Government of Malawi

DEPARTMENT OF CLIMATE CHANGE AND METEOROLOGICAL SERVICES

SECOND ROUND 2011/12 AGRICULTURAL PRODUCTION ESTIMATES

AGROMETEOROLOGICAL UPDATE

Released 5th April 2012

SEASONAL HIGHLIGHTS

- The Department of Climate Change and Meteorological Services issued the 2011/12 Seasonal Forecast on 7th September 2011.
- At that time while some models predicted ENSO-neutral conditions while the majority of models predicted the return of La Nina conditions up to March 2012
- Based on the models, the greater part of Malawi was expected to experience normal to above normal rainfall amounts between January and March 2012.
- The start of effective planting rains was poor and erratic in many areas of Malawi.
- Heavy rains caused flooding in Chikhwawa and Nsanje in January
- Many areas experienced prolonged dry spells in February but the south was worst hit. Good rains to support agriculture production returned to most areas of Malawi in March.
- The return of ENSO-Neutral conditions will cause average rainfall amounts to be received over Malawi between April and early May 2012
- Agrometeorological model estimates National Maize production for 2011/12 season at 3.5 million MT

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2011/12 GROWING SEASON PREPAREDNESS

The Department of Climate Change and Meteorological Services (DCC&MS) issued the 2011/12 Seasonal Forecast on 7th September 2011.The rainfall seasonal forecast is based on models that use scientifically established relationships between rainfall over Southern Africa and Sea Surface Temperatures (SSTs) over the oceans. While some models continued to predict El Nino/ Southern Oscillation (ENSO) neutral conditions which imply neither El Nino nor La Nina, the majority predicted increasingly negative SSTs (cooling) in the central tropical Pacific Ocean, implying the return of La Nina conditions, up to March 2012.

For Malawi, the consensus outlook indicates that during the period October to December 2011, the northern half of the country has 35% chance of rainfall total being above normal, 40% chance of being normal and 25% chance of being below normal while the Southern half has 25% chance of rainfall total being above normal, 40% chance of being normal and 35% chance of being below normal. During the period January to March 2012, the northern half of Malawi has 35% chance of rainfall total being above normal, 40% chance of being normal and 25% chance of being below normal while the Southern half has 40% chance of rainfall total being above normal, 35% chance of being normal and 25% chance of being below normal.

Based on the above analysis, the 2011/2012 forecast indicates that from October to December 2011, the northern half of the country will receive normal to above normal total rainfall amounts while the southern half will experience normal to below normal total rainfall amounts. The greater part of the country will experience normal to above normal total rainfall amounts during January to March 2012.

The seasonal forecast was presented to Ministry of Agriculture Irrigation and Water Development and other key stakeholders. Seasonal climate forecasts are issued for **planning and decision making.** For operational purposes users are encouraged to use short (up to 3 days) and medium range (5-10 days) forecasts that are issued by the department.

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 the meteorological services over the season.

Agricultural advisors need to regularly monitor seasonal climate outlook information. For example, if there is a high probability of below-average rainfall occurring, say 80% or 4 in 5 years, the appropriate response is to make management decisions anticipating low rainfall.

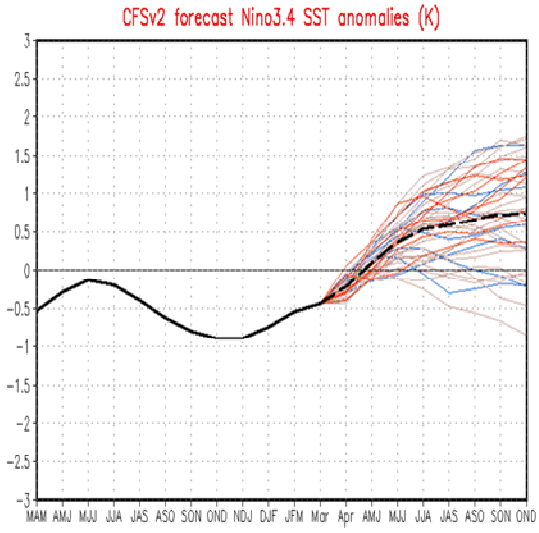
Subsequently the response to a changing situation should be in a number of steps; at each step the best decision is made on the basis of current information. Often the mistake people make is to make one decision based on the first seasonal climate outlook and then ignore keeping track of events. Weather patterns are notorious for changing at short notice.

PROGRESS OF 2011/12 RAINFALL SEASON

The start of effective rains in Malawi has been variable. The first half of season was characterized by poor and erratic onset of rains particularly over the Agricultural Development Divisions in the southern half of Malawi including Kasungu and Salima while the northern half had experienced an early onset with relatively better distribution and amounts. Poor and erratic rains persisted in central and southern Malawi throughout December 2011, with good rains being experienced early January 2012. The good rains allowed farmers to complete their planting before the 15th of January, which is considered the cut-off date for rainfall-season planting in Malawi. However, high intensity rainfall in the south led to flooding in Chikhwawa and Nsanje districts. In northern Malawi, good rains were received in December and January, facilitating crop development. The dryness in the south and the central areas resulted in outbreaks of armyworms, delayed planting, and there were reports of wilting in some areas. In February 2012 many areas experienced prolonged dry spells as a result below average rainfall amounts were reported in most areas of Malawi and the south was worst hit and severe dry spells were reported in Balaka, Zomba, Mwanza, Neno, parts of Ntcheu, Chikhwawa Nsanje and Phalombe districts. In March 2012 good rains resumed in most areas and high intensity was experienced in some areas. Most areas registered average to above average rainfall amounts. However, below average rainfall amounts persisted in some parts of the south particularly around Balaka district in Karonga district in the north

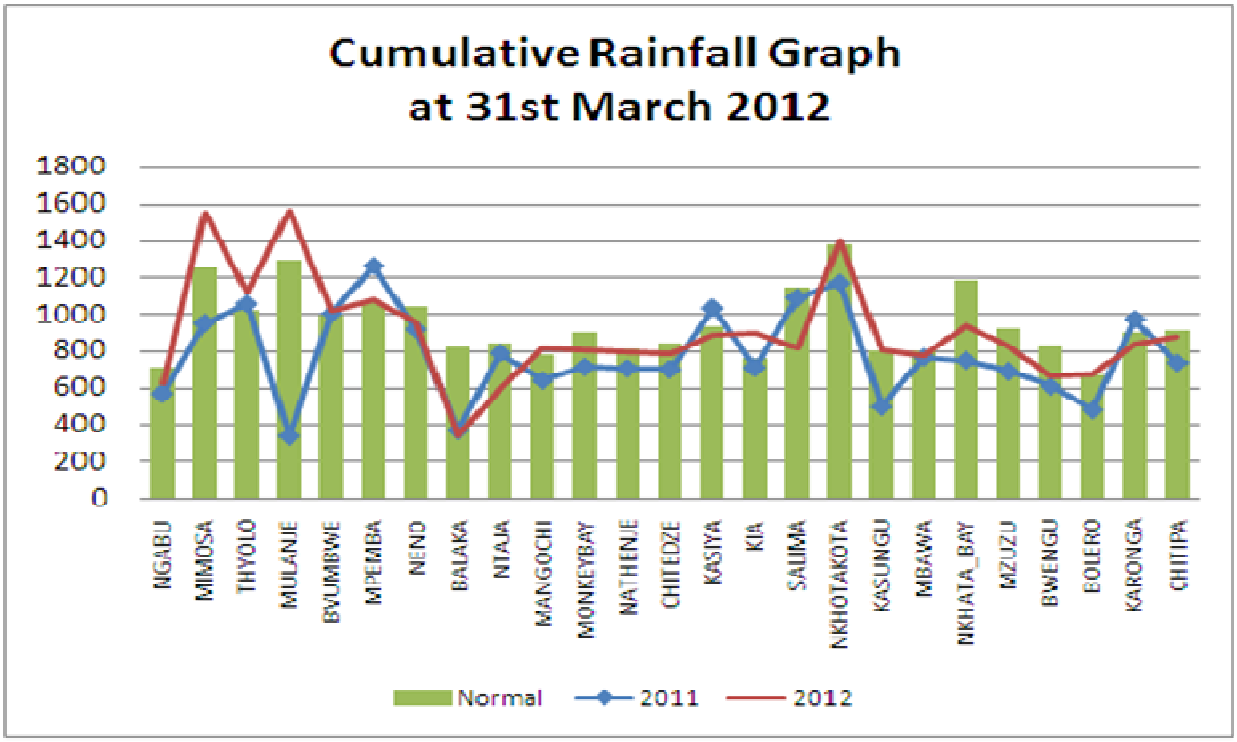
By end of March 2012, most of the maize was reported ranging from maturity to drying and harvesting stages, with expectation of good production particularly over northern and central Malawi. The south however is expected to register a reduction in yields of most crops due to prolonged dry spells.

RAINFALL OUTLOOK FOR APRIL TO JUNE 2012



The majority of models predict the return of ENSO-neutral conditions beginning April 2012.continuing up to summer. As a result average rainfall amounts are expected over Malawi during April, May and June 2012. While short to medium rainfall forecast products indicate that the first week of April over Malawi will be very wet as the main rain belt gradually shifts northwards.

As 31st March 2012 cumulative rainfall map showed that average cumulative rainfall amounts with poor to average distribution have been received over Malawi. However a pocket far below average rainfall existed around Balaka district. From the graph below, generally more rains have been received this season than same period last season

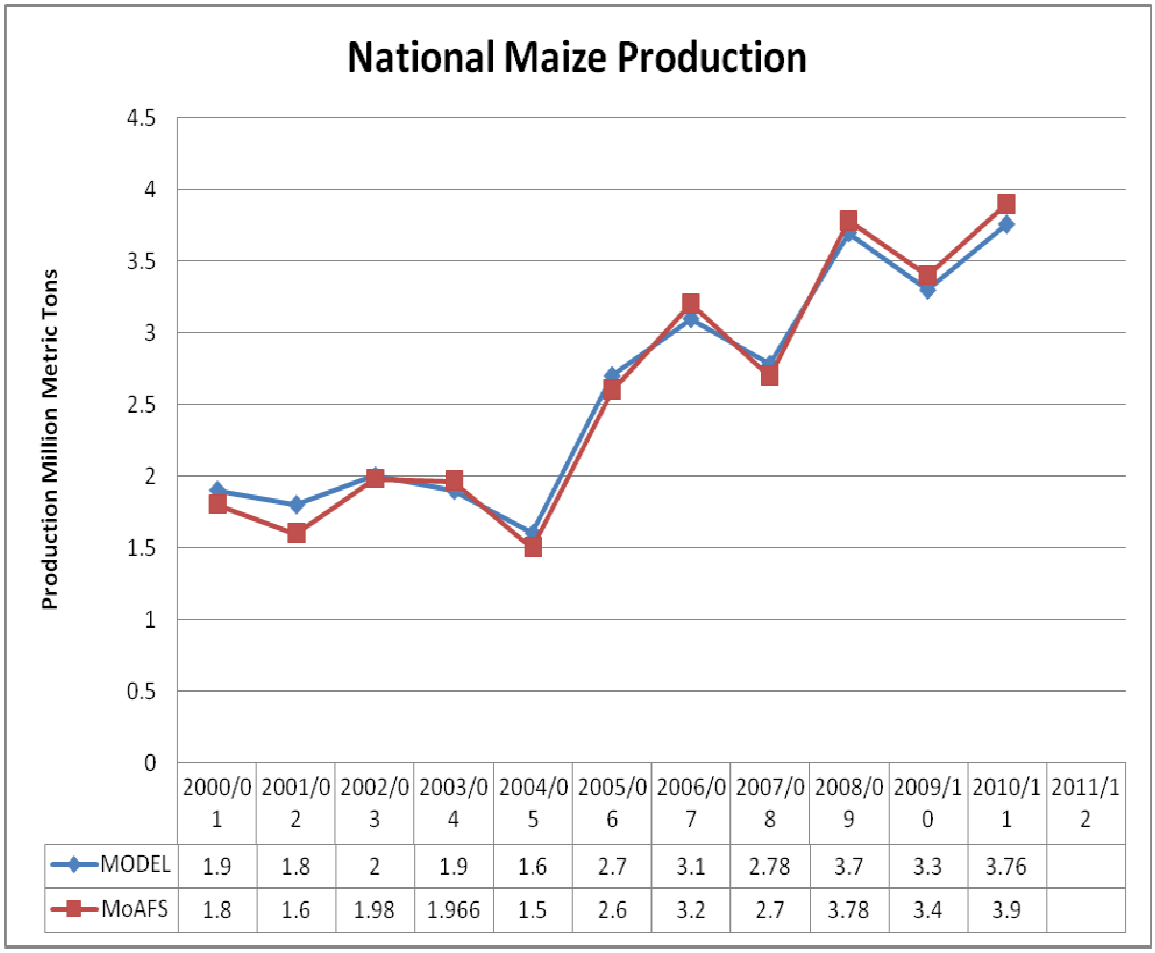


THE CROP WATER REQUIREMENT SATISFACTION INDEX MODEL

The Purpose of WRSI Model

The model is used to forecast Maize yield and production for early warning for food security purposes. This calls for early and accurate information on crop production potential. For early warning, the output product must be delivered to the user in a timely manner. Timeliness is the availability of the information with sufficient lead time so that early options can be considered in management decisions. For crop yield forecasting, this means before harvest time and obviously, the earlier the better. However, the earlier the forecast, the larger is the potential forecast error.

Performance of the WRSI Model against Agricultural Production Estimates Survey



	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
MODEL	1.9	1.8	2	1.9	1.6	2.7	3.1	2.78	3.7	3.3	3.76	
MoAFS	1.8	1.6	1.98	1.966	1.5	2.6	3.2	2.7	3.78	3.4	3.9	

2011/12 SECOND ROUND SUMMARISED RESULTS FROM THE MODEL

TABLE 1: LOCAL & COMPOSITE MAIZE PRODUCTION ESTIMATES

CROP: Local & Composite Maize
YIELD: **kg/ha** WRSI**: %** AREA: **Hectares** PRODUCTION: **Tonnes**
AREA BASED ON 2011/12 SECOND ROUND AGRICULTURE PRODUCTION ESTIMATES SURVEY

ADD	11/12 WRSI	11/12 YIELD	YIELD LOW	YIELD HIGH	11/12 AREA	11/12 PRODUCTION
SHIRE VALLEY	87	1324	916	1731	20934	27709
BLANTYRE	87	2059	1430	2689	153672	316454
MACHINGA	82	1667	1104	2231	182602	304472
SALIMA	90	2173	1616	2730	32909	71521
LILONGWE	87	1804	1421	2187	192621	347511
KASUNGU	90	2461	1924	2997	213619	525664
MZUZU	93	2952	2391	3513	81421	240341
KARONGA	93	2572	1956	3189	26813	68966
NATIONAL	**89**	**2103**	**1576**	**2631**	**904591**	**1,902,638**

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TABLE 2: HYBRID MAIZE PRODUCTION ESTIMATES

ADD	11/12 WRSI	11/12 YIELD	YIELD LOW	YIELD HIGH	11/12 AREA	11/12 PRODUCTION
SHIRE VALLEY	90	1655	1142	2168	10625	17587
BLANTYRE	89	2471	1846	3096	142729	352658
MACHINGA	86	1882	1356	2409	94689	178216
SALIMA	94	2496	1289	3702	27753	69258
LILONGWE	93	2802	2361	3243	133850	375048
KASUNGU	95	2483	1780	3185	166207	412629
MZUZU	96	2155	1219	3090	64590	139183
KARONGA	93	2310	1141	3480	23989	55422
NATIONAL	**92**	**2408**	**1743**	**3074**	**664432**	**1,600,001**

Making a national maize production of around 3.5 million Metric Tons