Government of Malawi

DEPARTMENT OF CLIMATE CHANGE AND METEOROLOGICAL SERVICES

FIRST ROUND 2012-13 AGRICULTURAL PRODUCTION ESTIMATES

AGROMETEOROLOGICAL UPDATE

In support of national early warning systems

Released 31 January 2013

SEASONAL HIGHLIGHTS

- **The Department of Climate Change and Meteorological Services issued the 2012/13 Seasonal Forecast on 31 August 2012**
- **At that time most models had predicted establishment of weak El Nino between November 2012 and January 2013**
- **Based on the models, Malawi was expected to experience normal to above normal total rainfall amounts from October 2012 to March 2013**
- **The start of the main rains had generally delayed in most areas compared to last season and climatology. In addition the start has been erratic and only became well distributed from mid December 2012.**
- **High intensity rainfall in January had caused flooding in flood prone districts such as Nsanje, Phalombe, Zomba, Mangochi and Salima**
- **Cumulative rainfall performance by 20 January 2013 indicted a mixed bag, some areas had received more rains while others had received less rains this season compared to same period last season**
- **The 2013 preliminary total maize production forecast is put at 4.02 million MT which from history would be highest production**

All inquiries should be addressed to: The Director Climate Change and Meteorological Services,
P.O. Box 1808, Blantyre, MALAWI
Tel: (265) 1 822 014 Fax: (265) 1 822 215 E-mail: metdept@metmalawi.com Homepage: www.metmalawi.com

2012/13 GROWING SEASON PREPAREDNESS

The Department of Climate Change and Meteorological Services (DCC&MS) issued the 2012/13 Seasonal Forecast on 31st August 2012. The seasonal rainfall forecast is based on models that use scientifically established relationships between rainfall over Southern Africa and Sea Surface Temperatures (SSTs) over the oceans. Most of the models are predicting weak El Nino/ Southern Oscillation (ENSO) conditions indicating warming in the central tropical Pacific Ocean up to March 2013.

For Malawi, the consensus outlook indicated that during the period October 2012 to March 2013,Malawi had 35% chance of rainfall total being above normal, 40% chance of being normal and 25% chance of being below normal.

Based on the above analysis for 2012/2013 rainfall season, Malawi is expected to experience normal rainfall amounts. Extreme weather events such as floods will occur in low lying areas. Since El Niño conditions are becoming established, prolonged dry spellscannot be ruled out.

This forecast covers the rainfall season from October 2012 to March 2013 and is relevant only to seasonal time-scales and relatively large areas. It does not fully account for local, day to day and month to month variations in distribution of rainfall. This seasonal forecast is issued to users as a planning tool. For day to day operations, users are advised to make use of the short and medium range forecasts and the 10-day Weather and Agrometeorological bulletins that the Department issues during the season. Users from the agricultural sector are advised to seek advice from the Ministry of Agriculture and Food Security when applying this forecast in making decisions to plant.

Seasonal climate forecast do not provide information on the start, cessation and seasonal distribution of the rains. It is therefore advised that all interested parties know the mean annual rainfall for their area, the main crops to be grown and their crop water requirement (CWR), for good planning a head of the start of the season. Crop growing period and water requirement vary from crop to crop as shown in the table below**.**

Growing period and crop water requirement estimates of some crops

Crop	Growing period (days)	CWR (mm)
Maize	90 – 140	500 -700
Sorghum	90 – 140	450 -650
Groundnuts	90 – 140	500 -700
Beans	60 – 120	300 -500
Sunflower	90 – 130	600 -1000

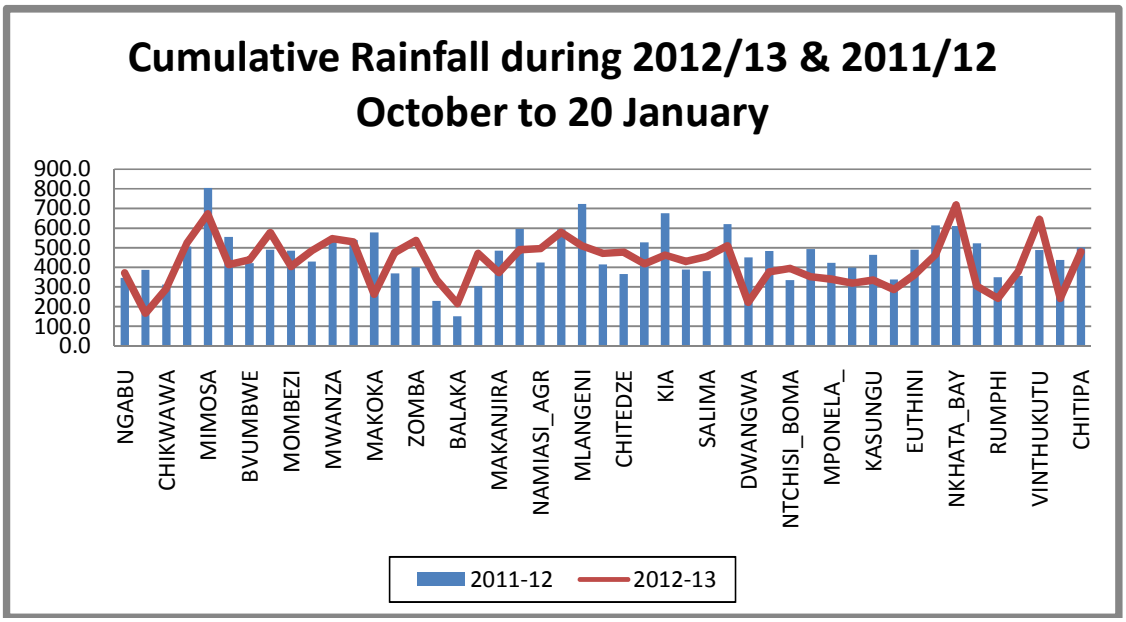
Even though a seasonal forecast is obtained after thorough analysis of most of the systems that affect the weather of the country or a region, it becomes more useful

information if users of such information continue to update themselves with climate Outlooks provided by **national** meteorological services over the season.

PROGRESS OF 2012/13 RAINFALL SEASON

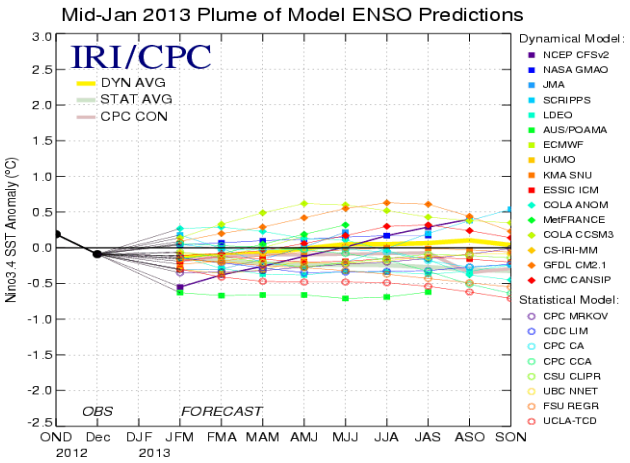
The start of effective rains in Malawi has been variable ranging from early October to early December 2012. Most areas have experienced a delay in onset of the main rains while a few areas including Mbawa, Euthini, Mzuzu and Zombwe in Mzuzu Agricultural Development Division (ADD) the north and some parts like Mimosa, Lujeri, Satemwa,, some parts Chiradzulu, Neno, Mwanza and Blantyre districts in Blantyre ADD in the south had received good rainfall amounts in October and this had prompted some farmers to plant crops. The early part of the season has been characterized by poor and erratic rains enabling outbreaks of armyworms and weeds to germinate before farmers planted crops. Good rains with better distribution and amounts covered most areas in Malawi from mid December 2012. The good rains allowed farmers to complete planting before the 15th of January, which is considered as the cut-off date for planting rain-fed crops in Malawi. Heavy and continuous rains have caused soil water logging conditions, crop wash aways and flooding in prone districts of Nsanje, Phalombe, Zomba, Mangochi and Salima.

Cumulative rainfall performance from 1 October 2012 up to 20th January 2013 showed that most parts of Malawi have achieved normal cumulative rainfall with a few pockets of below normal cumulative rainfall performance (less than 75% of the expected cumulative rainfall amounts) The graph below indicates cumulative rainfall performance over Malawi. The graph shows a mixed bag over the country. Some areas have received more rains this season while others have received fewer rains compared to the same period last season



OUTLOOK FOR FERUARY TO APRIL 2013

Updated climate prediction models suggest that neutral conditions (neither El Niño nor La Niña) have been established in the tropical Pacific and model forecasts and expert opinion suggest that neutral conditions are likely to persist into the first quarter of 2013. Malawi is still expected to experience normal to above normal rainfall amounts between February and April 2013



2012-13 RESULTS FROM THE AGROMETEOROLOGICAL YIELD FORECASTING MODEL

A brief Overview of Yield Estimation Techniques

The estimation of crop yield is a process that is important and useful for food security analysis. There are many ways of estimating these yields including statistical sampling in the field, estimation by eye, crop-cutting techniques, remote-sensing, and agrometeorological modeling. Each of these methods has various advantages and disadvantages, varying from expense, timeliness, accuracy.

Model Main Objectives

- To monitor field crop condition with the aim of predicting yields (tons/ha) and production – some months before actual harvesting takes place so that early options can be considered in management decisions

- To support early warning systems for Agriculture and food security purposes and management of weather and climate risks

Model Input and Output Summary

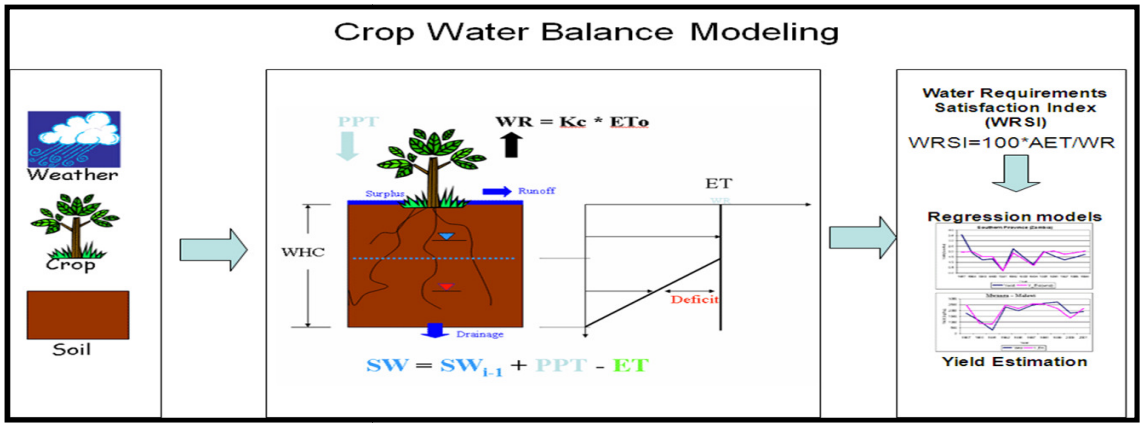


TABLE 1: 2012/13 FIRST ROUND LOCAL & COMPOSITE MAIZE PRODUCTION ESTIMATES

CROP YIELD ASSESSMENT BASED ON THE WATER SATISFACTION INDEX (WRSI)
CROP: Local Maize FARMING SECTOR: Small Holder

YIELD: kg/ha WRSI: % AREA: Hectares PRODUCTION: Tonnes

90% CONFIDENCE INTERVAL: Y(est)+/-t(0,10)*Std. Err. of Y(est)

AREA BASED ON 2012/2013 FIRST ROUND ESTIMATES FIGURES

ADD	12/13 WRSI	12/13 YIELD	YIELD LOW	YIELD HIGH	12/13 AREA	12/13 PRODUCTION
SHIRE VALLEY	97	1578	1172	1983	24740	39032
BLANTYRE	97	2500	1865	3135	123824	309555
MACHINGA	97	2305	1740	2871	187055	431223
SALIMA	97	2576	2020	3131	30162	77686
LILONGWE	97	2327	1940	2713	202324	470775
KASUNGU	98	2887	2351	3423	191773	553640
MZUZU	98	3260	2699	3821	89428	291553
KARONGA	97	2843	2237	3448	21955	62408
NATIONAL	97	2566	2043	3089	871261	2,235,874

TABLE 2: 2012/13 FIRST ROUND HYBRID MAIZE PRODUCTION ESTIMATES

ADD	12/13 WRSI	12/13 YIELD	YIELD LOW	YIELD HIGH	12/13 AREA	12/13 PRODUCTION
SHIRE VALLEY	97	2249	1679	2820	11900	26765
BLANTYRE	97	3121	2476	3766	148591	463703
MACHINGA	97	2567	2021	3114	95016	243944
SALIMA	98	2688	1479	3897	28627	76948
LILONGWE	97	2999	2559	3440	140636	421820
KASUNGU	98	2611	1907	3316	126999	331623
MZUZU	99	2247	1308	3186	67059	150678
KARONGA	98	2878	1697	4059	24272	69858
NATIONAL	98	2776	2104	3448	643100	1,785,338

In summary the 2013 Maize production in Malawi is estimated at **4,021,212** Metric Tons which would be the highest ever produced in the history of Malawi. Considering that during this season the rainfall season started late in most areas, this is very preliminary estimate figure as most of the maize is at vegetative stage and there is still a long way before completion of the crop cycle. Moreover weather patterns are notorious for changing at short notice.