



Malawi

DEPARTMENT OF METEOROLOGICAL SERVICES

SECOND ROUND 2004/05 AGRICULTURAL ESTIMATES

AGROMETEOROLOGICAL UPDATE

FOR : OCTOBER 2004 TO MARCH 2005

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SEASONAL HIGHLIGHTS

- The 2004/2005 agricultural season started very well, with above average rains in most parts of Malawi through December and most of January ...
- The main rain bearing systems, Inter Tropical Convergence Zone and Congo Airmass, got established early December causing widespread rains that supported planting and establishment of crops in most areas. Crops had been doing well raising prospects of good harvests despite the various problems that farmers experienced in obtaining access to inputs ...
- However the situation drastically turned around at the end of January, when many parts of the country started experiencing dry spells that lasted for more than one month in most parts of the country particularly over the south and some parts of the centre. The situation was slightly better in the north though localised areas were also hit by the dry spell ...
- Some characteristics of 2004/05 drought are similar to 1991/92 drought. However, the 1991/92 drought was more severe in January and February than 2004/05 season...

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PROGRESS OF 2004/2005 RAINFALL SEASON

The 2004/2005 agricultural season started very well, with above average rains in most parts of Malawi through December and most of January. This was due to early establishment of the main rain bearing systems for Malawi namely, the Inter Tropical Convergence Zone (ITCZ) and Congo Air mass were established over Malawi. This good start raised hopes for good harvests despite the various problems that farmers experienced in obtaining access to inputs, especially fertilizers. However, the situation drastically turned around at the end of January, when many parts of the country started experiencing dry spells that lasted for more than one month in most parts of the country particularly over the south and some parts of the centre. The situation was slightly better in the north though localised areas were also hit by the dry spell.

Maize is one of the worst affected crops. The crop had been doing well until the end of January when the dry spell started. At that point, most of the maize, especially in the south and some parts of centre, was at tasseling and cobbing stages, which require a lot of moisture in the ground. The prolonged dry spells, coupled with high temperatures, resulted in crop wilting and drying up tassels. Maize production is therefore expected to significantly drop this season.

2004/05 DROUGHT ANALYSIS

Drought is a normal, recurring feature of climate. It occurs in virtually all climatic zones. It is a temporary deviation or departure from normal, in contrast to aridity, which is a permanent feature of regional climate. Drought should be considered relative to some long-term average condition of balance between rainfall and evapotranspiration (ET) in a particular area. Common to all types of drought is the fact that they originate from a deficiency of rainfall that results in water shortage for some activity or for some group. It is also recognized that other meteorological elements, such as temperature, wind and relative humidity, may aggravate the severity and impacts of drought in some instances. For instance during 2004/05 season Malawi has been experiencing abnormally high temperatures. This made the situation worse along Shire river valley from Mangochi through Balaka to Chikwawa and Nsanje districts where due high temperatures and long sunshine hours some crops reached permanent wilting point.

Although drought is a recurring and inevitable feature of climate, people

have rarely planned for its occurrence. Instead, have reacted to drought through crisis management.

Agricultural drought is largely the result of a deficit of soil moisture. A plant's demand for water is dependent on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil.

From meteorological point of view drought is defined as a period of abnormal dry weather sufficiently prolonged for lack of water to cause serious hydrological imbalance in the affected area. Past studies have shown that out of the two well known droughts, the 1948/49 drought was more severe in January while the 1991/92 drought was more severe in February. It has also been documented that both droughts started in the south of the country and crept northwards.

Analysis of 2004/05 drought shows a similar trend. Some parts of the south started experiencing below normal rains in January 2005. A substantial reduction in rainfall occurred in February with 1991/92 drought being more severe than 2004/05. The comparison in severity is based on the fact that in 1991/92 a greater part of the country had already started experiencing below normal rainfall in January unlike 2004/05 season when most parts of the country recorded normal to above normal rainfall in January 2005 except a few areas in the south. (see attached Chikwawa and Balaka 10-day rainfall graphs). February 2005 rainfall shows that some of the areas such as Mangochi in the south and Dowa in the centre had experienced more than 20 consecutive dry days (no rainfall) in February 2005. Some significant rains came at the end of February 2005, but this was too late for crops to recover. The south and some parts of the centre are worst hit by the dry spell. The worst affected districts in the south include Balaka, Mangochi, Machinga, Nsanje, Chikwawa, Mwanza, Blantyre and Phalombe. Worst hit in the centre are Dedza, Ntcheu, Mchinji, Salima, Dowa and Nkhotakota. The situation is slightly better in the north though Rumph west, Karonga central and some parts of Mzimba and Nkhata Bay district are affected.

An analysis showing temporal extent of drought for selected stations namely Chikwawa and Makoka (South), Chitedze and Salima (Centre) and Mzimba and Karonga (North), shows that generally the country experienced above normal rainfall in March 1991/92. (See graph attachments). Again, the severity of drought was more pronounced during the critical months of January and February in 1991/92 compared to 2004/05 season

There are a few inferences that could be drawn from past studies and analysis of 2004/05 season compared with 1991/92 season.

- In 2004/05 season there has been severe dry spell leading to drought that has covered a greater part of southern half of the country.
- The severity of drought cannot be judged only from the reduction in total rainfall; rather the distribution of rainfall within the season is important especially for crops.
- There is need to identify areas in Malawi that are least affected by drought based on meteorological variables and other related agricultural factors.
- It has been established that not all the droughts in Malawi were El Niño induced; current El Niño is actually described as weak.





