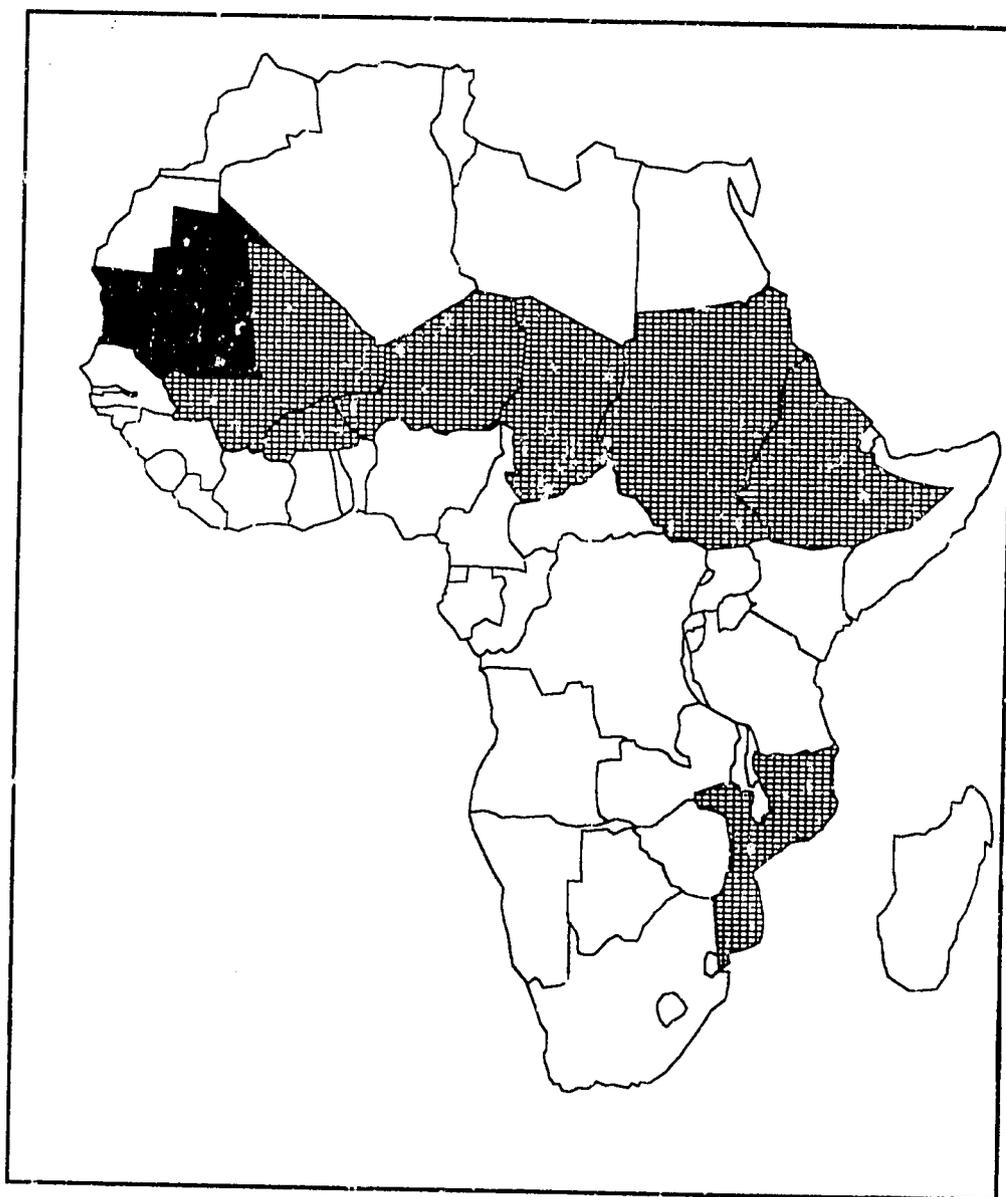


Report Number 16/17

November 1987

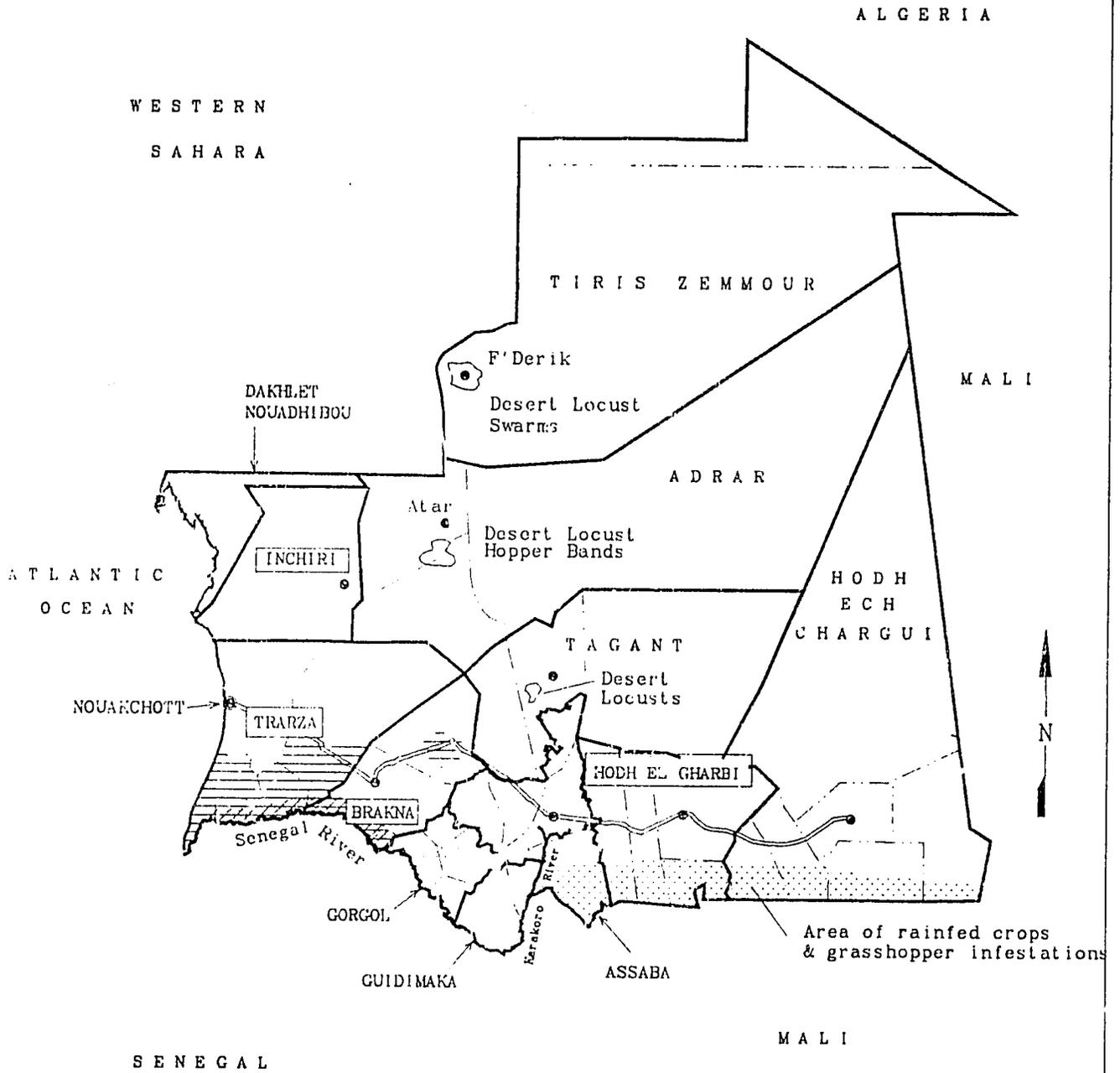
FEWS Country Report

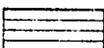
MAURITANIA



Africa Bureau
U.S. Agency
for International
Development

Summary Map



-  No flood recession crops
-  Irrigated production increased 50%
-  Some villages found to have high rates of malnutrition

Famine Early Warning System Country Report

MAURITANIA

Production Shifts

Prepared for the
Africa Bureau of the
U.S. Agency for
International Development

Prepared by
Price, Williams & Associates, Inc.
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SUMMARY

The first production estimates for Mauritania's 1987-88 agricultural year are 98,000 and 107,000 metric tons (MT), net. A preliminary cereals balance based on currently available estimates shows that from 91% to 160% of the 1987-88 consumption needs will be met, depending on the per capita consumption rate used. While this is heartening, the geographic distribution of this year's harvest is quite different than last year's -- where last year irrigated crops (in southwest and south-central Mauritania) accounted for 25% of production, this year they account for 39%; rainfed crops (predominantly in the southeast) provided 45% of the 1986-87 harvest, while this year they provided only 36%; and the flood recession* crop (in the southwest) shifted from 18% to 11% of the total. The shifts in production strategies mean shifts in the degree to which any area will grow enough food to meet local needs** (Maps 3 and 5). Grasshoppers were reported in high (but unspecified) densities in the southeast during late September and early October, and total crop loss was seen in the area of Djigueni, Hodh el Chargui Region. As happened last year in late October and early November, Desert locusts have been reported over several hundred thousand hectares in the north of Mauritania (Adrar, Tagant, and Tiris Zemmour Regions, Summary Map), although densities are unknown. While not a current threat to Mauritania's agriculture, the locusts are of concern to the Moroccan Crop Protection Service, which has been battling a Desert locust infestation in Morocco since early November.

Issues

- The Mauritanian Food Security Commission (CSA) has recently reiterated that no famine conditions exist in Mauritania. Even so, high levels of malnutrition noted during April and May in specific villages in Brakna and Trarza Regions (some of which was attributed to a lack of purchasing power) indicate a vulnerability to food emergency that will only increase with the poor flood recession harvest.

* In flood recession agriculture, crops are planted in soil left moist following river floods. A second type of recession farming, "lowland recession," takes advantage of runoff from rains over a fairly large area that is trapped in low lying basins, which greatly increases the soil moisture available to crops planted in and next to the basins.

** For example, Brakna Region, which last year produced 62 kg of cereals per capita (38% to 50% of consumption needs), experienced no increase in irrigated cultivation this year, but has experienced a severe decrease in flood recession production. This year's overall production in this Region could be as low as 22 kg per capita.

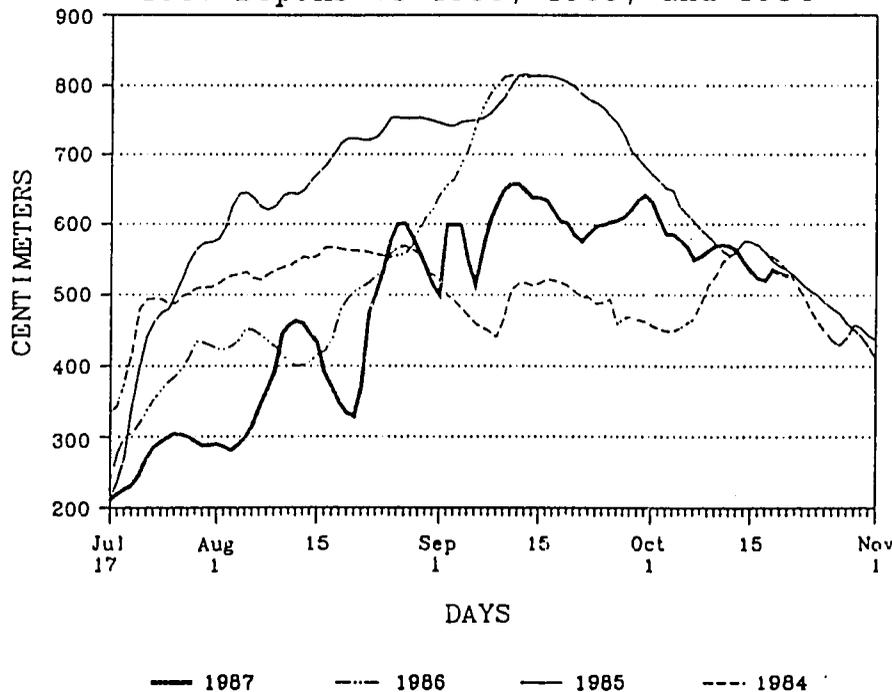
- While, at the national level, the decrease from last year's flood recession production is nearly offset by a 50% increase in irrigated production, villagers in Trarza and Brakna Regions who depend on flood recession agriculture will not necessarily have access to irrigated crops, even those produced in the same Region (in the case of Trarza).

CROP PRODUCTION
Rainfall and
River Level

Mauritania's rainy season has ended. Rainfall in southeastern and south-central Mauritania has been described as good in terms of recent years, although this year's reported precipitation is still not as strong as the thirty year average (Map 2). In the southwest, rainfall came too late this year to be of use for rainfed crops. On the basis of available rainfall data (at Rosso, Map 2), such timing does

Figure 1: Mauritania

Senegal River at Kaedi Town, Gorgol Region
1987 Depths vs 1986, 1985, and 1984



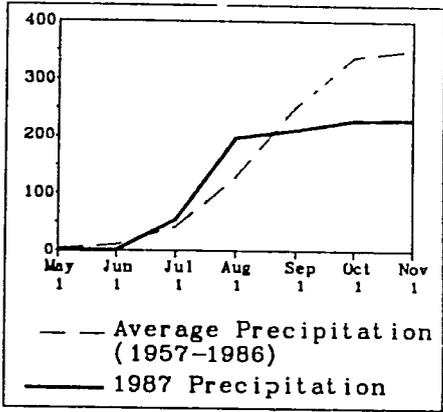
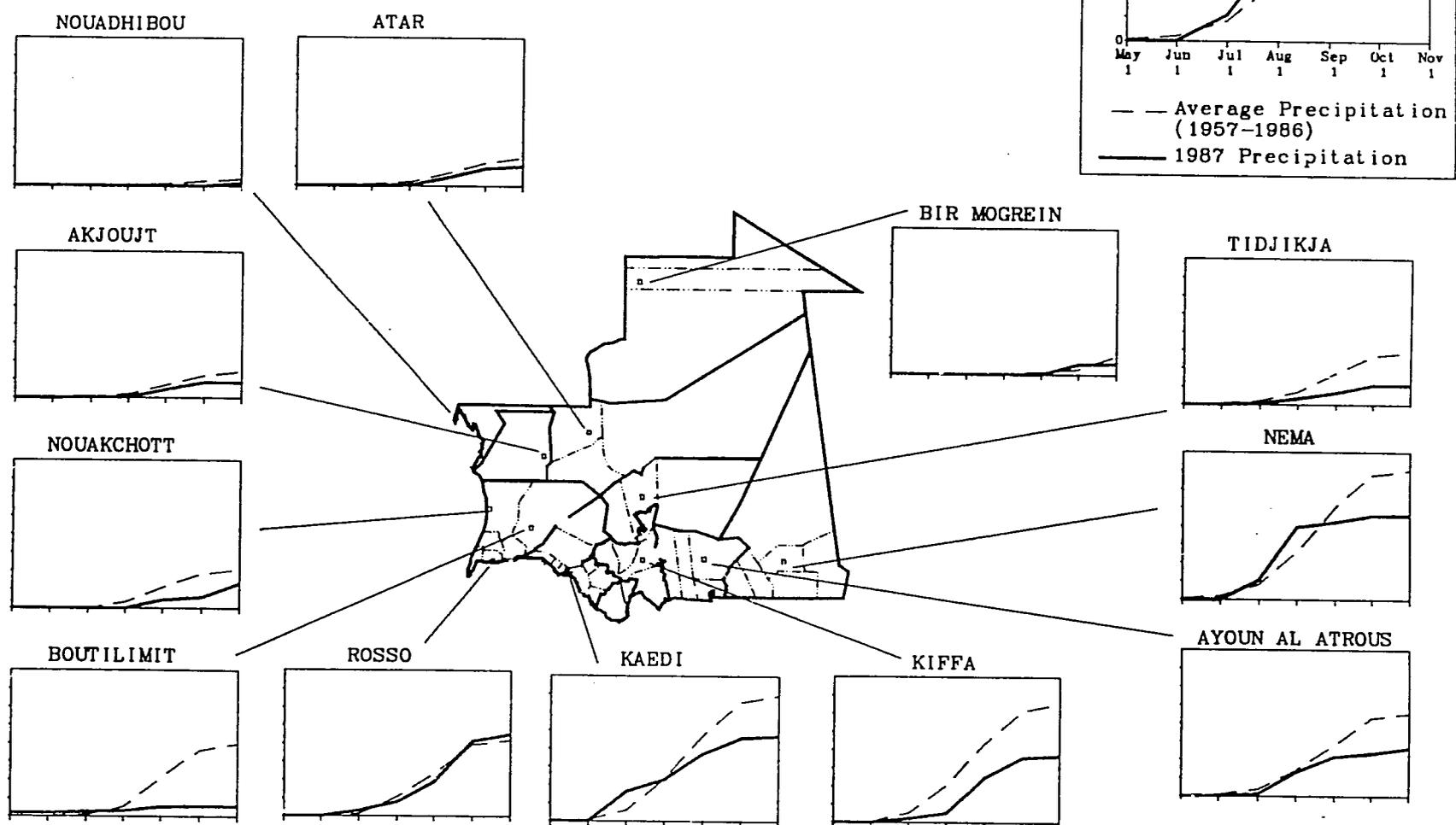
not appear to be unusual in the southwest; in fact, farmers in the southwest depend primarily on lowland recession, flood recession, and irrigated agriculture rather than a direct rainfed cropping strategy (Maps 3 and 4).

Lack of rain over the Senegal River watershed has kept the Senegal River from flooding at Kaedi Town in Gorgol Region and further downstream* (Figure 1), effectively preventing the planting of flood recession crops in Brakna and Trarza Regions.

USAID/Senegal has reported that farmers in the Senegal River delta area (downstream from Rosso) have not planted rice this year, because the river remained too low through the planting season (which ended there in early September). The Senegal River has not

* The Malian Manantali Dam, situated on the upper reaches of the Senegal River, has probably also contributed to the river's limited rise. It is not clear how much better the situation in Mauritania would have been had the dam not come on line, as there has been little rain this year over the Senegal River in Mali.

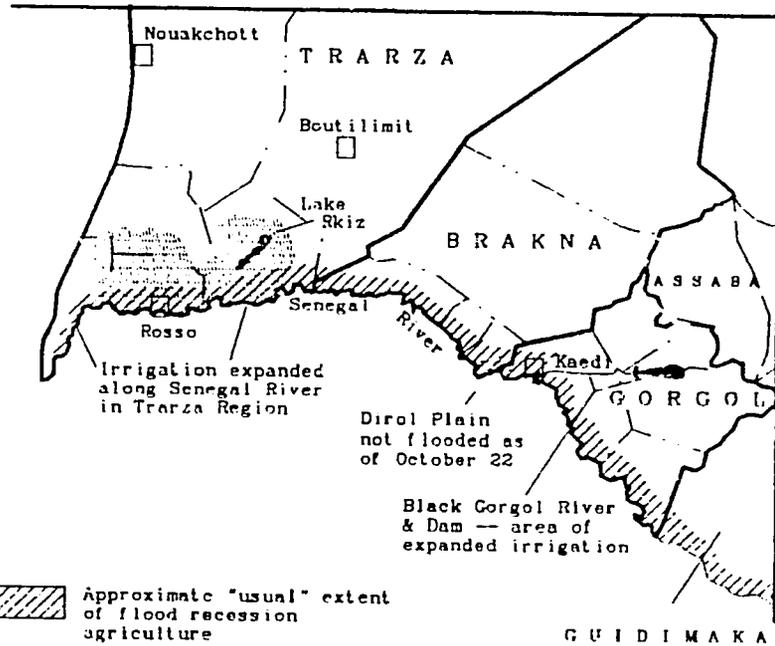
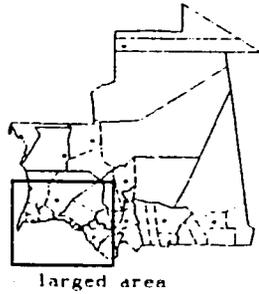
1987 Vs Average Cumulative Rainfall, May Through October



Source: NOAA/NWS/CAC FEWS/PWA, November 1987

MAP 3: MAURITANIA

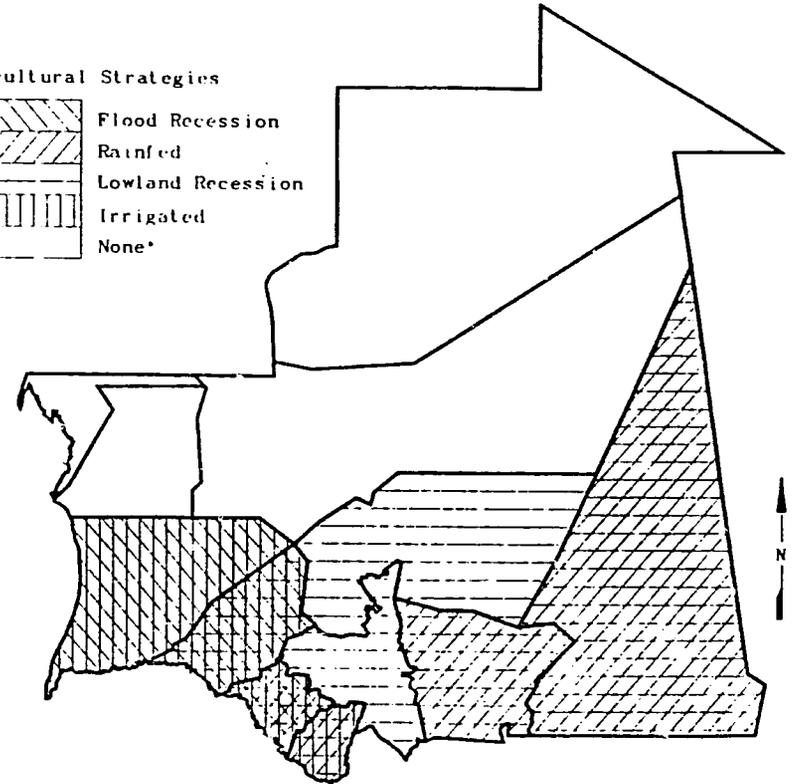
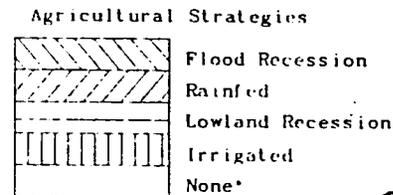
Southwest Mauritania Agriculture



FEWS/PWA, November 1987

MAP 4: MAURITANIA

Agricultural Strategies Reported by FAO/CILSS per Region for 1986-87 Growing Season



*There is cereal production (not included in FAO/CILSS assessment) at oases and temporarily dammed wadis in these Regions.

Source: FAO/CILSS
FEWS/PWA, November 1987

been so low, at least, as to preclude expanded irrigation in Trarza Region, although the cost of pumping water from the river will be higher than last year's given the lower river levels. This year, irrigation has also been expanded significantly along the Black Gorgol River (Gorgol Region, Map 3) through long-term development projects.

Production Estimates

Cereal production from Mauritania's 1987-88 growing season has been estimated at 98,000 MT (net) by the Government of the Islamic Republic of Mauritania's (GIRM) Ministry of Rural Development Agricultural Statistics Service (MRD/SSA) and at 107,000 MT (net) by a joint United Nations Food and Agriculture Organization/Permanent Interstate Committee for Drought Control in the Sahel crop assessment mission (FAO/CILSS, Table 1¹). These figures are respectively 16% and 8% less than the final MRD/SSA 1986-87 production estimate of 116,000 MT. The current FAO/CILSS estimate shows a 20% decrease in millet and sorghum production accompanied by a 60% increase in rice production.

Table 1: Summary, 1986 and 1987 Production Estimates

Crop	1986-87 (Final)			1987-88 (Preliminary)		
	Area (ha)	Gross (mt)	Net ¹ (mt)	Area (ha)	Gross (mt)	Net ¹ (mt)
Millet	19,500	13,600	11,560	23,000	8,050	6,840
Sorghum	117,600	96,300	81,855	123,500	80,450	68,380
Maize	1,800	3,400	2,890	-	-	-
Rice	6,600	33,000	19,800	12,600	52,920	31,750
Total	145,500	146,300	116,105	159,100	141,420	106,970

Source: FEWS/Mauritania; 1986-87 estimate -- GIRM/MRD/SSA, May 1987; 1987-88 estimate -- FAO/CILSS, October 1987

¹Production figures for maize, millet, and sorghum are reduced by 15%, and for rice by 40%.

While regional or departmental breakdowns of these estimates are not yet available, the geographical distribution of agricultural systems is sufficiently discrete to allow for a first cut allocation of cereal production. Table A1 (Appendix) compares this year's FAO/CILSS preliminary

* See Table A2 (Appendix) for details of the October 1986 FAO/CILSS estimate of 1986-87 production. Details of the MRD/SSA estimate for 1987-88 were not available for this report. Prior production figures cannot be compared to those of 1986-87 and 1987-88, as the method of estimation was entirely revamped starting with the 1986-87 growing season.

crop assessment with the final MRD/SSA estimate for 1986-87 by crop and agricultural strategy. Map 4 shows, by Region, where each strategy was utilized in 1986-87.

Of the four agricultural strategies practiced in Mauritania, the October 1987 FAO/CILSS mission expects that irrigated and lowland recession crops will show an increase in production over the 1986-87 growing season, owing to a substantial increase in area planted.

FEWS/Mauritania reports that the increase in irrigated lands is concentrated in Trarza and Gorgol Regions. For reasons that are unclear, few lowland recession crops were planted in the area of Rosso, Mederdra, and R'Kiz, even though rainfall at Rosso appears close to the norm. Lowland recession farming will have been used throughout the rest of Mauritania's agricultural zone, however.

Table 2: 1987-88 Cereal Production by Region

Region	Gross Production (mt)	Net Production ¹ (mt)
Assaba	3,160	2,690
Brakna	6,110	4,060
Gorgol	42,440	32,070
Guidimaka	4,460	3,470
Hodh el Chargui	36,900	31,070
Hodh el Gharbi	14,620	12,430
Tagant	1,310	1,110
Trarza	32,410	19,780
Total	141,420	106,980

Source: FAO/CILSS; GIRM/MRD/SSA

¹Production figures for millet and sorghum are reduced by 15%, and for rice by 40%.

Table 2 presents an estimated Regional breakdown of the FAO/CILSS 1987-88 production estimate based on these observations and FAO/CILSS and MRD/SSA estimates from last year. The expected decrease in flood recession production is due to a 57% decrease in area planted, directly related to the lack of flooding along the Senegal River in Trarza and Brakna Regions. For rainfed crops, on the other hand, a decrease in production is expected in spite of a 23% increase in area cultivated. The decrease can be ascribed to a marked decline in yield (in spite of reports of increased rainfall this year in rainfed crop areas, concentrated in Hodh el Chargui and Hodh el Gharbi

Regions). Hodh el Gharbi Region experienced at least one food shortage during 1987 that caused several villages to be abandoned; the inhabitants migrated to the large towns or to Mali in search of work or pasture. A second year of poor harvests could lead to a repetition of this event in more than one locality.

Possible Locations

The rough estimation shown in Table 2 and the representation in Map 4 do not identify actual locations of potential 1987-88 cereal production. While Map 3 shows the usual locations of irrigated and flood recession crops in the southwest, Map 5 is an attempt, using satellite imagery*, to delineate which areas have the best chance this year for successful rainfed and lowland recession agriculture.

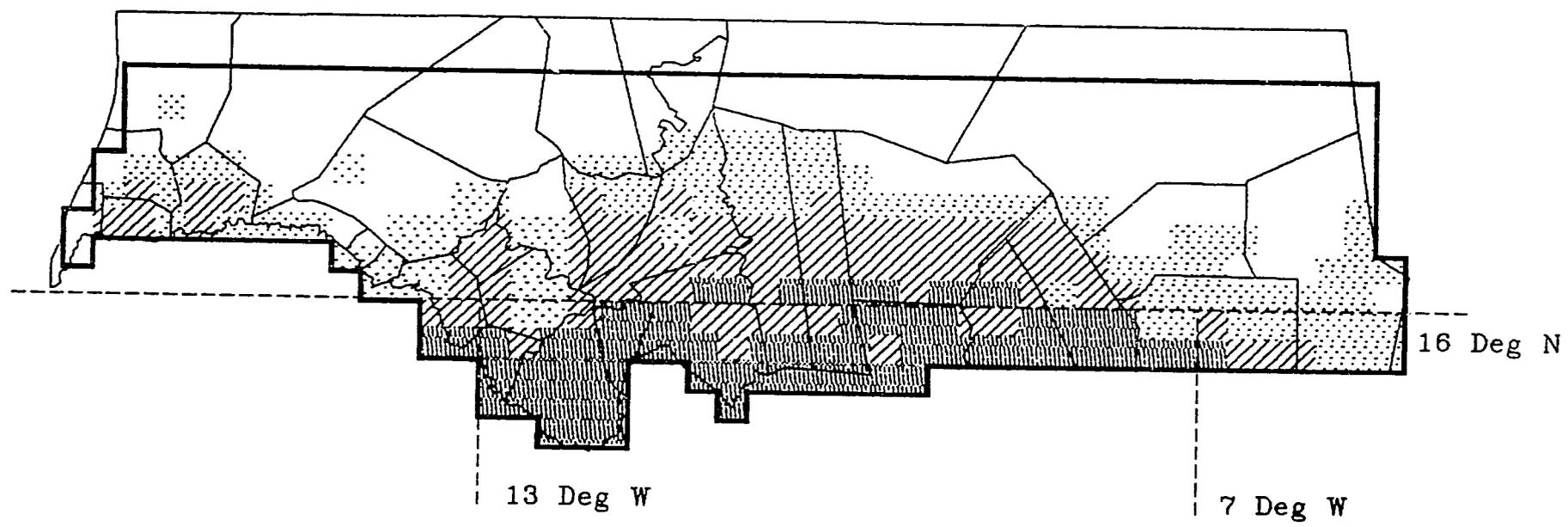
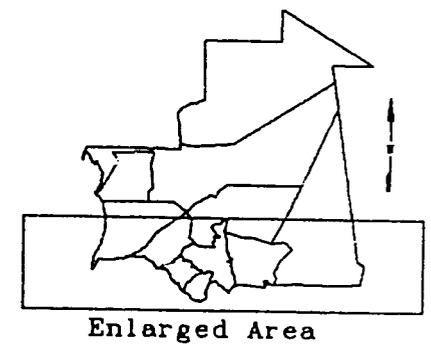
The Normalized Difference Vegetation Index (NDVI) is an indicator of photosynthetic activity, or vegetative vigor. NDVI is generally believed to depict the condition of vegetation on the ground (the higher the NDVI, the greater the imputed ground cover), and, at least inferentially, the growing conditions for crops and pastures. These relationships are indirect, however, and are the subject of continuing research by academic institutions. One more word of explanation -- the term *decade*, when used with satellite imagery or weather data, denotes a 10 day period, rather than the common usage, 10 years.

Cereals grown in the Sahel take either 120 or 90 days to progress from planting to harvest. While it is not necessary that there be rain throughout this period, the plants do require a certain amount of residual moisture to thrive, especially at such critical stages as germination and heading. A low NDVI indicates a fairly low density of ground cover, and may only reflect the presence of grass. If there has been sufficient moisture to support grasses over a period of several decades, however, there may also have been sufficient moisture to support lowland recession farming, given that a depression is available in which any runoff and increased water table can be trapped. If there has been sufficient moisture to support

* Flood recession and irrigated agriculture depend directly on river levels, rather than on rainfall within the area being investigated, and so are difficult to study with Normalized Difference Vegetation Index (NDVI) data derived from the National Oceanic and Atmospheric Administration's (NOAA) Global Area Coverage (GAC) imagery, the coarsest resolution imagery being used to study vegetation. (On the other hand, NDVI images derived from Local Area Coverage (LAC) imagery do show green up along rivers and wadis.) Lowland recession farming magnifies the cropping potential of rainfall in the surrounding area, and so should be somewhat related to the amount of green up over time, which could be inferred from GAC-derived NDVI.

Possible Locations of Rainfed and Lowland Recession Production

-  Areas imputed to have the best chance for rainfed production: unambiguous vegetation present for nine or more decades during 1987 growing season
-  Areas where at least lowland recession production may be possible
-  Areas where pasturage should be possible, but lowland recession production is unlikely



Source: NASA/NDVI Imagery
FEWS/PWA, November 1987

 Boundary of Area Studied

grasses over a period of 10 or 12 decades, there may well have been enough moisture to support rainfed farming, although domestic crops, planted at one time, will need greater moisture at specific points in their development, while grasses benefit from moisture whenever they can get it. Areas of Mauritania which have shown unambiguous vegetation* this year since the July 1-10 decade have been graded for production potential according to the number of decades vegetation was present (Map 5); the longer the duration of vegetative presence, the greater the likelihood of successful maturation of crops. Those areas that displayed vegetation for ten or more decades were judged to have the best chance of supporting rainfed agriculture. Those areas where vegetation was present for only five to nine decades (which has happened mostly since the September 1-10 decade), were judged to have very low potential for rainfed agriculture.

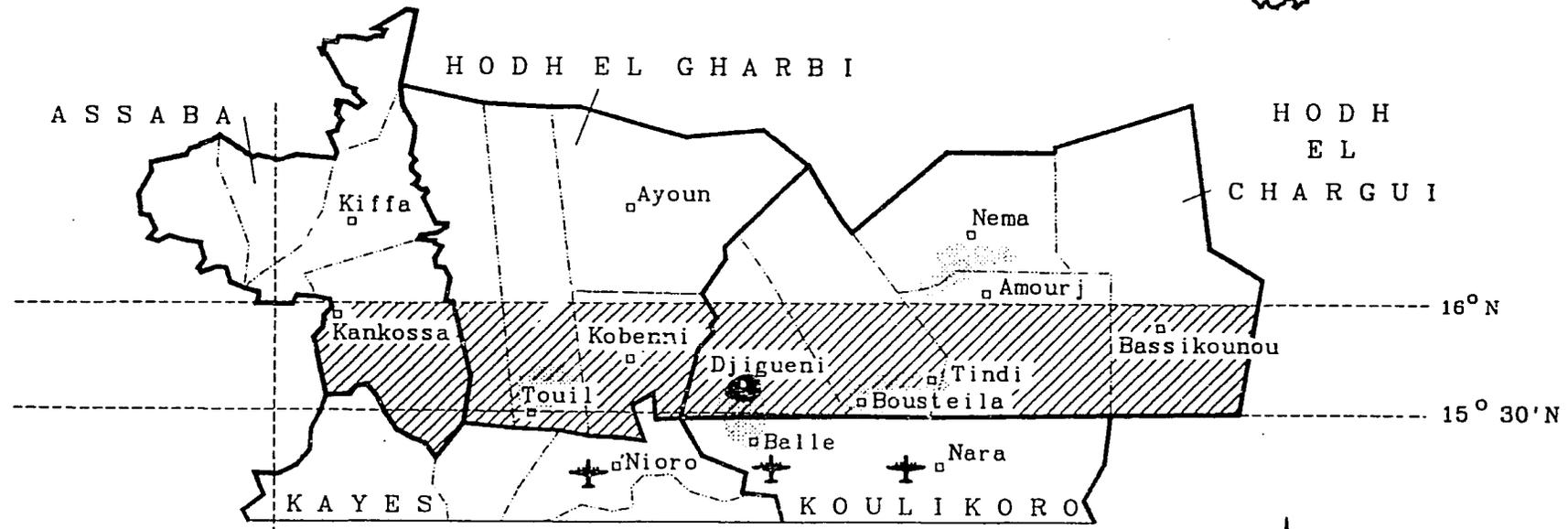
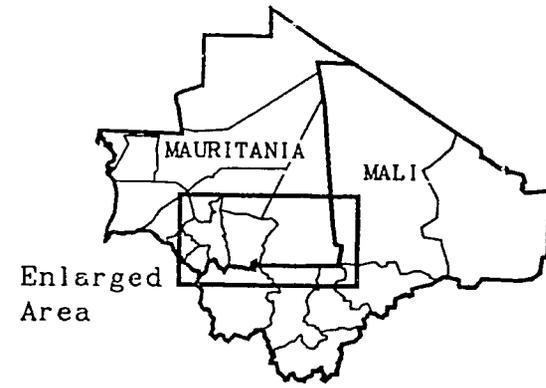
The timing and duration of vegetation within Mauritania's agricultural zone has not been uniform. While the areas with the best chance of rainfed production fall south of 16°15'N (between 6°45'W and 14°15'W), there are areas within that zone with less potential for a successful rainfed harvest (Map 5). Areas with low potential for rainfed crops may yet produce lowland recession crops if sufficient water has been trapped to carry the cereals to maturation (e.g., areas north of 16°15'N). Areas which have only recently shown unambiguous vegetation (of less than four decades duration) would probably support pasturage only.

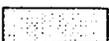
Grasshoppers

Grasshopper infestations were reported during late September and October in southeastern Mauritania. The area hit hardest was along the Mali border, south of the 16th parallel and east of the 12th meridian (Map 6). Infestations requiring aerial treatment were reported in many areas, though no specific densities were cited. Lack of diligent ground treatment played a role in the rapidity of the infestation's onset in croplands. The main cause,

*The US Geologic Survey Environmental Remote Observation and Satellite Data Center (USGS/EROS) grasshopper study team has found with LAC-derived NDVI in Mauritania that, although NDVI of 0.04 or 0.05 suggest the presence of vegetation (versus bare soil), it is only with NDVI of 0.1 or above that it is certain the values seen are not induced by the reflection of light off bare sands. To be conservative in the use of NDVI in Mauritania, then, only values of 0.1 or greater are considered here. This is not to say that there will be no vegetation (or agriculture) in areas that show NDVI of less than 0.1, but rather that we can only be certain that the picture unambiguously shows vegetation at NDVI of 0.1 or more.

Grasshoppers, 1987



-  Current base of operations for aerial treatment
-  Approximate areas of aerial treatment
-  Zone at-risk of high density grasshopper infestation
-  Heavy crop loss to grasshoppers



Source: Mission Cables
FEWS/PWA, November 1987

however, was the decline of pasturage in mid-October as the rains ended in the southeast, leading grasshoppers to attack crops.

As of October 22nd, over 200,000 hectares (ha) in Hodh el Chargui and Hodh el Gharbi had been treated by aerial spraying in four concurrent operations by USAID/Mali, the Mali Crop Protection Service (CPS), a Canadian mission, and a French mission, in coordination with the Mauritanian CPS. Because of mechanical, environment, and logistical delays in operations, treatment was late in arriving. USAID/Mali reported that crops in the area around Djigueni (Hodh el Chargui Region) were completely devastated. This area is probably not alone in experiencing heavy grasshopper damage, although the aerial spraying brought the situation under control once it arrived. The bulk of any damage in Mauritania is most likely limited to the hatched area shown on Map 6. USAID/Mali has noted that egg-laying, in full swing by early November, was heaviest between 15° and 15°30' North, along Mauritania's southern border. This is further north than the egg laying seen last year, so Mauritania should be expecting heavier infestations earlier in 1988 than seen this year, if it rains.

Desert locusts

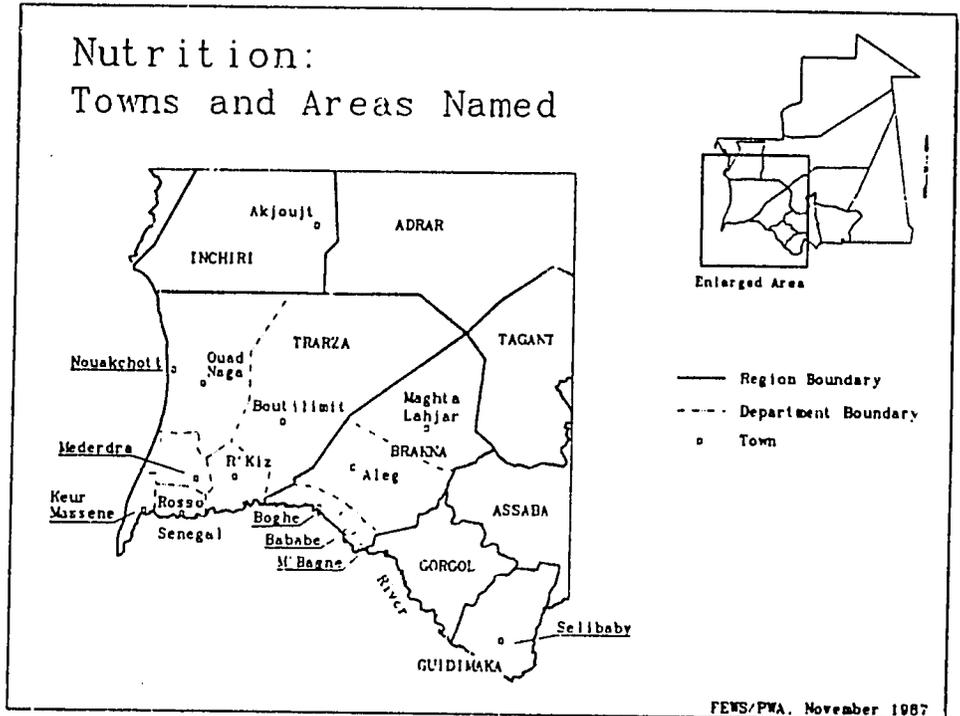
Several swarms of Desert locusts have been reported around F'Derik and Zouerate (Tiris Zemmour Region), nymphal (hopper) bands have been reported south of Atar (Adrar Region), and 250,000 ha are reported to be occupied by locusts in Tagant Region (Summary Map). Aerial treatment is expected shortly in Adrar and Tagant Regions below 21°N with assistance from Canada. The GIRM/CPS considers the situation to be under control in crop areas (oases and temporarily dammed wadis), but potentially precarious north of 21° North. Rain north of 20°N has been relatively plentiful, favoring Desert locust development (note Atar and Bir Mogrein on Map 2), and treatment may not take place north of 21°N because of the proximity of the Western Sahara/Morocco conflict. Air and land surveys of secure areas are expected soon. Desert locusts in areas north of 21°N (and in Western Sahara as well) pose a threat to Moroccan and Western Saharan agriculture (degree incalculable).

NUTRITION

Concern over rumors of imminent famine (first in April in southern Trarza Region, then in September in the area of Boutilimit Town, Trarza Region) prompted the GIRM Food Security Commission (CSA), donor agencies, and private voluntary organizations (PVOs) to assess the nutritional status of villagers in these areas (Map 7). While the CSA has determined that no famine conditions exist, high levels of malnutrition were found, indicating that environmental stress is being felt within some villages

in Trarza Region. Surveys in Brakna Region have uncovered high levels of childhood malnutrition. Finally, records from the Catholic Relief Services (CRS) feeding center in Akjoujt Town, Inchiri Region, continue to show a definite increase since January 1985 in the percentage of severely* malnourished children in the program**, although the rate of increase has slowed slightly since September 1986 (Figure 2). The area received a large amount of food aid in February 1987***.

Map 7: Mauritania

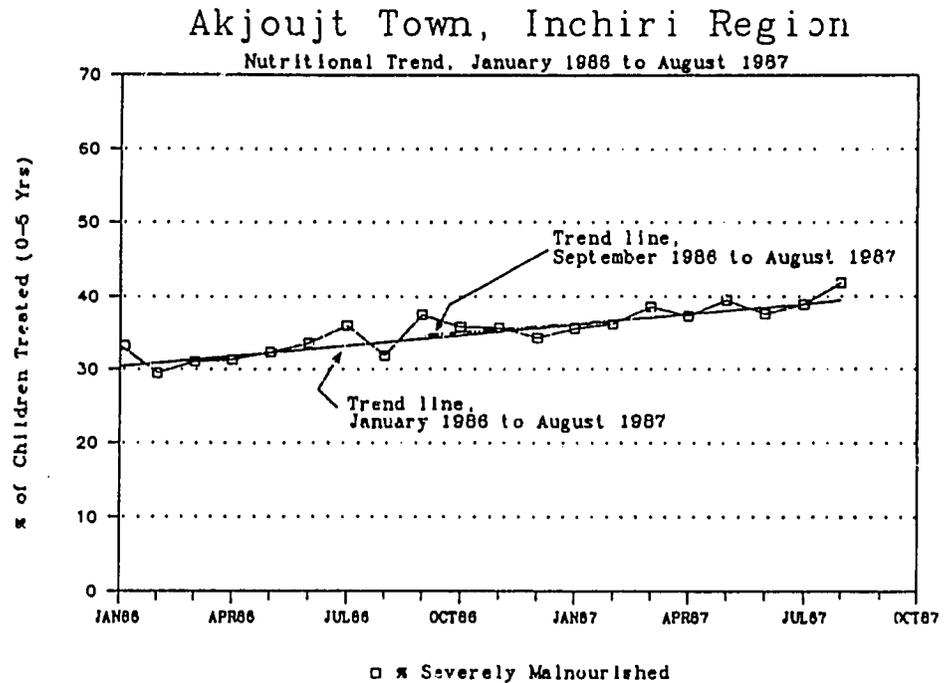


* CRS uses a weight for age standard for judging nutritional status, while Doctors Without Borders (MSF) uses a weight for height standard. A child is severely malnourished when it weighs at least 70% but less than 80% of the standard, and is acutely malnourished when weighing less than 70% of the standard.

** Records from CRS feeding centers, which have been in operation since October 1985, provide Mauritania's only longitudinal data base on nutritional status. Children are included in feeding center programs because they are malnourished, so the level of malnutrition seen at any one time does not necessarily reflect nutritional conditions in the surrounding the community. Long-term trends in nutrition levels among program participants, however, can reflect general trends in the community.

*** Food aid was distributed to 3,615 families, which amounts to the entire Region population according to the October 1986 FEWS/Mauritania population estimate (13,641 people). The 100 kg of wheat distributed to each family amounts to two months of the Region's grain needs at an annual consumption rate of 165 kg per person, or two and a half months of the Region's needs at 123 kg. See footnote 3 on Table 5 for an explanation of the two rates.

Figure 2: Mauritania



During the April/May CSA/World Food Program (WFP) mission to Trarza Region, high rates of malnutrition were found in ten of the 40 villages visited. The villages were chosen for inspection based on reports of food shortages, however, and so may not be representative of the Region. In a May survey of 24 villages in Boghe Department (Brakna Region), the PVO Doctors Without Borders (MSF) found that 17% of the children measured were severely or acutely malnourished (Table 3), well above the 10% standard used by many Sahelian governments as the threshold for intervention. The PVO Terre des Hommes reported in October that its survey near Trarza Region's Boutilimit Town (a predominantly pastoral area which has experienced extreme rainfall deficits, Map 2) did not point to widespread levels of malnutrition sufficient to indicate the onset of famine.

MSF nutritional surveys completed in Brakna Region before April 1987 (also summarized in Table 3) show that Boghe is not the only Department in Brakna Region presenting high rates of malnutrition. The findings in Boghe are the most recent and of greatest concern, however, appearing as they do during a month when child nutrition levels should be fairly good. It should be noted that, in Brakna Region, flood and lowland recession agriculture (the primary agricultural methods used in most villages in Boghe, Bababe, and M'Bagne Departments) have been severely curtailed this year by lack of rain and lack of flooding from the Senegal River and its tributaries. While there has been a great increase in the amount of irrigated agriculture in Mauritania this year, it is not clear how much of that increase took place in Brakna Region. The people of those villages that were already experiencing high

rates of child malnutrition before the start of the growing season will require some sort of intervention if their current harvest is poor or non-existent.

Table 3: Nutritional Surveys in Brakna Region, August 1986 through May 1987

Department	Timing	Number of Villages Included	Number of Children Included	% Children Sev. or Acute Malnourished	No. Villages 10% or More Malnourished
Bababe ¹	Aug 86	19	1360	12.6	6
Maghta Lahjar	Sep 86	21	1305	19.5	19
M'Bagne	Jan 87	24	1553	7.9	6
Bababe ¹	Feb 87	12	585	7.0	3
Boghe	May 87	24	1168	17.0	21

Source: MSF; FEWS/Mauritania

¹In the seven villages covered in both surveys, 9.9% of the 581 children measured in August 1986 were severely or acutely malnourished, while 10.1% of the 368 children measured in February 1987 were severely or acutely malnourished. One issue this table points up is that the degree of malnutrition found in a survey can be strongly influenced by such design decisions as the timing of a survey and the choice of villages for examination.

FOOD SECURITY

The question for arid Mauritania is, as always, not whether to import food, but how much food to import. FEWS has calculated a preliminary cereal balance for the 1988 food aid year with initial production, available stock, and available food aid estimates (Table 5). If, during 1988, commercial imports are on a par with those which were expected for 1987, Mauritania will be close to meeting its cereal food needs "at the national level" (i.e., there will be enough food in the country to feed the population, regardless of which annual per capita consumption rate is used). Distribution via the market to areas of food deficit is not smooth. Food aid is generally needed throughout the country. The likeliest candidates for extraordinary food aid during 1988 are villages in Trarza and Brakna Regions that now show high rates of malnutrition. Second in probable need are villages in the southeast (Hodh el Gharbi and Hodh el Chargui Regions) that did poorly last year, and have experienced extreme pest damage to crops or indifferent harvests this year.

The CSA has almost doubled its cereal purchases (for price stabilization purposes) over last year's levels (Table 4). Fully 15,376 MT of grains were purchased at some 52 buying centers throughout Mauritania. If the tonnage purchased doubles again as it did this past year, the CSA

fears that it will not be able to buy what it should, given its current budget. This and other issues (e.g., how to effectively stabilize the cereal markets) are under discussion by a joint commission of donors and CSA officials.

Table 4: CSA Purchases

	Quantity Purchased 1985-86	1986-87
Sorghum and Millet	3,018	5,365
Rice Paddy	5,093	10,011
Total	8,111	15,376

Source: FEWS/Mauritania; GIRM/CSA

Table 5: FEWS Preliminary Cereal Balance for 1988^{1,2}

	123 kg Consumption Scenario ³	165 kg Consumption Scenario
Population ⁴	1,877,000	
Net Production (Preliminary) ⁵	98,000-106,970	98,000-106,970
CSA Purchases (86/87)	15,376	15,376
Hold-Over Stock from 1987 ⁶	125,300	48,500
Food Aid in Pipeline ⁷	47,570+	47,570+
Commercial Imports ⁸	73,500	73,500
Total Supply (Preliminary)	359,700-368,700	282,900-291,900
Projected Consumption	(230,900)	(309,700)
Balance Estimates (Preliminary)	128,800-137,800	(26,800)-(17,800)
% Projected Consumption needs met by Preliminary Total Supply	155.8%-159.7%	91.3%-94.3%

Source: FEWS/Mauritania; WFP; FAO/CILSS; GIRM/MRD/SSA; GIRM/CSA

¹Mauritania's food aid year runs from November 1 through October 31.

²Figures on commercial exports, unofficial imports and exports, and on-farm stocks were unavailable for this analysis.

³The annual consumption rate used historically by the donor community (including FAO) for programming food aid has been 165 kg of grain per person. The estimated 1986 national grain consumption divided by the estimated 1986 population leads to an annual consumption rate of 123 kg of grain per person, per FEWS/Mauritania, November 1986. Discussions are currently underway in Mauritania to determine what would be the best annual consumption rate for describing 1988 food needs.

⁴The 1988 population was projected from the 1987 population estimate of 1,828,000 using a growth rate of 2.7% -- a compromise among the US Bureau of Census 1987 Mauritania growth rate, the Mission 1986 growth rate, and the several growth rates currently under consideration in Mauritania.

⁵The preliminary FAO/CILSS estimate of net production is 106,970 MT, that of the GIRM is 98,000 MT. As the full harvest will not be completed until March or April 1988, there will be further production updates in the intervening months.

⁶See Tables A3 and A4 (Appendix) for details.

⁷The pipeline equals the August 30, 1987, WFP report of food aid imports expected after October 1987 plus FEWS/Mauritania report of pledges announced in September.

⁸The 1987 estimate of commercial imports was used here as a very rough estimate of 1988 commercial imports.

APPENDIX

Table A1: Cereal Production Estimates for 1986 and 1987 Growing Seasons

	1986-87			1987-88		
	Area (ha)	Average Yield (kg/ha)	Gross Prod. (mt)	Area (ha)	Average Yield (kg/ha)	Gross Prod. (mt)
Rainfed						
Millet	19,500	700	11,560	23,000	350	8,050
Sorghum	<u>57,700</u>	<u>900</u>	<u>51,900</u>	<u>72,000</u>	<u>600</u>	<u>43,200</u>
Sub-total	77,200	850	65,500	95,000	540	51,250
Lowland Recession						
Sorghum	21,000	800	16,800	28,000	700	19,600
Maize	<u>300</u>	<u>300</u>	<u>100</u>	-	-	-
Sub-total	21,300	790	16,900	28,000	700	19,600
Flood Recession						
Sorghum	38,500	700	26,900	22,000	700	15,400
Maize	<u>200</u>	<u>500</u>	<u>100</u>	-	-	-
Sub-total	38,700	700	27,000	22,000	700	15,400
Irrigated						
Sorghum	400	1,800	700	1,500	1,500	2,250
Maize	1,300	2,500	3,200	-	-	-
Rice	<u>6,600</u>	<u>5,000</u>	<u>33,000</u>	<u>12,600</u>	<u>4,200</u>	<u>52,920</u>
Sub-total	8,300	4,450	36,900	14,100	3,910	55,170
Total	145,500	1,010	146,300	159,100	890	141,420

Source: FEWS/Mauritania; 1986-87 production -- GIRM/MRD/SSA final estimate, post-May 1987; 1987-88 production -- FAO/CILSS preliminary estimate, October 1987

Table A2: Preliminary FAO/CILSS 1986-87 Production Estimate

	Area (ha)	Average Yield (kg/ha)	Gross Prod. (mt)	Net ¹ Prod. (mt)
Rainfed				
Millet	20,900	190	4,040	3,430
Sorghum	<u>75,200</u>	<u>350</u>	<u>26,320</u>	<u>22,370</u>
Sub-total	96,100	320	30,360	25,800
Lowland Recession				
Sorghum	86,800	550	47,820	40,650
Flood Recession				
Maize & Sorghum	54,000	400	21,600	18,360
Irrigated				
Sorghum	460	1,870	860	730
Maize	1,300	1,820	2,370	2,010
Rice	<u>6,640</u>	<u>3,310</u>	<u>21,960</u>	<u>13,180</u>
Sub-total	8,400	3,000	25,190	15,920
Total	245,300	510	124,970	100,730

Source: FEWS/Mauritania; FAO/CILSS (December 1986)

¹Production figures for maize, millet, and sorghum are reduced by 15%, and for rice by 40%.

Table A3: FEWS Cereal Supply Estimate for 1987

Population	1,828,000	
Net Production ¹	116,100	
Hold-Over Stock from 1986 ²		
Food Aid for Sale		32,527
Food Aid for Distribution		35,728
Commercial Stock		40,735
Total Hold-Over Stock	108,990	
Food Aid Imported or in Pipeline		
For Distribution		15,498
For Sale		51,385
Total Aid Imported	66,883	
Commercial Imports	73,500	
Total Supply for 1987 (Est. ³)	365,500	

Source: FEWS/Mauritania; USAID/Food for Peace; WFP/Mauritania; GIRM/MRD/SSA

¹See Table 1, above.

²Mauritania's food aid year runs from November 1 through October 31.

³Figures on commercial exports, unofficial imports and exports, and on-farm stocks were unavailable for this analysis.

Table A4: FEWS Estimate of Carryover Stock from 1987

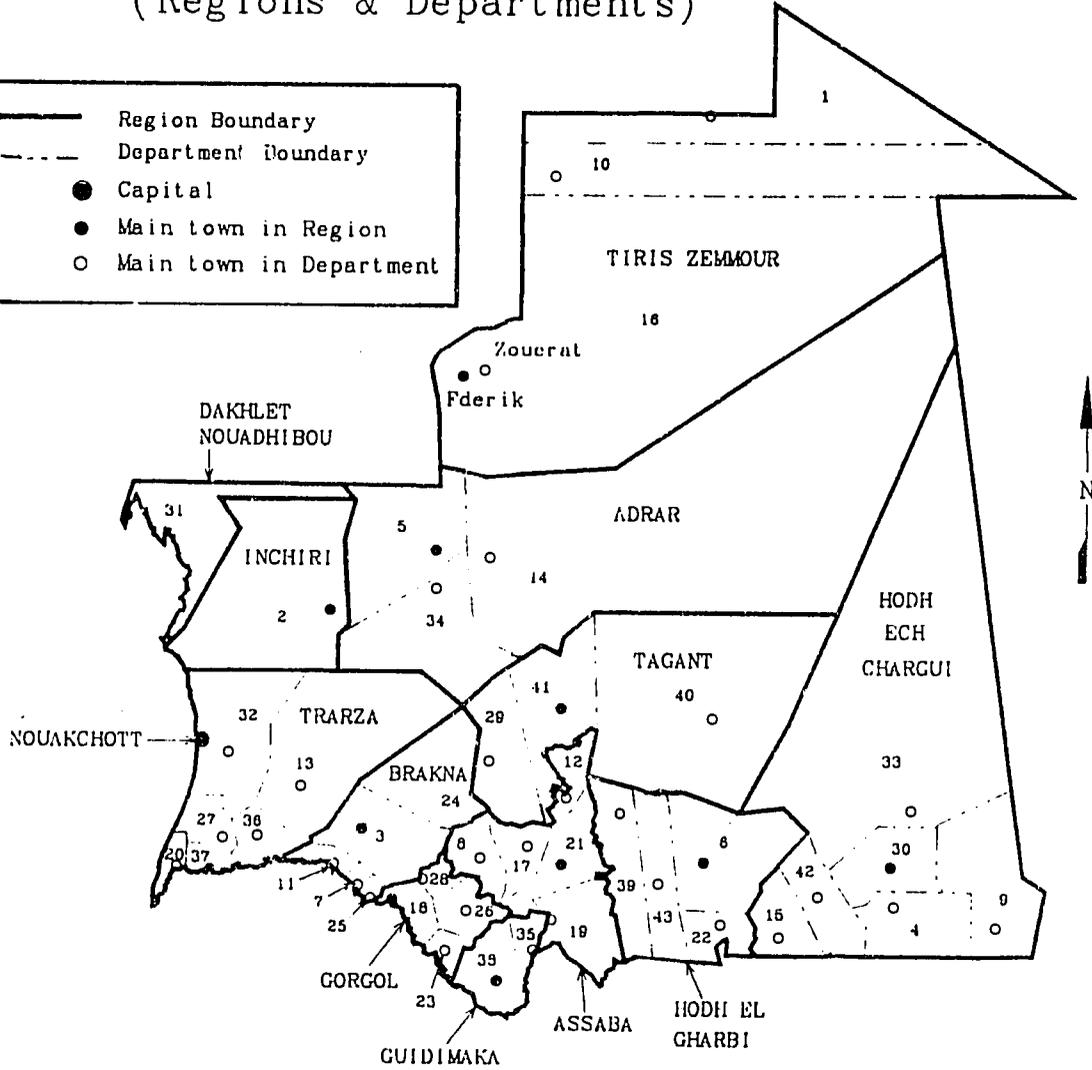
	123 kg Scenario ¹	165 kg Scenario
Total Estimated 1987 Supply	365,500	365,500
1987 Consumption	(224,800)	(301,600)
Cereals Purchased by CSA	(15,376)	(15,376)
Estimated Carryover to 1988	125,300	48,500

Source: See Table A3 (above) for estimation details

¹The annual consumption rate used historically by the donor community (including FAO) for programming food aid has been 165 kg of grain per person. The estimated 1986 national grain consumption divided by the estimated 1986 population leads to an annual consumption rate of 123 kg of grain per person, per FEWS/Mauritania, November 1986. Discussions are currently underway in Mauritania to determine what would be the best annual consumption rate for describing 1988 food needs.

Administrative Units (Regions & Departments)

——— Region Boundary
 - - - - - Department Boundary
 ● Capital
 ● Main town in Region
 ○ Main town in Department



Departments	RGN	Department	RGN	Department	RGN
1. Ain Bon Tili	TZ	16. Fderik/Zouerat	TZ	30. Noma	HC
2. Akjoujt	IN	17. Guorou	AS	31. Nouadhibou	DN
3. Aleg	BR	18. Kaedi	GO	32. Ouad Naga	TR
4. Amourj	HC	19. Kankossa	AS	33. Oualata	HC
5. Atar	AD	20. Keur Massono	TR	34. Oujeft	AD
6. Ayoun el Atrous	HG	21. Kiffa	AS	35. Ouid Yenge	GU
7. Bababe	BR	22. Kobenni	HG	36. Rkiz	TR
8. Barkewol el Ablod	AS	23. Maghama	GO	37. Rosso	TR
9. Bassikounou	HC	24. Magta Lahjar	BR	38. Selibabi	GU
10. Bir Mogrein	TZ	25. M'Bagne	BR	39. Tamchekket	HG
11. Doghe	BR	28. Mbout	GO	40. Tichit	TA
12. Boumdeid	AS	27. Mederdra	TR	41. Tidjikja	TA
13. Boutiliml	TR	28. Monguel	GO	42. Timbedgha	HC
14. Chinguetti	AD	29. Moudjeria	TA	43. Tintane	HG
15. Djigueni	HC				

Source: FEWS/Mauritania 1986; IGN 1980
FEWS/PWA, MAY 1987

FAMINE EARLY WARNING SYSTEM

This is the sixteenth/seventeenth in a series of monthly reports on Mauritania issued by the Famine Early Warning System (FEWS). It is designed to provide decisionmakers with current information and analysis on existing and potential nutrition emergency situations. Each situation identified is described in terms of geographical extent and the number of people involved, or at-risk, and the proximate causes insofar as they have been discerned.

Use of the term "at-risk" to identify vulnerable populations is problematic since no generally agreed upon definition exists. Yet, it is necessary to identify or "target" populations in-need or "at-risk" in order to determine appropriate forms and levels of intervention. Thus for the present, until a better usage can be found, FEWS reports will employ the term "at-risk" to mean...

...those persons 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.

Perhaps of most importance to decisionmakers, the FEWS effort highlights the process underlying the deteriorating situation, hopefully with enough specificity and forewarning to permit alternative intervention strategies to be examined and implemented. Food assistance strategies are key to famine avoidance. However, other types of intervention can be of major importance both in the short-term and in the long run, including medical, transport, storage, economic development policy change, etc.

Where possible, estimates of food needs 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 the 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 estimates of food needs presented periodically in FEWS reports should not be interpreted to mean food aid needs, e.g., as under PL480 or other donor programs.

FEWS does not collect primary data. Rather, it receives information from various domestic U.S. and international agencies and private voluntary organizations, and from government agencies in the countries under study via in-country FEWS Public Health Advisors. The information is then examined, compiled and analyzed for its predictive potential. Without the ongoing cooperation of all these organizations, FEWS could not function.

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