



Significant “*meher*” harvest reductions in the northeastern lowlands OF TIGRAY AND AMHARA REGIONS expected

UN-EUE-FEWS-USAID Multi-Agency Assessment Mission to East and South Tigray & North and South Wello

Assessment Mission: 31 July-7 August 2002

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1 Introduction and background

Three important weather events this year have caused a significant negative impact on crop production and pasture availability in the eastern lowlands of Amhara and Tigray Regions. These are (1) the poor *belg* (March-May) rains during the latter part of the season in April and May; (2) a significant delay in the onset of the main *meher* (June-September) rains; and (3) a disruption in *meher* rainfall during the second and third weeks of July.

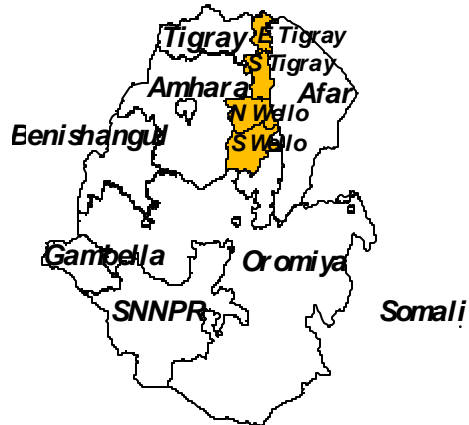
While rains have resumed since the beginning of the fourth week of July with improved intensity and spatial coverage, the magnitude of the expected overall reduction in harvest and availability of pasture for livestock early next year in the above areas will be mainly determined by rainfall performance during the remainder of the current *meher* season. While an extension of *meher* rainfall beyond the normal time of withdrawal would be highly favourable, earlier than normal withdrawal could be disastrous.

Following reports of a significant delay in the onset of the main *meher* rains (June-September) in northeastern Ethiopia, FEWS NET, USAID and UN - EUE carried out a joint rapid assessment of the progress of the 2002 *meher* season with respect to land preparation, planting, pasture and water availability, etc. in areas of major concern (Figure 1 and Annex I).

The assessment was carried out in East Tigray and South Tigray Zones (Tigray Region) and North Wello and South Wello Zones (Amhara Region) from 31 July - 7 August 2002.

The assessment team held discussions with regional, zonal and woreda Disaster Prevention and Preparedness officials, agriculture experts and farmers. The team also consulted available reports about the performance of the 2002 *belg* rains, meteorological data on the onset and intensity of the current *meher* season rainfall and other relevant data.

Figure 1. Northeastern Crop Growing Areas



Graphics by FEWS NET/Ethiopia

2 Mission results

2.1 *Dry spell during the 2002 belg season affected long cycle crop cultivation in mid- and lowland areas in the northeast*

Although low in amount and erratic in distribution, *belg* rains are normally expected from March to May and they are used for the production of short cycle crops (barley, wheat, etc.) in high altitude areas. In lowland areas, *belg* rains are used for the production of short cycle crops such as teff and the planting of long cycle crops (maize, sorghum, millet, etc.) that attain maturity during the main *meher* season. *Belg* rains are also important for the replenishment of pasture and water resources.

The onset of the 2002 *belg* rains had been generally good and led to timely planting of short cycle crops in most high and mid altitude areas of the eastern parts of Amhara and Tigray Regions. However, in the lowland parts of the above areas, the onset of *belg* rainfall was erratic and low in amount. The poor start of the season was further compounded by an extended dry spell since mid-April. This has led to inadequate planting of long cycle crops (maize, sorghum, millet, etc.) and stunting of planted crops.

As can be seen from Table 1 below, rainfall during the latter part of the *belg* season and the early part of the *meher* season this year has been poor compared to last year. Rainfall amounts have been lower and the number of rainy days less frequent this year compared with last year.

Table 1: A Comparison of 2001 and 2002 Belg and Early Meher Season Rainfall in Some Eastern Woredas of Tigray Region

Month	East Tigray Zone								South Tigray Zone							
	Hawzen				Atsbi Wemberta				Rava Azebo				Alamata			
	2001		2002		2001		2002		2001		2002		2001		2002	
	MM	RD	MM	RD	MM	RD	MM	RD	MM	RD	MM	RD	MM	RD	MM	RD
January	0	0	0	0	0	0	4.7	3	0	0	71.5	5	0	0	35.5	3
February	0	0	22.3	2	0	0	18.8	2	54	5	34.5	3	2	1	108	8
March	32	4	18.5	2	0	0	11.9	3	21.1	4	57.6	4	159.5	9	104	7
April	72	7	27.7	2			40	5	137.5	3	23	2	49	3	17	2
May	4	1	0	0			0	0	14.1	5	6.5	1	10	2	0	0
June	84	14	54.3	6	56.6	4	63.2	7	50.4	5	2.5	1	53	3	4	2
July	123.9	20	58.9	7	377.6	20	33.7	6	166.9	15	31.8	4	259	18	61	8

(Source: Rural Development Offices of the respective woredas.

Notes: 1/ MM refers to total rainfall during the month (in millimetres).

2/ RD refers to the number of days in a given month during which some rainfall was recorded.)

Poor *belg* rains towards the latter part of the season in April and May 2002 have also led to a serious shortage of pasture and water resources in eastern lowland parts of the two Regions (see available data for some woredas in Table 1 above for details). Traditionally farmers in the eastern lowlands of Amhara and Tigray Regions have taken their livestock to adjoining areas in Afar Region for dry season grazing. With severe drought in the Afar Region this year, however, farmers had to rely on cactus leaves (after removing the thorns from the cover with fire) to feed their livestock. Honey production, a major source of supplementary income in these areas, has also been adversely affected due to poor *belg* season rainfall.

2.2 Poor belg rains, delayed onset and inadequate meher rains are likely to cause significant harvest reductions in the north-eastern lowlands of Tigray and Amhara

Meher (main) season rainfall is used for the short cycle crop production, the production of long cycle crops planted during the *belg* season and the replenishment of pasture and water resources.

The 2002 *meher* rains have been late by about one month in most midland and lowland areas of eastern parts of Amhara and Tigray Regions. This has led to:

- 1) Delay in planting and consequent shortening of the growing period during which soil moisture is available for crop growth and development
- 2) Severe moisture stress on long cycle crops such as sorghum and maize
- 3) Severe shortage of pasture for livestock and consequent weakening and death of some livestock, particularly in areas adjacent to the drought-affected Afar Region

The impact of poor *belg* rains this year is clearly reflected in Table 2 below (next page), which compares the amount of area planted with long cycle and short cycle crops in 2002 against 2001 for North Wello Zone.

Table 2: Meher Season Land Preparation and Planting in North Wello Zone (Long- and Short Cycle Cereals as of mid July)

Farm Area:	Area (in hectares)				Percent Change of 2002 from 2001	
	Long Cycle		Short Cycle		Long Cycle	Short Cycle
	2001	2002	2001	2002		
Planned	65,610	65,610	111,608	111,608	0	0
Cultivated	64,771	57,664	96,672	99,111	-11	3
Planted	43,768	23,312	35,529	36,201	-47	2

(Source: North Wello Rural Development Branch Office, cereals only.)

- Notes:
- 1) In terms of area, long cycle crops account for about 37 percent of the total area used for cereal cultivation annually in North Wello Zone.
 - 2) In lowland areas, farmers who are unable to plant long cycle crops (sorghum, millet, maize, etc.) during the belg (March-May) season usually shift their crop fields to short cycle crops during the meher (June-September) season (including short maturing varieties of sorghum and maize).
 - 3) Late-season crops such as teff, lentils, chickpea and vetch require less moisture to grow and are usually planted towards the end of the season from mid-July to the end of August.)

As can be seen from the table, area cultivated for long cycle crops has shown a significant decline (11 percent) this year compared to last year. Most importantly, the area planted with long cycle crops (mostly sorghum) has been reduced by almost 50 percent this year compared to last year. Moreover, early *meher* season rainfall has not been sufficient to encourage farmers to shift their unplanted farms to short cycle crops. As a result, the area under short cycle crops has remained about the same (only 2 percent higher) this year compared to last year. Long cycle crops that were planted in late March and early April and that survived the near-drought conditions were stunted and much below their normal stage of growth and development. As a result, a significant reduction in long cycle crops is expected this year compared to last year.

Since maize and sorghum stalks are also major sources of animal feed during the dry season, the performance of these long cycle crops has also implications for availability of animal feed in the eastern lowlands of Tigray and Amhara Regions.

Since the beginning of the fourth week of July, *meher* season rainfall resumed with increased intensity. At the time of the assessment in early August, most areas visited reported substantial improvement in rainfall, with well-distributed rains covering nearly all crop growing areas, often with sunny days and rainy nights. This has improved prospects for current season agricultural performance. Accordingly, the favourable condition thus created has prompted farmers to resume planting of late season crops such as teff, lentils, chickpea and vetch.

3 Conclusions and recommendations

In conclusion, the extent of harvest reduction expected in the eastern parts of Amhara and Tigray region will depend on the performance of *meher* rainfall during the rest of the season. If rainfall extends beyond the normal time of withdrawal (end of August in eastern Tigray and early to mid-September in eastern Amhara), this could mitigate some of the negative impact of the poor rainfall early in the season both for crops in the field as well as pasture and water for livestock. If, on the

other hand, *meher* rainfall withdraws per the normal pattern, a significant reduction in overall harvest from last year is still expected due to poor late *belg* rains and poor *meher* rainfall that occurred earlier during the season.

A worst-case scenario would be one where *meher* rainfall withdraws earlier than normal, thereby increasing the risk of widespread harvest failure and severe shortage of pasture and water until the arrival of the next *belg* rains. Moreover, very poor harvest in the northeastern lowlands (particularly in the Alamata, Raya Azebo and Kobo plains) will also affect *belg*-dependent highland farmers that usually rely on employment in the above areas at harvest time as their income declines.

At the time of the assessment, the federal government was working with the regions and some donors for the provision of seed to poor farmers (late-season crops such as teff, chickpea, etc.) in order to take advantage of moisture available during the remainder of the rainy season. The seed provision, however, should be carried out as soon as possible.

DISCLAIMER

The designations employed and the presentation of material in this document do not imply the expression of any opinion whatsoever of the UN concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

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4 Annexes

Areas Visited by the Assessment Team

TIGRAY REGION
East Tigray: 1) Erob 2) Gulomakeda 3) Hawzen 4) Atsbi Wemberta
South Tigray: 1) Raya Azebo 2) Alamata
AMHARA REGION
North Wello: 1) Kobo 2) Guba Lafto 3) Habru
South Wello: 1) Werebabo 2) Harbu

Abbreviations

DPPC	Disaster Prevention and Preparedness Commission (Federal Government level)
DPPB	Disaster Prevention and Preparedness Bureau (Regional level)
DPPD	Disaster Prevention and Preparedness Department (Zonal level)
IRC	International Rescue Committee
REST	Relief Society of Tigray

SC-UK	Save the Children Fund United Kingdom
UN-EUE	United Nations Emergencies Unit for Ethiopia
USAID	United States Aid for International Development
WFP	World Food Programme

Glossary

dega	Expression for one of the altitudinal agroecological belts in Ethiopia. In Tigray between 2500 to > 3400 m a.s.l.
kebele	Smallest administrative unit in Ethiopia
kolla	Expression for one of the altitudinal agroecological belts in Ethiopia. In Tigray between ~1400 to ~1800 m a.s.l.
tabia	is the Tigrigna language name for 'kebele' that is the smallest administrative unit of the Ethiopian Federal Government.
woreda	Local administrative unit
weyna dega	Expression for one of the altitudinal agro ecological belts in Ethiopia. In Tigray between ~1800 to ~2400 m a.s.l.

Glossary of important meteorological and seasonal terms used for Ethiopian highland areas

Meteorological Drought Defined

Drought is a period of insufficient water initiated by reduced precipitation. The impact of drought on crops and society is critical but not easily quantified. The result is that "drought" does not have a universal definition. "Meteorological drought" is defined as a sustained period of deficient precipitation with a low frequency of occurrence. While crops may be damaged by lack of precipitation and high temperatures in just a few days, such short periods are not considered to be meteorological droughts. A three-month period is defined by the American Meteorological Society to be the shortest period that can be defined as a drought. (Source: *The American Meteorological Society*)

Ethiopia's 'Keremt' or 'Meher' Rains Defined

Since Ethiopia and Eritrea are in the tropics, physical conditions and variations in altitude have resulted in a great diversity of climate, soil, and vegetation. Rainfall is seasonal, varying in amount, space, and time. There is a long and heavy summer rain, normally called the big rain or *keremt*, which falls from June-September. It is followed by the *baga*, hot, dry period from October through February (see below for definition). In some areas there are short and moderate spring rains in March and April known as the small rains or *belg*. These rainy periods correspond to Ethiopia's primary and secondary agricultural seasons, known as the *meher* and *belg*. (Source: *FEWS*)

Ethiopia's 'Belg' Rains Defined

In spring, a strong cyclonic centre develops over Ethiopia and Sudan. Winds from the Gulf of Aden and the Indian Ocean highs are drawn towards this centre and blow across central and southern Ethiopia. These moist, easterly and southeasterly winds produce the main rain in southeastern Ethiopia and the small spring rains to the east central part of the north-western highlands. The small rains of the highlands are known as *belg* rains, referring to the second most important sowing season of the region. (Source: *FEWS*)

Ethiopia's 'Baga' Season Defined

Since Ethiopia is in the tropics, physical conditions and variations in altitude have resulted in a great diversity of climate, soil and vegetation. Rainfall is seasonal, varying in amount, space, and time. There

is a long and heavy summer rain, normally called the big rain or *keremt*, which falls from June-September. It is followed by the *baga*, hot, dry period from October through February. In some areas there are short and moderate spring rains in March and April known as the small rains or *belg*. These rainy periods correspond to Ethiopia's primary and secondary agricultural seasons, known as the *meher* and *belg*. (Source: FEWS)