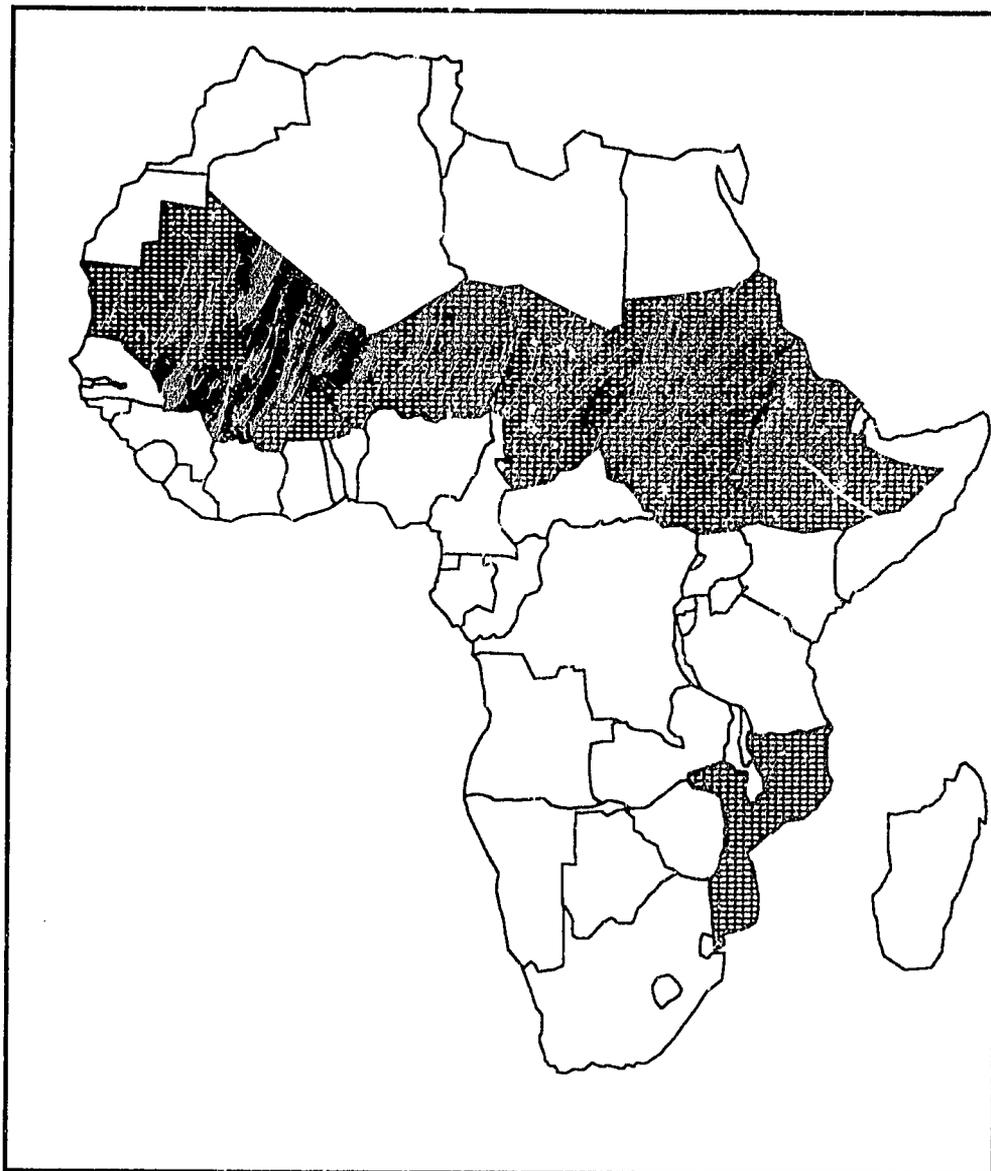


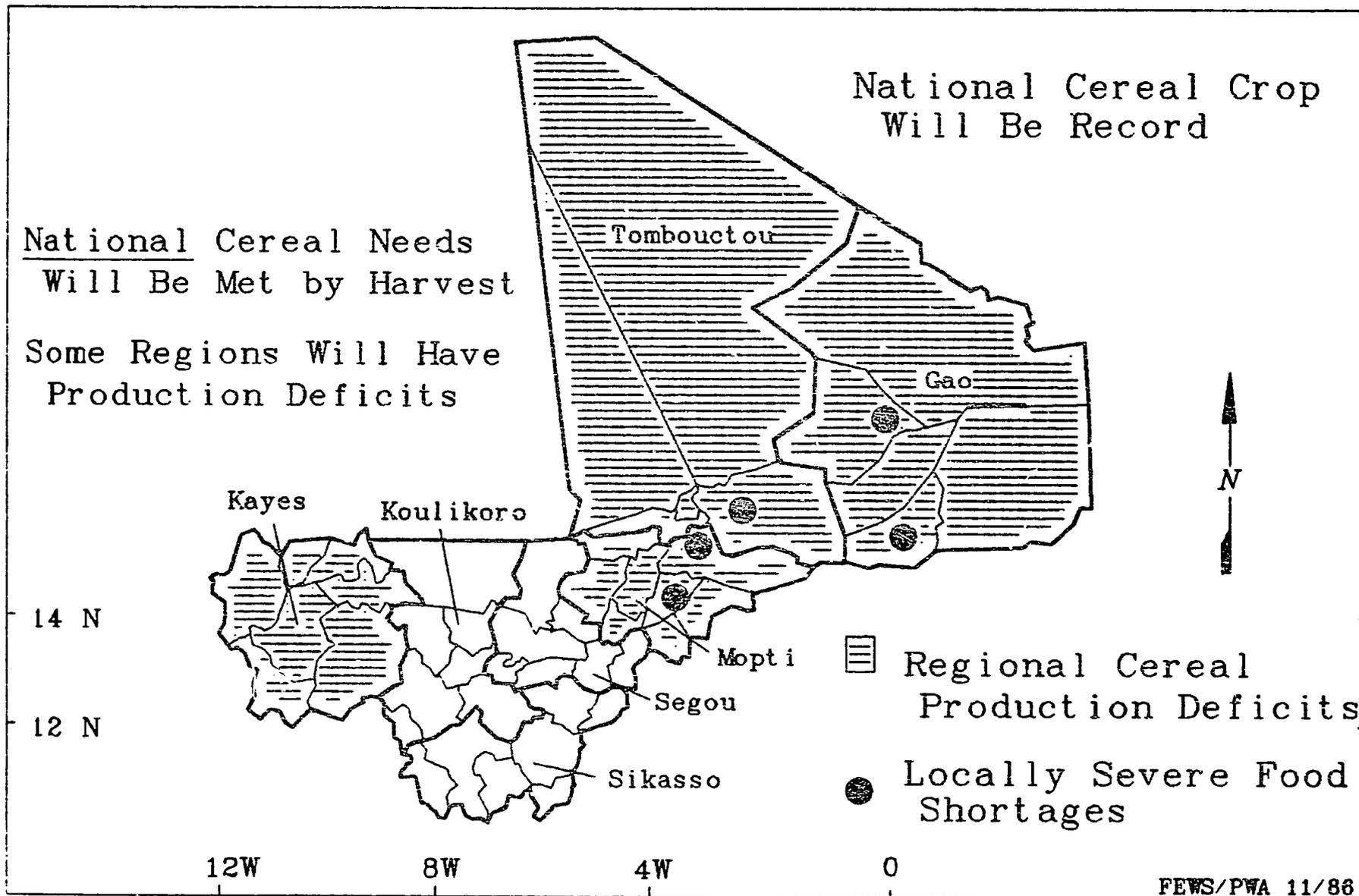
Report Number 6
November 1986

FEWS Country Report

MALI



Africa Bureau
U.S. Agency
for International
Development



Famine Early Warning System Country Report

MALI

Record Harvests; Regional Deficits

Prepared for the
Africa Bureau of the
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Prepared by
Price, Williams & Associates, Inc.
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INTRODUCTION

This is the sixth of a series of monthly reports issued by the Famine Early Warning System (FEWS) on Mali. 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 problematical 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 process underlying the deteriorating situation is highlighted by the FEWS effort, 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, 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.

FEWS is operated by AID's Office of Technical Resources in the Bureau for Africa in cooperation with numerous USG and other organizations.

SUMMARY

Recent estimates show that Mali will probably harvest a record national cereal crop this year, approximately 1,776,000 metric tons. The net harvest figure will almost exactly cover minimal (167 kg. per person) national food requirements for cereals. This record harvest does not rule out regional and local food shortages, which will be, in some cases, severe. At least 49,000 people are currently at-risk with almost no food resources. Many hundreds of thousands of other farming-oriented families will need to purchase or receive free cereals to cover at least a part of their yearly needs. The nutritional state of some of the most affected arrondissements was surveyed and showed nutritional stress, and indications of vitamin deficiencies. The grasshopper infestation is largely over for this year. Unfavorable weather conditions and aerial spraying limited severe grasshopper damage to localized pockets. Eggs laid this year by several adult generations will likely bring the same problem next year.

Issues

- o The problems brought by harvesting a surplus of grain will be, in some terms, as difficult to deal with as those bred of a deficit in production.
- o The good harvest this year will contribute to falling cereal prices. Farmers with surpluses will thus not benefit from their crops as much as they might require to repay debts, or rebuild financial reserves. The government cereal marketing and security board (OPAM) will also suffer as its present stocks of cereals sell slowly or not at all.
- o Most of Mali's regional cereal shortages could probably be met by buying from surplus areas and transporting to deficit areas.
- o The Government of Mali may wish to dispose of some of its cereal stocks in neighboring West African markets. Many of them will not be interested as similarly good harvests are general in the area.
- o Mali's potential grasshopper problem for the 1987 rainy season is as great as it was preceding the 1986 rainy season. If a repetition of the crisis-mode operations undertaken this year is to be avoided, planning and pre-positioning of resources will have to begin now, and, most importantly, will have to be sustained through the next six months.

Key November Events

- o The FAO sponsored locust evaluation team will be examining retrospectively what occurred in Mali this season. A preliminary idea about how to deal with next year's threat may be outlined.

RAINFALL

The Inter-Tropical Convergence Zone (ITCZ), the Sahel's rainy season weather front, largely determines where and how late rains will fall in the Sahel. As it moves north from the Equator, laden with tropical moisture, it collides with colder European air masses and produces rain. The farther north into the Sahara it moves, the farther north rains occur in the Sahel. The later it stays, the later rains will occur there. It played a major and multi-faceted role in late September and early October across the western Sahel, including Mali, when it stayed higher and longer than is historically the norm.

Unusually heavy rains during this period raised soil moisture levels enough to lengthen the growing season in this zone. This particularly benefitted areas in which planting occurred late, due to drought early in the season, and those in which early-season grasshopper damage to seedlings made replantings necessary.

Other results of the rains were no less important. The late greening of pastures turned traditional rainy-season grazing areas, which herders had been forced to leave early, into prime fodder areas. Herd movements back into these areas have already been noticed in southern Mali. The availability of green grasses also anchored grasshopper populations to the natural vegetation, eating the grasses they prefer, rather than in cultivated fields where they would damage crops.

An additional benefit of the heavy rains was the extra water brought to rivers in the area. For the rice crop in the Mopti Region, heavily dependent on the volume and rise of the Niger River, the rains may have averted major crop losses. Elsewhere, recession cropping and cutting of river-side fodder benefitted from the greater volume of water in the rivers.

Some areas in Mali, however, did not receive late rains in any significant quantity, and continue to suffer the effects of season-long poor rainfall. These include areas around, and to the north of Nioro, Nara, Niafunke, Tombouctou, and Gao, a general zone running above the 14th parallel of latitude from the north-western corner to the eastern edge of the country.

CROP PRODUCTION

Since midway in the rainy season, most agencies with an interest in Malian agriculture have been giving generally positive ad hoc assessments of the progress of this season's agricultural campaign. These feelings are now being confirmed by crop estimates done by major national and international bodies.

National Production

The general consensus of forecasts performed by the Government of the Republic of Mali (GRM), the Food and Agriculture Organization (FAO), and National Oceanic and Atmospheric Administration (NOAA), is that Mali's cereal crop will equal or surpass 1985's in size. If it is larger than 1985's harvest, it will set a new record for gross cereal production.

Table 1 shows gross domestic cereal production over the last three years, and includes Mali's National Office of Statistics and Information Science (DNSI) estimate for this season's cereal harvest. This estimate seems to be generally accepted as the best currently available. At 1,776,700 mt, the cereal harvest would be approximately 6.5% higher than last year's record harvest.

Table 1: Mali's 1986 Cereal Crop (Estimated)

	1984	1985	1986
Crop Area (ha)	1,072,308	2,051,669	2,102,073
Avg. Yield (kg/ha)	1,036	812	845
Gross Production (mt)	1,111,669	1,666,414	1,776,700

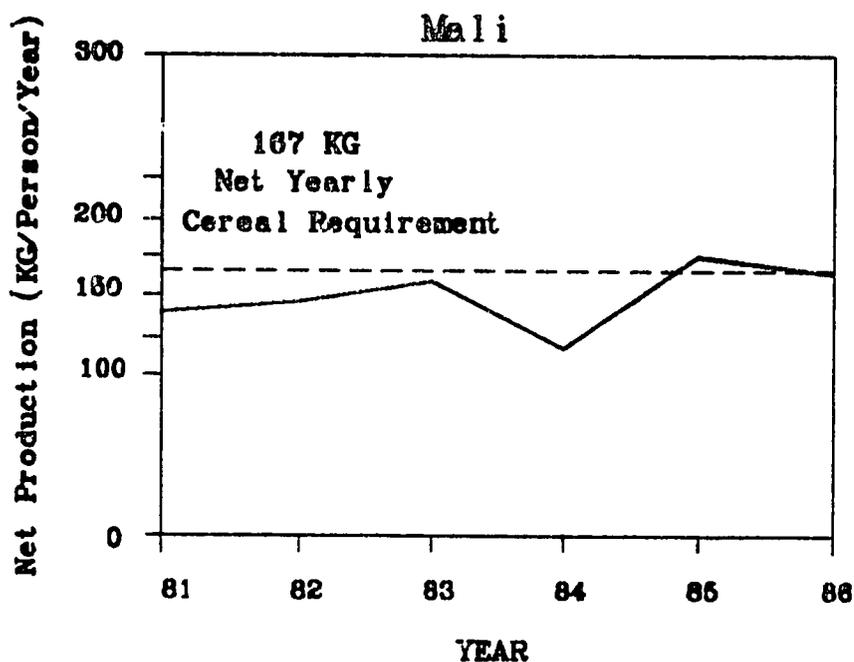
Source: DNSI

This increase in production was accomplished on approximately 2% more hectareage. Millet and sorghum yields on a national basis (739 kg/ha in 1986) are forecast to be similar to those in 1985 (746 kg/ha), while national maize yields should rise dramatically about 29% from last year (1,996 kg/ha in 1986, 1,549 kg/ha in 1985). These yield figures basically reflect the impact this year of less favorable rains in more northerly millet growing areas than those in southern areas where maize is more commonly found. Despite the threat, now passed, of large rice crop losses due to low river levels in the Mopti rice zone, the national rice crop yield should be up over 23% from last year.

Chart 1 shows the national trend in net per capita cereal production. Despite this record harvest, there are more mouths to feed now, so this year's production is a little less than last year's in per capita terms. For the last six years, net production has been either below or roughly equal to the minimal (167 kg) cereal needs of the nation. The difference has been made up by importations of food aid, or by commercial imports.

Chart 1

Per Capita Production



Source: DNSI

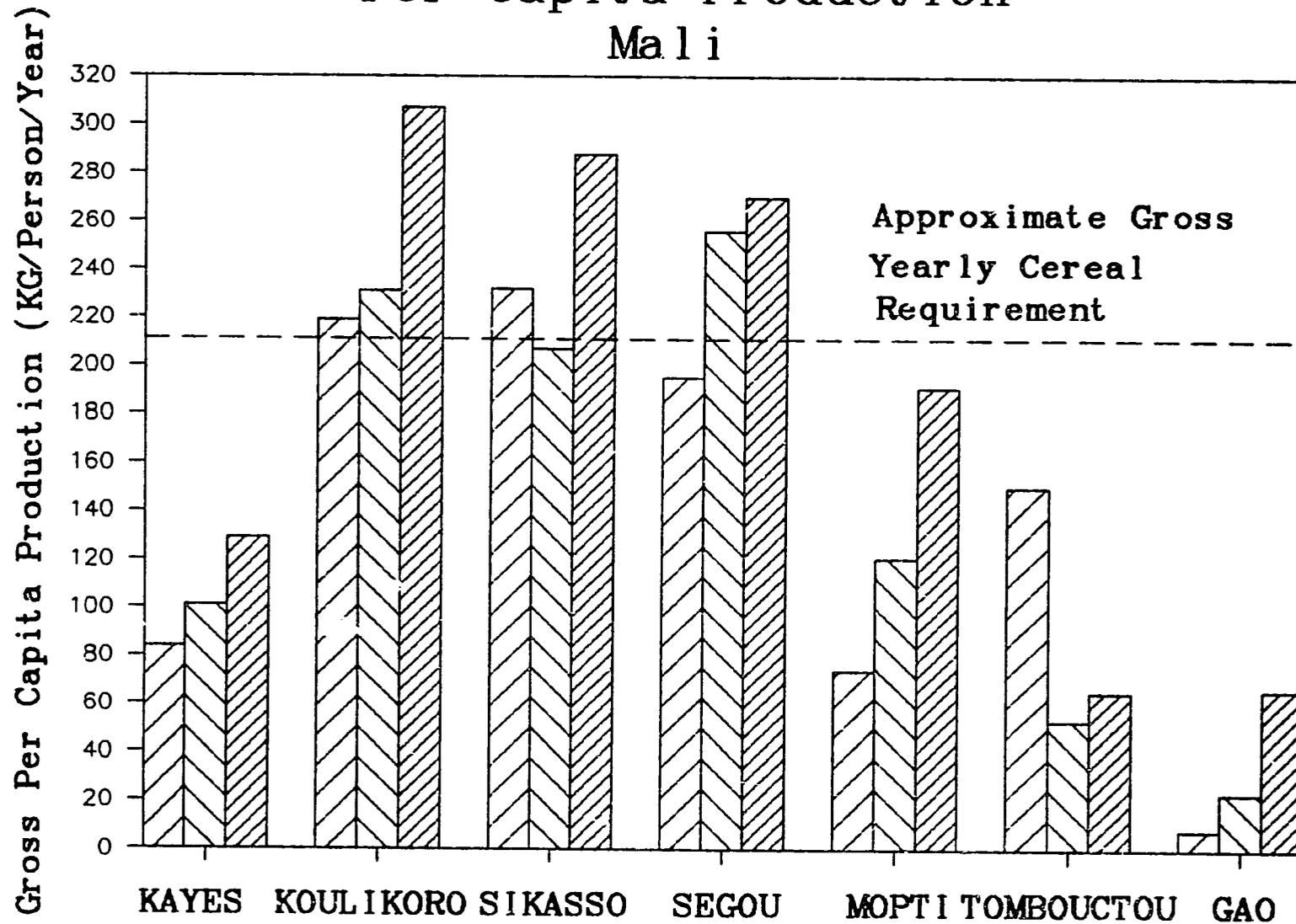
Regional Production

National agricultural production figures often mask inter- and intra-regional differences. This is particularly true in the Sahel, where the drop-off in production as one moves to the north is so pronounced. For example, in Kayes Region, millet and sorghum yields range from just over 1,000 kg/ha in the south, to 365 kg/ha in the north, a distance of only 375 km (285 miles). Inter-regional variations are just as great.

Per capita cereal production figures by region bear out this great diversity in domestic food resources at the sub-national level. Chart 2 shows per capita gross cereal production in kilograms by region for 1986 (estimated), and 1984 and 1985.

Chart 2

Per Capita Production Mali



1984

1985

1986

As can be seen, the forecast leaves Mopti, Kayes, Tombouctou, and Gao regions with less than 212 kg per capita gross production, (which would provide a net of 167 kg per capita as a minimal yearly cereal requirement) These regions usually require food assistance to supplement their domestically produced cereals. Production in Koulikoro (without Bamako), Sikasso and Segou Regions will likely far surpass their internal per capita cereal requirements. With the exception of Tombouctou, all of the regions have made improvements in gross per capita production.

PRICES

The price of cereals on the markets has remained stable over the past three months. However, given the good harvest, prices will drop in the near future. This drop in price will have dramatic consequences for farmers and for the GRM's OPAM (Malian Agricultural Products Office), the agency charged with buying and storing cereals for security and price stabilization stocks.

Already, OPAM's price to the public is higher than prices found in almost any market in Mali. Sales, therefore, have been extremely sluggish, and will get worse as prices drop. Holding approximately 144,413 mt of cereals, which it will have trouble selling, OPAM will be under considerable pressure to remain viable financially.

Farmers too, will find that the abundance of the harvest, and of existing stocks of cereals will reduce the return they might hope for from the sale of some of their crops. Yet many will be constrained to sell portions of their crops now, at the very worst moment, because of lack of storage, or to pay off debts.

GRASSHOPPERS

By the end of October, the grasshopper invasion was largely over for this year. It still lingers, however, as a policy issue, and as a threat for next year.

In drawing together the strands of this problem, it is clear that much more damage could have been inflicted on crops than actually was. Irregular rains during the middle of the rainy season probably helped as much as any single factor to keep grasshopper populations below critical densities required for the development of the more damaging gregarious bands and swarms.

This is not to minimize the damage that was done in localized areas, especially in the Mopti Region, in several arrondissements of the Kayes and Koulikoro Regions, and to a lesser scale elsewhere in the country.

In some of these areas significant losses of crops occurred, and in others, the combination of drought and grasshoppers combined to leave many residents at-risk of inadequate food supplies for the coming year.

There is also still the possibility that second generation migratory locusts (Locusta migratoria migratoides) could generate large numbers of a first post-rains generation in December, 1986 and January, 1987 in the north end of the Niger River Delta area.

On a national level, approximately 403,000 hectares were aeriually treated for grasshoppers. Ground treatments covered only a very small number of hectares compared to aerial treatments. The large majority (383,000 ha) of aeriually treated areas were covered using small aircraft made available by a number of international aid agencies.

Treatment of the grasshopper problem next year will require a large amount of coordination between the CPS's in Mali and Mauritania, international donors, and, with the FAO if the mandate for coordination is again given to, and accepted by them. The survey to occur in November by a group of experts secunded to an FAO coordinated team will try to begin preparing for next year by determining the lessons learned this year, and by specifying a preliminary course of action for next year.

It will be a good start to ensuring a prompt and efficient response to a likely grasshopper problem next year. However, it should be remembered that the 1985 grasshopper infestation elicited great donor and GRM concern in November and December of 1985, and yet by August and September of 1986 a crisis mode of action was again required to deal with the problem.

"Big Plane" Debate

One of the last treatment actions was a "big plane" operation in northwest Mali and in southeast Mauritania, which covered approximately 20,000 hectares in each country. The large fixed-wing aircraft which were being used in Senegal were brought up for a single sortie, and treated two large blocks delimited by the Crop Protection Service (CPS) of each country. This operation was notable for the amount of inter-country coordination it required, and ultimately received.

The request made by the GRM to undertake this operation also became the focus of a conceptual and policy debate among the FAO, USAID, other European agencies, and the GRM. Its basic arguments are already being replayed in several other West African countries.

The immediate issues of the debate center around the efficiency and the ecological safety of "big plane" spraying, and, on a broader scale, the overall strategy to use in controlling grasshoppers in the Sahel.

The request for assistance sent by the GRM to FAO regarding this operation was not retransmitted as an appeal by the FAO. The FAO, in response to inquiries as to why not, restated its policy with regard to spraying. This policy is two pronged, the first one calling for localized protection of ripening crops rather than preventive reductions of grasshopper populations in natural vegetation, and the second one specifying ground treatment early, and the use of small planes later to protect ripening fields.

The FAO and others considered that this operation was not in line with the stated policy, was inefficient in its use of resources, and not ecologically sound. On the other side of the question, the GRM, USAID, and others found no evidence of ecological danger, and pitted the potential damage of uncontrolled grasshopper populations moving eventually into fields against the costs of the operation. In the end the operation was undertaken, but contributions to defer less than the costs of the operation was hoped for by the GRM and USAID.

This largely technical issue will be much debated in the near future. Whatever the technical parameters of the debate, the political side of the issue will be the more warmly contested.

HEALTH AND NUTRITION

Generally, health and nutrition remain stable in the country. In localized areas, however, there are situations to watch.

On the positive side, the cholera outbreak recorded in Nara in August is now over. Meningitis cases also decreased to a negligible, and normal, number during the month of September in the region of Tombouctou.

On the negative side, a survey carried out by the Systeme d'Alerte Precoce (SAP) medical/nutritional team in the arrondissements of Douentza, N'Gouma, and Kendie in Mopti Region (see Map 2) in September reveals an average rate of malnutrition (less than 80% weight for height ratio) of 15% in N'Gouma, 8% in Douentza, and 8% in Kendie among children aged between 6 months and 5 years. The relatively high level of malnutrition in the N'Gouma tends to confirm that there are food-related problems in the area. Perhaps even more significant is a survey result which

reveals that 2% of the children are suffering from Vitamin A deficiency. This tends to suggest that there might be widespread cases of Vitamin A deficiency among the general population of these areas.

In last month's FEWS report, the result of a Medecins Sans Frontieres (MSF) survey of malnutrition was reported which showed a rate of malnutrition in the cercle of Gourma-Rharous which was higher (a less-than-80% weight to height ratio of 10%) than in the rest of the Tombouctou region (6%). Further analysis of the MSF nutritional survey shows that this higher rate of malnutrition concerns only displaced children (mostly of nomadic origin), the rate of malnutrition among sedentary children being comparable to the 6% average.

A health survey carried out by the national Institute of Public Health in Gourma-Rharous in 1985 also found a higher rate in the incidence of diarrhea among displaced children (30%) than among other children (15%). These results seem to indicate that displaced children are significantly more at-risk than other children. It is therefore important that health and nutritional activities be targeted at the displaced populations whose socio-economic situations are unlikely to improve in the near future.

Despite the overall improvement in nutrition since 1985, private voluntary organizations and international organizations have been cautious with the scaling-down of their nutritional operations because of the vulnerability of specific groups. Thus MSF is operating 61 feeding centers in the region of Tombouctou (see Map 3) for 2,200 children, of which 1200 come from the cercle of Gourma-Rharous. UNICEF operates 60 feeding centers in the cercle of Dire for 2,000 children, and is in the process of setting-up another 5 centers in the cercle of Bourem, Gao region. World Vision continues its nutritional activities in Menaka and Gao, and Save the Children Fund still operates 7 feeding centers for 1500 children in the cercle of Douentza.

REFUGEES AND MIGRATION

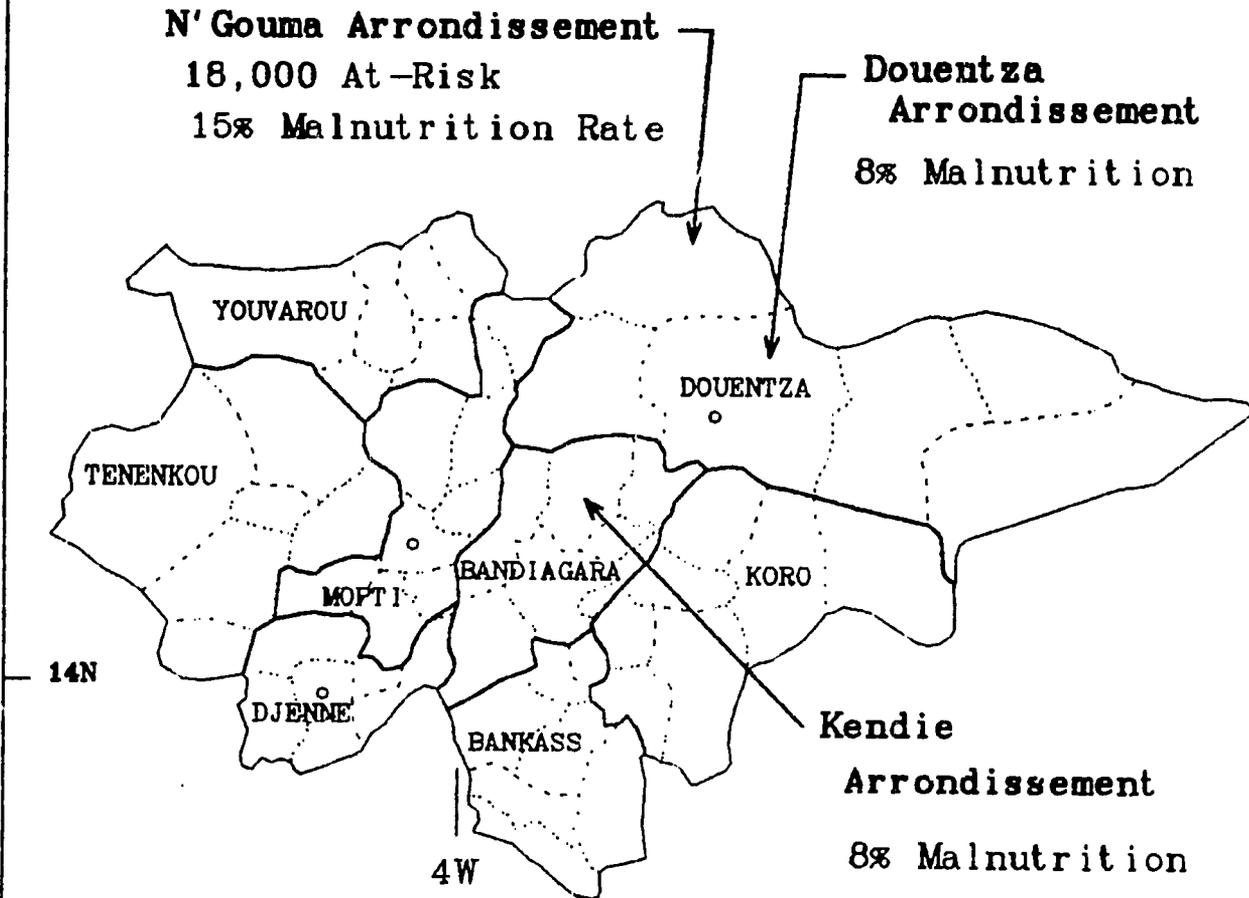
Although the number of displaced persons remains modest and stable overall, abnormal movements of population have been reported in some cercles of the Gao Region. These may not be as serious as they seem. The case involves pastoralists who normally remain in the "Hausa" area, the extensive grazing land situated north of the Niger River in the Gao Region (see Map 3). They are reportedly leaving this traditionally favored grazing area because of inadequate rains, and are moving their animals to the

"Gourma", south of the River, where grazing land is particularly rich this year. Thus, although this migration is unusual for this time of the year, it would be inaccurate to include this group in the general category of displaced people.

It is also important to remember that in Mali there is traditionally a migratory movement at this time of the year involving nomadic and semi-nomadic groups to the areas where wild grains, (i.e. fonio, cram-cram) are harvested. This was especially evident when the large concentrations of displaced people in the urban centers of the northern regions in 1984-85 (most of whom were nomads or semi-nomads). Many displaced families left the urban centres to pursue this traditional activity. It is now recognized that this reduction in the number of displaced persons is only a temporary fluctuation - most return after the harvest. The precarious situation prevailing in some arrondissements of the Gao Region may also lead sedentary people to harvest wild grains, if they have no food stocks or purchasing power to buy food on the market, leading to greater competition for a scarce resource.

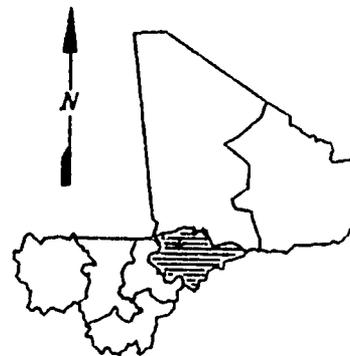
MAP 2: MALI

MOPTI REGION



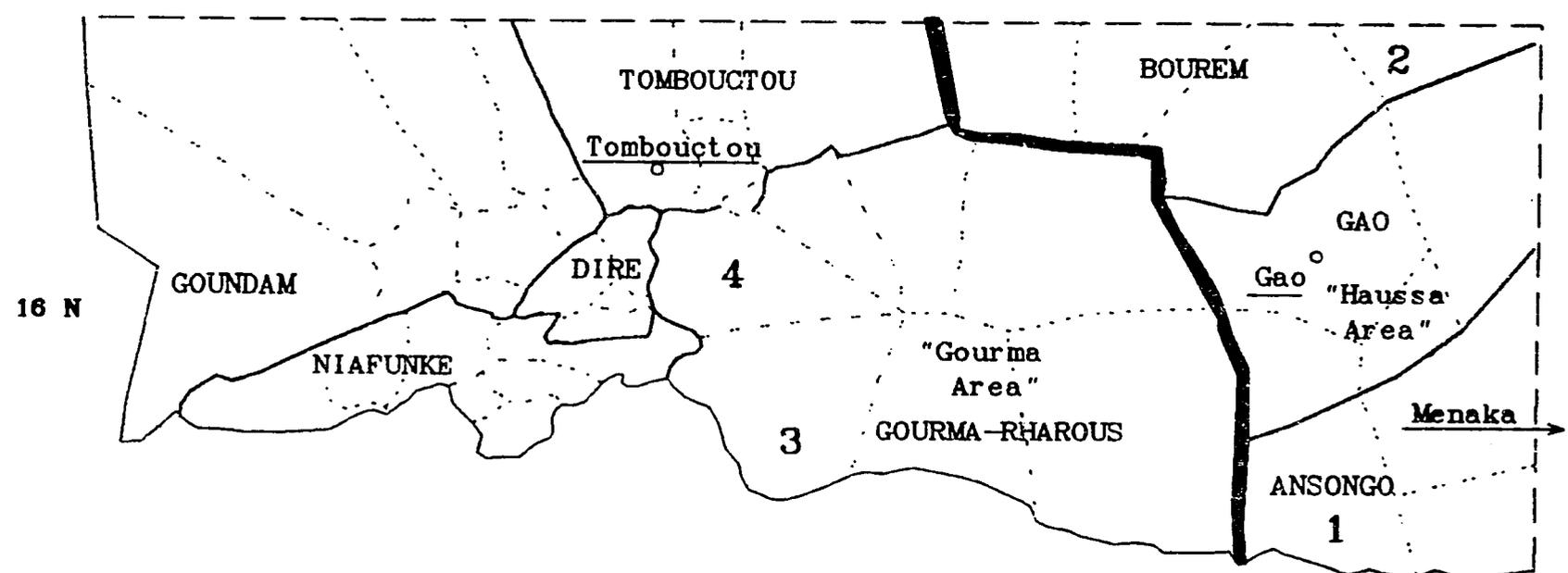
Vitamin deficiencies were found in each of the arrondissements visited by the SAP team. Of 800 Children seen, 3 cases severe Vitamin A, and 12 of Vitamin C deficiency, 3 cases of Kwashiorkor, and many cases of Guinea Worm in Kendie.

Source: SAP

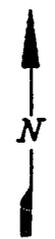
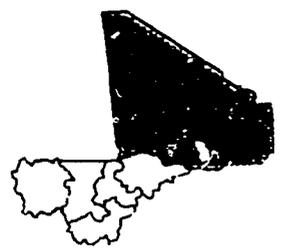


FEWS/PWA 11/86

Tombouctou and Gao Regions



- | | |
|---|---|
| <p>1. Tessit Arrondissement
 Poor Crop, Food Stocks
 Low, Rodent Damage
 9,000 At-Risk</p> | <p>3. Bambara-Maounde "
 Poor Harvests, Food
 Stocks Low</p> |
| <p>2. Almoustarat "
 Poor Crop, Food Stocks
 Low, Rodent Damage
 22,000 At-Risk</p> | <p>4. Haribomo "
 Poor Harvests, Food
 Stocks Low</p> |



4W

POPULATION AT-RISK Despite the above normal rainfall registered in September in most parts of the country, and the expected excellent harvest in the southeast, food problems are developing in areas which were severely affected by grasshopper infestation, or by insufficient and poorly spaced rains during the agricultural campaign.

Among these areas is the Arrondissement of Tessit, Cercle of Ansongo in the Gao Region (see Map 3), where a population of approximately 9000 people will have no harvest this year. Here, the combined effects of extremely poor rain and rodent infestation led to a total destruction of the crop, and movements of population out of the area towards Niger and Burkina Faso are reported. A socio-economic survey carried out by the SAP medical/nutrition team in October in the area indicated that family food stocks are extremely low, and that large numbers of families are leaving the arrondissement.

Another area worth monitoring closely in the Gao region is the Arrondissement of Almoustrat, Cercle of Bourem, which also suffered from lack of rain and rodent infestation. Food supplies are reportedly very low for the population of approximately 22,000. World Vision distributed 100 mt of cereals there to 2,000 families in June and July. A survey is currently underway to gauge the extent of the food problem for the resident population.

It is worth noting that the rural parts of Gao region were the worst affected by the drought of 1984-85 in Mali. Many families who left the villages never returned, and those who remained are still recovering from the devastating effect which the drought had on their livelihood. The unpredictability of the rainfall, coupled with the fragile nature of the environment put the population of these areas in an extremely vulnerable position in terms of food security. Indeed, there is probably a long-term structural problem in the whole area which will not change for the better any time soon.

In the Region of Tombouctou, the poor harvest in the arrondissements of Haribomo and Bambara-Maounde, Cercle of Gourma-Rharous, may lead to food shortages later in the year. Norwegian Church Aid has distributed food in the area, but it is unlikely to be sufficient to cover the needs of the population until the next agricultural season.

The situation described in the October report concerning the Arrondissement of N'Gouma in the Cercle of Douentza remains critical in some villages despite the very good rainfall in September. Cereals currently available either

from on-farm storage, or from this year's harvest are estimated to provide a maximum of three months food supply at best. On the basis of reported villages experiencing food problems, FEWS estimates the population at-risk in the arrondissement at around 18,000. In this number there are 1000 displaced people recorded in the town of N'Gouma.

FOOD NEEDS

Mali should finish this agricultural campaign producing almost exactly enough cereals for net national food needs (at a net yearly level of 167 kg). Table 2 shows regional populations, regional cereal needs based on a minimum requirement of 167 kg per year, estimated net cereal production, and the resulting estimated regional surplus or deficit in cereal availability. The surplus and deficit figures do not take into account existing stocks of food, and governmental and private imports of food which may be available in the regions.

In Tombouctou and Gao Regions, many pastoralists do not grow cereals and therefore always have a 100% deficit in cereals for the year. In other places, even in regions with substantial surpluses of cereal grain, some farming families will not have enough grain for at least a part of the year.

The deficit figures in Table 2 can be divided by .167 to give the equivalent number of persons with a hypothetical 100% cereal deficit. This would show approximately 323,874 in Kayes, 176,137 in Mopti, 369,299 in Tombouctou, 231,508 in Gao, and 779,982 people in Bamako with a 100% cereal deficit. We can then assume that the sum of these numbers, representing at least 1,880,800 people, will have to purchase a part of, or all of their cereal requirement, or receive food aid to fulfill it.

TABLE 2

Cereal Requirements & Production
by Region (1986)

15

Region	Population 1/1/87 *	Net Yearly Cereal Needs at 167 KG (MT)	Net Production (MT)	SURPLUS/ DEFICIT** (MT)
Kayes	926,690	154,757	100,670	(54,087)
Koulikoro	1,146,913	191,534	300,430	108,896
Sikasso	1,790,632	299,035	430,990	131,995
Segou	1,646,045	274,890	347,070	72,180
Mopti	1,395,183	232,995	203,580	(29,415)
Tombouctou	520,562	86,933	25,260	(61,673)
Gao	293,669	49,042	10,380	(38,662)
Total Regions	7,719,694	1,289,186	1,418,380	129,234
Bamako District	779,986	130,257	0	(130,257)
MALI TOTAL	8,499,680	1,419,443	1,418,380	(1,023)

* Population figures calculated using DNSI-PADEM estimates.

Net production amounts assume that loss rates and seed use are 15% for millet and sorghum, 20% for maize, 49% for rice, and 10% for fonio.

** Does not account for existing stocks, commercial imports, etc.