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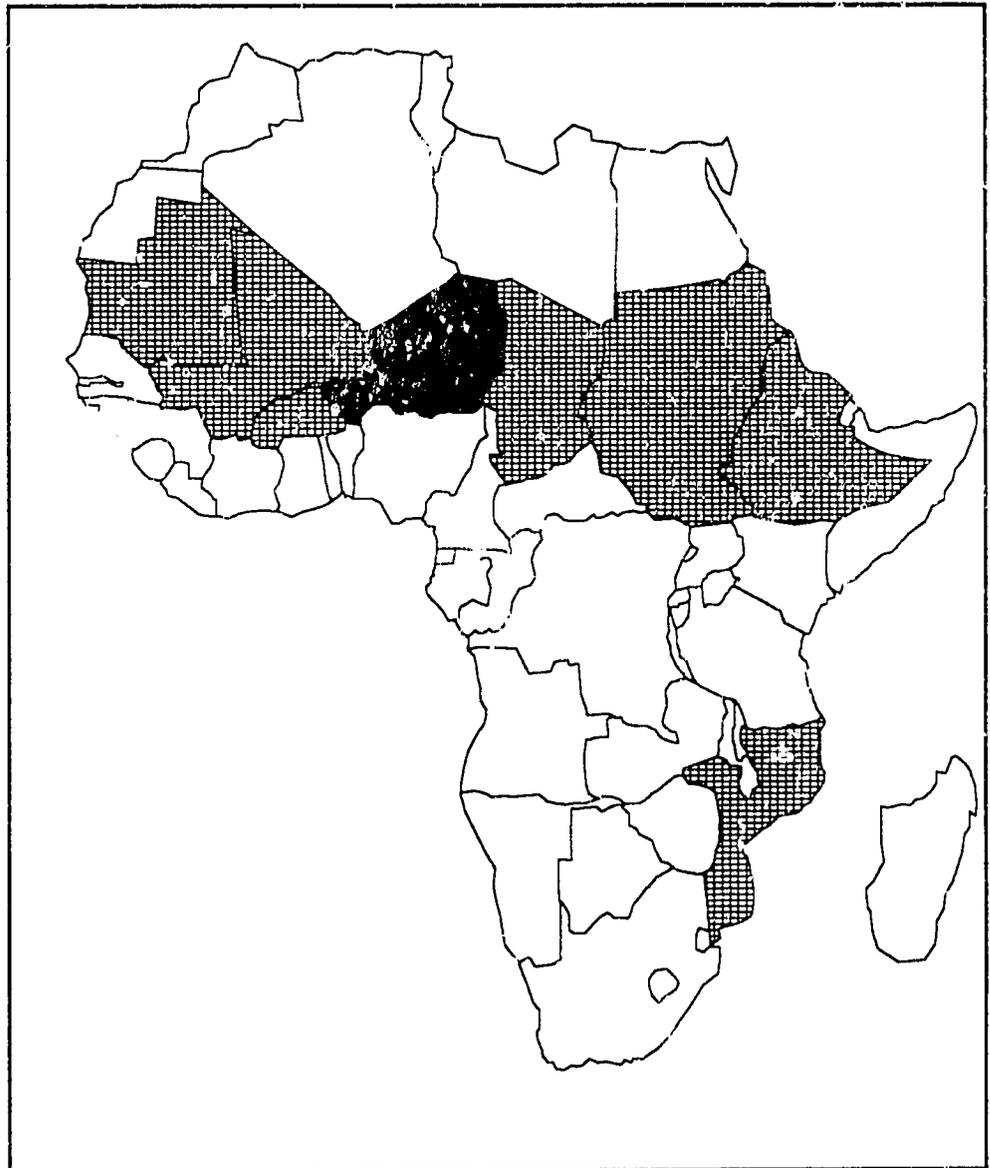
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FEWS Country Report

NIGER



Africa Bureau
U.S. Agency
for International
Development

NIGER

First Harvest Estimates Show Food Deficit

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

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October 1987

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Contents

Page	
1	Summary
1	Regional Assessment of the 1987 Growing Season
2	Niger Crop Condition Indicators
10	Appendix I: Notes for Table 1

List of Figures

Page

2	Map 2	Agricultural Areas With no Harvest or Poor Yields
3	Figure 1	Below-Average Biomass and Vegetative Condition
5	Figure 2	Net Millet and Sorghum Production Trends
6	Figure 3	Seasonal Vegetative (NDVI) Trends
9	Figure 4	Grasshopper Infestations

SUMMARY

All indicators suggest that the 1987 cereal harvest will be significantly lower than that of 1985 or 1986. The remaining question is by how much this year's harvest will exceed the disastrous harvest of 1984. Surveys of production are underway and will soon be available. The Government of Niger's preliminary harvest estimate of September 23rd projected a national cereal deficit of 350,000 MT. This estimate was based upon an optimistic assumption that good rainfall would continue through September; the subsequent light rainfall in September might cause a downward revision of the amount of forecast production. Nevertheless, the early September assessments of crop condition need to be updated. While no official request for food assistance has yet been received by the donor community, there are indications that one is under preparation. There is ample evidence, however, that there are local areas, some quite extensive, in which harvests will be far from sufficient for local food needs. Some of the most-affected areas are habitually unable to meet food needs with local production. Others, particularly the southeastern portion of Zinder Department, have suffered much greater than usual stress on their food crops. A late and very extensive grasshopper infestation in the south-central portion of the country may put additional stress on very local, and relatively meager food supplies.

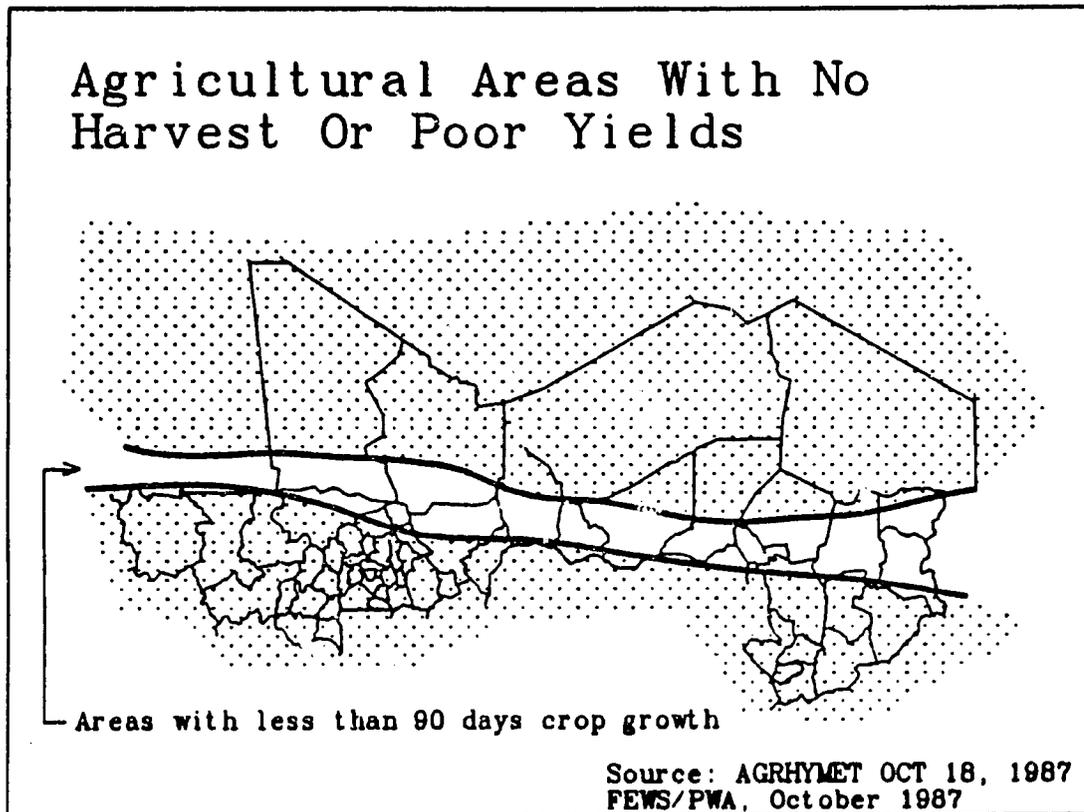
REGIONAL ASSESSMENT OF THE 1987 GROWING SEASON

In the central Sahel, from Mali over to Chad, crop conditions and harvest prospects vary greatly. In the western and southern areas of Mali and Burkina, crop conditions were generally average to better-than-average. Eastern Mali and northern Burkina are marginal cropping areas which appear to have poor harvest prospects again this year. Conditions are particularly acute in the Gao Region of Mali. In Gao, the poor current conditions only compound food supply and production problems that have existed for at least the last three years. Niger may feel some of the immediate impact of this situation in an increased flow of migrants seeking off-season work either in Niger or further south.

Cropping conditions in most of Niger, northern Nigeria, northern Cameroon, and the Sahelian and Sudano-sahelian areas of Chad have been unfavorable over most of the season. Even along the coast, sporadic dry-spells and light rainfall have reduced cereal yields from the Ivory Coast over to Nigeria. Benin may have a more severe problem than normal. Harvests will be much less than last year, and only average in many areas. Southern Chad appears to have benefitted from relatively good rains during most of the season, and expects an average to above-average cereal harvest.

Map 2 represents those areas in which AGRHYMET estimates there has been only 90 days of plant growth following the first major rainfall. Most crops grown in the zone require at least 120 days; 90 days of development will leave crops with very poor yields. Some of the areas found within the 90-day zone are usually found in it (particularly Mauritania and parts of northern and eastern Mali). Other areas (particularly Niger) have been greatly hurt by late plantings due to the delayed onset of rains this year, and will see a general drop in yields, as well as no harvests in some areas.

Map 2:



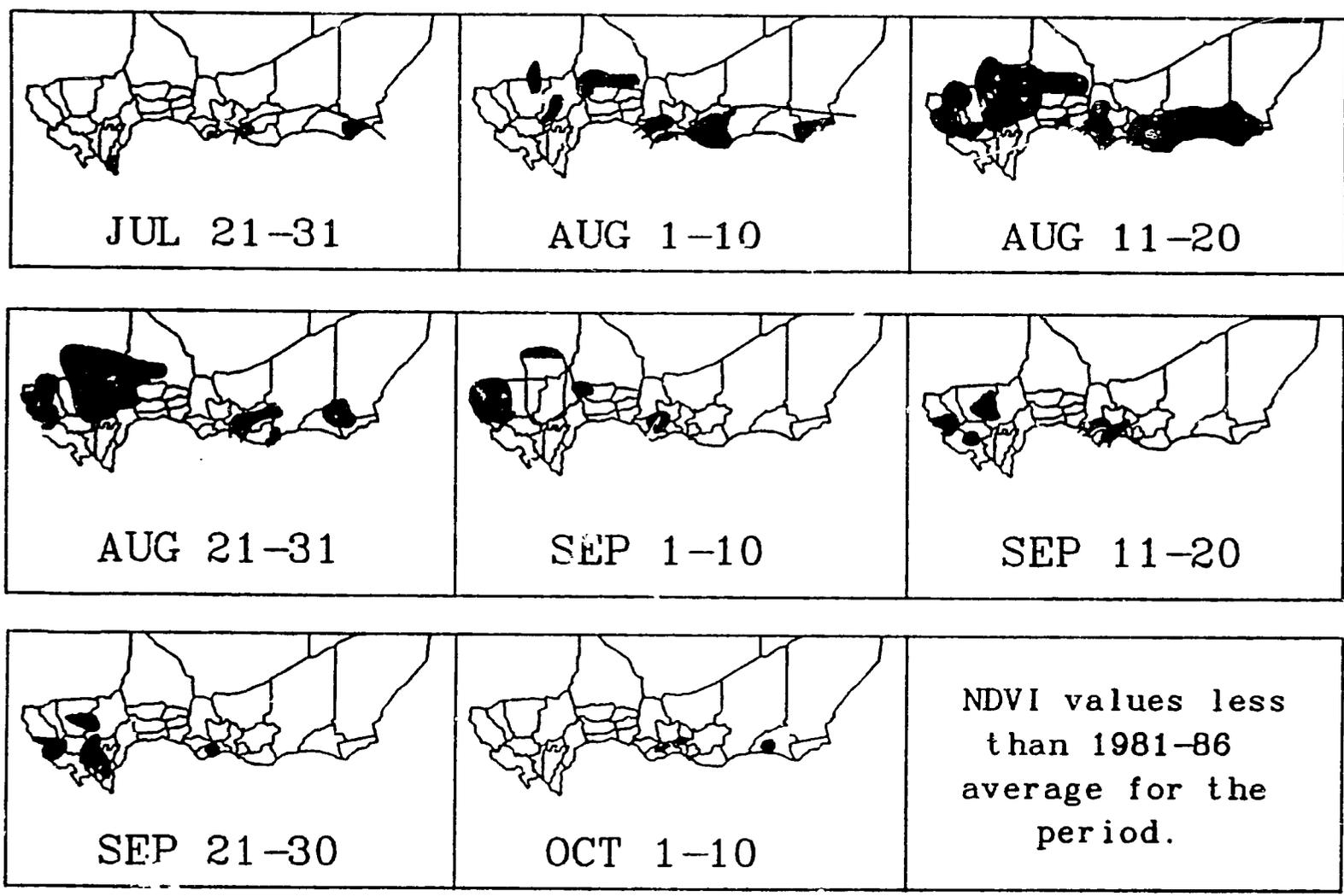
NIGER CROP CONDITION INDICATORS

Rainfall Reports: *Rainfall during September and early October was neither sufficient in quantity nor in duration to meet the needs of most crops in Niger. The late start, light quantities, and poor spacing of rains from June to late August in 1987 left crops in need of generous rain throughout September and even early October in order to complete a normal vegetative cycle. Actual rainfall during that period was, nevertheless, only poor to average; severely stressed plants and much reduced yields will be the rule there. Late in September, there were rains in northern Niamey and Tahoua Departments, but these were both too late and/or too far north to affect much cereal production. Large areas of Niger (a broad band from Filingue to Magaria) still have rainfall deficits of at least 250 mm below normal. In some cases, the cumulative rainfall figures are at or near historic low levels.*

Satellite Imagery of Vegetation Conditions - Seasonal Summary: Figure 1 summarizes the results of a comparison between 1987 rainy season vegetative conditions and average conditions for the period 1981 to 1986. The shaded areas indicate the location of below-average vegetative conditions and amount of biomass. Where the shading covers agricultural zones, the probability is high that cropping conditions were also below average.

Several trends are noteworthy. Persistent below-average conditions were noted in Diffa Department and in southern Zinder Department, particularly from July 20th

Below-Average Biomass & Vegetative Condition



through the end of August. This suggests that these areas suffered from at least a month of unfavorable agricultural conditions. That stress probably compounded the already negative effects of the late onset of rains, and the earlier seedings and re-seedings. A similar pattern is seen in northern Niamey Department, where below-average conditions persisted even longer in Filingue, Ouallam, Tillabery, and Tera. Other agricultural areas in which below-average conditions were noted over several periods include portions of: Tahoua, Guidan Roumdji, Madarounfa, Mayahi, and Tessaoua arrondissements. The location of these zones of stress is consonant with field reports of late plantings and light and poorly-spaced rains in these areas.

Several areas displayed average to above-average vegetative conditions (not shown in Figure 1) throughout most of the season. The areas with above-average conditions include southern Niamey and much of Dosso Department. Largely average conditions prevailed in agricultural zones of Tahoua Department.

Initial Government of Niger Cereal Production Estimates: *On September 23, 1987, the Government of Niger (GoN) released a preliminary cereal harvest estimate that forecast a cereal deficit of 350,000 MT. The estimate, completed after a survey taken early in September, assumed that rains would continue in sufficient quantity into late September. The relatively poor rains in September put into doubt the ultimate conclusion as to the size of the deficit. Other surveys continue, and new estimates should be available by late October or early November.*

Figure 2 graphically represents, for each agricultural arrondissement, the historic trends in net cereal production since 1981, and includes the GoN estimate for 1987 production. The wide line in each graph represents actual or estimated production during 1981 to 1986, and is compared with the average, minimum, and maximum production levels during that same period. Symbols indicate where 1987 production is forecast to be the worst since 1981, and where it will be about as poor as in 1984.

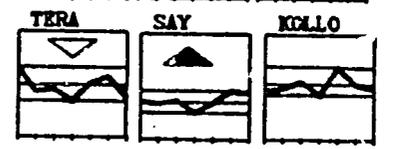
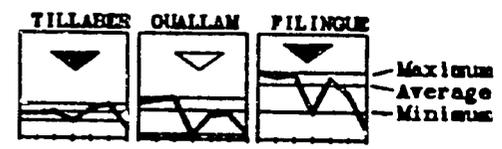
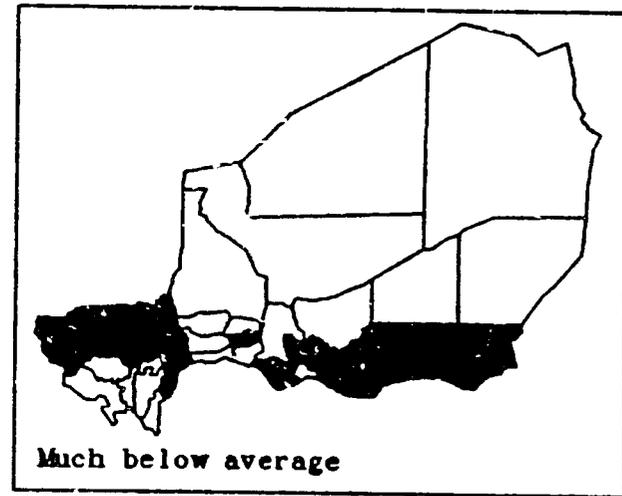
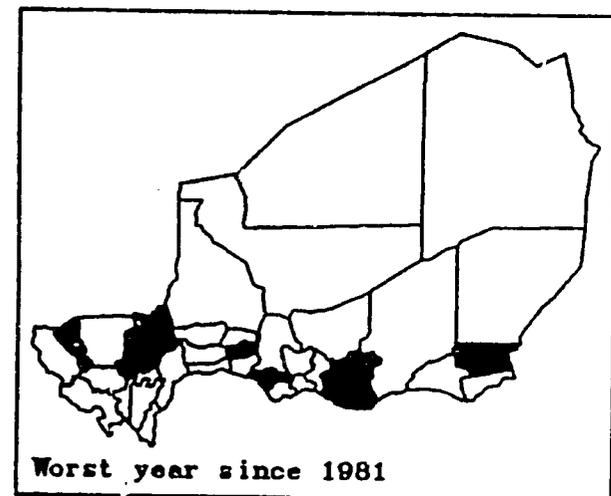
The "worst year" symbols indicate that Diffa Department, southeastern Zinder, and northern Niamey Departments will be hardest hit in relative terms. Elsewhere, with few exceptions, net production is estimated to be average or below average, compared to levels found during 1981 to 1986. It should be noted that these estimates tend to confirm the location of greatest stress identified in the summary of season-long satellite imagery (discussed above).

Vegetative Trends for Seriously-Affected Arrondissements: In Figure 3, for each seriously affected arrondissement (those in which the GoN September 23rd estimate ranks 1987 production as the lowest since 1981, or much worse than average), 1987 vegetative index values (using the normalized difference vegetative index, or NDVI), are compared with seasonal NDVI curves reflecting the average and minimum values from 1981 to 1986. One would expect that arrondissements with poor estimated cereal production would show evidence of poor growing conditions in the NDVI curves.

Most of the curves do, indeed, show that 1987 vegetative values were lower than average in these arrondissements, reflecting the impact of poor rains. Greening

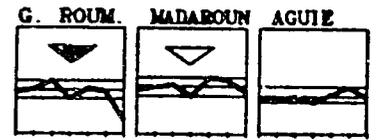
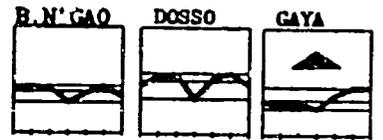
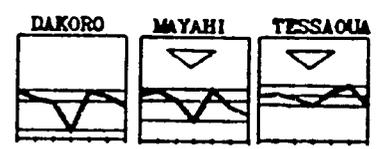
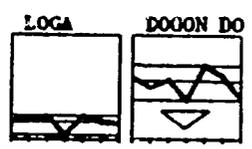
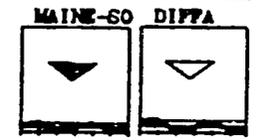
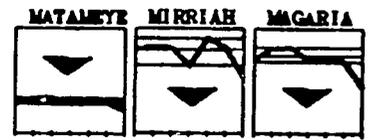
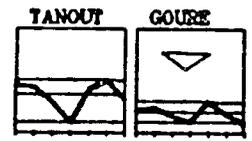
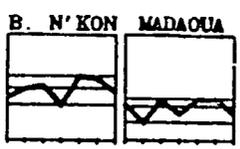
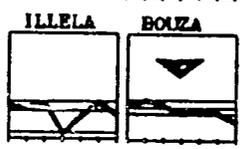
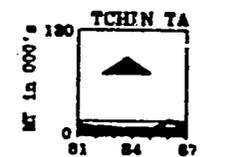
Net Millet & Sorghum Production Trends

(1981-1986 & 1987 Estimate)



1987

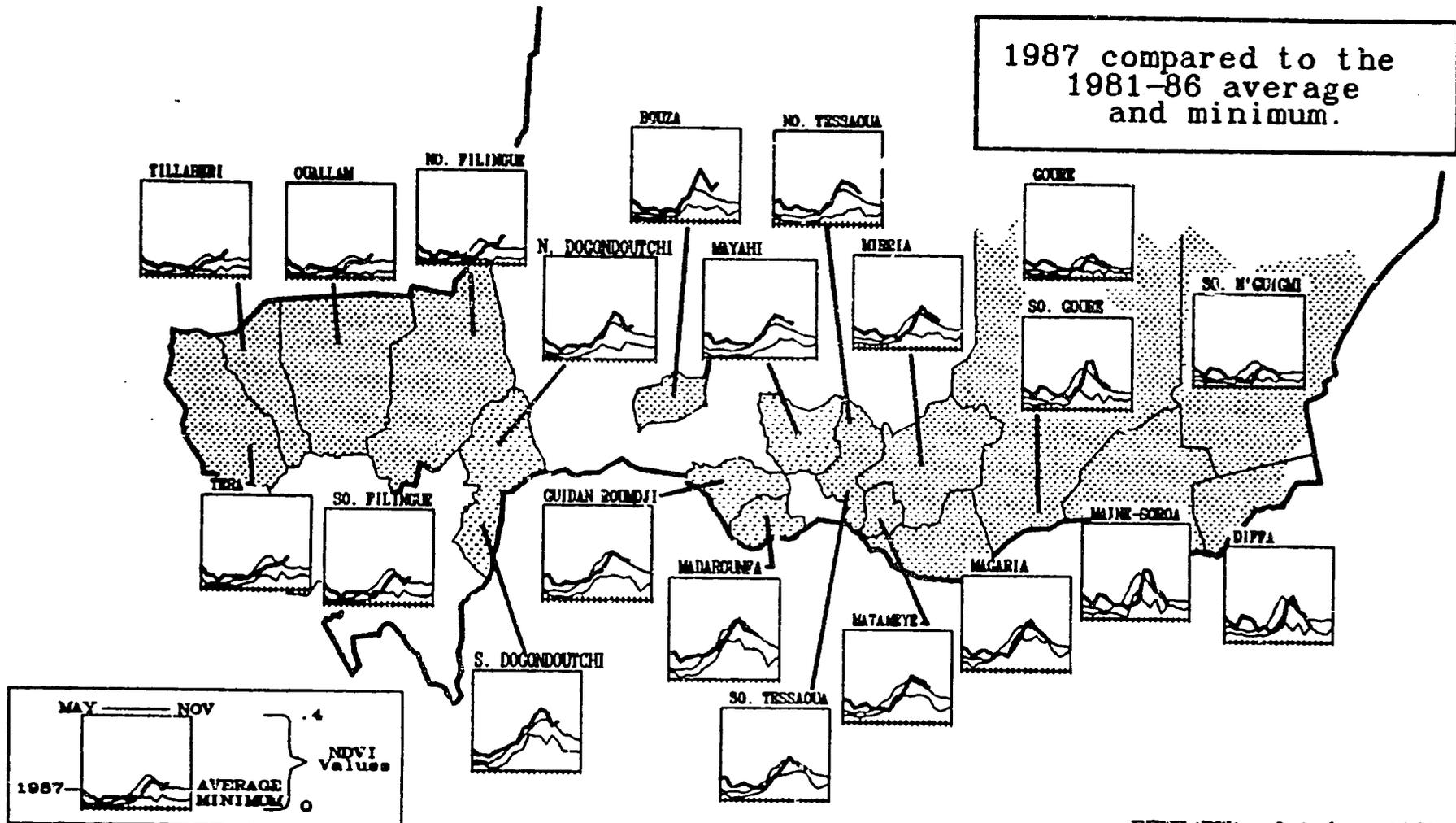
- ▲ Above average
- ▽ Much below average
- ▼ Worst year



Ministry of Agriculture
FEWS/PWA, October 1987

Seasonal Vegetative (NDVI) Trends

1987 compared to the 1981-86 average and minimum.



of the vegetation occurred from 1 to 4 weeks later than average. This is particularly evident in the arrondissements in Diffa Department, in southeastern Zinder Department, and in northern Niamey Department. The curves for these specific areas also show that the season-end decline of vegetative conditions is occurring at its normal time. This suggests that the effective period for growth of vegetation and, by inference, crops, has been greatly shortened by a late start and normal end. The likely outcome for surviving crops under these conditions is stunted growth and reduced yields.

The GoN estimate of much worse than average production in Bouza, Mayahi, and Dogondoutchi arrondissements is not as well supported by the respective curves. This may be due to several factors, among which is a simple mis-estimation of the potential harvest, or the difficulty of aligning the satellite imagery indexes with crop-growing areas in each arrondissement.

National Food Balance Scenarios: Assuming for a moment that the GoN cereal production estimate of September 23rd is found to be relatively accurate (and there still remains a significant element of uncertainty about it), several scenarios can be constructed in an effort to estimate the national 1987-88 food balance. Critical assumptions concerning the amount of on-farm stocks, of annual cereal requirements, off-season and secondary production, and commercial imports, (for which there is still a great deal of discussion and little unanimity of opinion), must be built into the balance. Appendix I discusses some of those factors and how they have been treated in Table I.

The first column in Table I presents the GoN estimate of September 23rd, and shows how the deficit of 350,000 MT was determined. Other scenarios assume lower production (10%, 20%, and 40% less), and use GoN assumptions about other food resources and needs. These are shown next to the GoN estimate. The last two columns, entitled "Alternate Scenarios", use differing assumptions about levels of net production, on-farm stocks, per capita food requirements, and commercial imports to suggest alternate conclusions for the national food balance.

Among these scenarios, the size of the potential deficit ranges from 140,000 to more than 500,000 metric tons (MT), depending upon the data used. The consequent uncovered food need varies similarly, from a 22,000 MT surplus to a more than 500,000 MT deficit. While the scenarios may be useful in analyzing the possible extent of food shortages or surplus, their conclusions remain constrained by a reliance on the initial harvest estimate of the 23rd, and by the weakness of much of the other data that compose the food balance. *Nevertheless, given the data available, it seems most plausible that the amount of the 1987 cereal balance surplus or deficit lies somewhere in between the best and worst cases shown in Table 1.*

Grasshoppers and Locusts: A rather large infestation of Senegalese grasshoppers (*Oedaleus senegalensis*) occurred in late September and early October in the south-central parts of the country (see Figure 4). The potential impact of the infestation on local food supplies could be significant, as most of the areas concerned are relatively marginal agricultural areas that have suffered greatly from the generally poor season-long growing conditions. Aerial control efforts

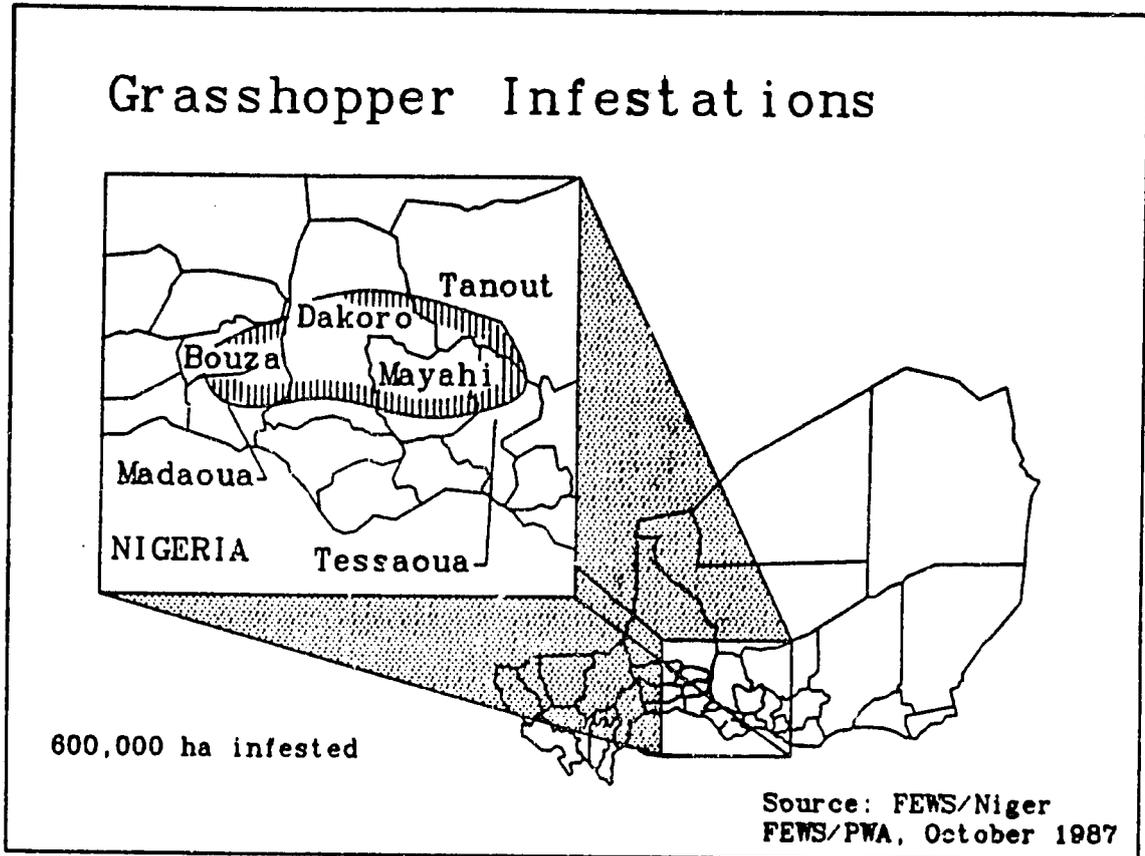
Niger Food Balance Estimates (Oct 20, 1987)

	--- Scenarios Based on MinAg Estimate ---				: Alternate Scenarios	
	MinAg 9/23	If 10% Less Production	If 20% Less Production	If 40% Less: Production:	Best Case	Worst Case
MAIN-SEASON CEREAL PRODUCTION & LOCAL STOCKS						
Millet-Net	762,633	*686,370	617,732	457,580	686,370	617,732
Sorghum-Net	198,711	*178,840	160,955	119,227	178,840	160,955
Rice-Net	*49,234	49,234	49,234	49,234	49,234	49,234
Corn-Net	3,411	*3,070	2,763	2,047	3,070	2,763
Niebe (Cowpeas)-Net	0	0	0	0	150,000	150,000
On-Farm Stocks	0	0	0	0	50,000	15,000
Cereal Banks	*2,000	2,000	2,000	2,000	2,000	2,000
OPVN	*77,368	77,368	77,368	77,368	77,368	77,368
RINI Stock	*1,716	1,716	1,716	1,716	1,716	1,716
TOTAL CEREAL AVAILABLE	1,095,073	998,598	911,768	709,172	1,198,598	1,076,768
CEREAL REQUIREMENTS (Population of 6,893,791 used by GoN is a 7/87 FEWS estimate)						
Nat'l Cereal Requirement	1,447,696	1,447,696	1,447,696	1,447,696	1,338,773	1,338,773
CEREAL BALANCE (Deficit)	(352,623)	(449,098)	(535,928)	(738,524)	(140,175)	(262,005)
OTHER FOOD RESOURCES						
Off-Season Production	*112,000	112,000	112,000	112,000	112,000	112,000
Comm'l Imports	0	0	0	0	50,000	50,000
Emergency Assist	0	0	0	0	0	0
TOTAL OTHER FOOD	112,000	112,000	112,000	112,000	162,000	162,000
UNCOVERED SURPLUS/(DEFICIT)	(240,623)	(337,098)	(423,928)	(626,524)	22,000	(100,005)

NOTE: See Appendix I for a discussion of the assumptions used in the Alternate Scenarios. All figures are in '000 MT. *Indicates which data was used in Best Case scenario.

ASSUMPTIONS for Best Case Scenario: Assumes MinAg estimate of 9/23 was relatively accurate. Yields of millet, sorghum, and corn are 10% less than Ministry estimate due to poor rains in September; net niebe (cowpea) production is less than 1981-86 average of 237,000 MT; on-farm stock amount is likely somewhere between GON estimate of 0, and other local estimates of 100,000 MT; urban and pastoral population of 2,481,765 [7/87] requires 175 kg/year, and agro-pastoralist population of 4,412,026 requires 205 kg/year; commercial imports will reach approximately 50,000 MT; imports and exports of grain over Nigeria border will be restricted (current exchange rate favors flow of grain into Niger). Worst Case assumes 20% less production than estimated and only 15,000 MT of on-farm stocks.

Figure 4



were organized and implemented in October, although estimates were that only 30% of the affected area could be treated.

A small swarm of locusts was found west of Arlit in late October, in an area that had been treated earlier. There appears to be **no** serious threat to Niger by these or other locusts at this time. They may, however, represent a greater problem for Mali and Algeria, where they **might** be expected to move in the coming months.

APPENDIX I: NOTES for Table 1 on Niger Food Balance Estimates (Oct. 20, 1987)

The Ministry of Agriculture cereal production estimate of 9/23/87 is the basis for the food balance estimates seen in the attached table (column 1 shows the MinAg estimate). If the 9/23 estimate is shown to be grossly wrong, all the other scenarios will be far from the mark. It was made in early September, and released on September 23, 1987. It assumed good rains in September would help to increase yields, and salvage a harvest in the some of the worst-hit areas. However, the rains in September did not generally provide adequate moisture for good crop growth. The Ministry may thus revise downward its assessment of production (Three estimates indicating 10, 20 and 40% less production are shown).

The Alternate Scenarios differ from the MinAg scenarios in their estimates of net niebe (cowpea) production, on-farm cereal stock amounts, the net national cereal requirement, and the probable amount of commercial grain imports during 1987-88. They also reflect a "best guess" about how much lower net production will be than the 9/23 estimate (20% worse in the Best Case, 30% worse in the Worst Case). The MinAg estimate did not count niebe production for the same reason it did not count groundnut production, saying that it is largely a cash crop, and relatively unimportant in the diet. This probably understates the contribution of niebe to meeting food needs, particularly in bad years when it is a "safety net" for many. Average net niebe production during 1981-86 was 237,000 MT. Given the poor growing conditions this year a "best guess" has been made about the 1987 net production.

The GoN used the 7/87 FEWS population estimate in its calculations of cereal requirement. The net yearly cereal requirement used in the FEWS Best/Worst cases is 175kg per urban dweller and pastoralist, and 205kg per agro-pastoralist. This is much less than the 200kg for urban dwellers and pastoralists and 250kg for agro-pastoralists used in recent years by the GoN. An assumption has been made here that urban and pastoral inhabitants make up 36% of the total population, based on the percentages found in the 1980 census. It is still uncertain to FEWS what percentages have been used to make the 9/23 MinAg estimates.

Local donor estimates about the amount of on-farm stocks vary greatly. Some agencies and PVO's appear relatively pessimistic about the quantity of cereals currently available on-farm (some predict that supplies will not last beyond October). Others informally estimate as much as 100,000 MT. While it is certain that there are local pockets where on-farm reserves are nil, it would appear unlikely that the national on-farm reserves could be exhausted immediately after two record harvests in a row (small-farmer conservatism does not normally allow grain reserves to be depleted so easily, particularly where the two prior years have allowed many, if not most, farmers to harvest a surplus over consumption needs). Two "best guesses" (50,000 and 15,000 MT) have been used in the Best/Worst Case scenarios.

In its 9/23 estimate, the MinAg did not estimate commercial imports. Cereal prices remain surprisingly low in most parts of the country, and well below the levels recorded in 1984 when 214,000 MT were imported. This may result in less impetus to import grains in 1987-88 without additional stimulus of some kind. A "best guess" estimate is used in the alternative scenarios.

The traditional, and sometimes massive flows of grain over the Niger/Nigerian border may play a positive role for Niger. The rate of exchange currently appears to favor the selling of Nigerian grain in Niger. Whether this flow becomes significant will be determined by the degree to which Nigeria attempts to stop exports of grains, and by harvest conditions in northern Nigeria. While the national Nigerian harvest has been reported to be less good than in previous years, and conditions in northern Nigeria less than ideal for the grain crops, traditional market ties and a favorable exchange rate may weigh heavy in stimulating cross-border grain movements to Niger.

FAMINE EARLY WARNING SYSTEM

This is the sixteenth in a series of monthly reports on Niger 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 depends on a variety of US Government agencies, private voluntary organizations (PVO's), international relief agencies, foreign press and host government reports as sources of information used in the country reports. In particular, a debt of gratitude is owed to many individuals within various offices of the U.S. Agency for International Development (USAID) who routinely provide valuable information: the offices of Food For Peace and Voluntary Assistance (FFP/FVA) and the Office of Foreign Disaster Assistance (OFDA). Additional useful information is also provided by the Centre Agrhyet in Niamey, the National Oceanic and Atmospheric Administration's National Environmental Satellite, Data, and Information Service (NOAA/NESDIS), the Cooperative Institute for Applied Meteorology at the University of Missouri (CIAM), the National Aeronautic and Space Administration (NASA), the UN Food and Agriculture Organization (FAO) Global Information and Early Warning System (GIEWS), the World Food Program, and other U.N. agencies.

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