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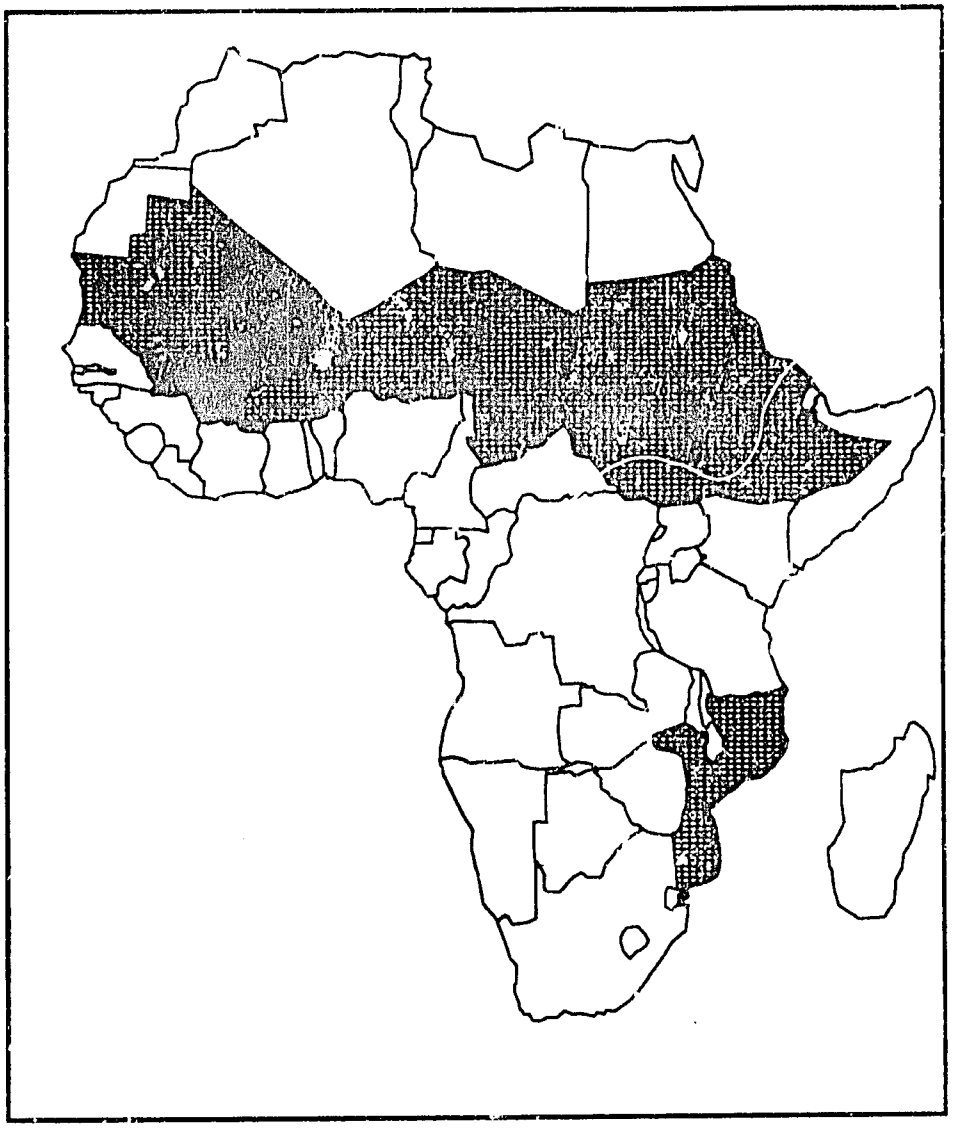
Report Number 5
October 1986

FEWS Country Report

MALI



Africa Bureau
U.S. Agency
for International
Development

Map 1

MALI: Summary Map

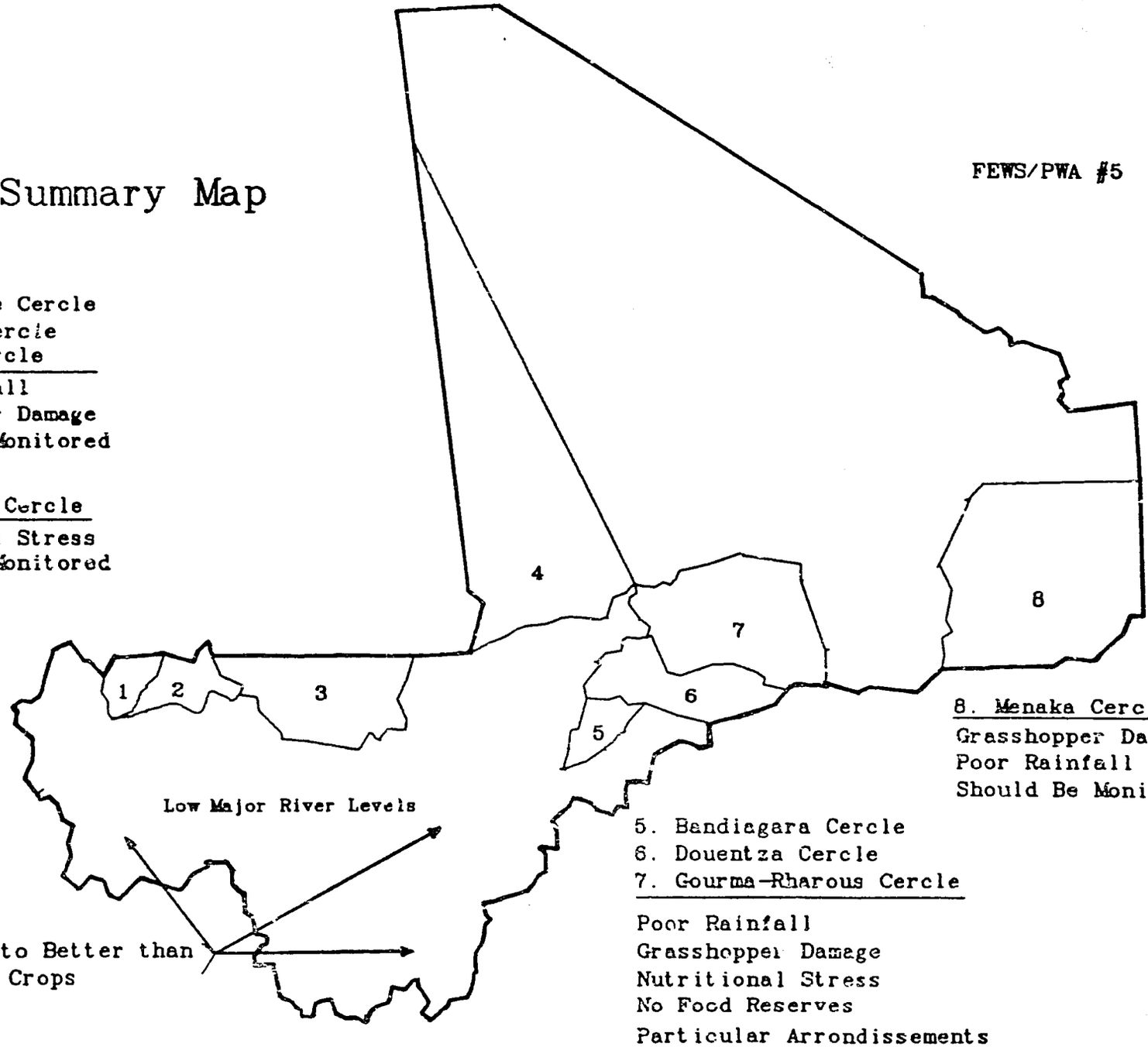
FEWS/PWA #5

1. Yelimane Cercle
2. Nioro Cercle
3. Nara Cercle

Poor Rainfall
Grasshopper Damage
Should Be Monitored

4. Goundam Cercle

Nutritional Stress
Should Be Monitored



8. Menaka Cercle

Grasshopper Damage
Poor Rainfall
Should Be Monitored

5. Bandiagara Cercle
6. Douentza Cercle
7. Gourma-Rharous Cercle

Poor Rainfall
Grasshopper Damage
Nutritional Stress
No Food Reserves
Particular Arrondissements At-Risk

Famine Early Warning System Country Report

MALI

Islands of Distress

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

Prepared by
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October 1986

Contents

INTRODUCTION

This is the fifth 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

Despite localized islands of distress, Mali shows generally positive signs of a continuing recovery from 1984's poor harvest. The population is in better health, and the agricultural season has, with exceptions, been approximately the same as 1985, a good year. The pattern of rainfall established early in the season continues, as areas north of 14 degrees latitude experience poor rains, and those south of it have average to slightly better than average rains. Low river levels are putting irrigated crops, particularly rice, in peril. Grasshopper damage could have been worse if rainfall had been more consistent. It may still be significant, but not overwhelming, in October. Market prices are low and food availability is good. However, people are suffering from extremely scarce, or no, food supplies, in specific arrondissements of Mopti and Timbuctou Regions. Out-migrations will likely occur in some of these areas if food supplies are not soon received.

Issues

- There are several arrondissements in Mopti and Timbuctou Regions in which poor rains for the last two years, and grasshopper damage this year, have combined to leave from 40,000 to 150,000 residents with little or no food supply. Emergency food aid is required <u>now</u> in these areas.

Key October Events

- Government of Mali (GRM) crop yield estimates will be available in October. They will reinforce or lead to modification of the present early forecasts which are largely positive.

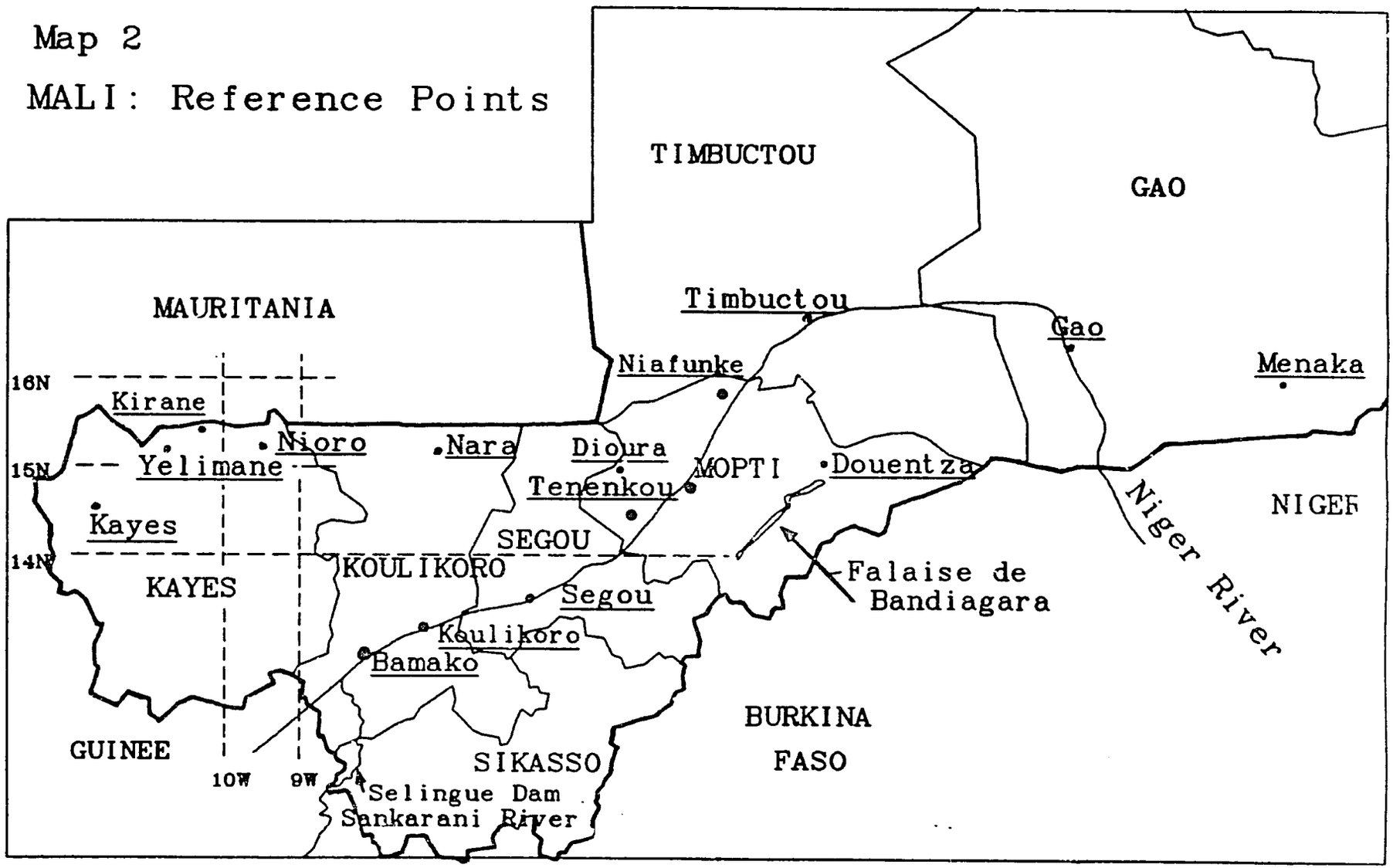
- Any reports of large grasshopper/locust movements in late September or early October into crop areas will be important for this year's and next year's harvest. They would threaten this year's late-planted and unharvested fields, and will place next year's in danger because of the eggs they will be laying.

RAINFALL AND VEGETATION

Rainfall - For most areas, the general rainfall pattern established in previous months has not changed. Most of the areas above the 14th parallel of latitude which have been damagingly dry for most of this rainy season continue with with rainfall which is considerably less than the 30 year historical average. Mopti was an exception, receiving better than average rains over this whole month. South of 14 degrees latitude, generally average to better than average rains fell. For the whole country, the first ten days and the last ten days of

Map 2

MALI: Reference Points



September had much greater rainfall than the middle ten days. Some of the rains in the last ten days far exceeded the the 30 year average for that ten-day period.

Rainfall around Nioro and Nara (south of the Mali-Mauritania border), and in the northern zone of Mopti could have significant bearing on the evolution of the grasshopper crisis. A dry August slowed the pace of the increase in their numbers. However, September and October are the months for new hatchings, and a movement to the South. More favorable rains could speed up the number of grasshoppers hatching. It could also keep wild grasses green and lessen the risk of attacks on cultivated fields.

The worst scenario would be good rains in September to facilitate hatchings, and then a cessation of rains in October. This would quickly brown the grasses in these marginal areas, and leave the green of the maturing crops as an inviting target.

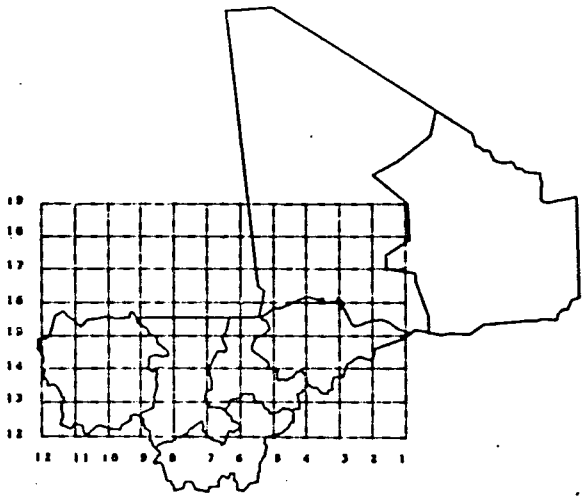
The Intertropical Convergence Zone (ITCZ, or ITD, or ITF) is the principal factor in determining how long the rains will occur and how far to the North. It carries equatorial moisture up over the continent where it collides with cooler northern air masses and causes rainfall. The ITCZ is slightly farther north than normal. However, indications are that it speeded up its southward drop late in September. If this continues there could be a rapid end to rains in October, thus setting a more favorable stage for grasshopper problems in October.

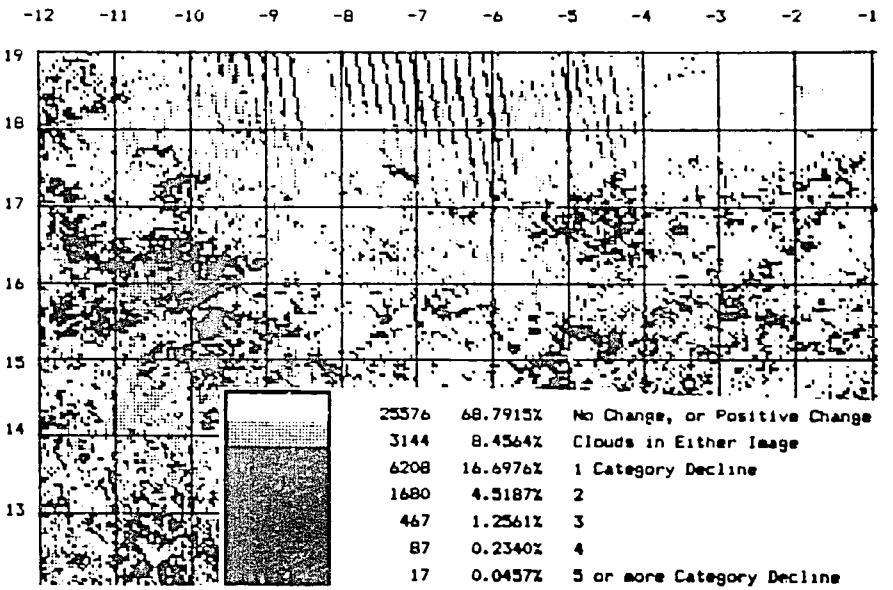
VEGETATION - Satellite imagery from the September 11-20 period shows a picture similar to last year's at this time (see Image Series #1). There are very few significantly positive or negative differences in vegetational vigor. Most of the areas which had good vigor last year are good again this year. Areas which were under stress last year, are again suffering this year.

A slight exception to this situation involves the area between the 15th and 16th degrees of latitude and 9th and 10 degrees longitude, an area that includes Nioro. There, a negative change from last year is seen. However, this area was showing much more serious negative changes in vigor when we looked at it last month. This means that its vegetation level is increasing and becoming more like what it was last year. Because we know from field reports that the area's vegetation was stressed last year, however, we can assume that a largely similar stress exists this year.

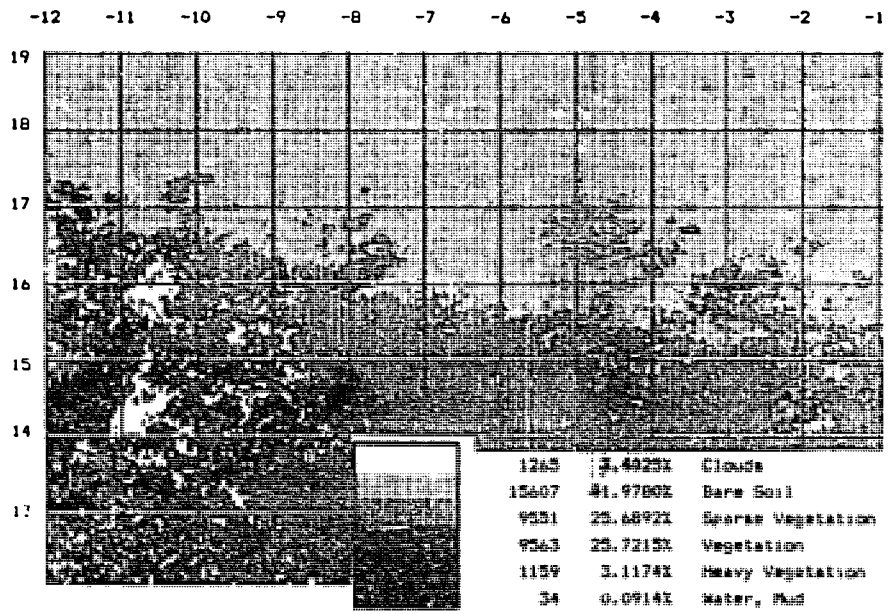
Image Series 1

MALI: Vegetation Images

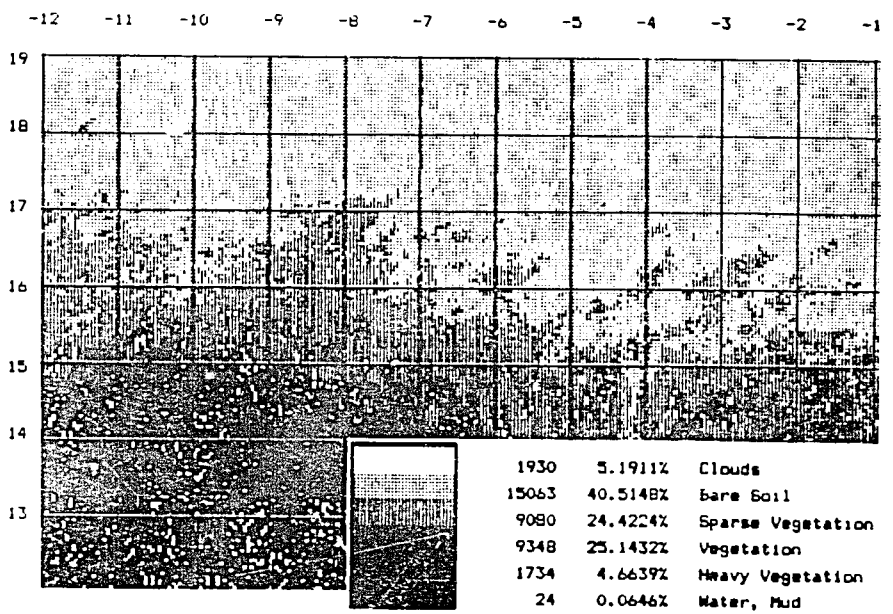




September 11-20, 1985 to 1986



September 11-20, 1985



September 11-20, 1986

The areas to the east of the Falaise of Bandiagara, a cliff line found between the 14th and 15th degrees of latitude and the 3rd and 4th degrees of longitude show minor improvements from last year at this time.

AGRICULTURE

NOAA Yield Estimates - Millet and sorghum comprise approximately 75% of the national cereal crop in a given year. The initial (September 15, 1986) NOAA forecast of millet and sorghum yields shows that they will be, in general, within 90-120% of the 30 year average (see Table # 1). Kayes region yields will be on the low end of the range at 91%, and Segou on the high end at 122%. The important Sikasso Region will have yields of 109% of the 30 year average. Groundnut and maize yield figures fall in the same range of generally 90 to 110% of the 30 year average.

Millet and sorghum yields in 1986 are expected to be 78 to 95% of the 1985 yields. In 1985, which was a better than average year, gross production for all cereals was 1,669,909 MT and 1,226,673 MT for millet and sorghum. Kayes again fares less well than the other regions with expectations of only 78% of 1985 yield levels. Koulikoro, Sikasso, Segou and Mopti range from 85 to 95 % of 1985 yields. Segou's maize crop yields will be approximately 190% of these in 1985. Even so, they are only slightly above the 30 year average, indicating that 1985's maize yields were very low.

The average yield figures used by NOAA are derived from GRM data on 1981-1985 yields for millet and sorghum. There are obvious shortcomings in the use of these yield figures which include, among others, the mixing of millet and sorghum yields together for an average yield, and the size of the regional reporting units which buries important north/south intra-regional variations in yields.

It should be noted that other yield projections coming from USAID situation reports differ greatly in several regions from those shown above. For example, USAID expects yields to be near 750 KG/HA in northern Kayes and 720 KG/HA in its southern zones. In Koulikoro, the yield estimate for millet and sorghum is 890 KG/HA, and in Sikasso it is 980 KG/HA. The wide disparities between these NOAA and USAID Mission figures may simply reflect the problems inherent in making early forecasts of yield in small farmer, slash-and-burn type agriculture. Other yield forecasts are due from the GRM soon.

TABLE No. 1: NOAA Estimated Crop Yields, Millet and Sorghum, 9/15/86 (KG/HA)

Region	Avg Yld	1984 Yld	1985 Yld	1986 Yld	86/84 %	86/85 %	86/Avg %
Kayes	580	630	680	530	84	78	91
Koulikoro	620	570	760	650	114	85	105
Sikasso	780	690	980	850	123	86	109
Segou	370	360	500	450	125	90	122
Mopti	410	210	420	400	190	95	98

TABLE No. 2: Forecast of 1986 Millet and Sorghum Production in Regions I-V

Region	85 Net Production* (MT)	NOAA Est. % 86/85 Yield	86 Est. Production (MT)
I. Kayes	86,838	78	67,733
II. Koulikoro	236,440	85	200,974
III. Sikasso	226,212	86	194,542
IV. Segou	344,046	90	309,641
V. Mopti	126,220	95	119,909
TOTAL	1,019,756		892,799

1985 Net Production minus 1986 Estimated Production = 126,957 MT

* Source: National Directorate of Agriculture, National Directorate of Statistics and Information Science, PADEM, May, 1986.

Table No. 3: 1986 Estimated Per Capita Millet and Sorghum Production by Region

Region	Population (1986)*	86 Net Production per Capita (kg.)
Kayes	927,938	73
Koulikoro + Bamako	1,864,851	108
Sikasso	1,753,974	111
Segou	1,727,985	179
Mopti	1,394,061	86
Timbuctou	533,801	N.A.
Gao	307,906	N.A.

* Source: Alan Hill, London School of Hygiene & Tropical Medicine, May 1986

Assuming for a moment that the areas planted this year are equal to those planted in 1985, (however, early reports suggest that planted hectarage is greater this year), we can suggest how these yields may affect total crop production this year (see Table 2).

The most recent estimates of the results of the 1985 harvest show that gross cereal production in 1985 was 1,669,909 MT, of which millet and sorghum were approximately 78% of the total. After subtracting diverse losses from this amount, the amount of the estimated cereal crop available from the 1985 harvest was 1,331,888 MT. Cereal requirements for this same period, based on a per capita need of only 167 kg., were 1,407,000 MT, leaving a gross shortfall of 75,112 MT.

This gross shortfall figure does not take into account pre-existing food stocks and private importations in the case of cereals available, nor does it include security stock reconstitution needs in the cereal requirement figure.

A rough estimate of 1986's gap between cereal crop available from this harvest and that required can be obtained by adding the difference between the 1985 and 1986 net production (126,957 MT) to the actual 1985 shortfall (75,112 MT), which gives a total of 202,069 MT, an amount which would have to be met from food aid, existing stocks, and private importations, if the additional hectarage planted does not make up for this shortfall.

On a regional per capita basis, the estimated 1986 millet and sorghum production figures shown above display great variation in the amount of these cereals available from local production to each inhabitant (see Table #3). The per capita amount of millet and sorghum estimated to be available from this year's harvest will be half the yearly requirement in Kayes, and almost as bad in Mopti.

RIVER LEVELS

River valleys in Mali are extremely important for their contribution to agricultural production and for animal forage. Large rice production schemes bank on normal water levels which allow them to irrigate and produce several hundred thousand metric tons of rice each year (231,769 MT in 1985, or 8-10% of the national cereals crop). Considerable use is also made by small-farmers planting behind the receding waters, or by both farmers and herders feeding their animals on the dense grasses that grow along the rivers.

Low river levels, due to insufficient local rains, poor rains in Guinee, or, some now say, to the new dams, are therefore a matter of concern. All major rivers in Mali currently contain significantly less water than their 30 year averages show is normal. At Koulikoro, the Niger River reached 423 cm on September 15. At this level it was 78% of its normal 30 year average, and 86% of last year's low level. At Mopti, where important rice production is threatened, the Niger is at 80% of its 30 year average, or some 4 feet lower than normal. The World Bank reports that the 27,000 HA of rice planted in the Operation Rice Mopti could be entirely lost if levels do not immediately improve.

Current reports are not optimistic for a rise in the level of the Niger; instead, it shows great fluctuations, including a one-day drop of 18 cm. The normal release of water from behind the Selingue dam on the Sankarani River may help to raise levels from upstream of Bamako where the Sankarani joins the Niger. This may be too late and too little to help much downstream around Mopti where needs are immediate.

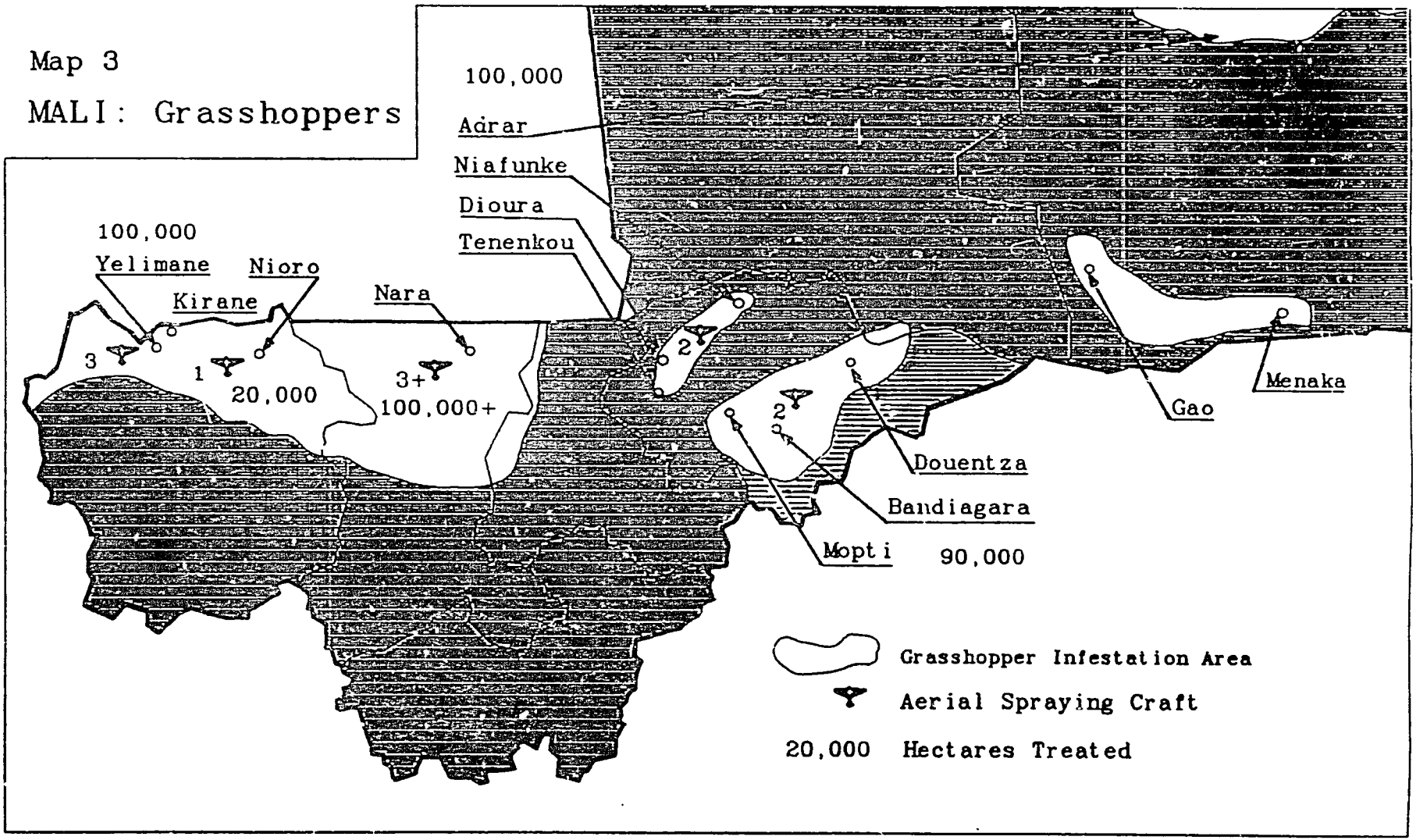
GRASSHOPPERS

The on-again off-again rain pattern seen in most areas infested by, or subject to infestation by grasshoppers, has produced a contradictory series of pictures of the nature of this threat (see Map 3). In many areas, early hatchings which could have been problems were restrained by long periods of drought. Later, localized rainfall produced scattered groupings, and a mix of generations that made predictions about tendencies difficult even for experts.

Late in September, the wait was still on to see whether, and in what numbers grasshoppers would move south. Surveillance efforts have not been able to find extremely large concentrations which could form devastating swarms, but lesser groups could still form and cause damage as they move south.

A line of defense including a substantial number of small planes and helicopters has been formed in the Yelimane-Nioro-Nara area. Spraying at the Mali-Mauritanian border is still a priority and should now be occuring.

Elsewhere, the nature and the amount of damage already caused by local infestations has become better documented. In the Kayes-Yelimane area, the adult Oedaleus senegalensis (OSE) has been joined by larval hieroglyphus in densities of 10-30 per square meter.


Map 3
MALI: Grasshoppers
100,000
Adrar
Niafunke
Dioura
Tenenkou
100,000
Yelimane
Nioro
Kirane
Nara
3
1
20,000
3+
100,000+
2
2
Menaka
Gao
Douentza
Bandiagara
Mopti
90,000
Grasshopper Infestation Area
Aerial Spraying Craft
20,000 Hectares Treated

FEWS/PWA #5

Between Kirane and Nioro, where the vegetation is relatively poor (see Vegetation section), all stages of the OSE are found in densities of 10-40 per square meter.

In the northern areas of Koulikoro region, mature adult OSE in 5-8/m2 densities are mixed with larval stages in much higher densities. Because of the dryness of the natural vegetation there, some have moved into crops and are currently causing minor crop damage.

In an area bounded by Tenenkou, Niafunke, and Dioura early hatchings of OSE in high densities (up to 100/m2) caused significant damage to young seedlings. Later, as wild vegetation became greener and more available the OSE moved out of the fields and are currently dispersed in a 200,000 ha area.

In the Mopti Region, early hatchings with extremely high densities (300/m2) were found. They were particularly evident in the Bandiagara and Douentza areas (see Population At-Risk section). Since then, prolonged dryness from poor rains has slowed their development, and only low densities of adults are now found there. The early damage they caused, and the prolonged lack of good rains has reduced crop production expectations in this area by 15 to 25%. There are reports of villages where virtually the whole cereal crop was destroyed. For Douentza, with a total population of 162,000, the loss is estimated at 4-5,000 MT of cereals.

In the Gao Region, only recently did significant rains occur, and with them came hatchings, breeding and egg-laying all along the Niger River valley. The area concerned is estimated at 10,000 ha. Some damage has occured to millet and rice.

HEALTH and NUTRITION

The cholera outbreak reported in July has decreased steadily since then to 66 cases in August, as opposed to the 398 cases reported in Nara in July. There were also 94 cases of meningitis reported in Goundam Cercle in August, a figure slightly higher than normal.

Overall, the population seems to be in better physical condition than last year. The nutritional situation has improved markedly in the Timbuctou region since last year. A survey completed by Medecins Sans Frontieres in August in all the cercles of this region revealed an average rate of malnutrition of 5.8% (less than 80% weight to height ratio), compared to a rate of 18.5% in May of 1985. Current rates of 10.2% found in Gourma-

Rharous and Ouinarden, and a rate of 15% under the 70% weight to height ratio found by Save The Children in Mondoro arrondissement in the Cercle of Douentza indicate the need for close monitoring and intensification of nutritional activities in these areas.

It should be noted that LICROSS (International Red Cross) is closing out its feeding centers in the Gao region, some of which are being taken over by World Vision. UNICEF is beginning nutrition-Maternal/Child Health programs in the Cercle of Bourem, in Gao Region.

MARKET CONDITIONS and PRICES

Grain is reported to be plentiful in most markets of the country. Indeed, cereal prices on the open market are lower than those at government sales and distribution outlets (see Table No. 4). Even in areas surrounding those identified here as at-risk, grain prices are relatively low and stable, and grain supplies relatively abundant.

This tends to confirm that the food problem areas identified above are constricted areas characterized by low purchasing power, due to current and/or repeated crop or herding losses. This situation is characteristic of the marginal Sahel area where even in years without generalized famine, localized stresses on the environment are enough to tip the balance to produce severe local pockets of famine.

TABLE NO. 4: August '86 OPAM and Open Market Cereal Prices in Mopti.

CEREAL	PRICES (in F CFA /kg)	
	OPAM	Open Market
Millet	95	80
Rice	160	150
Sorghum	95	80

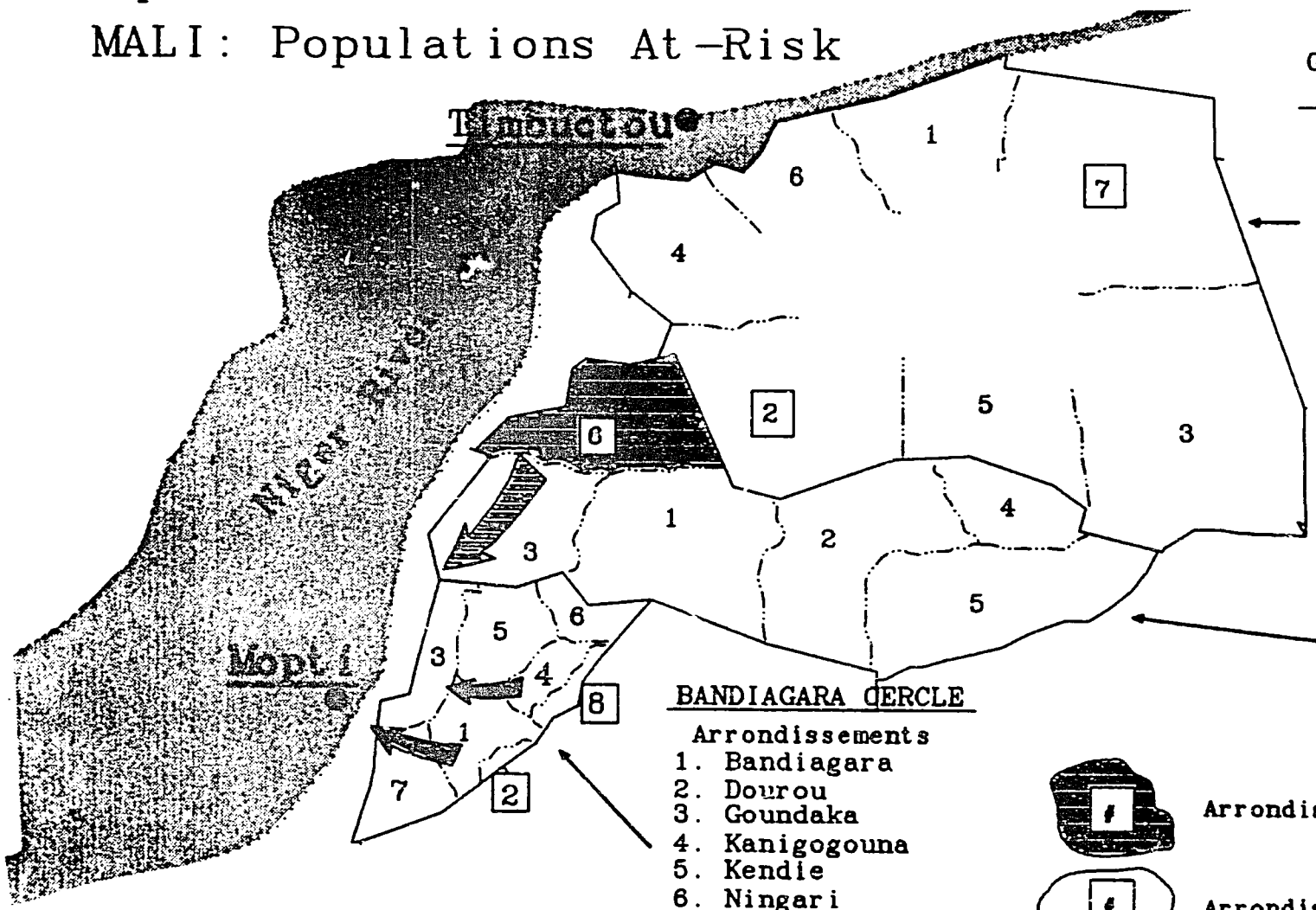
*** Source: Drought Relief Office/USAID**

POPULATION AT-RISK

As most farming areas come to a point where their crop prospects are becoming clear, and food reserves from last year reach their lowest point, areas at-risk (see Maps 4 & 5) of food shortages and nutritional stress, due to a combination of insufficient rainfall, grasshopper damage

Map 4

MALI: Populations At-Risk



GOURMA-RHAROUS CERCLE

Arrondissements *
1. Gourma-Rharous
2. Bambara-Maounde
3. Gossi
4. Haribomo
5. Inadiattafen
6. Mandiakoye
7. Ouinarden

* Borders Undefined

DOUENTZA CERCLE

Arrondissements
1. Douentza
2. Boni
3. Bore
4. Hombori
5. Mondoro
6. N'Gouma

BANDIAGARA CERCLE

Arrondissements
1. Bandiagara
2. Dourou
3. Goundaka
4. Kanigogouna
5. Kendie
6. Ningari
7. Ouo
8. Sangha

Arrondissements At-Risk

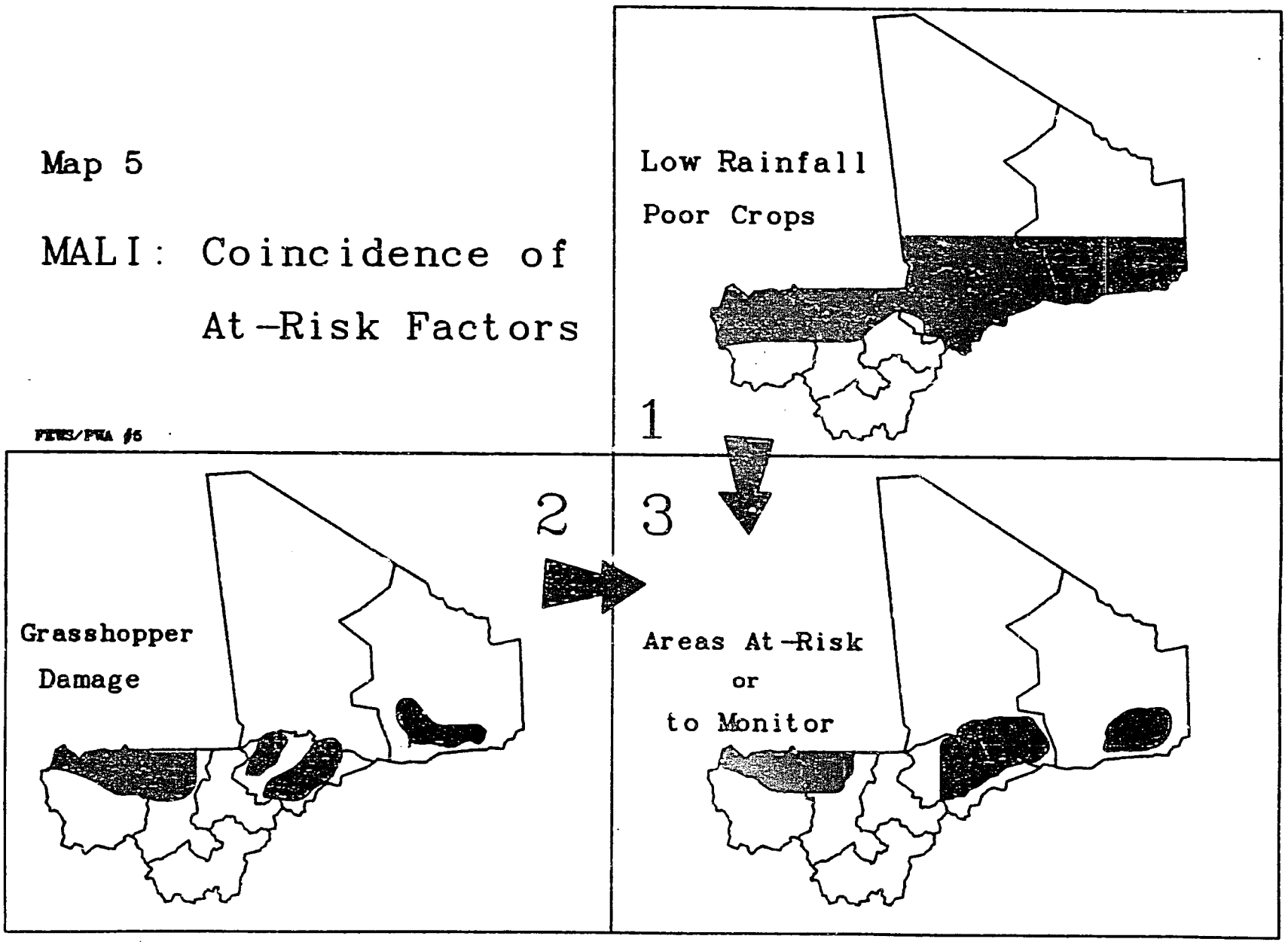
Arrondissements to Monitor

Out-migrations Possible

Map 5

MALI: Coincidence of At-Risk Factors

FEWS/FWA #6



to crops, and pre-existing poor nutritional levels become more apparent. Several critical areas have been identified.

The area which elicits the most concern from those monitoring the situation in the field is the arrondissement of N'Gouma, in the north-western part of Douentza Cercle, in the Mopti Region. This area, with an estimated population of 40,000, is reported to be suffering from acute food shortages due to extended dryness, grasshopper attacks, and low purchasing power due to previous bad years. Many of the families in this area are also recent refugees from similar poor areas in Timbuctou Region.

A survey conducted by the SAP (Systeme d'Alerte Precoce) of 36 families in 10 villages indicated that 70% of them were currently subsisting on "famine foods" (largely wild grains), and 80% of them were intending to leave the area. Although CARE-Mali is currently assessing the arrondissement for food need, no distributions of food have occurred this year.

The Sangha and Dourou arrondissements of Bandiagara Cercle, also in the Mopti Region, are experiencing food shortages due to dryness and early grasshopper infestations. Here as well there are expected to be families leaving the area in anticipation of their poor harvest and lack of other food sources.

An area which should be closely monitored as the food situation evolves in the coming months is the Cercle of Gourma Rharous, in Timbuctou Region. There, 93,000 people face a tenuous food situation. Village stocks of food are reportedly low, and the poor rains and low level of the Niger River have doubly affected the agricultural campaign this year. People have already left the arrondissement of Bambara Maounde in search of pastureland, or are going to Mopti to look for work. An existing low level of nutrition in the Ouinarden arrondissement, is also cause for concern and continued monitoring.

Areas which should be watched because of their food situations and general nutritional levels include most of the Timbuctou and Gao Regions, with particular new attention given to the recent problems with grasshoppers in the arrondissement of Menaka in the Gao Region, the Yelimane and Nioro Cercles in Kayes Region, and Nara Cercle in the Koulikoro Region.

Menaka may lose up to 40% of its small crops to late grasshopper damage, and Yelimane, Nioro, and Nara have all suffered from season-long poor rainfall and grasshopper infestations.