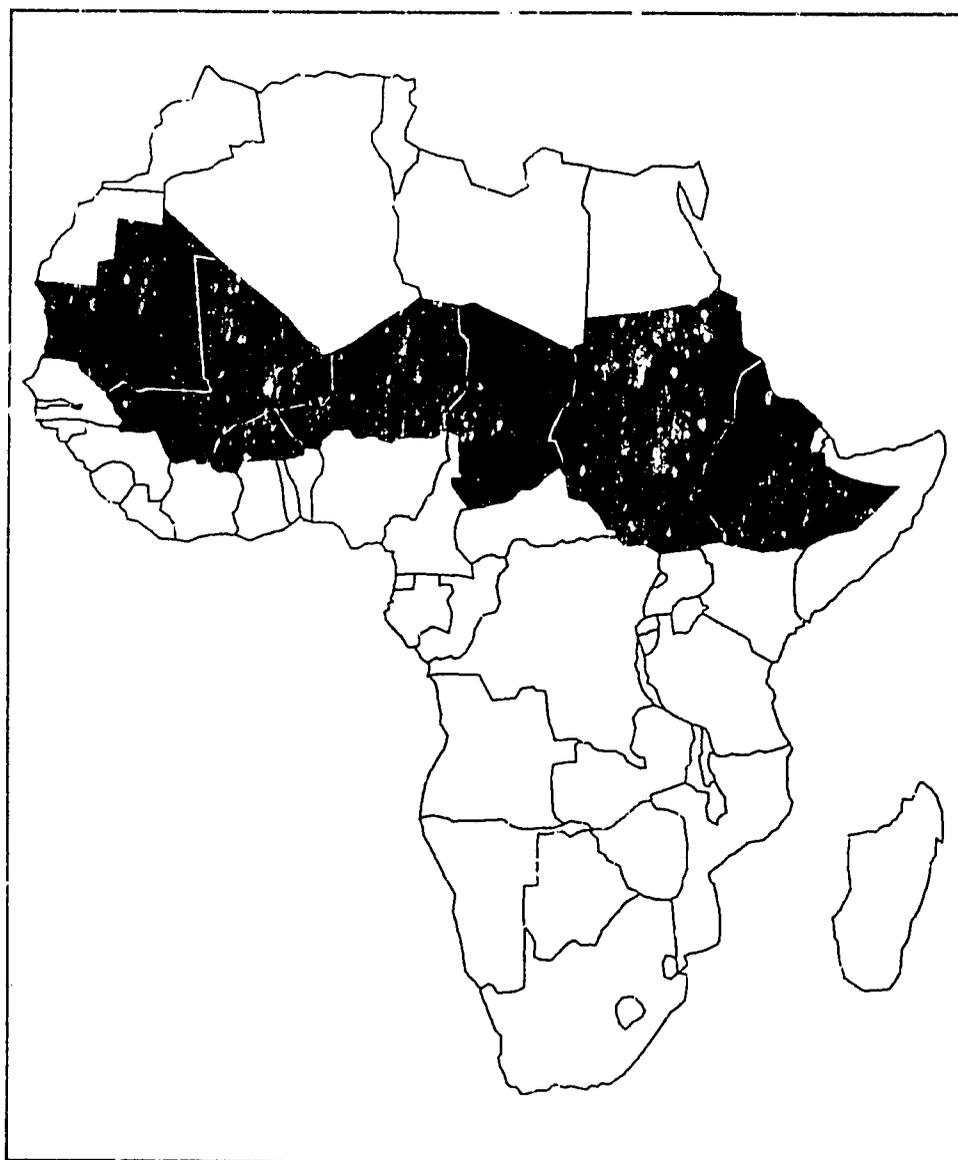


Field Reports

**BURKINA, CHAD, MALI,
MAURITANIA, NIGER, SUDAN**

FAMINE EARLY WARNING SYSTEM



FAMINE EARLY WARNING SYSTEM

The Famine Early Warning System (FEWS) is an Agency-wide effort coordinated by the Africa Bureau of the U.S. Agency for International Development (AID). Its mission is to assemble, analyze and report on the complex conditions which may lead to famine in any one of the following drought-prone countries in Africa:

- Burkina
- Chad
- Ethiopia
- Mali
- Mauritania
- Niger
- Sudan

FEWS reflects the Africa Bureau's commitment to providing reliable and timely information to decision-makers within the Agency, and among the broader donor community, so that they can take appropriate actions to avert a famine.

This report is a compilation of monthly reports from the FEWS Field Representatives resident in each of FEWS countries, with the exception of Ethiopia. The work of the FEWS Field Representatives is coordinated by Tulane University's School of Public Health and Tropical Medicine. Their monthly reports are compiled for USAID's Africa Bureau by Price, Williams & Associates, Inc.

NOTE: This publication is a working document and should not be construed as an official pronouncement of the U. S. Agency for International Development.

Field Reports

BURKINA, CHAD, ETHIOPIA, MALI MAURITANIA, NIGER, SUDAN

May 1989

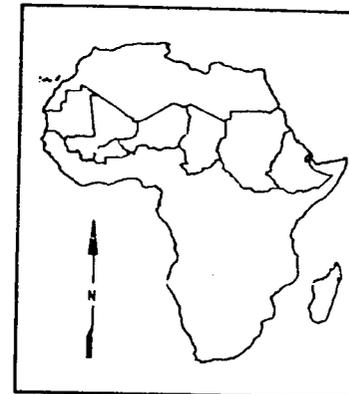
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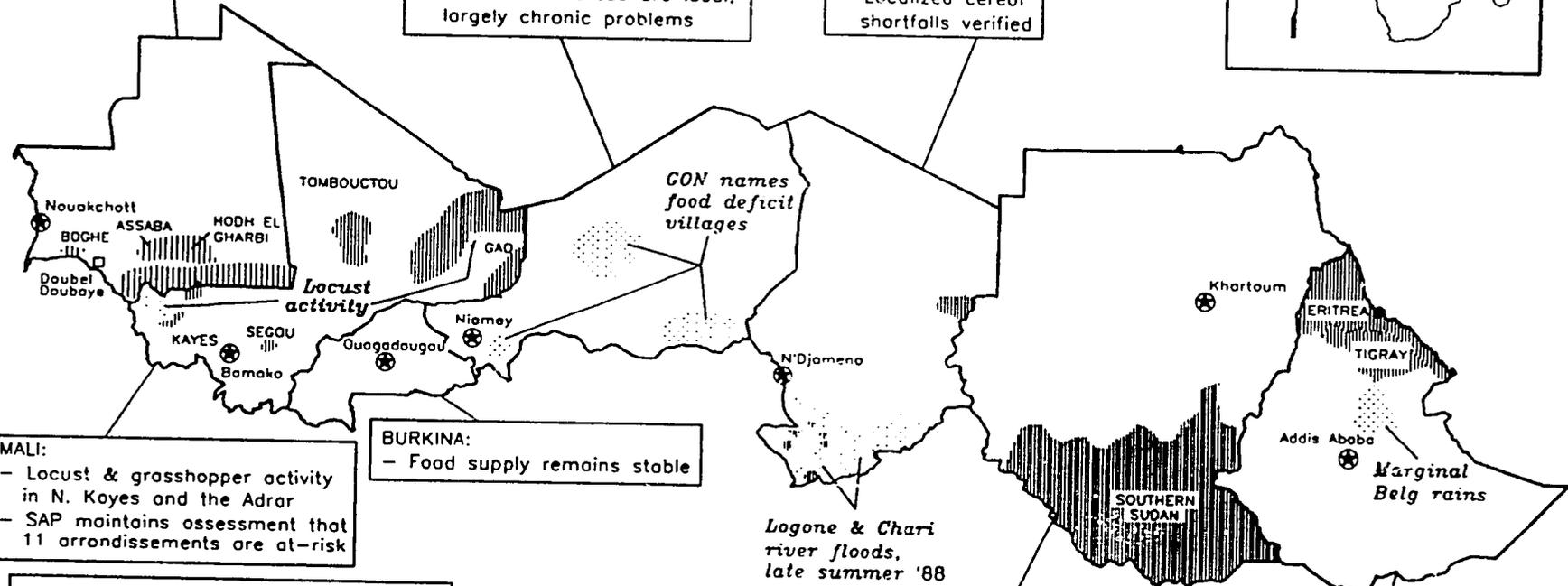
Summary



MAURITANIA:
 - Up to 100,000 repatriated from Senegal

NIGER:
 - Food-short areas are local, largely chronic problems

CHAD:
 - Localized cereal shortfalls verified



MALI:
 - Locust & grasshopper activity in N. Koyes and the Adrar
 - SAP maintains assessment that 11 arrondissements are at-risk

BURKINA:
 - Food supply remains stable

SUDAN:
 - Less than 15% of planned aid reaches south by April's end
 - Rains reach northern & central Sudan

ETHIOPIA:
 - Largely normal rains in west and center
 - Marginal rains in northeastern Shewa Region

LEGEND

	Area At-Risk		Capital City
	Vulnerable Area		Town
	Highlighted area/event		

0 100 200 400 600 Miles
 0 200 400 600 Kilometers

FEWS FIELD REPORTS

Regional Summary

The return of "normal" rains in the Sahel during 1988 produced record agricultural harvests and excellent pastures for 1989. In general, food security in all seven countries monitored by FEWS is better than it has been for many years. In the few places where severe food shortage and near famine conditions exist (southern Sudan and, to a lesser degree, northern Ethiopia), the predominant cause is armed conflict. Significant donor responses to these areas are underway and will ameliorate, but not resolve, very poor conditions. Elsewhere, close monitoring of available data (cereal and livestock prices, refined harvest estimates, stock inventories, food distribution reports, etc.) continues to indicate a relatively abundant food supply. The regional threat of Desert Locusts remains, with residual populations being reported all across the Sahel and light rains being reported in potential Saharan breeding areas.

April Indicators

- In *Burkina*, normal seasonal increase in rice prices in Oudalan Province is occurring. There is question whether the government's cereals warehouse will be restocked in that area before the rains come in May or June, and whether the stocks can then play a role in holding down prices.
- In *Chad*, production shortfalls in the southern (Sudanian) zone have become apparent. Approximately 101,000 people require emergency food assistance as early as April. Cereal prices in the more arid Sahelian zone continue stable and lower than last year, reflecting that zone's outstanding 1988 harvest.
- In *Ethiopia*, continuing insufficient rains in prime *belg* areas in northeastern Shewa and highland Arsi and Bale regions threaten significant yield reductions.
- In *Mali*, the 1988 cereals harvest estimate has been increased to 2,700,000 MT, or 271,000 MT higher than previously indicated. A SAP re-evaluation of arrondissement-level food shortages has placed 11 arrondissements, with a population of approximately 123,000, in the at-risk category.
- In *Mauritania*, the 1989 food deficit is approximately 21,500 MT. About 100,000 Mauriticians are being repatriated from Senegal following civil unrest in both countries.
- In *Niger*, all available indicators of food availability suggest an ample food supply in most areas of the country. Rains have just begun in the southern-most areas.
- In *Sudan*, the harvest of mechanized sorghum fields has progressed greatly. Nevertheless, despite a record harvest, low stock levels in government hands and the planned export of over 2.1 million MT of sorghum combine to maintain a food insecurity. Relief workers have been able to provide little emergency food assistance to the south during the April "month of tranquility".

Regional Weather

The US National Oceanic and Atmospheric Administration/Department of Agriculture Joint Agricultural Weather Facility (JAWF) reports that rainfall has been fairly close to normal to date, although temperatures have been two to four degrees centigrade above normal. There is concern that the higher than normal temperatures will increase the evaporation of soil moisture and have a negative effect on crops. Below normal level rainfall in the Fada N'Gourma region of Burkina, compounded with high temperatures, are cause for some concern for any crops that might have already been planted. In Ethiopia, the heavy rains of April in eastern portions of the country may not have especially benefitted *belg* crop areas of the central plateau. The subsequent dry spell in *belg* areas during most of May, therefore may suggest a significant loss of yield potential for *belg* crops.

Food Situation Secure

Summary

The food supply situation in Burkina remains satisfactory. Cereals are available in markets, and cereal prices are at reasonable levels throughout the country.

Food Availability

OFNACER, the National Cereals Office, is continuing the process of restocking its grain warehouses. The only problem areas appear to be a handful of villages in the Sahel that had suffered flood damage in 1988, and where cereal supplies are running low. The situation in those villages, however, is not considered serious enough to warrant government intervention.

Rainfall

Rains have begun to fall in southern and central regions of Burkina. Farmers in those areas are preparing their fields for planting. The US Joint Agricultural Weather Facility (JAWF) reports that despite recent rains in the Fada N'Gourma area, below-normal early rains and unseasonably high temperatures have accelerated soil moisture evaporation and will possibly have a negative effect on crop production. JAWF also reports that, while some rain is on its way for the second ten day period in June, these rains will occur in a period of unseasonably high temperatures. The high temperatures will cause increased soil moisture evaporation, so that the rains will not bring as much relief as might be expected.

Southern Shortfall, Sahelian Bounty

Summary

New estimates of 1988 cereal production in the southern five prefectures are 53 percent lower than foreseen in November (when the Ministry of Agriculture published its preliminary crop forecast). The assessors found vast areas to be abandoned because of the heavy rains and flooding in August and September 1988. The food supply has already become problematic in several localities and will become critical during the July-August lean period. Conversely, the Sahelian zone experienced an excellent harvest in 1988, as previously reported, and cereals remain abundant in that zone. Thus, for the second year in a row, food supply problems in Chad will be more critical in the well watered south than in the drier zones of the north. Food aid supplies in-country and in the pipeline will be sufficient to meet the food requirements of identified areas of urgent need.

Agricultural Production

The Ministry of Agriculture's Statistics Division (BSA) has recently completed its analysis of actual production data in the five southern prefectures. The new production estimates for the south have been revised downwards from the November high of 447,000 metric tons (MT) to 212,000 MT. The recent estimates are based on area harvested rather than area planted, the standard method for harvest estimates made in the fall. While an official report has not yet been released, the BSA's results show that vast areas of cropland were abandoned due to heavy rains in August and September 1988. The excessive rainfall caused flooding of lowlands that had been planted in cereals. The flooding created conditions conducive to the development of stem-borers, which then caused extensive damage to millet and sorghum crops.

Figures for the Sahelian zone remain unchanged, and are one-and-a-half to two times the annual tonnage produced in those eight central prefectures since 1980. The cereals production deficit for the country as a whole will be in excess of 250,000 MT. The production deficit calculation counts only domestic production and a population-based food needs estimate. If cross-border trade and on-farm stores from previous years could be included in the calculation, the deficit would be less.

Populations At-Risk

The March FEWS report listed five zones with indicators of inadequate food-supply and possible feeding requirements. Since then, one of the five zones, Oum-Hadjer Sub-prefecture (Batha Prefecture), has undergone a standard, in-depth, socio-economic/nutritional survey by the EC-funded Early Warning Project (SAP). Because of the findings of that survey, Oum-Hadjer is no longer considered to be at-risk. Only 1.4 percent of pre-school children showed signs of moderate malnutrition. Two-thirds of families interviewed indicated that the 1988 harvest was better than the previous year's. In addition, livestock and cottage industries provide income for the population that is

used for purchasing food. Cereal prices were unseasonably low, with millet at least half of last year's price for the same time period.

The other four zones remain at-risk, along with two new zones identified by revised production figures and verified by two assessment missions sent to the south in March and April 1989:

- *Lai Sub-prefecture (Tandjilé Prefecture)*: Three cantons (Soumraï, Tchanguine, and Kimré) registered crop damage by flooding and stem-borers. Current foraging for roots and unseasonal displacement of families suggest difficult times ahead. The interministerial-donor-private voluntary organization Food Aid Action Committee has already dispatched 288 MT food aid to Soumraï and Tchanguine.
- *Goré Sub-prefecture (Logone Oriental Prefecture)*: Crops were heavily infested by stem-borers in this area. In addition, one canton (Békan) has been subject to considerable cross-border movement. Many of the villagers are recent returnees from the Central African Republic who are struggling in their resettlement efforts.
- *Iriba Sub-prefecture (Biltine Prefecture)*: This region had been flagged in September by SAP as potentially at-risk. An in-depth socio-economic survey conducted in November indicated that Desert Locusts had devastated most of the crop in the canton visited and that a similar situation likely existed in three adjacent cantons. A recommendation has been made for pre-positioning food aid for the lean period.
- *Bouso Sub-prefecture (Chari-Buguirmi Prefecture)*: Miltou Canton registered heavy infestation of stem-borers at the start of the 1988 cropping cycle that destroyed the crop. Replanting did not occur owing to a lack of seeds and to food supply problems which weakened the work force. Some displacement of families has occurred.
- *Gounou-Gaya Sub-prefecture (Mayo-Kebbi Prefecture)*: Four cantons (Gounou, Djarao, Leo M'Bassa, and Domo) registered severe crop loss due to flooding. Cereal production for Gounou Canton will cover only 42 percent of anticipated needs. Cotton yields were also damaged by flooding in the area, resulting in the forced sale of oxen and small ruminants in order to repay fertilizer and seed loans. The Canton Chief for Gounou advised the assessment team that 24 families had already left for neighboring Cameroon to look for work.
- *Pala Sub-prefecture (Mayo-Kebbi Prefecture)*: The food supply situation in four cantons (Kordo, Gagaj, Salamata, and Goumadji) appeared serious during the March assessment mission. The market in Kordo Canton had almost ceased to function due to the low level of economic activity and the lack of purchasing power. Foraging for roots had already begun. Anecdotal information gathered by the team suggest a difficult lean period in the coming months.

Food Aid Reserves

As of March 31, there were 4,300 MT cereals in-country designated for emergency programs, and 13,600 MT local cereals constituting the regulatory stock of the National Cereals Office (ONC). In addition, the World Food Program has 2,020 MT of soya-fortified sorghum grits (SFSG) in the pipeline earmarked for emergency programs and is buying 500 MT cereals from the ONC, also for emergency programs. The combination of in-country and pipeline resources will be sufficient to meet projected feeding requirements.

Cereal Prices

In the Sahelian zone, prices remain low for the season, reflecting continued abundance of cereals on the market. Historically, prices begin to rise in January. This did not occur in 1989. In fact, the price remained stable through March. The average price of millet for the Sahelian zone in March was 58

percent lower than at the same time last year. These continuing low prices are an indication of the substantial increase in Sahelian cereal production in 1988 over that of the previous ten years, at least.

For the south, there is no historical price data that is disaggregated by lower-level administrative unit, making similar assessments difficult. The prices obtained by the teams visiting four of the southern prefectures in March and April, however, were consistently higher than the prices in the Sahelian zone. For example, in Lai Sub-prefecture, prices ranged from 75 CFA francs (FCFA) to 100 FCFA/per kilogram (kg), whereas the average price in the Sahelian zone was 36 FCFA/kg. The Pala Sub-prefect advised the team that a 100 kg bag of sorghum was selling for 12,000 FCFA in March, whereas it had sold for 6,000 FCFA at the same time a year ago. In Baïbokoum Sub-prefecture, a 100 kg bag of sorghum was selling for 20,000 FCFA, approximately four times the price asked in N'Djamena. Not only are the prices high in the south, but there appears to be a lack of purchasing power in many of the areas visited. The selling of oxen and small ruminants is occurring in the south in order to buy cereal.

USAID/Chad's Section 206 program was approved March 29 by the U.S. Development Coordination Committee (DCC). The proposed transfer authorization governing the sale and use of local currency generations is under review by the Government of Chad. This program will contribute to Chad's food security by creating a buffer stock which can be used for feeding emergencies. The World Food Program has also received approval from Rome to purchase 4,700 MT locally for the establishment of a security stock.

Dry Spells Hinder Belg Crop

Summary

Rainfall in the prime *belg* crop areas of highland Wello and northeastern Shewa regions, and even in highland Arsi and Bale regions, continues to be variable and generally less than required. An early-season dry period, and also one that ran through the end of April and well into May, will reduce harvest prospects in these areas. Elsewhere, rains are largely normal and planting of long-cycle crops is occurring. Sudanese refugee inflows continue at below expected levels, and nutritional problems persist in Somali camps. Food assistance in Eritrea is currently meeting need, but may not be able to cover the rest of the calendar year if requirements increase, as expected, after July. Considerable rain damage to food aid stocks occurred at Asseb port.

Rains

The US Joint Agricultural Weather Facility (JAWF) reports a dry spell covering the end of April and the first two weeks of May in northern and western Ethiopia. Rains during the following week, May 10-16, were better in the west, but the northern *belg* areas were entering the critical vegetative phase and rains were still very light compared to needs. The net impact of the continuing alternating dry and rainy periods in *belg* areas, particularly after a significant initial dry period, is to moderate prospects for the *belg* crop. Good rainfall during the last weeks of May and early June may still permit an average *belg* harvest. Early reports from JAWF and the World Food Program indicate that late May rains may have been adequate for requirements around Dese (in Wello Region), yet largely insufficient in most other *belg* areas, including those in Arsi and Bale regions. In the west and center of the country, rainfall has been sufficient for planting the long-cycle maize and sorghum crops.

Refugees

Sudanese - The World Food Program (WFP) reports that 2,200 refugees crossed into Ethiopia during the first three weeks of May, continuing a trend of lower than expected number of arrivals. The total registered refugee population now reaches 354,708 in all four camps. Although prepositioning of food continues, the rainy season is well underway and will likely cause delivery problems for the next three to four months.

Somalis - The transfer of refugees from the Harshin to the Hartisheik camp was reported by the United Nations High Commission on Refugees to have begun on May 25. While planned food deliveries to the camps remain on schedule, previously reported problems in the food distribution system within the camps persist. The Save the Children Fund/United Kingdom (SCF/UK) supplementary feeding program is operating in the Hartisheik camp. The most recent nutrition survey conducted by SCF/UK shows no change in malnutrition rates in Hartisheik and a slight improvement in Harshin.

Food Aid

The WFP reports that the resident representative of the Secretary General of the United Nations recently traveled extensively in central and southeastern Eritrea. It is estimated that approximately 400,000 people in Eritrea are currently receiving food aid from the Joint Relief Program and from the Relief and Rehabilitation Commission. Of these, approximately 119,000 are displaced due to conflict. Food assistance requirements for these people are expected to rise by mid-year. In addition, approximately 40,000 people are coming from Tigray each month to receive rations. At current rates of distribution, the WFP reports a conclusion that "the relatively high rate of on-going distribution would exhaust these [57,000 MT of stocks remaining at Massawa port and in inland warehouses in Eritrea] by the end of the year, allowing for only a minor increase in distribution mid-year."

The WFP Food Security Reserve team's report about rain damage to stocks in Asseb port concludes that 7,000 MT of grain will be completely lost. An additional 5,000 MT will require salvage, and 20,000 MT will require segregation from other stocks. The team reports that almost all stocks are infested with minor and/or major pests. The WFP will soon mobilize another team to assist with the salvage and segregation operations at the port. Food aid stocks in Asseb and Massawa ports total approximately 120,000 MT. There are no food aid stocks in Djibouti port.

Locust and Grasshopper Activity Start in Mali

Summary

The overall food security is good, as shown by adequate food supplies in the northern regions of Mali and abundant supplies in the surplus regions. During March, as a reflection of these favorable conditions, the SAP (Système d'Alerte Précoce) reclassified 33 of the 37 arrondissements it had under surveillance as not at risk of experiencing a degradation in their food situation before the 1989-1990 harvest. Only four have been reclassified as at-risk and in need of free food distributions beginning in May or June. This brings the total number of arrondissements at-risk in Mali to 11, with the estimated total population at-risk limited to 123,646 people.

FLASH, the weekly National Livestock Service (DNE) bulletin, reports a seasonally expected degradation in pasture and watering conditions in almost all regions. This situation has been brought about by brush fires in many areas, but is also a reflection of the late stage of the dry season.

The locust and grasshopper situation has become the focus of attention by Crop Protection Service (CPS) as a consequence of off-season rains in Kayes Region, which resulted in the hatching of *Oedaleus senegalensis* (OSE) grasshopper larvae in Mourdiah Arrondissement. Survey teams sent out by the CPS have confirmed locust sightings in the Adrar des Iforas.

Agriculture

The National Direction of Statistics (DNSI) is putting together the final figures for the definitive estimates of 1988-1989 cereal production. The figures at the cercle level will be available at some point in June. The global estimate of gross cereal production at the national level is 2,700,000 metric tons (MT). This estimate is 271,700 MT higher than the preliminary estimate of 2,428,299 MT, made in November.

Livestock, Pasture, and Natural Vegetation

Pasture conditions have degenerated throughout Mali except in the Niger River Delta, where the national livestock service reports that they are still in satisfactory condition. Animal health remains good overall with the exception of minor problems, including persisting cases of pleuropneumonia in Koulikoro Region and isolated cases of anthrax in both Koulikoro and Sikasso regions. Watering conditions for livestock have worsened in both Koulikoro and Sikasso regions, but appear to be good and stable in other regions.

Locusts/Grasshoppers

March rains brought moisture conditions favorable for hatching OSE in Mourdiah Arrondissement in Kayes Region. The National Crop Protection Service (CPS) reports the larval densities as being from two to five insects per square meter, not an alarming range.

The CPS has also reported several swarms of immature locusts in Diéma Cercle (Kayes Region) at the end of March, but this information was very limited and gave no specifics about the size of the swarms or the densities. Nomads in Gao Region also reported larval bands of locusts during March. The CPS sent out a team to evaluate the situation. During a mission carried out between April 21-30 teams located larval bands in a zone between 19° 14' N and 20° 55' N latitude and between 0° 44' W and 2° 45' E longitude. A total of 2,000 hectares are infested in the different wadis of the area surveyed. Larval densities varied between 500 and 250,000 per hectare and densities of adult locusts varied between 20,000 and 50,000 per hectare. The CPS predicts that the insects will begin moving into regions with more favorable ecological conditions as vegetation in the wadis of the Adrar des Iforas dries up. Should the locust move south to cereal production areas as the rains begin, they may pose a threat to crops.

Food Security

In March, SAP reclassified the arrondissements that it had put under surveillance in October by either shifting them to the "at-risk" list or reclassifying them as not at risk of experiencing a degradation in their food security situation before the 1989 harvest. Diamou (Kayes Cercle), Touroungoumbé (Nioro Cercle), Gargando and Raz-El-Ma (Goundam Cercle) have now been classified at-risk, bringing the total number of arrondissements SAP considers as being unable to meet their food needs before the next harvest to 11. Table 1 is a complete list of the arrondissements at-risk, along with the recommended quantities of grain to be distributed.

Table 1: SAP Recommendations of Food Distributions in Mali

Cercle	Arrondissement	Population	Period	Quantity
Kayes	Diamou	12,802	June-July	179
Nioro	Touroungoumbé	8,000	June-July	112
Goundam	Gargando	5,842	June-August	123
	Raz El-Ma	7,068	June-August	148
Gao	N'Tillit	9,466	June-August	199
Ansongo	Talataye	14,186	June-August	298
Bourem	Almoustarat	15,146	May-August	424
	Bamba	18,104	May-August	507
	Téméra	9,322	May-August	261
Ménaka	Inékar	10,715	June-August	225
	Tidarméné	7,995	June-August	168
Displaced	Ségou	5,000	May-August	140
Total		123,646		2,784

Source: SAP Bulletin

Note: All quantities in metric tons. Monthly quantities to be distributed are calculated to cover 50 percent of the theoretical needs of the total population of the arrondissement at 17 kg/person/month.

National Security Stocks

The status of the National Security Stocks is shown in Table 2. The total amount of grain that was purchased in the first round of bidding to replenish National Security Stocks (SNS) now stands at 9,227 MT. New offers were taken to replace two contracts for a total of 2,000 MT that had been annulled in the first round of bidding. In the second round of bids to replenish another 19,125 MT of security stocks, 9,055 MT of stocks were delivered to SNS warehouses as of April 20th. These deliveries are reflected in the stock totals presented in Table 2.

Warehouse	Capacity	Stock
Kayes	6,000	3,436
Kita	2,000	1,552
Bamako	10,000	9,978
Koutiala	3,000	1,615
Ségou	17,500	11,399
Mopti	10,000	9,796
Tombouctou	4,500	3,560
Gao	5,000	4,955
Total	58,000	46,291

Prices

Markets throughout Mali continue to be adequately supplied. Système d'Information sur le Marché (SIM) producer prices are generally stable, but there has been a steady fall in the price of millet and sorghum in Sagabari and Kita. Sorghum prices in Kita have continued to fall from a high of 69 FCFA per kg in December to a low of 40 FCFA per kg in April. The range of producer prices for millet and sorghum in SIM markets varies between 31 FCFA per kg in Nyamina and 47 FCFA per kg in Koutiala. The SIM reports that consumer prices rose between March and April for millet and sorghum in Gao and Tombouctou. Consumer prices in Sikasso fell from 75 FCFA in February to 60 FCFA in April. In Kayes, prices for millet and sorghum continued their gradual decline through April, but appear to be beginning a slow upward swing. The fall of cereal prices is a reflection of the abundance of grain on the market. While not alarming, the low prices are causing some difficulties for cooperatives, which are unable to sell their grain at a rate that will enable them to cover their input costs.

OPAM Commercial Stocks/Sales

In the first round of bidding for OPAM (Office des Produits Agricoles du Mali) rice in Niono, Bandiagara and Tombouctou, the offered lots were not sold. The lots in Niono and Bandiagara had to be re-offered for sale and were subsequently sold. The 1,000 MT of rice in Tombouctou still remains to be sold and will be offered for bid in the coming two months. The sluggishness of the OPAM rice sales is a reflection of the continued availability of locally produced rice in the market place.

When OPAM does offer rice for sale in Tombouctou, it could cause problems for two producer cooperatives that are organized under the auspices of BIT ACOPAN an, NGO (non-governmental organizations). At this time, two producer cooperatives in Dire each have stored in warehouses 100

MT of rice that they can not sell, because their price can not compete with the official market price of rice. The funds that are expected to be generated from the sale of the rice are needed to cover input costs for the 1989 agricultural season.

Exports

Expectations that many grain traders would take advantage of the new export authorization for grain have not been realized. Of the first lot of 30,000 MT currently authorized for export, licenses for 10,035 MT have been granted. The bulk of the grain being exported is still destined for Côte d'Ivoire with a smaller portion going to Senegal. The Economic Affairs Office (DNAE) reports that further requests for licenses (for a total of 33,890 MT of grain) have been submitted but not processed, because these requests have not met all of the official requirements.

PRMC Grain Storage Credit Campaign

The credit program for consumer groups in the deficit zones that was approved by the Programme de Restruction du Marché Céréalièr donor groups (PRMC) at the beginning of March has still not gotten off the ground. The decision to try to implement this program came very late in the season. It has taken so long to put the credit program into place that members of the banking community have suggested that it would best be renegotiated next year.

PRMC and Other Food Aid Contributions

Many of the donor members of the PRMC have pledged food aid or cash contributions for the reconstitution of the National Security Stocks. Others have contributed rice that will be sold by OPAM in open bids to generate funds that go into the "Counterpart Fund," which is the coordinated donor fund.

The following is a summary of the contributions of the PRMC donors for 1989:

- The European Community (EC) has promised a cash donation equal to the value of 15,000 MT of corn to reconstitute the SNS.
- Belgium had promised 3,000 MT of wheat, but has changed this pledge to 120 million FCFA in funds to purchase local grain.
- The Netherlands has promised 300 million FCFA.
- France changed its offer of 4,000 MT of wheat to approximately 220 million FCFA.
- West Germany has pledged 304 million FCFA to reconstitute the SNS.
- The United States has pledged 6,000 MT of rice for fiscal year 1989 and a total of 30,000 MT of rice over the next four years.

Two donors have bilateral agreements with the Malian government. Japan has promised Mali 2,500 MT of rice in a bilateral arrangement where OPAM will sell the rice to generate funds that will put in a counterpart fund used to finance the rice perimeter project in Baguinda. As part of its food aid to Mali, Canada has promised approximately 5,000 MT of wheat per year over the next four years. This year's lot arrived in Bamako at the end of April and was transported to Koulikoro by rail. This wheat will be sold to Grands Moulins and the funds generated will be used for structural readjustment, to adjust the balance of payments, and for Mali-Canada development projects.

MAURITANIA

Oases' Cereals are Safe; Repatriates Find Aid

Summary

Repatriations from both Senegal and Mauritania have been taking place following civil disturbances that started in late April in both countries. At least 34,000 Mauritians entered the country by air-bridge during the April 26th to May 12th period. In addition, there has been an influx of Mauritanian repatriates moving across the border by land, although the number is not known. US Embassy officials and other donors believe that the total number of repatriates will not surpass 100,000 people. Given that approximately 30,000 Senegalese have left Mauritania during the same time period, the national Mauritanian population will not increase by more than 70,000 people, leading to a maximum population estimate of 1.996 million people. The majority of this population is expected to be re-absorbed into society, with few needing extensive provisions of food, clothing, and shelter. The repatriates will not be as easily re-absorbed, however, into the national economy. The six-month food need for the incoming population is 5,775 metric tons (based on an annual cereal consumption level of 165 kilograms per person per year).

Food Needs Assessments

The national food need assessment of May takes into account this population increase as well as a recent correction of the 1988-89 agricultural production estimate by the Bureau of Agricultural Statistics. Last month, FEWS reported a national net production figure of 134,914 metric tons (MT). The Bureau of Agricultural Statistics has since issued a national net production estimate of 136,951 MT, which is a 2,000 MT increase over the previous estimate. The projected national food need is summarized in Table 3.

Table 3: Mauritania's National Food Need, May 1989

I. Initial stocks and gross production	225,192 MT
II. Cereal consumption and usage	441,440 MT
III. Surplus/deficit	-181,248 MT
IV. Planned cereal imports	159,705 MT
V. Net surplus/deficit	-21,543 MT

Certain foodstuffs that in the past either originated in Senegal or transited through Dakar are now in short supply in Nouakchott. Potato prices have risen dramatically from 60 oughiya per kilogram

(UM/kg) in April to more than 200 UM/kg in mid-May. Other vegetable prices have also risen, although to a lesser extent.

At-Risk Populations

Given the lower cereal prices recorded in Tagant Region and field reports from Tagant, Inchiri, and Adrar regions, it appears that cereal production in the oases and lowland recession areas was substantial this year, in spite of earlier reports of significant locust damage (see Table 4). It remains to be seen to what extent date production will be affected (the date harvest will begin next month). The oases are therefore eliminated from the list of vulnerable areas and populations.

Many of the Mauritanian repatriates are entering the country with few if any belongings. The vast majority have received aid and have quickly passed through the Nouakchott welcome centers within a 24-hour period. There have been substantial contributions from Mauritanians, the International Red Cross and other international sources. There will no doubt be some people within the repatriated group, however, who will have to rely more strongly than others on this assistance in order to readjust. We have no information on the number of vulnerable repatriates at this time.

Table 4: Vulnerable Populations in Mauritania

Area/Population	Reason for Vulnerability	Estimated Population
Touareg Population	Chronic	1,500
Rainfed Agriculture	Locust/Grasshoppers	135,000
Areas of Assaba and Hodh el Gharbi Regions	September Flooding	n/a
Doubel Doubaye (Gorgol)	Identified food-short by University of Arizona	1,000
Dryland Areas West of Boghé	High malnutrition in 1988	n/a (30,000)
Mauritanian Repatriates	Returnees from Senegal	n/a
Total		167,500

Note: This total at-risk population is not a comprehensive list, and may overstate the vulnerability of certain populations. FEWS collects secondary information from Mauritanian ministries, non-governmental organizations, and international organizations.

Secure Food Situation

Summary

The food situation in Niger can be considered normal and unalarming. Following the generous harvest of 1988, surpluses were recorded at the national level. Though some zones were technically food deficit, per capita food production in those areas surpassed that of recent years. Millet and maize prices are stable, having remained basically unchanged since mid-February. Rice and sorghum prices are on par with those for 1986 and 1987, years of adequate food supplies. While project-related food aid has been donated, no emergency food aid has been requested.

Environmental Conditions

The first rains have fallen in some regions of the country, and the agricultural season is just beginning. The locust situation is calm, although survey teams remain alert.

Other Indicators

Generalizable nutrition data are unavailable, though results from a survey in three villages in the arrondissement of Birni N'Gaoure indicated fairly low rates of severe malnutrition amongst a sample of children zero to five years old. Information concerning the prices and movements of animals is unavailable, as are data concerning the recent level of the government cereal stocks and the production of off-season crops.

Relief Efforts Fall Short

Summary

As relatively heavy rainfall has begun to fall on central and northern Sudan, most of the 1988/89 harvest has been completed. The Ministry of Agriculture (MOA) reports that the 88/89 harvest may be the largest on record for Sudan. Production of sorghum alone is expected to be more than 5.0 million metric tons (MT), which would make 1988 a record breaking harvest. The Government of Sudan (GOS) still holds to its April plan to export 2.1 million MT of sorghum, while national food stock purchases have amounted to some 60,000 MT. At present, the Agricultural Bank of Sudan (ABS) reports that there are about 200,000 MT of sorghum in stock. As reported earlier, reduced food stocks may jeopardize medium to long-term food security in Sudan. Distribution of food in Southern Sudan continues to be plagued by logistical and technical problems.

Agricultural Production

The MOA confirms that sorghum production will be over five million MT for the 1988/89 harvest. The mechanized farming corporation reports that almost all of the sorghum planted in the mechanized rainfed area has been harvested. Earlier in the agricultural season, there were some fears that this year's bumper crop would not be harvested because of a lack of fuel, labor and jute sacks. Except for very isolated cases of crops lost to locust damage, rural Sudan enjoyed a particularly good agricultural season. It can be expected that farmers will have enough surplus to last for at least two years.

National Food Stocks

The ABS has purchased some 642,649 sacks (or about 58,000 MT) of sorghum for food stocks. However, it is unclear whether or not this amount will be exported along with other ABS stocks. The total amount of grain available in government stores is only about 200,000 MT. As reported in the previous two FEWS reports, this figure represents approximately one-third of the amount of government-held stocks at this time last year. In any event, as previously reported, all ABS stock has been committed to export and is therefore not available for domestic consumption.

Pests

Some very sparse and isolated swarms of locusts have been spotted in Darfur, western Sudan. The Plant Protection Department (PPD) expects the situation to remain calm, with little invasion of pests from Chad. The PPD has revised its earlier estimate of total expected infestation from two million hectares to one-half million hectares for 1989. Although light infestations of rats were reported in Kosti, Sennar, Shendi and Gedaref, the lighter-than-expected locust damage could increase this year's bumper crop and subsequent large on-farm grain stores.

Prices

Grain prices have remained relatively stable with minor increases reported in major markets. This price increase is normal for the beginning of the rainy season (late May and early June).

Southern Sudan

Difficulties remain in the provision of relief assistance to Southern Sudan. The Relief and Rehabilitation Commission (RRC) reports that only 33 percent, 32 percent, and 15 percent of relief needs (23,000 MT), have been delivered since January 1989 in Equatoria, Upper Nile, and Bahr-El Ghazal respectively. The World Food Program (WFP) reports that only 16,500 MT of relief goods have been delivered as a result of Operation Lifeline, the UN-sponsored Southern Sudan relief initiative. This represents about fifteen percent of the established target. Operation Lifeline was designed to deliver 120,000 MT of food and supplies during the month of April. Independent analysis of Operation Lifeline confirms that the amount of resources actually delivered to the south is considerably less than expected. According to this analysis, only twelve percent of the target goal was delivered by the end of April. Some of the discrepancy in reporting can be attributed to the inclusion of food stocks on hand in the delivery amounts. In any event, it is clear that the relief effort fell well short of its intended goal as a result of conflict, transportation bottlenecks and tie-ups, and administrative difficulties.

Key Terms

At Risk - FEWS Reports employ the term "at risk" to describe those populations or areas either currently or in the near future expected to be lacking sufficient food, or resources to acquire sufficient food, to avert a nutritional crisis (i.e., a progressive deterioration in their health or nutritional condition below the status quo), and who, as a result, require specific intervention to avoid a life-threatening situation.

Where possible, food needs estimates are included in the FEWS reports. It is important to understand, however, that no direct relation exists between numbers of persons at risk and the quantity of food assistance needed. This is because famines are the culmination of slow-onset disaster processes which can be complex in the extreme. The food needs of individual populations at risk depend upon when in the disaster process identification is made and the extent of its cumulative impact on the individuals concerned. Further, the amount of food assistance required, whether from internal or external sources, depends upon a host of considerations. Thus the food needs estimates presented periodically in FEWS reports *should not* be interpreted to mean food aid needs, e.g., as under PL480 or other donor programs.

ITCZ - The Intertropical Convergence Zone (ITCZ) is where the high pressure system originating in equatorial regions of the Atlantic (the St. Helena's High) collides with the Azores High descending from the north. The ITCZ tends to move northward during the spring and summer in response to normal global weather patterns. The position of the ITCZ normally defines the northern limits of possible precipitation in the Sahel; rainfall generally occurs 100 to 300 kilometers south of the ITCZ.

NDVI - Normalized Difference Vegetation Index (NDVI) images are created at the laboratory of the National Aeronautic and Space Administration (NASA) Global Inventory Modeling and Monitoring System (GIMMS). These images are derived from Global Area Coverage (GAC) imagery (of approximately 4 km resolution) received from the Advanced Very High Resolution Radiometer (AVHRR) sensors on board the National Oceanic and Atmospheric Administration (NOAA) Polar Orbiting series of satellites. The polar orbiter satellites remotely sense the entire Earth and its atmosphere once each day and once each night, collecting data in 5 spectral bands. Bands 1 and 2 sense reflected red and infra-red wavelengths respectively, and the remaining 3 bands sense emitted radiation in 3 different spectral bands. The NDVI images are created by calculating

$$(\text{infrared} - \text{red}) / (\text{infrared} + \text{red})$$

for each pixel from the daytime satellite passes. Since chlorophyll reflects more in the infrared band than in the red band, higher NDVI values indicate the presence of more chlorophyll and, by inference, more live vegetation. A composite of daily NDVI images is created for each 10-day period, using the highest NDVI value for each pixel during that period. This technique minimizes the effects of clouds and other forms of atmospheric interference that tend to reduce NDVI values. NDVI is often referred to as a measure of "greenness" or "vegetative vigor." The NDVI images are used to monitor the response of vegetation to weather conditions.