ZAMBIA ANNUAL HARVEST ASSESSMENT REPORT

October 2004

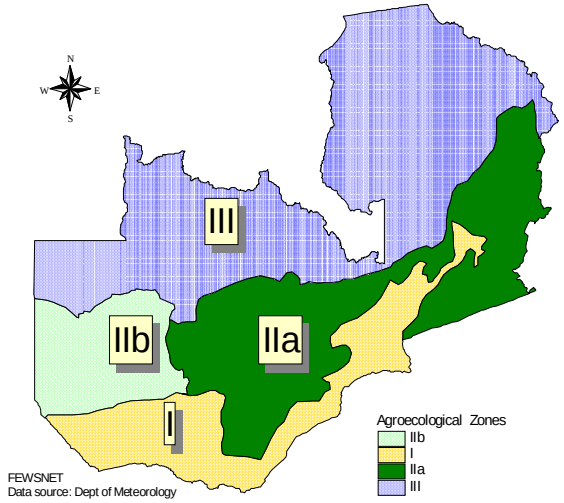
Summary

For the second consecutive season, Zambia produced a good harvest after the two bad seasons of 2000/01 and 2001/02, both drought years. Although the growing season started poorly in many parts of the country in terms of rainfall distribution and quantities, as the season progressed, crops showed great improvement, even in the south. In line with the surplus harvest, the price of maize dropped noticeably in May and June. However, in July, prices in rural areas rose as a result of the price distortion (Government floor price) and FRA purchase program. Despite this, the maize prices so far have been relatively low, due to the surplus harvest, and are still below the ten year average. Although this will guarantee improved access to staple food for the majority of the population, the low prices put the small scale farmers who are the major maize producers at risk of failing to engage in meaningful production in the coming season.

Background: Zambia's production system

Zambia's crop production is largely rain dependent with a distinct production season running from November to April. Rainfall performance is the major determinant of the crop performance in any given year. The country is divided into three distinct agro ecological zones differentiated by the rainfall pattern and soil type-see figure 1.

Figure 1 : Zambia Agro-ecological Zones



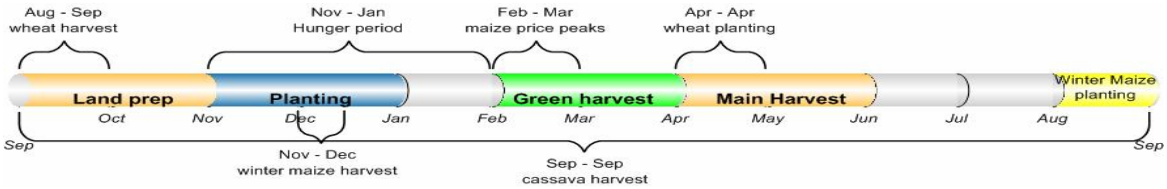
Region 1 covers the valley areas located in the extreme southern and western parts of the country. This is generally a dry area with less than 800mm annual rainfall and best suitable for production of small grains and livestock rearing. Although maize is unsuitable to this region, it is still grown at the subsistence level. Crop production in this region is mostly at subsistence level and therefore households depend on food from outside this region to meet their needs for part of the year.

Region 2 which covers the central part of Zambia has annual rainfall in the range of 800mm to 1000mm and is divided into two sub-regions. Region 2a includes the plateau areas of Lusaka, Central, Eastern and Southern Provinces, by far the most productive areas in the country for both food and cash crops. The less productive Region 2b covers the Kalahari sand plateau and Zambezi flood plains. It has high potential for cassava and rice production as well as cattle rearing.

Region 3 is a high rainfall area, with amounts exceeding 1000mm per year and covers Northern, Luapula, North-western, Copperbelt and northern parts of Central province. This is a high cassava growth and consumption region. Due to the nature of the rainfall pattern, soils here tend to be highly acidic, limiting the production potential.

The rains start from the north and progress to the south. Thus the growing season is shorter further to the south. Some variability in the start and duration of the season exists. Generally, planting is done from November to December, however early planting (October) is practiced in parts of the country, especially the north. The main harvesting takes place from April to June for all rainfed crops except cassava, which is harvested all year round. The green (early) harvest takes place between February and March which characterizes the end of seasonal hunger period.

PRODUCTION TIMELINE

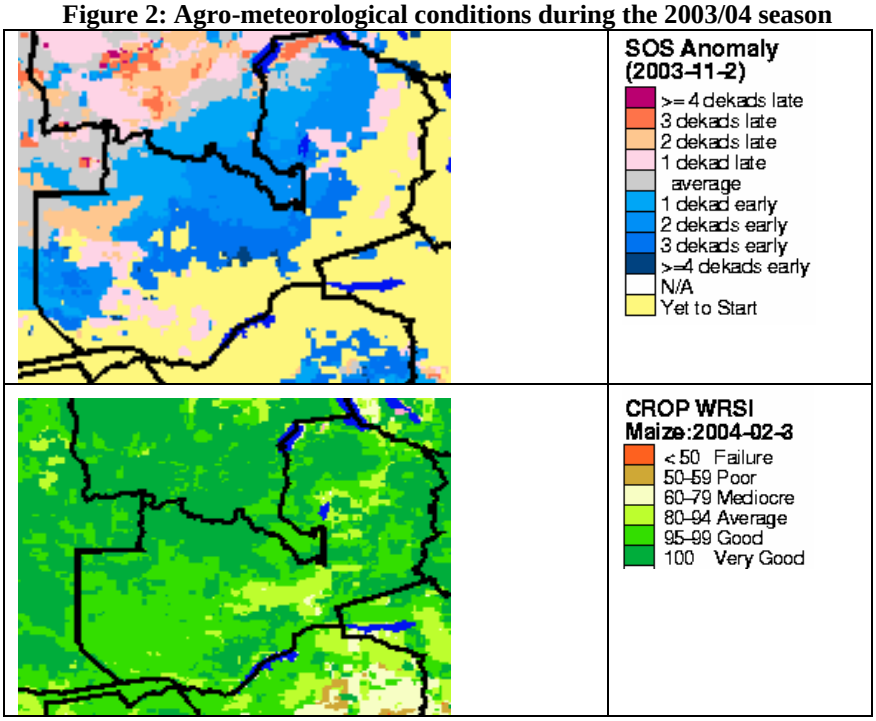


Winter production is mainly practiced by commercial farmers for wheat production and to a less extent maize production. Small scale maize winter production is at subsistence level and only practiced in areas around the flood plains and those along major rivers, such as the Zambezi and Luangwa rivers.

Agro-meteorological conditions during the 2003/04 season

Generally, the start of the 2003/04 rainy season was less than satisfactory, with erratic rains at the start of the season. The rains started early in the north, but were late in eastern and southern parts of the country. For this reason, planting was late in the southern half of the country. By mid January, the rains had started picking up, although most parts were still reporting below normal rainfall, but the moisture in most cases was adequate to sustain crop development. Crop condition was ranging from fair to good with the northern half reporting mostly good condition while crops in the south and parts of the central region were fair. By February, there was great improvement in crop condition for the southern half as a result of widespread good rainfall, despite a two week dry spell (Figure 2).

Figure 2: Agro-meteorological conditions during the 2003/04 season



Source: USGS

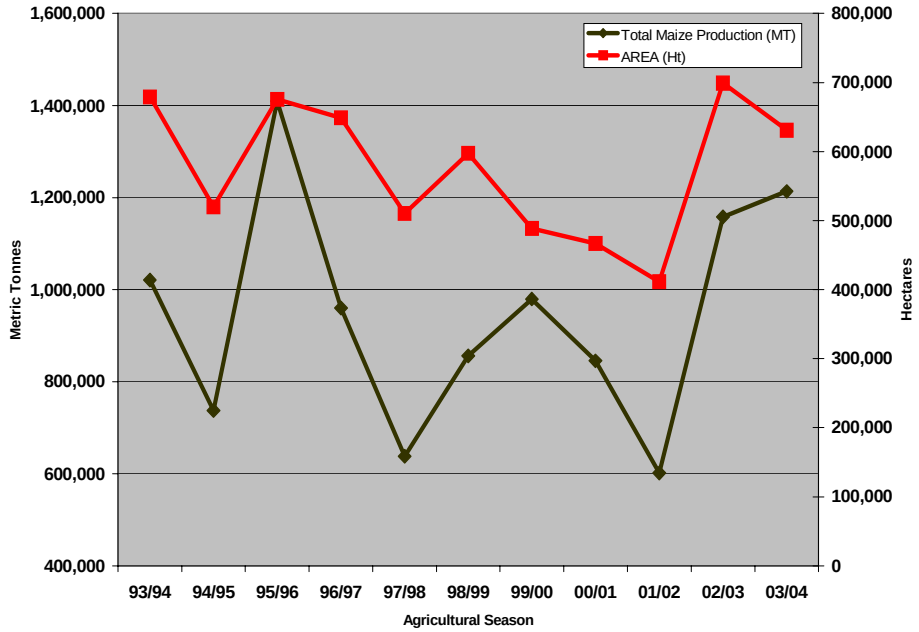
The extreme western Zambia however was receiving heavy and persistent rainfall causing abnormal flooding as the Zambezi River filled up. The situation was worsened by the increased water flow from Angolan tributaries. The most affected were four districts in Western Province and two districts in North-western Province.

National and sub national crop harvest performance in the 2003/04 season

The staple crop, maize, has continued to be the dominant food crop in Zambia despite being on a steady decline since 1987/88 (Figure 3). Production has fallen from 1.9 million MT in 1987/88 to an average of 1.2 million MT in

the 2002/03 and 2003/04 agricultural seasons. Except in the last season, maize production fairly well correlated to area planted. Maize production has to a large extent been directly dependent on average rainfall received in the season. The devastating droughts of 1991/92, 2000/01 and 2001/02 corresponded to years of poor food security which manifested in a lot of donor assistance in terms of food relief. Area planted to maize has been fluctuating over the past 10 seasons.

Figure 3: Maize production and area



Source: MACO

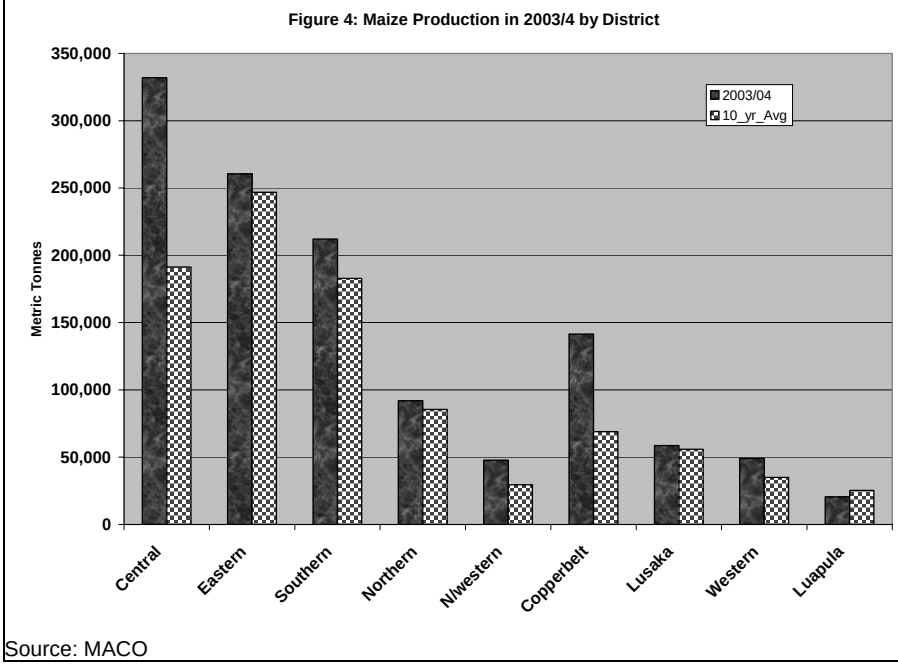
The poor maize production in the past seasons has been attributed to several factors including the late delivery of agricultural inputs, crop diversification, unfavorable weather conditions, low producer prices, and in some cases, loss of animals used for draught power. However in 2003/04 only 631,080 hectares were planted to maize, compared to 699,276 hectares in 2002/03.

This represents an 11% decrease from last season and a 0.3% decrease from the recent 10-year average. The increase in yield resulted in a marginal increase in maize production from 1,207,202 MT in 2002/03 to 1,213,601 MT in 2003/04 season.

Compared to 2001/02 season, the country's maize production in 2002/03 and 2003/04 agricultural season has increased by about 100 percent. The increase in maize production country-wide is attributed to favorable rainfall and improved distribution of maize seed and fertilizer resulting in general rise in the national yield rate. The national yield rate for maize in 2003/04 was 1.9 MT per hectare representing a 19% increase from the recent 10-year average and 13.5% increase over last year's yield.

Maize production has continued to be predominately cultivated by small-scale farmers who in 2002/03 and 2003/04 seasons contributed 64% and 79%, respectively, to the total yields. The decrease in large-scale farmers' contribution to national output was significant, falling from 412,381 MT in 2002/03 season to 247,596 MT in 2003/04 season. This decrease in production was consistent with a corresponding decrease in area planted to maize by large-scale farmers.

Figure 4: Maize production in 2003/04 by district



Source: MACO

Similar to other years, in 2003/04, maize production was grown mainly in Central, Eastern, and Southern provinces. Moderate production took place in Northern and Lusaka provinces while Western, North-western and Luapula provinces were very low producers (see Figure 4, previous page). In all the major maize producing areas, production in 2003/4 exceeded the most recent past 10-year average except in Luapula province.

With production of 331,856 MT this year, Central province contributed 27% to national maize production. This represents a consistently high performance when compared to the past two seasons, when maize production increased from 130,665 MT in 2001/02 to 342,856 MT in 2002/03 representing 22% and 30% contributions, respectively. The good performance among other things can be attributed to a high concentration of large-scale farmers and proximity to fairly good infrastructure and input and output markets that assist in timely distribution and availability of production inputs and maize sales facilities.

Overall maize production in Eastern province had increased by 29% from 201,521 MT in 2002/03 to 260,469 MT in 2003/04 season. However, the province produced 21% percent of the country's total maize output, compared to last year when it made a 34% contribution to national production. The reduction in proportional contribution to national maize production is mainly a result of competing opportunities in cotton and groundnut production.

The contribution of Southern province to national maize production moved from 10 % in 2001/02 to 11 % in 2002/03 to 17% in 2003/04, making it the third largest producer among the provinces. The province has experienced tremendous recovery, considering that it was the worst affected in the country in so far as the dry spells were concerned. The general improvement in the rainfall pattern, has greatly contributed to improved maize production in the province. However, the province is still under threat from the slow recovery of losses of animal draught power due to persistent livestock diseases.

Maize production per district

Maize production in the Copperbelt province fell modestly by 2% from 144,458 MT in 2002/03 to 141,483 MT in 2003/04. Contribution of Copperbelt province to total national maize production remained stagnant at about 12%. Maize production in Northern Province moved marginally from 79,881 MT in 2002/03 to 91,878 MT in 2003/04. Contribution to national maize production remained at about 7% compared to last year.

Lusaka Province experienced a fall in maize production from 177,865 MT in 2002/03 to 58,590 MT in 2003/04 season. Contribution to national maize production decreased from 15% to 5%. The low production in Lusaka province was explained by scaled down activities of large-scale farmers.

Maize production in Western province increased slightly from 36,028 MT in 2002/03 to 49,102 MT in 2003/04. Contribution to national maize production was 4%. This area annually experiences floods from the Zambezi River. During the 2003/04 season, abnormal floods occurred which destroyed part of the crops in the province. The soil there is mostly sandy and infertile and is not suitable for maize production.

Maize production in North-western province increased slightly from 33,114 MT in 2002/03 to 47,783 MT in 2003/04. This represented a national contribution of 4% compared to 3% in 2002/03.

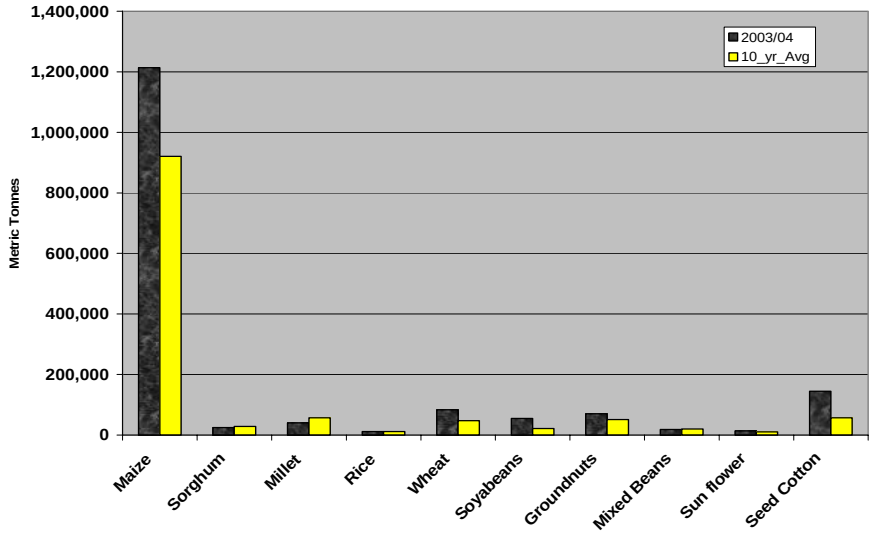
Despite being in agro-ecological zone 3 which is the highest rainfall region in the country, Luapula province was the lowest producer of maize in the country. In 2003/04 it produced 20,461 MT compared to 14,860 MT in 200203. Contribution to national maize production has remained below 2% in the last 10 years. The poor performance of maize production in Luapula can be attributed to the long distance to input and output markets as well as the farmer's preference to grow the local staple food, cassava.

Performance of selected crops

Maize continues to be the dominant cereal crop in the country (Figure 5). Sorghum and rice have not shown any significant upward movements in the last 10 years, while millet has declined below the 10 year average. The only other cereal that has shown an increase is wheat. This year's production of soybeans and groundnuts has

surpassed the 10-year average, while sunflower has only shown a marginal increase above the 10-year average. Mixed beans in 2003/04 season marginally fell below the 10-year average, while seed cotton almost doubled.

Figure 5: Production of Selected Crops in 2003/4 Season



Sorghum

The total area planted to sorghum during the 2003/04 season was 47,350 ha compared to 37,054 ha in 2002/03, representing an increase of 28%. Correspondingly, the output has increased from 20,301 MT in 2002/03 to 24,467 MT in 2003/04. The highest producers of sorghum in 2003/04 were: Western (5,955 MT); North-western (4,896 MT); Southern (3,564 MT) and Central province (3,459 MT). Others producers were: Northern (2,240 MT); Copperbelt (2,143 MT) and Eastern province (1,438 MT). The lowest producers were Luapula (707 MT) and Lusaka province (64 MT).

Millet

The area planted to millet this season was 59,081 hectares compared to 56,751 hectares last season. Production was recorded at 39,784 MT compared to 35,331 MT last season. The largest production was recorded in Northern province (28,551 MT) which accounted for 72% of national contribution. The second highest producer was Western province (4,763 MT) followed by Central province (2,176 MT) and Luapula (1,521 MT). Other provinces recorded less than 1,000 MT each.

Paddy Rice

The total area planted to rice increased from 10,305 hectares in 2002/03 to 12,379 hectares in 2003/04. Production has modestly increased from 10,744 MT to 11,699 MT in 2002/03 and 2003/04, respectively. Rice production remained predominant in Northern Province (4,909 MT) followed by Eastern province (3,000 MT). Western province produced 2,150 MT while Northwestern, Luapula and Central provinces produced 743 MT, 531 MT and 339 MT, respectively.

Wheat

Wheat production continues to grow steadily, and 2003/04 production was 82,858 MT, compared to an average of 70,000 MT in the last 5 years. The amount of area planted to wheat has equally grown and is now at about 12,000 hectares, up from a previous area of about 10,000 hectares. All the wheat is grown under irrigation and

the leading provinces in 2003/04 were Central (32,385 MT), Copperbelt (30,100 MT), Lusaka (13,070 MT) and Southern (7,303 MT).

Groundnuts

Total area planted to groundnuts decreased from last year's figure of 150,460 hectares to 116,978 hectares. Meanwhile, total production also fell from 82,550 MT to 69,696 MT, representing a decline of 16%. The leading producers were Eastern and Northern provinces, which produced 28,218 MT and 17,168 MT, respectively. Other provinces produced less than 6,000 MT. The lowest producer was Lusaka province which produced 511 MT.

Sunflower

Area planted to sunflower increased greatly from 1,688 hectares last season to 30,689 hectares this season. Area planted to the crop was close to the 2001/02 figure of 20,833 hectares. The total production was 13,857 MT compared to 1,334 MT last season. The highest producers were Eastern province (6,645 MT); Central province (4,541 MT) and Northern province (634 MT). Other provinces produced less than 100 MT, with the lowest being Western Province which produced only 1 MT.

Soya Beans

The total area planted to soybeans almost doubled from 17,402 hectares in 2002/03 to 33,186 hectares in 2003/04. Consequently, the national production increased by 30% from 42,120 MT in 2002/03 to 54,687 MT in 2003/04. The increase in production is partially explained by favorable prices and increase in area planted, rather than yield, which dropped from 2.42 MT/ha in 2002/03 to 1.65 MT/ha in 2003/04. The highest production of soya beans was in Copperbelt Province (23,229 MT), followed by Central Province (18,024 MT), Lusaka (6,452 MT); Eastern Province (4,142 MT) and Southern Province (1,999 MT). Other producers were Northern Province (762 MT), Luapula Province (49 MT), Northwestern Province (28 MT) and Western Province (1 MT).

Cassava

Area under mature cassava has increased by 47% from 140,251 hectares in 2002/03 to 206,051 hectares in 2003/04. Equally production increased by 46% from 958,116 MT to about 1,400,000 MT. The increase in cassava production can be attributed to increased support that cassava is getting from NGOs who were promoting cassava in traditionally non-cassava growing areas by distributing cassava cuttings. In addition to typical cassava areas of Luapula, Northern and Northwestern provinces, cassava has been heavily promoted in Eastern and Southern provinces, which are traditionally non-cassava growing areas.

Sweet and Irish potatoes

Production of sweet potatoes (109,489 MT) remained similar to last year's levels (101,581 MT).

The national food balance

National human consumption of maize still averages one million MT a year. This national demand has been consecutively surpassed in the last two seasons. Particularly for the 2002/03 and 2003/04 seasons, part of the good performance can be attributed to a government subsidy plan that offered a 50% subsidy on fertilizer and seed to 150,000 farmers out of approximately 800,000 small-scale farmers. In addition, there were a lot of non-governmental organizations and United Nations programs that were assisting various farming households with agricultural inputs and farming techniques to enable them recover from the impact of the 2000/01 and 2001/02 droughts. Above all, the good seasonal rainfall performance despite a poor start played a major role in ensuring good crop performance. Overall, the country has a modest surplus of staple food crops as depicted in the food balance sheet (Table 1).

The National Food Balance Sheet has estimated official carry-over maize stocks held by traders, millers, FRA, WFP and Disaster Management and Mitigation Unit (DMMU) from the previous marketing year at 170,735 MT. With maize production of 1,213,600 MT in 2003/04 and carry-over stocks of 170,735 MT, the total national supply of maize is 1,393,336 MT against a national demand of 1,208,336 MT. This has translated into a marketable surplus of 185,000 MT. Of this surplus, about 11,000 MT have been sold to the regional WFP and a further 50,000 MT is planned for export to Angola by the FRA. Currently, Zambian traders (including FRA) are bidding for two regional tenders, one for 70,000 MT by the Malawi National Food Reserve Agency and 3,021 MT by World Food Program for relief purposes in Malawi. Meanwhile the FRA has continued to purchase last season's maize from small-scale framers and by September 24 had purchased 58,144 MT out of the planned 61,000 MT.

Table 1: Zambia National Food Balance Sheet for the 2004/05 Marketing Year Based on the 2003/04 MACO/CSO Crop Production Estimates (MT)

		Maize	Paddy rice	Wheat	Sorghum/ millet	Sweet and Irish potatoes	Cassava flour	Total (maize equivalent)
A.	**Availability:**							
	(i) Opening stocks (May 2003) 1/	170,735	270	13,323	4,342	727		175,772
	(ii) Rural production (2002/03) 2/	1,213,601	11,699	82,858	64,251	114,737	911,673	2,092,461
	Total availability	1,393,336	11,969	96,181	68,593	115,464	911,673	2,268,234
B.	**Requirements:**							
	(i) Staple food requirements:							
	Human consumption 3/	1,020,156	17,884	134,357	64,380	109,727	660,190	1,726,205
	Food Reserve Stocks (net) 4/	55,000	0	0	0	0	1,000	50,428
	(ii) Industrial requirements:							
	Stock feed 5/	50,000	0	0	0	0	0	45,000
	Breweries 6/	15,000	0	0	0	0	0	13,500
	Seed 7/	7,500	0	1,500	1,000	0	0	8,733
	(iii) Losses 8/	60,680	585	4,143	3,213	5,737	18,233	79,255
	Total requirements	**1,208,336**	**18,469**	**140,000**	**68,593**	**115,464**	**679,423**	**1,923,120**
C.	**Surplus/deficit (A-B)** 9/	**185,000**	**-6,500**	**-43,819**	**0**	**0**	**232,250**	**345,114**
D.	Commercial import requirements 10/		6,500	43,819				
E.	Food aid import requirements 11/	0	0	0	0	0	0	0

The total sorghum and millet production for 2003/04 was 64,251 MT and carryover stocks of 4,342 MT, which is equal to the national demand of 68,593 MT, and this assumes that all production is locally consumed. The country continues to have a deficit in paddy rice of 6,500 MT, whilst that of wheat has improved from an average deficit of 70,000 MT to a deficit of only 43,819 MT this year. Cassava flour production recorded a surplus of 232,250 MT, compared to 348,592 MT in 2002/03. The FRA has planned to purchase 27,140 MT of cassava in the 2004/05 marketing season.

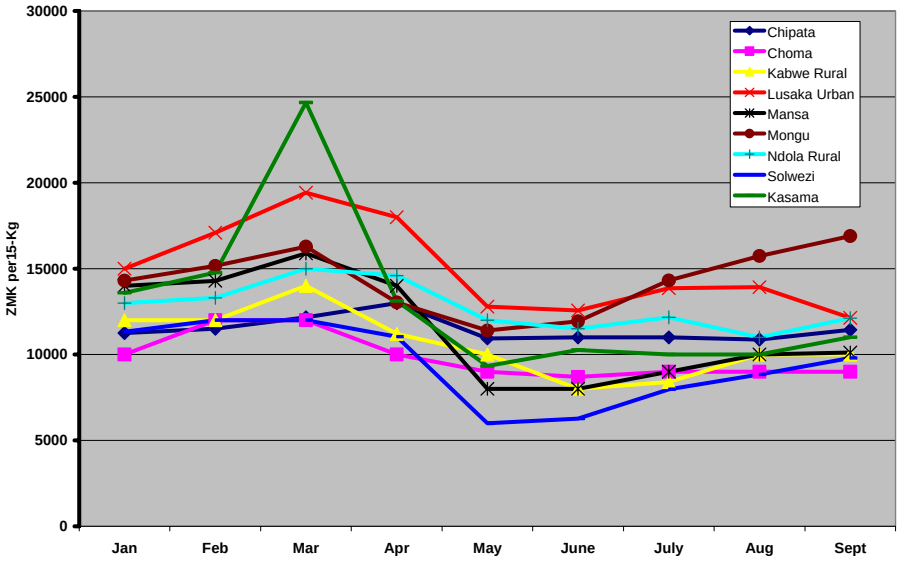
Current food access

Nominal prices in major maize producing provinces of Central (Kabwe Rural); Eastern (Chipata); Southern (Choma) and Copperbelt (Ndola Rural) remained relatively low and stable since May 2004 (Figure 6, following page).

Other areas that experienced low prices, despite also being low maize producers, were border areas of Solwezi (Northwestern Province) and Mansa (Luapula province), where cross border trading is a major activity. Maize prices in the 2003/04 season remained lower than the recent 10-year average following two consecutive good

harvests in 2002/03 and 2003/04 seasons. Figure 7 illustrates this phenomenon by comparing the trend of nominal prices in a relatively bad year (2001/02) to prices in relatively good years (2002/03 and 2003/04) in Lusaka Urban, which is a major marketing center.

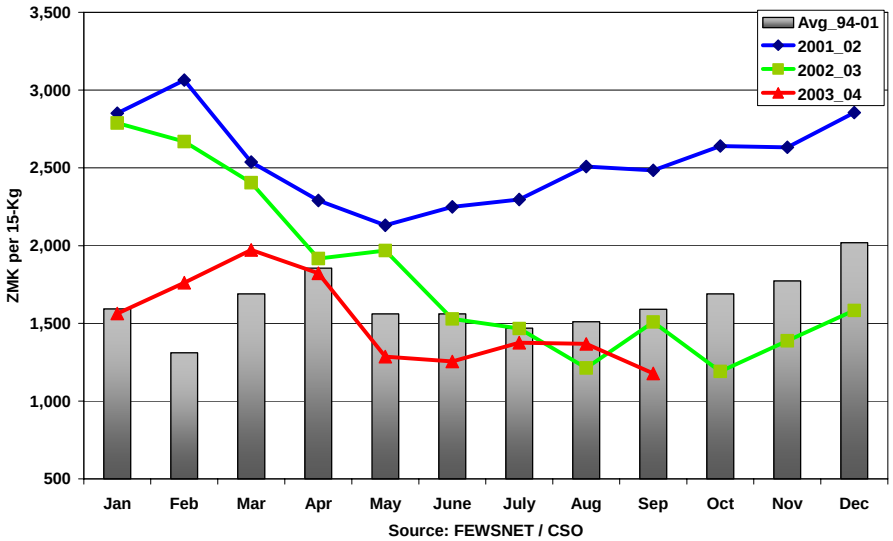
Figure 6: Nominal retail prices of maize in key provincial markets



Source FEWS NET/CSO

The pattern exhibited in Lusaka Urban has been characteristic of most active markets across the country. Figure 7 illustrates the impact of increased household and national stocks on prices. Although the low prices are expected, their level has been uncharacteristically lower than most years and this situation has remained longer than usual. The abundant food stocks are also illustrated in the continued maize purchase program ongoing throughout the country and the planned exports.

Figure 7: Real Retail Maize Prices in Lusaka Urban

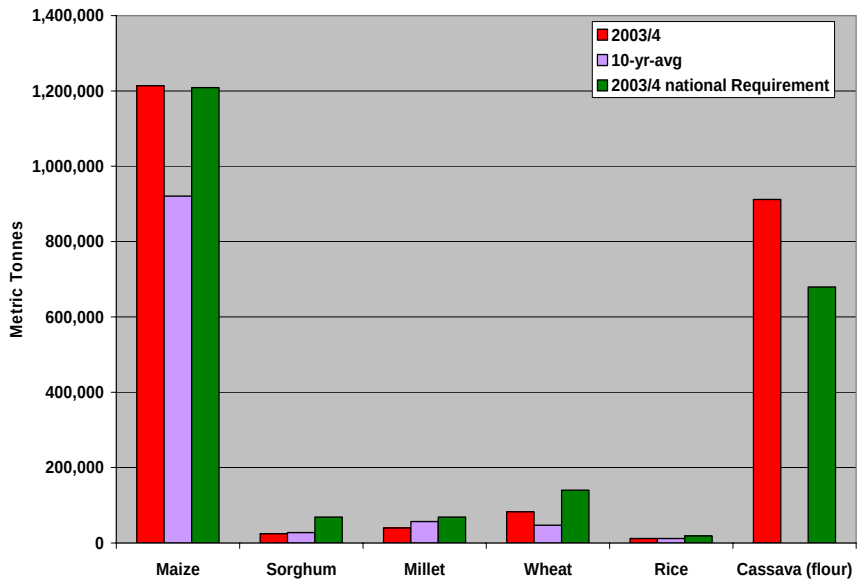


Source: FEWSNET / CSO

Impact on food security

The overall cereal supply situation in the country is above total requirement (Figure 8). However, there are localized areas that are food insecure, due to low production in food and non food crops because of poor terrain, floods and damage to crops by wild animals. Examples of such areas are found in Southern (Siavonga), Western (Sesheke, Kalabo and Shangombo), North-western (Chavuma and Zambezi), Eastern (Chama) and Lusaka (Luangwa) provinces.

Figure 8: Supply and Demand of Selected Crops



Source: MACO

Conclusion

Despite a good crop harvest in 2003/04 season, there still exist some pockets where communities are food insecure. However, despite adequate information and food availability, the distribution of relief food to the flood affected areas of western Zambia has been too slow. The situation could result in affected household's failure to engage in winter production and therefore increase their vulnerability. Due to current marketing inadequacies, most farming households are experiencing low maize prices and are at risk of failing to engage in meaningful crop production during the coming season.

Now that the harvest is known, a livelihood-based assessment is required in these areas to ascertain the level of the impact of the current harvest on household food security. The surplus in production and high national and on-farm stocks will guarantee low prices and therefore access to food for the majority of the population. However, since most agricultural production is by small-scale farmers who depend mostly on income from current crop sold, the lack of an immediate market will adversely affect their production plans in the coming season. Farmers who will be most affected include those in inaccessible areas and those that are far away from FRA buying depots.

Annex 1: Notes to the National Food Balance sheet

1/	Stocks expected to be held by commodity traders, millers, FRA, DMMU, WFP and commercial farmers as at May 2003.
2/	Production estimates from MACO/CSO. Cassava production is based on the total area under cassava, using an annual yield figure of 11.7 MT per hectare (MAFF Root and Tuber Improvement Programme, 1996). A flour extraction rate of 25% is used. Other tubers are sweet potatoes and Irish potatoes.
3/	Staple foods are assumed to represent 70% (1,421 kCal/person/day) of total diet (2,030 kCal/person/day) converted to crop requirements for the national 2003/04 population of 10.58 million people. The maize grain and cassava meal surplus represents an overall surplus of staple foods. Cross-substitution may make this surplus partly available in the form of other crops.
4/	Locally purchased FRA stocks expected to be carried over into the next season. (This does not indicate total FRA purchases on the local market nor imports)
5/	Estimated requirements by major livestock feed producers (Zambia National Food Balance Sheet Review FEWS NET/MACO and FRA/ZNFU).
6/	Estimated requirements by industrial breweries (Zambia National Food Balance Sheet Review, FEWS NET/MACO and FRA/ZNFU).
7/	Estimated seed crop grown for seed companies (Zambia National Food Balance Sheet Review, FEWS NET/MACO and FRA/ZNFU).
8/	Post harvest losses are estimated at 5% for grains and sweet potatoes in line with estimates from other SADC countries and 2% for cassava.
9/	Expected surpluses or deficits that arise after meeting minimum overall staple human consumption requirements as well as industrial requirements. Cassava and maize surpluses may be substitutable with other crops and may result in different exportable volumes than the ones indicated here. The total is expressed as maize equivalent using energy values. The rice deficit is based on what is known to be imported each year, as indicated under D. The wheat deficit is based on the estimated market size as indicated in B, less availability as indicated in A.
10/	Imports required to be made by the private sector to meet the commercial market demands.
11/	Total estimated requirement for food relief among vulnerable groups, to be imported. This could be met with maize or other grains.