full cooperation of the relevant state authorities. Discussions on factors affecting crop and livestock conditions were held with representatives from the relevant line agencies, local government offices, selected credit institutions, United Nations (UN) agencies and non-governmental organizations (NGOs). Field visits were supported by local specialists from state ministries and irrigation schemes, who also provided the latest information on all aspects of production within their domains, including the provision of follow-up data where required. The six teams carried out their tasks to the extent possible, the main constraint being civil insecurity, which limited field observation and farmer interviews in parts of Darfur and South Kordofan. Where possible, teams cross-checked the official data estimates received by conducting extensive field inspections, rapid case studies with sample farmers, and interviews with herders and traders.

At national level, the latest available information and data were collected concerning the year's rainfall, vegetation cover, crop-protection campaigns, cereal reserve stocks, and market trends (crops and livestock). Periodic food-security reports were perused, and national socio-economic indicators were provided by the Central Bank of Sudan and extracted from recent reports by the Economist Intelligence Unit.

1.2. Findings of assessment mission

Production from the summer cropping season of 2013 was poor over most of the country compared with that of 2012, especially with regard to cereals and sesame. The onset of effective rains was delayed by almost two months until late July or early August. This late start was followed by

unusually heavy rains in late August and early September, especially in the east of the country, which hindered agricultural operations in the semi-mechanized sector. Then in the second half of September the rains eased back to below-average levels. Despite the heavy rains in August and early September, total rainfall amounts for the season were below average in most parts of the country.

Other significant constraints to crop production in 2013 included high levels of civil insecurity in parts of Darfur and South Kordofan, and the increased cost of production compared with previous years. Fuel prices increased by about 75 percent following the removal of subsidies; fertilizers prices were considerably higher than last year in SDG terms in consequence of the falling value of the SDG against the USD, which tended to dissuade farmers from applying optimal amounts.; and farm labour was costly and scarce, partly as a result of the exodus of South Sudanese back to South Sudan over the last two years, and partly as a result of potential labour preferring to engage in traditional gold-mining.

Seed was readily available this year. There was a problem with a consignment of Turkish wheat seed, destined for Gezira Scheme, which arrived late in Port Sudan; about 10 percent of it was damaged and the germination percentage of the rest of the consignment was low. Although this was extensively publicised, the amount of seed involved represented only a relatively small fraction of the intended wheat area on the scheme.

The availability of agricultural credit continued to improve this year, with the Agricultural Bank of Sudan more than doubling its loans compared with 2012. The largest increase in loans was for agricultural machinery and equipment. Smaller farmers, however, still find it difficult to access credit because they have insufficient collateral.

The incidence of cereal pests and diseases was low this year, and there was satisfactory control of the perennial notifiable pests - locusts, grasshoppers and *Quelea quelea*. Guar, however, the area of which has recently expanded, suffered serious losses from a fungal disease, sunflower was attacked by mildew in Blue Nile, and genetically modified cotton had to be sprayed against thrips. Locusts are breeding on the Red Sea coast around Tokar Delta and adults have appeared further south towards the border with Eritrea. As yet no significant damage has been caused, and survey and control measures are under way. Weeds were occasionally a problem in areas that received especially heavy rains in August.

Sorghum production this year is estimated at 2.249 million tonnes, and millet production at 0.359 million tonnes. These figures represent reductions of 50 percent and 67 percent respectively compared with last year's production, and reductions of 30 percent and 40 percent compared with the 5-year average of 2008/09-2012/13. Wheat production is forecast to be about 244 000 tonnes, a reduction of 12 percent on last year's production and of 37 percent on the the 5-year average.

Despite some flooding in Blue Nile and Khartoum states, the destruction of a major canal on Tokar scheme and waterlogging in parts of New Halfa and Rahad schemes, production from the irrigated sector was least affected by this year's rainfall pattern, with irrigated sorghum production almost the same as in 2012. Worst affected was the semi-mechanized rainfed sector, with major sorghum producers such as Gedaref, Sennar and White Nile States suffering particularly badly. The traditional rainfed sector also suffered serious reductions, particularly in Sennar and White Nile States and in Darfur Region. The principal contributor to reduced cereal production was the reduction in harvested area which was down by more than 40 percent on 2012. Overall cereal yield was down by 18 percent on last year's level.

Cereal prices usually start to fall prior to harvesting in anticipation of large amounts of grain entering the market. This year, however, cereal prices in most markets had shown no sign of declining by the beginning of December, and those states with particularly poor production even expected prices to increase.

Sesame area was greatly reduced this year compared with last, and despite rather better yields overall production was significantly down. Groundnut production, although less than that of 2012/13, was up on the 5-year average 2005/06-2009/10. Cotton production, while still below the 5-year average because of reduced area, was above that of 2012/13.2012.

Livestock condition was good, and with improved vaccination and general veterinary coverage by MoLFR there were no serious outbreaks of animal diseases. Pasture is still relatively plentiful as a result of the heavy August rains, and the amount of water stored in most hafirs is currently adequate. However, livestock prices, unlike cereal prices, began to fall in November in most markets apart from in Northern State in anticipation of water and forage shortages in the coming months.

2. SOCIO-ECONOMIC CONTEXT

2.1 General[1]

With the secession of the south, Sudan lost around 75% of its productive oilfields, formerly its principal source of export income. The north sought to extract compensation for its loss of revenue by charging South Sudan US$32/barrel to use its oil pipeline, currently the only export route available to the landlocked country, prompting the south to shut down production in January 2012. After more than a year of no output, the first shipment of South Sudanese oil left Port Sudan in late June 2013. The governments have now agreed transit pipeline fees of US$9/b for the pipeline that delivers Nile blend to Port Sudan and US$11/b for the pipeline that delivers Dar blend, according to the International Energy Agency (IEA).

Substantial improvement in Sudan's business environment looks unlikely in the short term, suggesting that although there will be some expansion in mining (notably of gold, but perhaps also of chrome, following the issue of 500 mining licences in late 2012), the country will struggle to attract major new investment in other sectors.

Sudan has substantial debt arrears with multilateral and bilateral lenders, and the government will push for large-scale debt relief as a reward for its acceptance of southern secession. In June the government called on European states to fast-track Sudanese debt relief, following statements earlier in the year by the finance ministry claiming that Sudan had satisfied the conditions necessary for it to obtain debt relief under the heavily indebted poor countries (HIPC) initiative. However, any debt-relief deal would require the consent of all 55 members of the Paris Club of creditor nations, and although a number of sovereigns (including the US, the UK and Germany) have previously expressed willingness to offer debt relief, the political conditions attached will at best slow progress towards any such deal, and at worst rule out debt relief in the medium term. Meanwhile, the government will continue to turn to loans, notably from Gulf Arab states, as well as China and India, to finance infrastructure projects.

[1] The information in the first three paragraphs of this section is taken from the Economist Intelligence Unit's Sudan Country Report, November 2013.

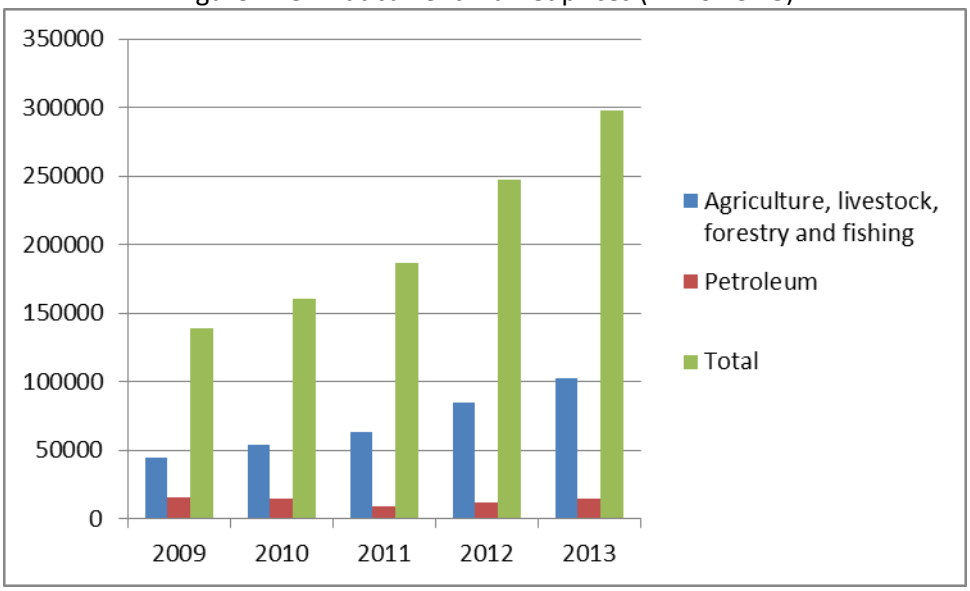
According to the Central Bureau of Statistics, Sudan's GDP in 2013 was 298 billion SDG to which agriculture, livestock, forestry and fishing contributed 102.5 billion SDG or 34.4 percent. By contrast, petroleum revenues contributed less than 5 percent (Table 1 and Figure 1).

Table 1 GDP at current market prices (million SDG)

	2009	2010	2011	2012	2013
Agriculture, livestock, forestry and fishing	44971	54465	63609	84638	102497
percent contribution to total GDP	*32.3*	*33.9*	*34.1*	*34.2*	*34.4*
Petroleum	15669	14656	9248	12080	14508
percent contribution to total GDP	*11.2*	*9.1*	*5.0*	*4.9*	*4.9*
Total (all sectors)	139387	160647	186556	247373	298110

Source: Central Bureau of Statistics

Figure 1. GDP at current market prices (million SDG)



GDP growth rates (at constant 1981/82 market prices) fell sharply in 2011 with the separation of South Sudan but have shown an increase in 2013 (Table 2). The EIU expects real GDP to grow by 2.9 percent again in 2014, and then at a steadily improving rate up to 5.8 percent in 2018 with an increase in domestic oil production and solid performance from the agriculture and gold sectors .

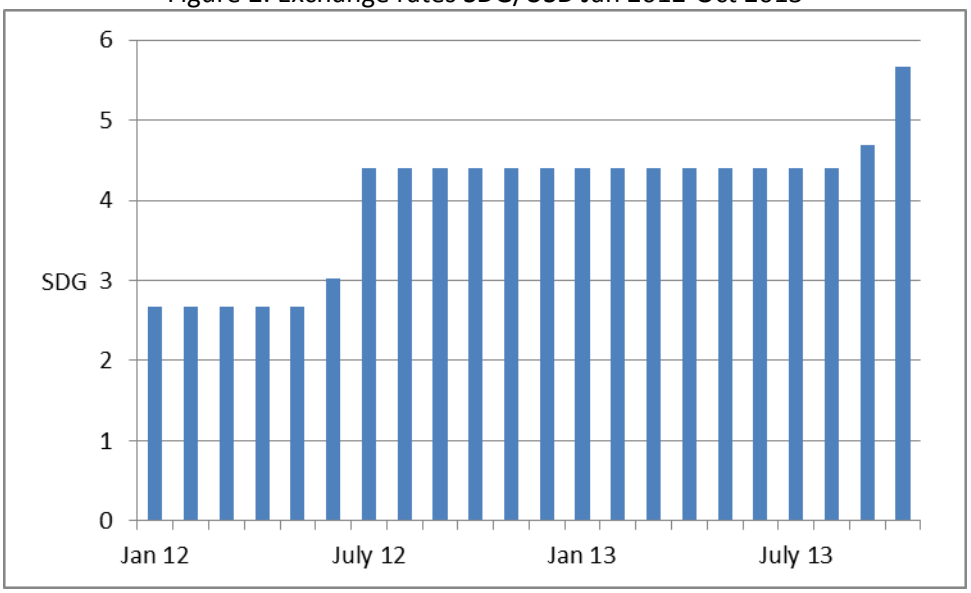
Table 2. GDP growth rates (%) at constant 1981/82 market prices

	2010	2011	2012	2013
Agriculture, livestock, forestry and fishing	11.7	3.4	5.7	3.5
Petroleum	-2.8	-27.2	-53.8	2.8
Total	6.5	1.9	1.1	2.9

Source: Central Bureau of Statistics

Over the 22-month period between January 2012 and October 2013, the Sudanese pound lost more than half its value against the US dollar, falling from 2.7 to 5.7 SDG per USD (Figure 2).

Figure 2. Exchange rates SDG/USD Jan 2012-Oct 2013



Source: Bank of Sudan

According to the EIU (November 2013), "data continue to show a moderation of inflation in Sudan, with the year-on-year rate dropping to 23.8% in July [2013], from 27.1% in June, largely reflecting a moderation in food-price increases and an influx of hard-currency earnings from South Sudanese oil exports." However, subsequent data from the Central Bureau of Statistics show a sharp up-turn in inflation rates from August to November 2013; the Bureau estimates that the year-on-year inflation rates for the four months August - November were, respectively, 22.9, 29.4, 40.3 and 42.6 percent. The EIU estimates average consumer price inflation (CPI) for 2013 at 25 percent (down from approximately 32 percent in 2012) but expects it to fall to between 12 and 14 percent for each of the next five years (Table 3). Whether the currently high and possibly rising price of staple foods resulting from this year's disappointing harvest will necessitate an adjustment to the forecast drop in CPI should become clear in 2014.

Table 3. Average consumer price inflation forecast till 2018

	2013	2014	2015	2016	2017	2018
Consumer price inflation (av)	25.0	13.7	12.1	12.4	13.3	13.9

Source: EIU Sudan Country Report, November 2013

Exports increased overall in 2013 compared with 2012, the only significant reductions being in watermelon seeds, meat and gold. The value of exports in the eleven months January-November 2013 exceeded the value of the previous 12 months by 80 percent (Table 4). The increase in the crop-commodity sector was particularly striking, following the excellent production of 2012.

Table 4. Agricultural and other selected exports, 2012 (Jan-Dec) and 2013 (Jan-Nov)

			Quantity (000)		Value, million USD	
		Unit	2012	2013	2012	2013
Crop commodities	Cotton	t	6	37	13	157
	Hibiscus	t	25	12	18	15
	Sesame	t	210	233	272	440
	Groundnut	t	5	31	6	44
	Onion	t	17	9	3	2
	Watermelon seed	t	56	10	9	4
	Sorghum	t	31	647	8	53
	Maize	t	31	30	12	11
	Gum arabic	t	50	56	82	124
sub-total					422	850
Processed foods	Wheat flour	t	0.1	10	0.1	5
	Sugar	t	20	142	14	193
sub-total					14	198
Live animals	Camels	head	162	117	75	82
	Sheep	head	2798	3338	262	435
	Goats	head	76	148	5	10
	Cattle	head	17	9	7	6
sub-total					349	534
Meat	Beef	t	1	0.2	4	2
	Mutton	t	5	2	37	11
	Goat	t	0.2	0.2	1	1
sub-total					42	14
Minerals	Petroleum products	t	494	9495	410	3558
	Gold	kg	40	21	2147	950
sub-total					2556	4508
Total for Sudan					3567	6423

Fertilizer and rice imports fell back in terms both of quantity and cost in 2013 relative to 2012, while wheat imports increased, reflecting a rapidly changing urban consumption pattern (Table 5).

Table 5. Major agricultural and food imports, 2012 and 2013

Commodity		Quantity (000 t)		Cost (million USD)	
	of which:	2012	2013	2012	2013
Fertilizers		200	187	150	115
	urea	*170*	*168*	*132*	*102*
Wheat		2038	2075	831	870
	seed	*9*		*11*	
Rice		44	37	23	20

Source: Customs Administration

2.2 Population

Sudan last carried out a population census in 2008. Since then, a specific population growth rate has been applied to each state to extrapolate the current population. According the the CBS, Sudan's population by mid-2014 will total 37.289 million (Table 6).

Table 6. Sudan. Population estimate (,000) by state for mid-2014, extrapolated from Population Census 2008.

State	Population		Implied population growth rate (%), 2013 - 2014
	2013	2014	
Northern	*814*	*835*	*2.65*
River Nile	*1309*	*1346*	*2.83*
Red Sea	*1367*	*1402*	*2.57*
Kassala	*2134*	*2208*	*3.46*
Gedaref	*1739*	*1827*	*5.04*
Khartoum	*6535*	*6809*	*4.20*
Gezira	*4285*	*4441*	*3.63*
White Nile	*2087*	*2163*	*3.65*
Sennar	*1580*	*1644*	*4.06*
Blue Nile	*966*	*992*	*2.73*
N Kordofan	*3074*	*3099*	*0.81*
S Kordofan	*1812*	*1868*	*3.11*
N Darfur	*2231*	*2249*	*0.77*
W Darfur	*1530*	*1577*	*3.11*
S Darfur	*4701*	*4829*	*2.72*
Sudan	36164	37289	3.11

Source: Central Bureau of Statistics

2.3 Agriculture

Agriculture is one of the main sources of non-oil contributions to Sudan's GDP, ahead of services, construction and industry. It provides employment for between 70 and 80 percent of the labour force in rural areas, thus reflecting the predominantly non-subsistence nature of most of the country's farming systems. Agriculture is usually divided into three sectors: irrigated, semi-mechanized rainfed and traditional rainfed. The irrigated sector usually accounts for some 1.7 million ha and provides 25 - 30 percent of domestic cereal production, while the rainfed sector (semi-mechanized and traditional) accounts for the remaining 70 percent of cereals grown in Sudan. Normally, about 12 million ha of rainfed food crops are produced from an estimated arable area of 19 million ha in the whole country.

The main bulk of food crops are grown on large farms for sale through the urban and rural markets. The rainfed sector is subject to huge production fluctuations owing to variations in rainfall and market conditions, whereas production and productivity levels in the irrigated sector are relatively stable.

Under plans to diversify the economy, the Government is placing renewed emphasis on improving the performance of the agricultural sector. These efforts include the construction of new dams, including the $1.7 billion Merowe dam which has been fully operational since 2011, and the rehabilitation and the augmentation of capacity of existing ones. The National Agricultural Revival Program, which was originally launched in 2005 aims to improve the implementation of the large irrigation schemes, encourage development of the agro-industry by establishing a number of sugar factories, improve infrastructure, and increase spending on irrigation, land preservation, fertilizers, and credit services. Effects of this policy change are evident in the recent reductions in sugar imports, in the termination of the state-owned Gum Arabic Company's monopoly on the production and export of gum arabic, and in the easing of the prohibition on leasing agricultural land to foreign investors.

2.3.1 Irrigated sector

Irrigated agriculture is practised on some 1.7 million ha in mostly gravity-fed schemes, 93 percent of which were, until 2010, government-owned with ageing and inefficient infrastructure and practices. These schemes were set up prior to independence to produce cotton for export and food crops for share-croppers and labourers. The largest scheme, Gezira, had a complete change in management in 2009/10 through the implementation of the 2005 Gezira Act, effectively privatizing the scheme and transferring the responsibility for irrigation to land-owner and water-user associations, thereby allowing planting flexibility within the water-delivery regimes. Other major schemes, including the Rahad Scheme (about 65% in Gezira State and 35% in Gedaref State), the New Halfa Scheme in Kassala State and Suki Scheme in Sennar State, have different management systems. Farming practices in the irrigated sector have always been far more intensive than in the rainfed sector, but they invariably fail to match promise as land occupancy rarely achieves planned figures as a result of water shortages/ delivery problems and managerial shortcomings. Farming practices on the irrigation schemes include crop-rotations, mechanized land preparation supported by tractor-hire services and private contractors, and the regular use of improved seeds, fertilizers, pesticides and herbicides. Average yields of cereals are higher in the irrigated sector than in the rainfed sectors in most years.

2.3.2 Semi-mechanized sector

The semi-mechanized sector consists of individual big farmers and companies farming a total registered area of nearly 6.7 million ha. The sector is historically a very low-input-low-output system, comprising mechanized clearing, ploughing, sowing, and occasionally weeding and harvesting on vast scattered areas of land leased at very low rents from local authorities. Since the return to investment dictates the crops that are grown, the investor-farmers alternate from crop to crop, usually from sorghum to sesame and vice versa, depending on current prices and the availability of loans and government incentives.

2.3.3 Traditional sector

The traditional sector is made up of small family units farming from 2 to 50 hectares for both income and subsistence; on the larger units there may be a modicum of mechanization in the form of land preparation, but most operations are carried out manually.

2.3.4 Livestock

Livestock form an essential component of the agriculture sector, with production almost entirely based on traditional pastoral systems. The export of livestock has become an increasingly important part of the economy, competing with cash crop sales as the fastest growing non-oil export sector. This is largely due to initiatives such as the recent rehabilitation of livestock export facilities (including veterinary quarantine centres) and revisions to livestock marketing and taxation policy. Across the country, the surge in commercial livestock marketing of camels, goats, sheep and cattle is connected to export links with Egypt, with the Arab states of the Gulf and Saudi Arabia showing strong demand for Sudanese output since the lifting of the import ban on Horn of Africa livestock in 2009. Data from the Customs Administration reveal that in the first 11 months of 2013 live animal exports reached USD 534 million, making it the third largest export earner after petroleum products and crop commodities. Meat exports, on the other hand, only brought in USD 14 million.

3 AGRICULTURAL PRODUCTION 2012/13

3.1 Main factors affecting cereal production in 2012/13

3.1.1 Agricultural finance and credit

The provision of short-term agricultural credit through the Agricultural Bank of Sudan (ABS) is a regular operational procedure in both the irrigated and rainfed sectors, and particularly in the entrepreneurial semi-mechanized sector. (Several other banks, such as the Farmer's Commercial Bank and the Faisal Islamic Bank also provide agricultural credit but not on the same scale as the ABS.) Loan uptake for cereal production is generally by entrepreneurs with strong business connections with the ABS and other banks; farmers in the traditional sector are rarely able to raise the necessary collateral. Farmers with poor repayment histories, those without collateral, and last year's defaulters are excluded, except in Darfur, where micro-credit is available through livelihoods programmes. In all other states, short-term seasonal loans to eligible farmers are made through the non-interest *selem* system. Under *selem,* bank charges are levied but no interest is paid. The farmers agree to pay back their loans, in kind, at a value fixed at planting time by the Ministry of Finance, the SRC, the ABS and the Farmers' Union.

The availability of credit improved in 2013 but many farmers still complained that their access to credit was limited by not having sufficient collateral. The Agricultural Bank of Sudan (ABS), which is the country's main agricultural lender, provided a total of 752 million SDG this year (Table 7) compared with 314 million SDG last year, an increase of 141 percent. The biggest increase in funding was for machinery and equipment, the credit for which more than tripled.

Table 7. Finance provided (million SDG) to agriculture by the ABS, 2012 and 2013

	Crops		Machinery and equipment		Total	
	2012	2013	2012	2013	2012	2013
River Nile	3		13		17	
Eastern	123		45		168	
Gedaref		197		193		390
Gezira	14				14	
White Nile	28	48	4	49	32	102
N Kordofan	6	30	1	8	7	39
S Kordofan	7		11		18	19
Red Sea		19				19
Sennar	39		5		44	169
Blue Nile						8
Darfur	8				8	
S Darfur		7		4		11
E Darfur						1
Headquarters	3		5		8	
Total	230	301	84	254	314	757
% increase in 2013		31		203		141

Source: Agricultural Bank of Sudan

3.1.2 Rainfall

Average annual rainfall in Sudan ranges from almost zero in the north of the country to almost 900 mm in the southern parts of South Darfur and South Kordofan and the eastern areas of Blue Nile.

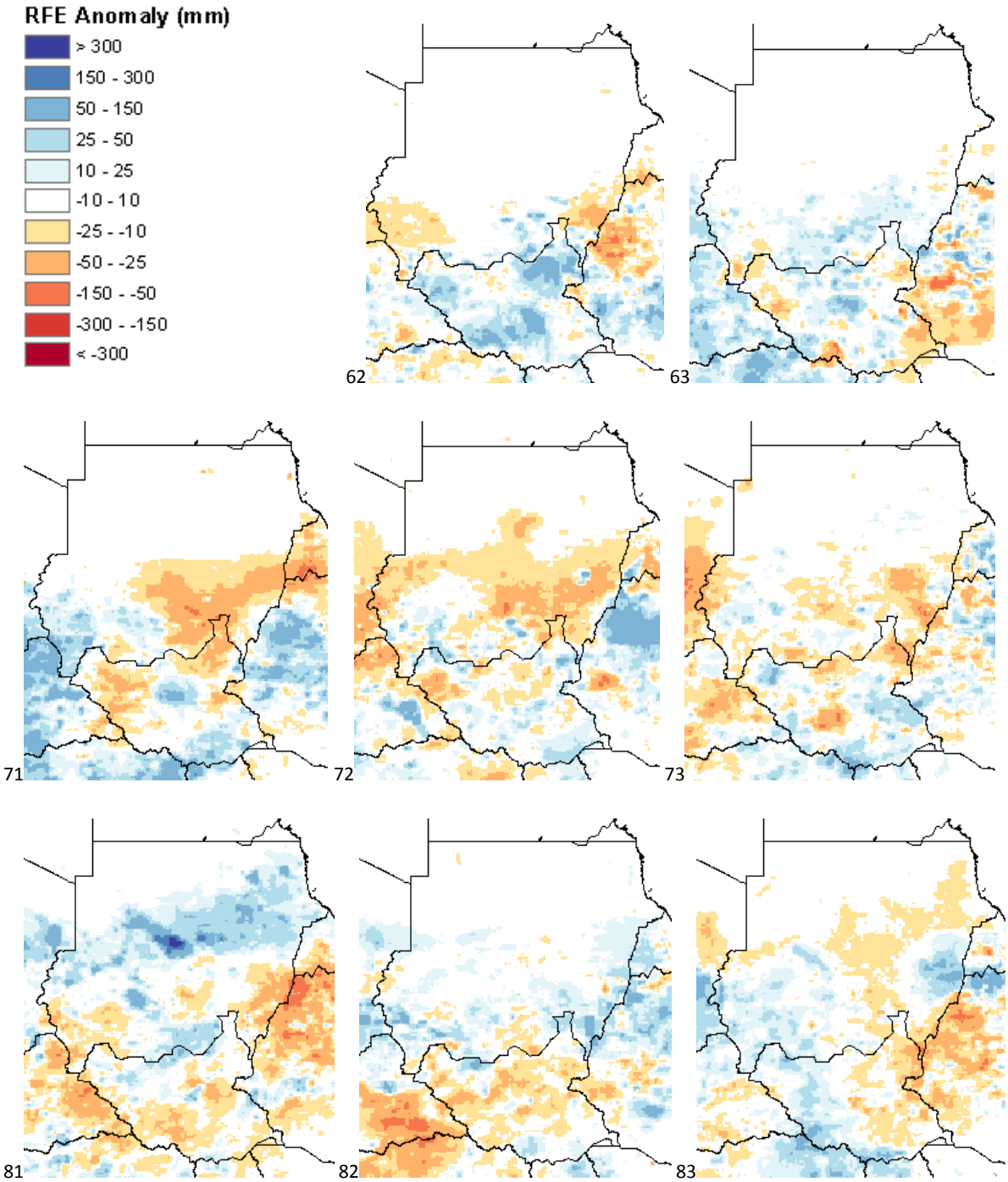
Poor rainfall over much of the country, in terms of both distribution and total amount, was the overriding cause of low crop production in 2013. The rains in most parts of the country started late. June and July were either dry or brought only light showers to the normally productive areas, thus delaying sowing. Sowing was further delayed by some unusually heavy rains in August which hampered land preparation, causing some farmers to sow their sorghum as late as September. Then in the second half of September, the rains eased back again to below-average levels. Figure 3 shows the evolution of the rainy season by dekad.

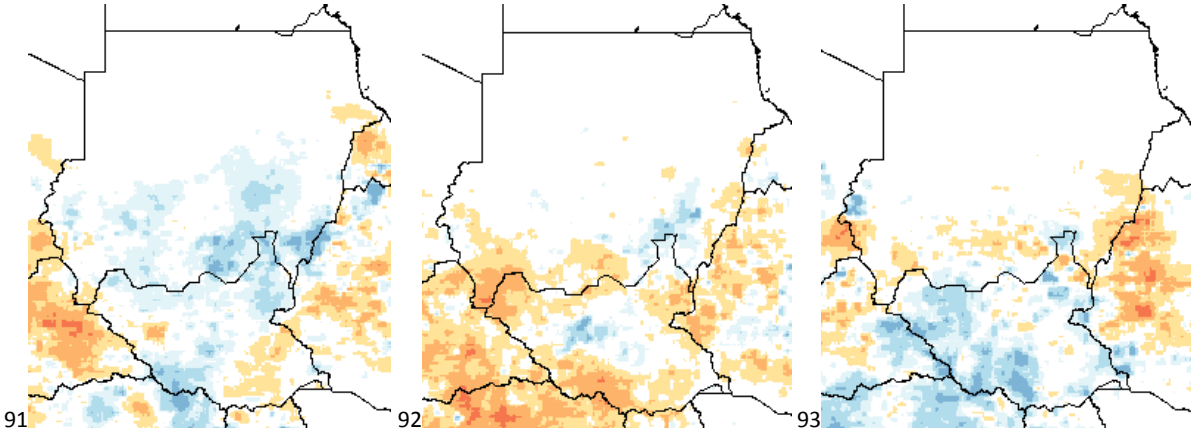
The heavy August rains caused some localised flooding in Blue Nile and Khartoum states, while severe flooding was reported from El Fasher and Malha in North Darfur. Some 10 000 ha on Rahad Scheme and 3 400 ha on New Halfa were affected by water-logging. Gash and Tokar schemes usually receive their first floods in June but this year's first floods arrived in July. Last year Tokar received 12 floods between 24 June and 18 September; this year the scheme received 17 floods concentrated in the 7-week period between 30 July and 15 September with resulting damage to one of the main canals.

Further problems with this year's unfavourable distribution were the vigorous growth of weeds in some areas following the heavy August rains, and often excessive vegetative growth of groundnuts at the expense of pod-filling.

Traditional crop production in Red Sea State however benefited from the heavy August rains with unusually good flows in the important Khor Arab and its tributaries.

Figure 3. Dekadal Rainfall Estimate (RFE) Anomaly for Sudan, June-September 2013 compared with average values June-September 2005-09. (Digits beside each image denote month and dekad, e.g. 62 = second dekad of June.)
Source: USGS, USAID, FEWSNET
http://earlywarning.usgs.gov/fews/africa/web/imgbrowsc2.php?extent=earf





3.1.3 Area planted and harvested

The area planted to sorghum this year was 10 percent down on the area planted to sorghum last year, mainly because of the late onset of the rains, while the area planted to millet was only 74 percent of last year's planted area. Further reductions came with the proportion of each crop that was harvested. The total areas of sorghum and millet harvested this year - 4.36 and 1.50 million ha respectively - represent 52 percent and 54 percent of the planted area, which compares very unfavourably with last year's figures of 73 and 74 percent. This year the total harvested area of sorghum was only 61 percent of last year's area and 75 percent of the five-year average for 2008/09-2012/13, while the corresponding figures for millet were 54 percent and 68 percent. The greatest reduction in sorghum area compared with 2012 was in the semi-mechanized sector where this year's harvested area was 56 percent of last year's. The reduction in harvested area was the main contributor to reduced cereal production this year.

The area planted to wheat in 2013/14 is expected to be about 82 percent of last year's 152 000 ha. The expected reduction is mainly due to three factors: (1) the persistence of warm weather into December which delayed sowing , (2) the trend amongst farmers, especially in Northern State, away from wheat to other more lucrative winter crops such as onions, potatoes and tomatoes, and (3) the delivery of seed of an unacceptably low germination percentage to Gezira.

Tables 13 - 15 show the areas and other production parameters for sorghum, millet and wheat in the different states and different sectors, while Table 8 shows the estimated total harvested areas of these three main cereals for 2013/14 with comparisons with 2012/13 and the five-year average for 2008/09-2012/13.

Table 8. Total harvested areas of sorghum, millet and wheat

5-year average 2008/09-2012/13 000 ha	2012/13 000 ha	2013/14 000 ha	2013/14 as % of 2012/13	2013/14 as % of 5-yr av
8218	10083	5985	59	73

3.1.4 Agricultural inputs

Seed was readily available this year, and, because most planted areas were somewhat smaller than last year as a result of the delayed onset of the rains, less seed was required. The MoAI distributed a total of 2 976 t of seed throughout the country (Table 9) while the humanitarian organizations under the umbrella of the Sudan Common Humanitarian Fund distributed a further 43 tonnes of seed and 7 186 farming tools.

Table 9. Seed distributed (tonnes) to the Rainfed Sector by Federal MoAI, 2013

	Sorghum	Millet	Wheat	Groundnut	Sesame	Watermelon	Hibiscus	Total
Khartoum	27							27
Gezira	129							129
Bl Nile	500							500
Wh Nile	87							87
Kassala	262							262
Gedaref	263				15			278
Red Sea	130	50						180
N Kordofan	130	30		100	13	5		278
S Kordofan	303	5		5	1	5		319
N Darfur	70			60	10	15	1	156
S Darfur	110	10		90				210
E Darfur	20	30		90				140
W Darfur	50	70		50	10			180
C Darfur	50	40	40	40	50	10		230
Sudan	2131	235	40	435	99	35	1	2976

Seed rates in the rainfed sector are generally much lower than seed rates used in neighbouring countries. At the same time, the value of fodder has caused plant densities to be increased in the irrigated sector, where over-planting is also used to combat weeds. Over the last two years the mission has suggested that a short survey be undertaken at planting time in both the rainfed traditional subsector and the irrigated sector to determine the actual rates used in sample areas.

Fertilizers were available but prices, at around 285 SDG/50 kg (compared with 200 SDG/50 kg last year), were often considered to be prohibitively high. Farmers and schemes reported using less for this reason. Pesticides and herbicides were available in most states for those who could afford them. Farmers report, however, that there are many cheap and spurious products on the market which are ineffective.

As in 2012, there was a very evident shortage of farm labour, attributable both to the exodus of Southerners back to South Sudan and to the diversion of much of the local agricultural labour force to casual gold-mining. The labour that is available has become very expensive compared with previous years.

3.1.5 Weeds, pests and diseases

The heavy rains in August encouraged weed growth which, in many areas, further hampered the already late sowing of crops. However, 2013 was relatively free of cereal pests and diseases, and *Quelea quelea* and other granivorous birds were effectively controlled by aerial spraying of nesting sites; aircraft were on stand-by in all states for immediate response to alerts of infestation. Routine

federal spraying against locusts and grasshoppers was carried out over about 130 000 ha, as shown in Table 10.

Table 10. Areas (000 ha) surveyed for, infested with, and treated against, locusts, grasshoppers and sorgum bug, 2013

Species	**Surveyed**	**Infested**	**Treated**
Desert locust	430	76	66
Tree locust	165	50	31
Grasshoppers	196	66	30
'Bou'	19	4	3
'Kaboura'	3	1	0.4
Sorghum bug	927	473	473
Total	1740	670	603

*Source: Crop Protection Administration

Among other crops, the approximately 90-percent failure of the guar crop in Blue Nile from an unidentified fungal infection was attributed to a lack of seed dressing. Genetically-modified cotton escaped bollworm attack but suffered from thrips, and sunflower in Sennar and Blue Nile was attacked by mildew.

3.1.6 Crop yields

This year's overall average sorghum and millet yields were down by 19 and 39 percent respectively on last year's yields and down by 7 and 13 percent on the average of the previous five years 1008/09-2012/13. Reductions were generally confined to the rainfed sectors. In the irrigated sector, overall sorghum yields were higher than in 2012, and millet yields were the same as in 2012.

Tables 13 - 15 show the yields and other production parameters for sorghum, millet and wheat in the different states and different sectors, while Table 11 shows the overall yields of these three main cereals for 2013/14 with comparisons with 2012/13 and the five-year average for 2008/09-2012/13.

Table 11. Overall cereal yields (sorghum + millet + wheat)

5-year average 2008/09-2012/13 t/ha	2012/13 t/ha	2013/14 t/ ha	2013/14 as % of 2012/13	2013/14 as % of 5-yr av
0.51	0.58	0.48	82	93

3.2 Sudan cereal production forecast

Sudan's total cereal production for 2013/14 (including a total of approximately 20 000 tonnes of maize and 28 000 tonnes of rice[2]), is estimated to be 2.9 million tonnes. Sorghum, millet and wheat alone account for 2.852 million tonnes. This equates to 48 percent of last year's production and 68 percent of the five-year production average of 2008/09-2012/13. Table 12 shows the overall production of the three main cereals for 2013/14 with comparisons with 2012/13 and the five-year average for 2008/09-2012/13.

[2] Estimates of maize and rice production (which add relatively little to the country's overall cereal production) are made largely on the basis of past production and consumption records.

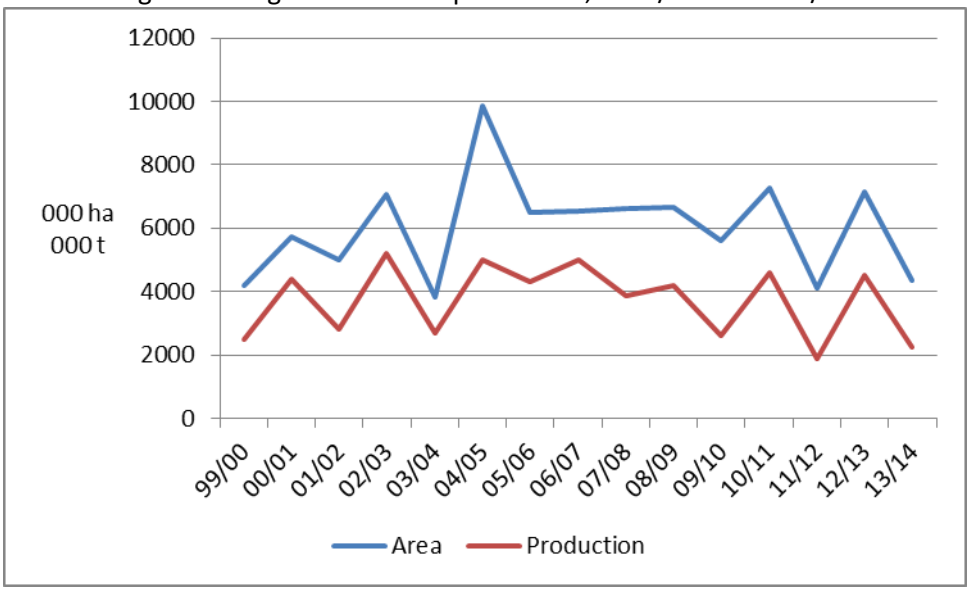
Table 12. Total production of sorghum, millet and wheat

5-year average 2008/09-2012/13 000 t	2012/13 000 t	2013/14 000 t	2013/14 as % of 2012/13	2013/14 as % of 5-yr av
4189	5894	2852	48	68

Detailed area, yield and production figures for sorghum, millet and wheat by sector and state are given in Tables 13 - 15. Summarised production parameters of the three main cereals by sector are given in Tables 16 - 19.

To put this year's sorghum production in context, it is instructive to see the very widely fluctuating area and production record for this crop in Sudan, as shown in Figure 3.

Figure 3. Sorghum area and production, 1999/2000 - 2013/14



Sources: FAOSTAT for 1999/2000 - 2011/12 (data for these years are for 'Sudan (former)'); MoAI for 2012/13; CFSAM for 2013/14

Table 13. Harvested cereal area (000 ha) by state and sector. (2008/09-2012/13, 2012/13 &2013/14)

	Sorghum					Millet					Wheat				
	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average
Irrigated															
Northern	5	2	2	100	34						55	36	36	100	65
R Nile	18	29	11	36	59						22	23	13	58	61
Khartoum	0	0	0								5	1	0	0	0
Suki	13	15	15	100	111						1	0	0		0
Sennar	30	22	27	123	92						2	0	1		71
Wh Nile	43	51	45	88	105						19	17	15	90	80
Gezira	199	173	177	102	89						110	67	44	66	40
Rahad	38	45	29	64	75						1	0	0		0
New Halfa	31	34	34	99	108						6	8	14	189	250
Gash	26	31	24	78	93										
Tokar	5	7	5	69	87	6	6	3	40	42					
Kassala	0	0	0												
N Kordofan	2	2	1	75	71										
Total irrigd	410	410	369	90	90	6	6	3	40	42	221	152	124	82	56
Semi-mechanized															
Kassala	268	336	423	126	158										
Gedaref	1491	2200	1171	53	78	49	103	58	57	118					
Bl Nile	261	306	195	64	75	18	36	21	58	118					
Sennar	598	775	259	33	43	62	136	19	14	31					
Wh Nile	337	397	162	41	48	32	46	7	16	23					
N Kordofan	8	13	8	60	95										
W Kordofan			4	na	na										
S Kordofan	287	241	180	75	63	4	8	3	44	95					
Total semi-mech	3250	4267	2402	56	74	164	328	109	33	66					
Traditional	0	0	0												
Khartoum	25	63	63	100	255										
Gezira	254	271	262	97	103	4	3.4	1	25	21					
Bl Nile	55	82	27	33	48	8	21	3	14	37					
Sennar	149	260	116	44	77	24	32	4	12	16					
Wh Nile	161	189	110	58	69	33	32	5	16	15					
Kassala	100	63	87	139	87	1	0	1		150					
R Nile	27	8	10	115	36										
Red Sea	10	12	31	264	316	4	6	6	100	147					
N Kordofan	405	322	87	27	22	774	824	315	38	41					
W Kordofan			187	na	na			202	na	na					
S Kordofan	312	189	155	82	50	120	80	33	41	27					
N Darfur	84	118	71	61	85	401	325	271	84	68					
S Darfur	399	495	238	48	60	548	696	314	45	57	5	6	2	27	32
W Darfur	147	386	141	36	95	111	429	234	55	211	4	6	3	47	66
Total trad	2129	2459	1586	65	75	2029	2448	1389	57	68	10	13	5	37	48
Total Sudan	5789	7136	4356	61	75	2198	2782	1501	54	68	231	164	129	78	56

na = not applicable

Table 14. Cereal yields (t/ha) by state and sector. 2008/09-2012/13, 2012/13 & 2013/14

	Sorghum					Millet					Wheat				
	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average
Irrigated															
Northern	2.6	2.4	1.8	75	68						2.1	2.0	2.4	118	112
R Nile	2.3	1.9	2.2	115	97						1.8	1.9	1.9	98	106
Khartoum											1.7	1.4	0.0	0	0
Suki	2.2	1.9	2.0	104	91						1.4	0.0	0.0		0
Sennar	1.8	1.9	1.8	93	99						1.4	0.0	1.6		117
Wh Nile	1.8	1.9	2.4	123	135						1.7	1.7	1.9	107	111
Gezira	2.1	1.6	1.8	111	84						1.5	1.5	1.7	108	111
Rahad	2.1	1.8	2.4	132	113										
New Halfa	2.1	1.7	2.4	140	114						1.0	1.6	1.7	106	168
Gash	2.3	2.4	1.8	76	78										
Tokar	1.0	0.9	1.5	170	155	0.6	0.8	0.8	100	126					
Kassala	1.6	0.0	0.0		0										
N Kordofan	1.3	0.6	0.8	133	60										
Total irrigd	2.1	1.8	2.0	111	96	0.6	0.8	0.8	100	126	1.7	1.7	1.9	111	114
Semi-mechanized															
Kassala	0.5	0.5	0.3	61	66										
Gedaref	0.4	0.7	0.4	59	98	0.3	0.5	0.3	71	96					
Bl Nile	0.4	0.3	0.6	192	152	0.4	0.4	0.4	119	100					
Sennar	0.4	0.5	0.3	52	68	0.3	0.5	0.2	39	69					
Wh Nile	0.4	0.5	0.3	51	70	0.4	0.3	0.1	40	38					
N Kordofan	0.4	0.4	0.3	67	67										
W Kordofan			0.3	na	na										
S Kordofan	0.4	0.5	0.4	89	103	0.4	0.4	0.3	75	71					
Total mech	0.4	0.6	0.4	66	94	0.3	0.5	0.3	67	91					
Traditional															
Khartoum	0.4	0.5	0.5	113	127										
Gezira	0.4	0.4	0.3	94	79	0.5	0.3	0.3		65					
Bl Nile	0.6	0.5	0.7	141	119	0.4	0.3	0.3	100	80					
Sennar	0.4	0.6	0.3	41	58	0.4	0.5	0.3	50	61					
Wh Nile	0.5	0.6	0.3	49	61	0.5	0.4	0.2	45	43					
Kassala	0.4	0.4	0.5	107	122	0.3	0.0	0.0		0					
R Nile	0.9	0.5	1.1	239	133										
Red Sea	0.6	0.5	0.5	88	80	0.4	0.5	0.5	100	128					
N Kordofan	0.2	0.4	0.1	39	66	0.2	0.1	0.1	75	67					
W Kordofan			0.4	na	na			0.2	na	na					
S Kordofan	0.7	0.4	0.5	111	73	0.3	0.3	0.4	131	142					
N Darfur	0.3	0.4	0.2	40	59	0.2	0.3	0.1	47	79					
S Darfur	0.5	0.4	0.2	57	41	0.4	0.4	0.2	57	52	1.2	1.3	1.2	94	100
W Darfur	0.7	0.8	0.6	76	85	0.4	0.9	0.5	59	121	1.2	1.3	1.4	107	112
Total traditional	0.5	0.5	0.4	73	77	0.3	0.4	0.2	61	87	1.2	1.3	1.3	102	108
Total Sudan	0.6	0.6	0.5	81	93	0.3	0.4	0.2	61	87	1.7	1.7	1.9	112	114

na = not applicable

Table 15. Cereal production (000 tonnes) by state and sector. 2008/09-2012/13, 2012/13 & 2013/14

	Sorghum					Millet					Wheat				
	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average	5-yr av. 2008/09-2012/13	2012/13	2013/14	2013/14 as % 2012/13	2013/14 as % 5-yr average
Irrigated															
Northern	13	4	3	75	23						116	72	85	118	73
R Nile	40	56	23	41	57						38	44	25	57	65
Khartoum											9	2	0	0	0
Suki	29	28	29	104	101						1	0	0		0
Sennar	53	42	48	114	91						2	0	2		83
Wh Nile	75	98	107	109	142						32	29	28	97	88
Gezira	420	277	316	114	75						167	104	74	71	44
Rahad	80	81	68	84	85						2	0	0		0
New Halfa	65	58	80	138	123						6	12	24	200	420
Gash	61	74	44	59	73										
Tokar	5	6	7	117	135	4	5	2	40	53					
Kassala	1	0	0		0										
N Kordofan	2	1	1	100	43										
Total irrigd	845	725	726	100	86	4	5	2	40	53	374	263	238	91	64
Semi-mechanized															
Kassala	131	176	136	77	104										
Gedaref	650	1594	502	31	77	17	47	19	40	113					
Bl Nile	110	102	125	123	114	8	13	9	69	118					
Sennar	222	375	65	17	29	19	73	4	5	21					
Wh Nile	131	211	44	21	34	12	16	1	6	9					
N Kordofan	3	5	2	40	63										
W Kordofan			1	na	na										
S Kordofan	119	115	77	67	65	1	3	1	33	68					
Total mech	1366	2578	952	37	70	56	152	34	22	60					
Traditional	0	0	0												
Khartoum	11	30	34	113	324										
Gezira	107	97	88	91	82	2	1	0		14					
Bl Nile	31	39	18	46	58	3	7	1	14	29					
Sennar	67	167	30	18	45	11	17	1	6	9					
Wh Nile	84	122	35	29	42	15	14	1	7	6					
Kassala	38	27	40	148	107										
R Nile	23	4	11	275	48										
Red Sea	6	6	14	233	255	2	3	3	100	188					
N Kordofan	91	123	13	11	14	125	118	34	29	27					
W Kordofan			71	na	na			38	na	na					
S Kordofan	204	81	74	91	36	36	26	14	54	39					
N Darfur	24	50	12	24	50	73	100	39	39	54					
S Darfur	208	185	51	28	25	228	266	68	26	30	6	8	2	25	32
W Darfur	98	290	80	28	81	49	382	124	32	254	5	8	4	50	74
Total traditional	991	1221	571	47	58	543	934	323	35	60	12	16	6	37	52
Total Sudan	3201	4524	2249	50	70	603	1091	359	33	60	385	279	244	88	63

na = not applicable

Table 16. Sudan. Cereal production by sector (million tonnes)

Sector	Sorghum			Millet			Wheat		
	5-yr av*	2011/12	2012/13	5-yr av*	2011/12	2012/13	5-yr av*	2011/12	2012/13
Irrigated	0.845	0.725	0.726	0.004	0.004	0.002	0.374	0.263	0.238
Rainfed semi-mechanized	1.366	2.578	0.952	0.056	0.059	0.034			
Traditional	0.991	1.221	0.571	0.543	0.315	0.323	0.012	0.016	0.006
Total	3.201	4.524	2.249	0.603	0.378	0.359	0.385	0.279	0.244

* 2008/09 - 2012/13 ** 2013/14 figures for wheat are forecasts

Table17. Sorghum production parameters by sector

Sector	5-yr average 2008/09-2012/13			2012/13			2013/14		
	Area 000 ha	Yield t/ha	Prodn 000 t	Area 000 ha	Yield t/ha	Prodn 000 t	Area 000 ha	Yield t/ha	Prodn 000 t
Irrigated	410	2.1	845	410	1.8	725	369	2.0	726
Rainfed semi-mechanized	3250	0.4	1366	4267	0.6	2578	2402	0.4	952
Rainfed traditional	2129	0.5	991	2459	0.5	1221	1586	0.4	571
Total	5789	0.6	3201	7136	0.6	4524	4356	0.5	2249

Table18. Millet production parameters by sector

Sector	5-yr average 2008/09-2012/13			2012/13			2013/14		
	Area 000 ha	Yield t/ha	Prodn 000 t	Area 000 ha	Yield t/ha	Prodn 000 t	Area 000 ha	Yield t/ha	Prodn 000 t
Irrigated	6	0.6	4	4	1.0	4	3	0.8	2
Rainfed semi-mechanized	164	0.3	56	200	0.3	59	109	0.3	34
Rainfed traditional	2029	0.3	543	1099	0.3	315	1389	0.2	323
Total	2198	0.3	603	1303	0.3	378	1501	0.2	359

Table19. Wheat production parameters by sector

Sector	5-yr average 2008/09-2012/13			2012/13			2013/14		
	Area 000 ha	Yield t/ha	Prodn 000 t	Area 000 ha	Yield t/ha	Prodn 000 t	Area 000 ha	Yield t/ha	Prodn 000 t
Irrigated	221	1.7	374	152	1.7	263	124	1.9	238
Rainfed semi-mechanized									
Rainfed traditional	10	1.2	12	13	1.3	16	5	1.3	6
Total	231	1.7	385	164	1.7	279	129	1.9	244

3.3 Other crops

3.3.1 Sesame

This year's sesame crop was hit hard by the poor rains and especially by their late start. Last year 2.6 million ha were sown, of which 2.16 million (84 percent) were harvested; this year 1.2 million ha were sown (less than half of last year's figure) and of this only 0.8 million ha (67 percent) were harvested. Yields in the semi-mechanized sector were lower than last year at 0.23 t/ha (see Table 20) while those in the traditional sector were somewhat higher. Since 2012 was a particularly good year for sesame production it is probably most useful to compare this year's production of 205 000 t

with the average for the 5-year period 2005/06-2009/10. This year's production was 73 percent of that figure.

Table 20. Sesame production 2013/14 compared with 2012/13 and 5-year average*

	000 ha			000 t			t/ha		
Sector	5-yr av	12/13	13/14	5-yr av	12/13	13/14	5-yr av	12/13	13/14
Semi-mech	637	908	425	156	301	96	0.24	0.33	0.23
Trad	673	1250	378	123	261	109	0.18	0.21	0.29
Total	1310	2158	803	279	562	205	0.21	0.26	0.26

* 5-year average is for 2005/06-2009/10

3.3.2 Groundnut

Less than half of the 2.7 million ha sown to groundnut was productive. However, although the harvested area was considerably smaller than that of 2012 it was still larger than the average harvested area of the five-year period 2005/06-2009/10. At 963 000 t this year's production was also higher than the five-year average (Table 21).

Table 21. Groundnut production 2013/14 compared with 2012/13 and 5-year average*

	000 ha			000 t			t/ha		
Sector	5-yr av	12/13	13/14	5-yr av	12/13	13/14	5-yr av	12/13	13/14
Irrigd	99	143	116	258	394	274	2.61	2.76	2.37
Trad	747	2020	1138	400	1373	689	0.54	0.68	0.61
Total	845	2163	1254	658	1767	963	0.78	0.82	0.77

* 5-year average is for 2005/06-2009/10

3.3.3 Sunflower

Sunflower production in 2013 was substantially down on last year's production and only 56 percent of the five-year average. At 880 kg/ha, yield from the harvested area was normal, but the harvested area was greatly reduced (Table 22). In recent years it has been usual to harvest at least 80 percent of the planted area, but this year only 60 percent of the planted area was harvested. In Blue Nile and Sennar States the crop was attacked by mildew.

Table 22. Groundnut production 2013/14 compared with 2012/13 and 5-year average*

	000 ha			000 t			t/ha		
Sector	5-yr av	12/13	13/14	5-yr av	12/13	13/14	5-yr av	12/13	13/14
Irrigd	19	20	16	28	35	27	1.45	1.77	1.69
Rainfed	93	86	47	72	51	29	0.77	0.59	0.61
Total	113	106	63	100	86	56	0.89	0.81	0.88

* 5-year average is for 2005/06-2009/10

3.3.4 Sugar

Sugar production from the country's two biggest producers, Kenana and Sudanese Sugar, came to 680 000 t this year, a 4 percent reduction on last year's 710 000 t (Table 23). Both operations registered a slight drop in both harvested area and sugar yield. A relatively new company, White Nile Sugar, is expected to produce about 150 000 t of sugar this year, an increase on its 137 000 t of last year, bringing the country's total sugar production to approximately 830 000 t.

Table 23. Sugar production at Kenana and Sudanese Sugar

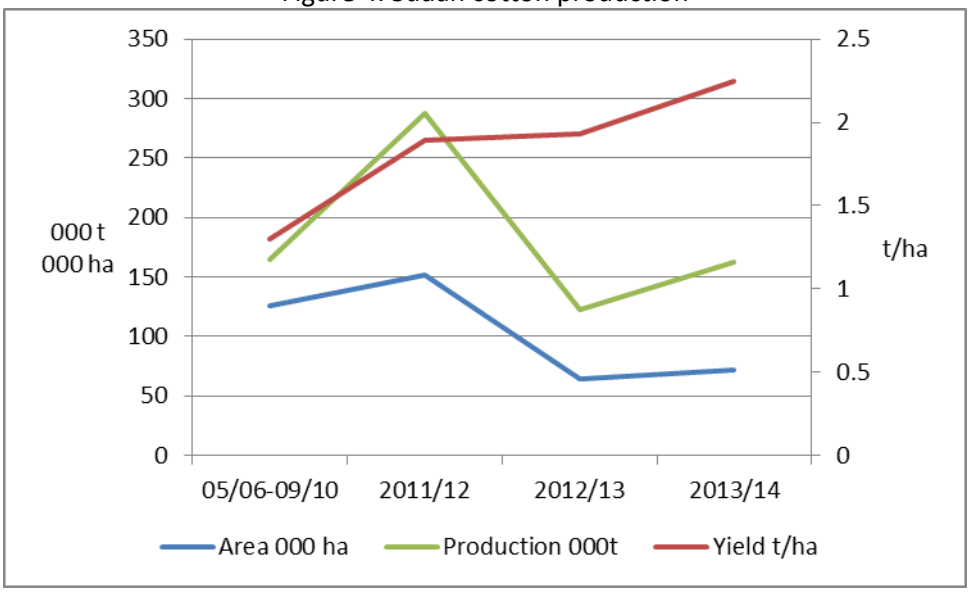
Year	Company	Harvested area (000 ha)	Sugar production (000 t)	Sugar yield (t/ha)
2011/2012	Kenana	34.1	350	10.3
2012/2013		33.9	370	10.9
2013/2014		33.6	355	10.6
2011/2012	Sudanese Sugar	37.3	325	8.7
2012/2013		37.0	340	9.2
2013/2014		36.2	325	9.0

Sources: Kenana Sugar Co. Ltd. and Sudanese Sugar Co. Ltd.

3.3.5 Cotton

The Gezira Act of 2005 removed from farmers on schemes the obligation to reserve a certain proportion of their land for cotton production. Since then farmers have been free to grow crops according to their economic preference. International cotton prices peaked dramatically in early 2011 and then fell equally dramatically later in that year. Since mid-2012 they have fluctuated only slightly and there has been little incentive for farmers to increase production. However, the area under cotton this year (72 000 ha) was slightly higher that of 2012 (68 000 ha). Average yields of seed cotton were also higher at 2.25 t/ha, bringing national production to approximately 162 000 t. This is more than the production of 2012/13 and similar to the 5-year average of 2005/06-2009/10, but still well below the high production of 2011/12 (Figure 4).

Figure 4. Sudan cotton production



3.4 Livestock

Livestock accounts for 45 percent of Sudan's agricultural GDP and between 17 and 20 percent of national GDP. With a ready market for live animals in Saudi Arabia and the Gulf states, exports of sheep, now approaching 4 million per year, have been growing at an annual rate of 10 percent over the last four years. The demand for cattle and beef is also high, as is the demand for racing camels in the Gulf states.

While the 2013 rains were not conducive to good crop production, the heavy rains in August favoured pasture growth and the filling of hafirs. Consequently livestock condition is good, and livestock health has been maintained through a vaccination programme carried out by the MoLFR that is estimated to reach about 70 percent of the country's livestock. Sudan produces 13 different animal vaccines and is currently equipped with a fleet of more than 200 mobile veterinary clinics.

Livestock numbers are estimated to have increased slightly since 2012 (see Table 24). This has led to increased pressure on grazing lands and, in some parts of the country, especially in the west, conflict between settled farmers and pastoralists. Several negotiated migratory routes are now considered to be too narrow to accommodate the large herds that habitually use them. Grazing pressure has, however, been slightly reduced in the south of the country since movement of livestock across the border between Sudan and South Sudan is less restricted this year than it was in 2012. Although there has been no formal agreement between the two countries, herders have not been prevented from crossing the border to grazing lands

Table 24. Estimated numbers (millions) of cattle, sheep, goats and camels; 1988/89, and 3 recent years

	Cattle	Sheep	Goats	Camels	Total
1988/1989	20.2	19.7	14.5	2.7	57.1
2010/2011	41.8	52.1	43.4	4.6	141.9
2011/2012*	29.6	39.2	30.6	4.7	104.1
2012/2013	29.8	39.5	30.8	4.8	104.9

* after separation from South Sudan

Source: MoLFR

4 CURRENT MARKET SITUATION

4.1 Cereal prices

In contrast to the downward trend that is usually seen immediately prior to the main harvesting season, this year's grain prices exhibited an upward trend in most markets from October to early December in response to the country's low harvest expectations. High costs of production and transport, the falling value of the Sudanese pound and the reluctance of producers and merchants to release their stocks in anticipation of further price rises have all contributed to the prevailing market situation.

According to FEWSNET, the steepest retail sorghum price increases during October and November were reported in Geneina in West Darfur (45 percent) and Damazin in Blue Nile State (14 percent). Most other markets reported price increases of between 4 and 8 percent. At the beginning of December wholesale sorghum prices were 26 percent higher than at the same time in 2012, and 85 percent above the recent five-year average. Some representative market prices for sorghum at different locations are given in Table 25.

Table 25. Sorghum market prices

Location	Variety	Current price SDG/bag	Price one year ago SDG/bag
Tokar	Feterita	200-220	
Port Sudan		230	170
Gash	Alkamoy	220	160
Kassala	Feterita	225	160
Kassala	Muged	240	200
Damazin	Feterita	180	140
Damazin	Tabet	220	210
Sennar	Tabet	230-240	
Sennar	Wad Ahmed	180-230	
Nyala	Feterita	210	165

Retail millet prices rose in October and November in Darfur and North Kordofan where millet is the main staple. In Darfur, not only the relatively poor harvest but also civil insecurity contributed to the price increases. During this period millet prices increased by 33 percent in Geneina, 22 percent in El Fasher, 9 percent in Nyala and 4 percent in El Obeid. By November, wholesale prices of millet were on average 13 percent higher than at the same time in 2012, and 86 percent above the recent five-year average. Some representative market prices for millet at different locations are given in Table 26

Table 26. Millet market prices

Location	Current price SDG/bag	Previous price SDG/bag
Tokar	350-360	
Port Sudan	330	220 one year ago
Damazin	320	215 one year ago
El Fasher	400	250 in September
Safra Omar, N Darfur	350	210 in September
Geneina	300-340	250-260 one year ago
Nyala	340	315 one year ago

Wheat prices during October and November either remained stable or rose slightly according to location. In El Fasher they rose by 15 percent during this period and in Dongola by 12 percent. The extensively publicised low germination rate of the consignment of Turkish wheat seed to Gezira exacerbated the price rises. The market price for a bag of wheat in Red Sea State is currently 210 SDG, and in Kassala 280 SDG. The corresponding prices one year ago were 170 and 260 SDG. Wholesale wheat prices in November were on average 44 percent higher than in November 2012, and they were 106 percent higher than the recent five-year average.

FEWSNET expects that grain prices will continue to rise in response to the low supply and high demand, and that most major cereal producers and grain traders will not release their stocks onto the market before April 2014.

Groundnut prices in Damazin and Geneina are currently 100 and 165 SDG per kantar respectively. There has been no increase in the price in Damazin over the last 12 months, but the price in Geneina one year ago was 120 SDG. Sesame prices in all production areas have risen steeply in the last 12 months; for example, in Damazin they have risen from 450 to 720 SDG per kantar.

4.2 Livestock prices

Livestock prices began to fall slightly in November as the terms of trade in favour of cereals became increasingly clear and as livestock owners anticipated a deterioration in access to pasture and water. A small selection of livestock prices is given in Table 27 which illustrates large price differences between markets.

Table 27. Livestock market prices, SDG/head

	Sennar State		**Red Sea State**	
Date	Nov 2013	Aug 2013	Nov 2013	Nov 2012
Sheep	500	700	1 100	
Goat	478	606	850	
Cow	5 000	6 000	12 000	8 500
Bull	5 500	7 500		
Camel			11 000	

5. CEREAL SUPPLY/DEMAND BALANCE, 2012/13

The cereal supply/demand balance sheet (Table 29) takes account of the opening stocks (cereal stocks currently stored in the country); the agricultural year's cereal production (including the forecast for wheat); the population's cereal consumption requirement; the livestock feed requirement; the seed requirement for the coming agricultural year; harvest and post-harvest losses; cereal exports; and closing stocks (the quantities that are expected to remain in the country at the end of the marketing year). The quantities of cereals held by the Strategic Reserve Corporation on 10 December 2013 are shown in Table 28.

Table 28. Cereals held by the Strategic Reserve Corporation (tonnes)
as at 10 December 2013

Sector	**Sorghum**	**Millet**	**Wheat***	**Total**
Eastern	67051		346479	413530
White Nile	68238			68238
Sennar and Blue Nile	44235			44235
Kordofan	4334			4334
Darfur	4815	1338		6153
Total	**188673**	**1338**	**346479**	**536490**

* Includes 308 000 t of commercially imported wheat
Source: Strategic Reserve Corporation

In drawing up the national cereal balance sheet, the following assumptions have been made:

- Opening stocks of cereals for marketing year 2013/14, as estimated by the Strategic Reserve Corporation on 10 December 2013 and as shown in Table 23, are 536 490 tonnes. This total includes 308 000 tonnes of commercially imported wheat. It is impossible to gauge how much grain remains in private and community underground stores in the central and eastern clay plains, but given last year's good harvest it is likely that these stores are not yet empty.
- Rice production is estimated at 28 000 t; this includes swamp rice in White Nile.
- Based on CBS figures, the mid-year 2014 population in Sudan is taken as 37.289 million (Table 6).
- No changes in consumption patterns have been indicated since last year, so the same levels of annual per caput cereal requirements that were used last year have been assumed, viz. a

total of 146 kg of cereal, comprising 73 kg of sorghum, 15 kg of millet, 1 kg of maize, 55 kg of wheat, and 2 kg of rice.

- In the absence of any survey data, and based on discussions with farmers, it is estimated that about 5 percent of the sorghum, millet and maize produced is used as livestock feed.
- Seed requirements for next season are based on average rounded planted areas and the following seed rates: sorghum 7.5 kg/ha x 9 million ha; millet 4 kg/ha x 3 million ha; maize 20 kg/ha x 12 000 ha; wheat 120 kg/ha x 250 000 ha; and rice 75 kg/ha x 27 000 ha.
- Post-harvest losses are estimated at 10 percent for maize, and 5 percent for other cereals.
- In view of this year's poor harvest, total cereal exports are assumed to be zero in the coming marketing year.
- Commercial imports of cereals are normally in the order of 1.9 million t of wheat and 50 000 t of rice; similar amounts are expected to be imported in 2013.
- In anticipation of increased demand for wheat and because of this year's shortage of sorghum and millet, closing stocks of wheat are expected to be slightly larger than this year's opening stocks at 397 000 tonnes.

Table 29. Sudan. Cereal supply/demand balance, December 2013 - November 2014 (000 tonnes)
(NB Figures have been rounded.)

	Total	**Sorghum**	**Millet**	**Maize**	**Wheat**	**Rice**
Availability	**3437**	**2438**	**361**	**20**	**590**	**28**
Opening stocks	536	189	1	0	346	0
Production	2900	2249	359	20	244	28
Total utilization	**6450**	**3215**	**627**	**41**	**2490**	**78**
Food	5444	2722	559	37	2051	75
Feed	131	112	18	1	0	0
Seed	112	68	12	0	30	2
Post-harvest losses	146	112	18	2	12	1
Export	0	0	0	0	0	0
Closing stocks	617	200	20	0	397	0
Estimated import requirements	**3014**	**777**	**267**	**21**	**1900**	**50**
Anticipated commercial imports	**1950**	**0**	**0**	**0**	**1900**	**50**
Estimated gap	**1064**	**777**	**267**	**21**	**0**	**0**

Table 24 indicates a substantial food gap of 1.064 million tonnes of cereal, comprising 777 000 tonnes of sorghum, 267 000 tonnes of millet and 21 000 tonnes of maize.