EUROPEAN COMMISSION
DIRECTORATE-GENERAL
Joint Research Centre

Crop yield monitoring in Eastern Africa

Bulletin for rain-fed maize crop prospects in 2004

June 2004

Year 2004, No.2, date 13 July

ETHIOPIA, KENYA AND SOMALIA AFFECTED BY DRY CONDITIONS

Despite the last showers fallen during June over the costal areas of Kenya and the highlands of Ethiopia, the main crop areas remaining below the optimal crop water requirement (Fig. 1). Maize in Northern Ethiopia has around one month of delay compared to the normal planting date. The main agricultural areas of Somalia and part of Kenya have been affected (Fig. 2).

On the other hand, Uganda, where the maize crop cycle is completed has a very good maize yield prospect.

The cumulated rainfall from February to June was below normal mainly for Ethiopia, Somalia and part of Kenya (Fig. 3). This situation is clearly reflected by the decrease of vegetation activity in the main maize area as shown by SPOT VGT satellite image analysis (Fig. 4).

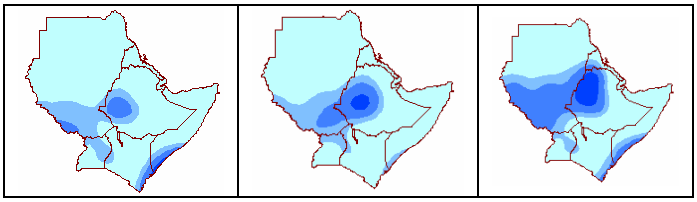
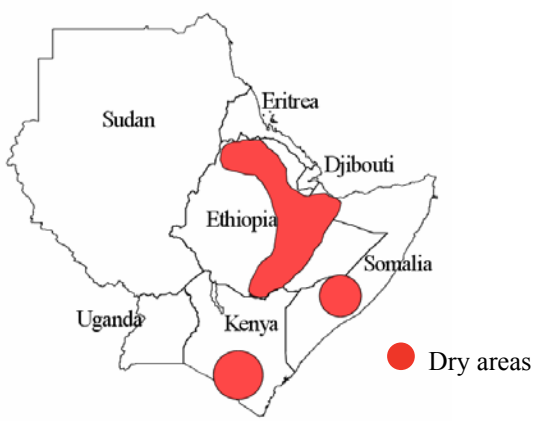


Figure 1. Dekadal rainfall in millimeters during June 2004. Data derived from the ECMWF model.



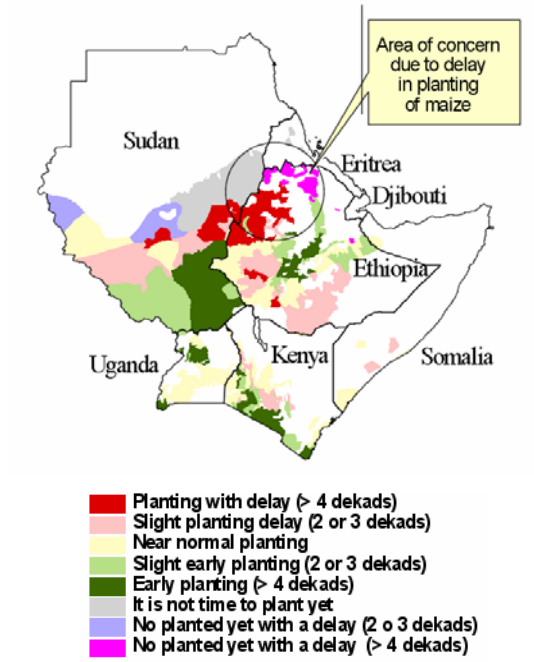


Figure 2. Areas of concern for Maize in red (top). Progression of the cropping season in the region (bottom) Northern part of Ethiopia shows a delay of about one month

Produced by: MARS-FOOD-AID, IPSC, JRC-EC, TP266, Ispra (VA), Italy
Contact: Jacques Delincé, Head of Agricultural and Fisheries Unit, email: thierry.negre@jrc.it, oscar.rojas@jrc.it

Rainfall analysis

The difference between current and normal cumulated rainfall is shown by the map in Figure 3, Page 3.

The graphs in Figure 3 represent the comparison between cumulated current rainfall and cumulated normal, spatially averaged by country and taking in consideration only the areas planted with maize and sorghum.

Rainfall is below normal in major areas of Ethiopia, Southern Somalia and in the southwestern part of Kenya.

Vegetation index analysis

The difference in the vegetation index (NDVI) between the third dekad of June 2004 and the same dekad of the previous year shows some areas with negative differences mainly in Ethiopia, South of Somalia and some spots in Kenya. (Figure 4, Page 4).

The negative differences observed due to the irregular rainy season.

The South of Somalia presents a clear decrease of vegetation activity shown by the NDVI profile when compared with the previous crop season and average NDVI profiles (more detail about crop situation in Somalia on ftp://mars.jrc.it/bulletin/somalia).

Crop water requirement

Figure 5, shows the Water Requirement Satisfaction Index (WRSI), obtained by using the FAO Crop Specific Water Balance (CSWB) model.

The Figure 5 represents a forecast of WRSI for maize at the end of the growing season. Long-term average climatological data are used to calculate the WRSI for the period between the current dekad and the end-of-season.

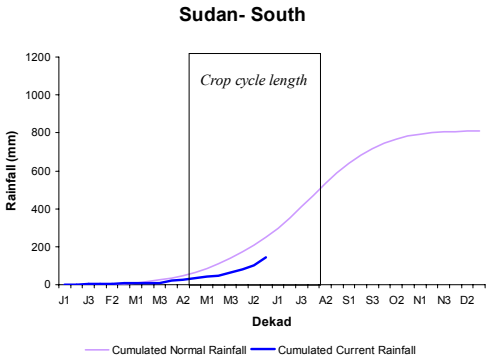
In general the regional maize situation up to now seems similar to the previous crop season. The maize yield expectation is lower for Somalia and Ethiopia compared with 2003.

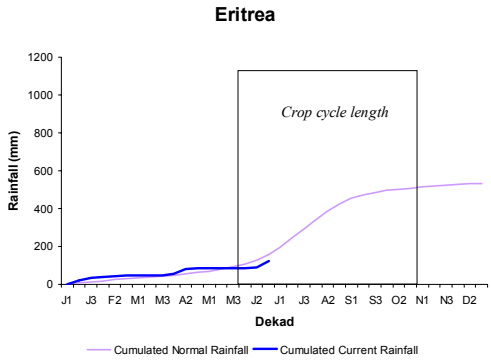
The JRC, in collaboration with FAO is pleased to present this issue of "Crop yield monitoring in Eastern Africa" for the 2004 crop season.

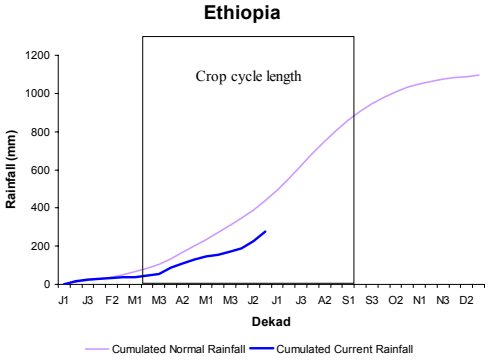
MARS-FOOAID will provide regular monthly updates on the progress of the 2004 crop season. The bulletin will be available in the "Crop and Rangeland Monitoring Network for the Greater Horn of Africa": http://marsunit.jrc.it/Africa/ or ftp://mars.jrc.it/bulletin/EasternAfrica. Also MARS-FOOD crop monitoring products will be available through the JRC Digital Map Archive: http://dma.jrc.it.

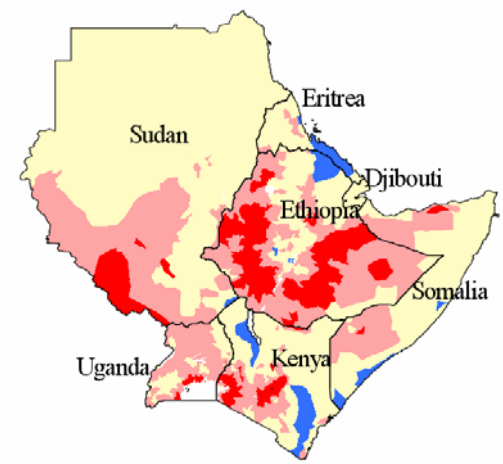
Another useful product for Somalia is available on: ftp://mars.jrc.it/Bulletin/Somalia

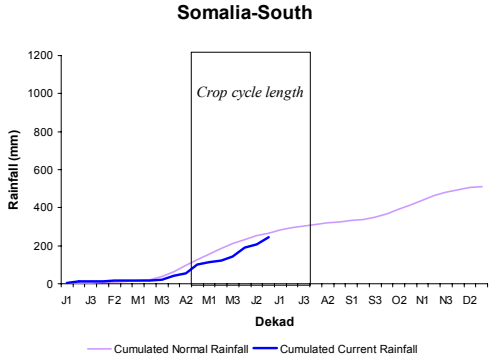
Comments and remarks for improvement of this pilot bulletin are welcome.

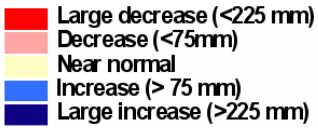


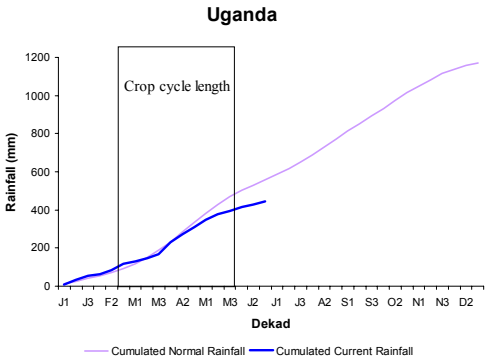












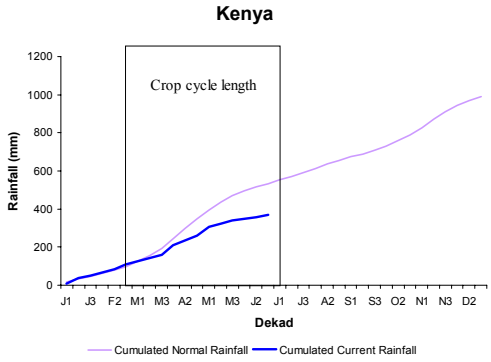
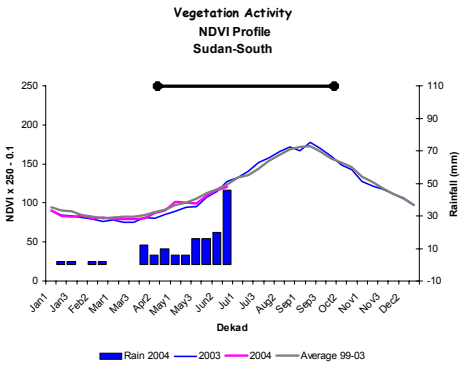
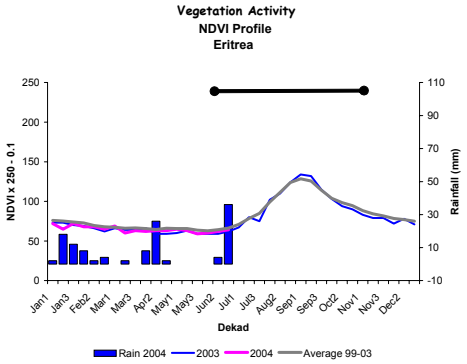
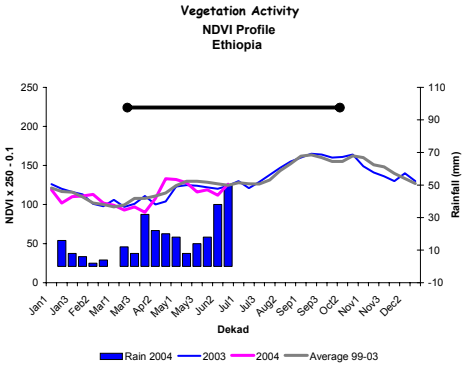
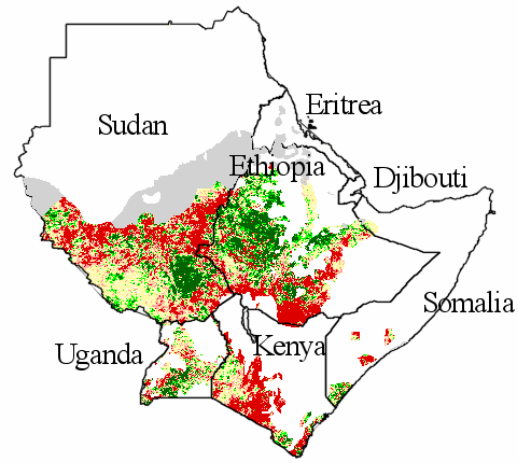


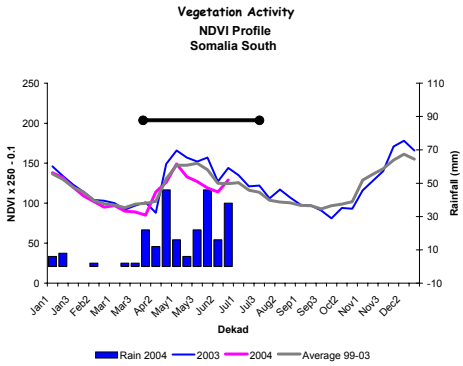
Figure 3. Rainfall difference with the cumulated normal up to the 3rd dekad of June 2004. Data are derived from the ECMWF model. Cumulated actual rainfall compared with normal in the graphs was spatially-averaged taking in consideration only the areas cultivated with maize and sorghum.

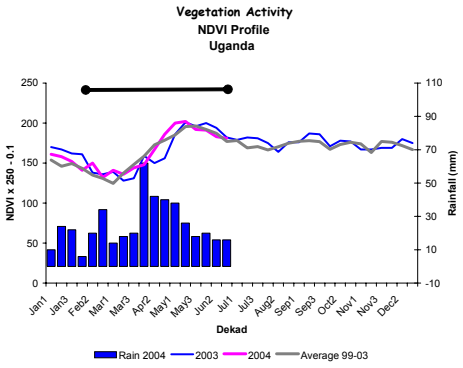


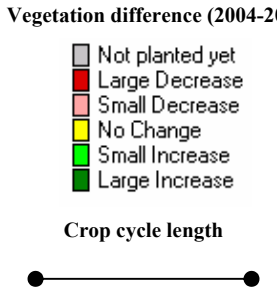












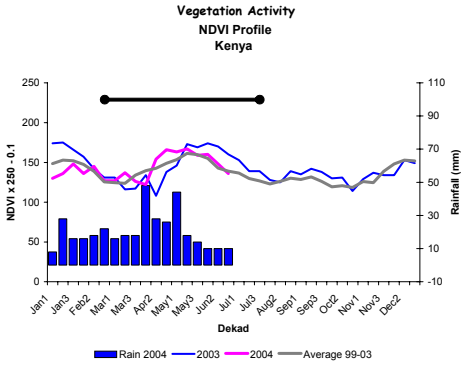


Figure 4. Normalized Difference Vegetation Index (NDVI). Absolute difference between the third dekad of June 2004 and the same dekad of the previous year. The areas that did not plant maize and the areas in which the crop cycle is completed, have been masked-out.

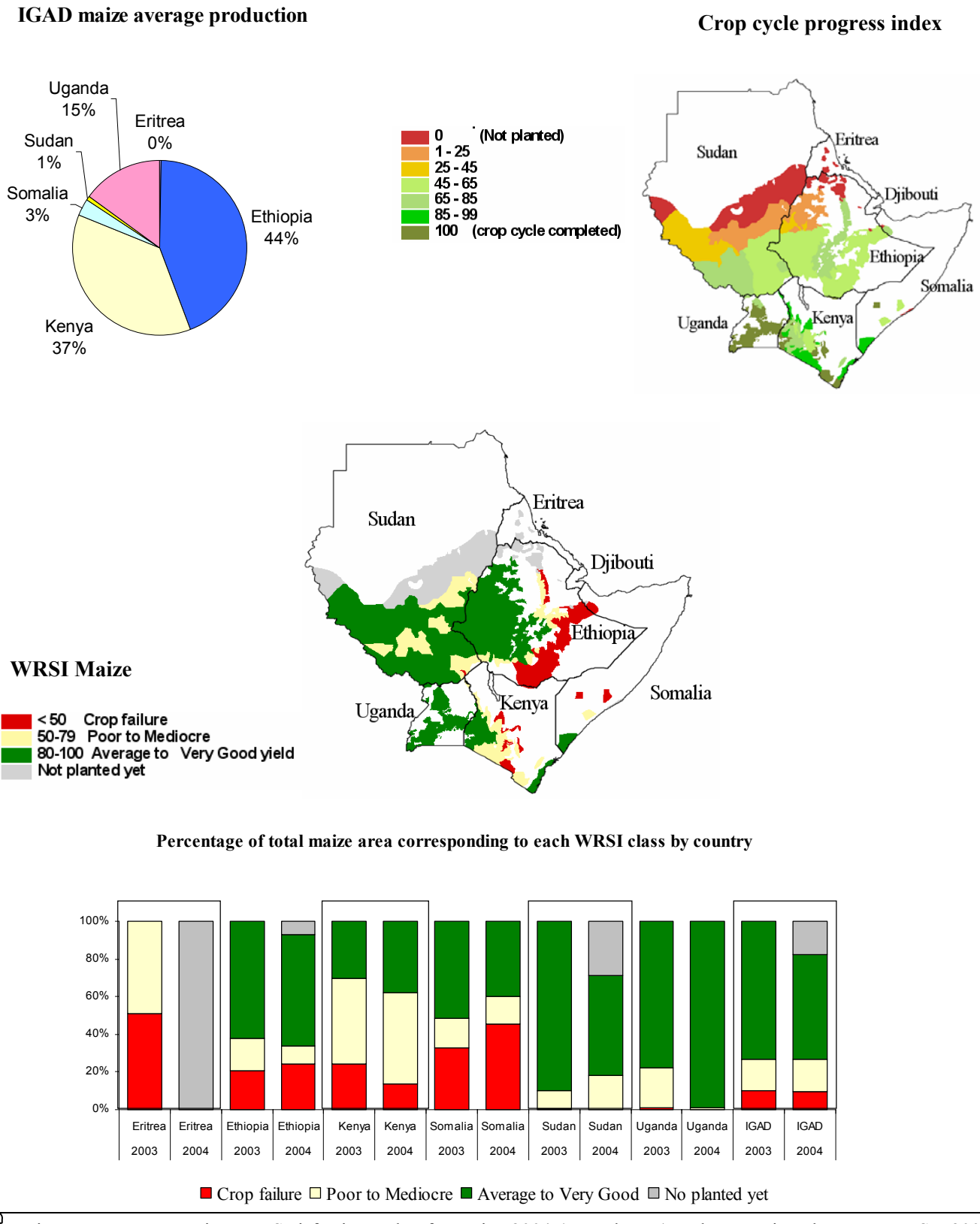


Figure 5. Water Requirement Satisfaction Index for maize 2004 (central Map) and comparison between WRSIs 2003 and 2004 (Bar graph). For the whole region the situation of the rain-fed maize seems similar to 2003. In the areas where the maize cycle is not completed, normal rainfall was used to obtain the final value of WRSI. For these areas the WRSI values have to be considered as an early forecast of the crop yield situation (see Crop cycle progress index).