Crop Forecast Survey Methodology and Results – By Michael Isimwaa

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CONTENTS

Objective Of Presentation:

- Aware of criticisms pertaining to CFS, hence the need for stakeholders to understand what is involved in CFS
- The National Food Balance Sheet (NFBS) is one of the most important planning tools used at beginning of marketing year

- The NFBS provides market outlook in terms of supply and demand of staple food crops
- The NFBS forms the basis for public and private sector planning for agriculture marketing
- The CFS is a key ingredient in compilation of NFBS

Purpose of Crop Forecast

- Collect Information on anticipated area, production, and sales of major crops

Uses of information:

- Assessment of expected food security situation at national level
- Asses performance of major cash crops
- Facilitate trend analysis
- Computing Agriculture's contribution to GDP

Scope and Coverage

- Survey covers all districts in the country
- Coverage in district based on a statistical sample
- 410 SEAs from 73 districts
- 20 Households per SEA
- Only Agricultural households are covered

- A total of 8,200 households are covered
- Design produces reliable estimates at Provincial and National level
- The U.S. Census Bureau together with FSRP/Michigan State University have assisted in the design of the sample
- FAO/SADC Support

Sampling Frame

- The Universe (population) of primary sampling units to be selected
- PSU is an SEA with a minimum of 30 agric. Households
- Based on information and cartographic materials from the 2000 census
- Cartographic operation defined CSAs which are divided into SEAs
- Sample SEA is the smallest geographical unit

Two Stage Sample Design

- First Stage Stratification

Step I: Classify SEAs within each district according to

(a) Region – urban vs. rural

(b) predominant rare crop (Rice, Cotton, Burley Tobacco, Virginia Tobacco, Sunflower, Soybeans, Paprika)

Sample Design

Step II: Allocate SEAs between and within provinces based on Probability Proportional to the number of agricultural households in each district/province

STEP III: Randomly select SEAs from the categories in Step I.

Second Stage Stratification

- Stratification of households into 3 categories A, B, C. to share 20 households
- Stratification of households within each SEA is based on:
  (a) size of cultivated land
  (b) growing specified rare crops
  (c) numbers of cattle, pigs, goats & chickens raised

Questionnaire Content

1. Tillage methods
2. Area planted to individual crops
3. Use of agricultural inputs
4. Expected production
5. Expected sales

Data Processing

- Data is entered at Provincial level, about one week
- Data Cleaning and tabulation done centrally in Lusaka (17 days)

Accuracy

- Checks, ideally to be done every year to generate:

  (a) standard errors and CVs

  (b) values on design effect

  (c) 95% confidence interval

Republic of Zambia

Zambia National Food Balance Sheet For The 2005/2006 Marketing Year
Based On The 2004/2005 MACO/CSO Crop Production Estimates (Metric Tonnes)

	Maize	Paddy rice	Wheat	Sorghum/ millet	Sweet and Irish potatoes	Cassava flour	Total (Maize mealie meal equivalent)
Availability:							
(i) Opening stocks (1st May 2005 *1/*	190,702	103	156	2,445	0	380	174,305
(ii) Total production (2004/05) *2/*	866,187	13,338	136,833	48,297	82,489	1,056,000	1,932,498
Total availability	**1,056,889**	**13,440**	**136,989**	**50,742**	**82,489**	**1,056,380**	**2,106,803**
Requirements:							
(i) Staple food requirements:							
Human consumption *3/*	1,024,080	24,673	131,658	46,327	78,364	709,926	1,754,712
Food Reserve Stocks (net) *4/*	0	100	0	1,000	0	500	1,406
(ii) Industrial requirements:							0
Stockfeed *5/*	52,000	0	0	0	0	0	46,800
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/*	43,309	667	6,842	2,415	4,124	21,120	67,241
Total requirements	**1,141,889**	**25,440**	**140,000**	**50,742**	**82,489**	**731,546**	**1,892,391**
Surplus/deficit (A-B) *9/*	**-85,000**	**-12,000**	**-3,011**	**0**	**0**	**324,834**	**214,413**
Commercial import requirements *10/*		12,000	3,011				

Conclusion

- The NFBS can only be produced if we have statistically valid national estimates of production and opening stocks
- Qualitative monitoring systems will only be able to generate qualitative assessments but not quantitative estimates

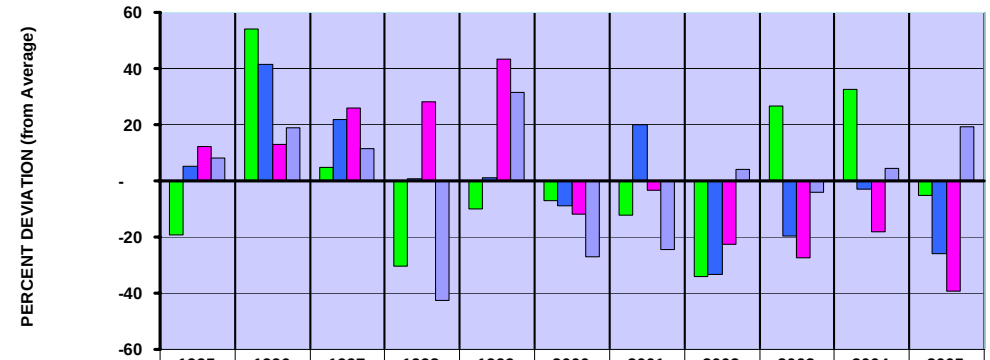
Conclusion

- Qualitative crop monitoring systems or assessments by MACO Staff will never produce reliable quantitative estimate for compiling the NFBS.
- Currently there is no substitute to a survey that is based on a statistically valid random sample for generating crop forecast estimates

END OF PRESENTATION

THANK YOU FOR YOUR ATTENTION

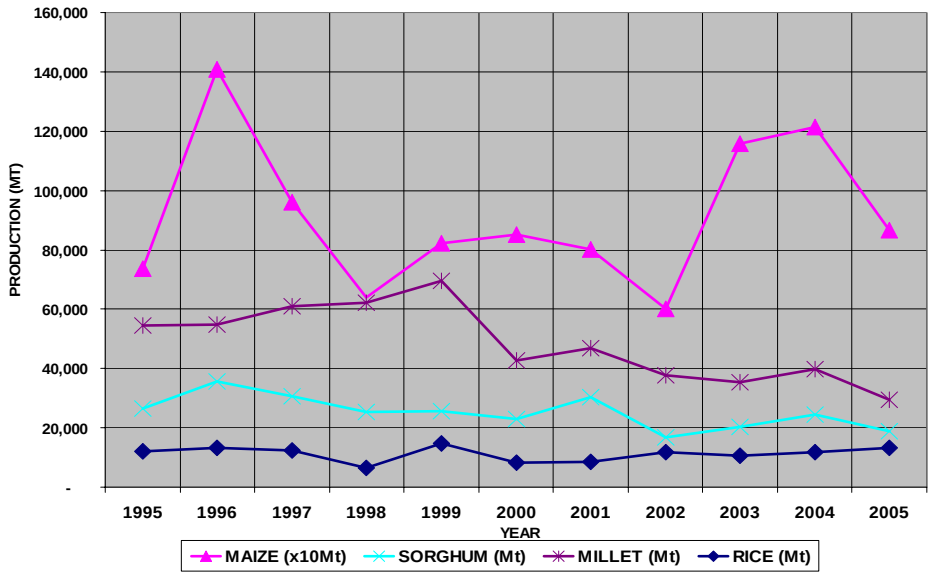
Cereal production trends



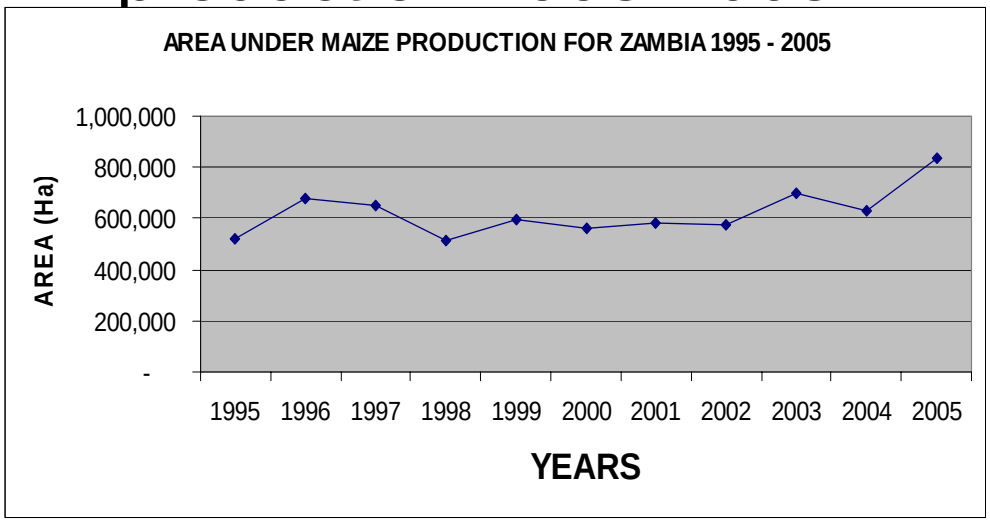
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
% Maize dev	-19	54	5	-30	-10	-7	-12	-34	27	33	-5
% Sorghum dev	5	41	22	1	1	-9	20	-33	-19	-3	-26
% Millet dev	12	13	26	28	43	-12	-3	-23	-27	-18	-39
% Rice dev	8	19	12	-43	31	-27	-25	4	-4	5	19

YEAR

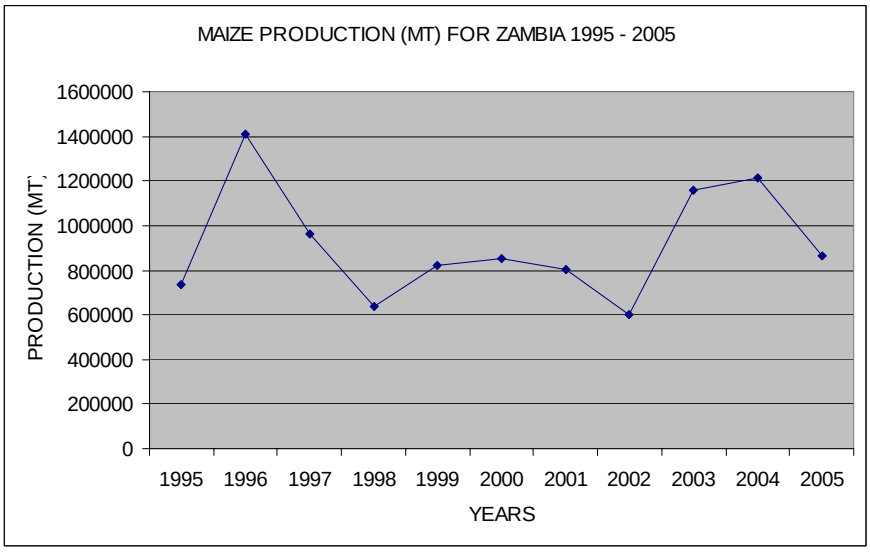
CEREAL PRODUCTION TRENDS (1995-2005)



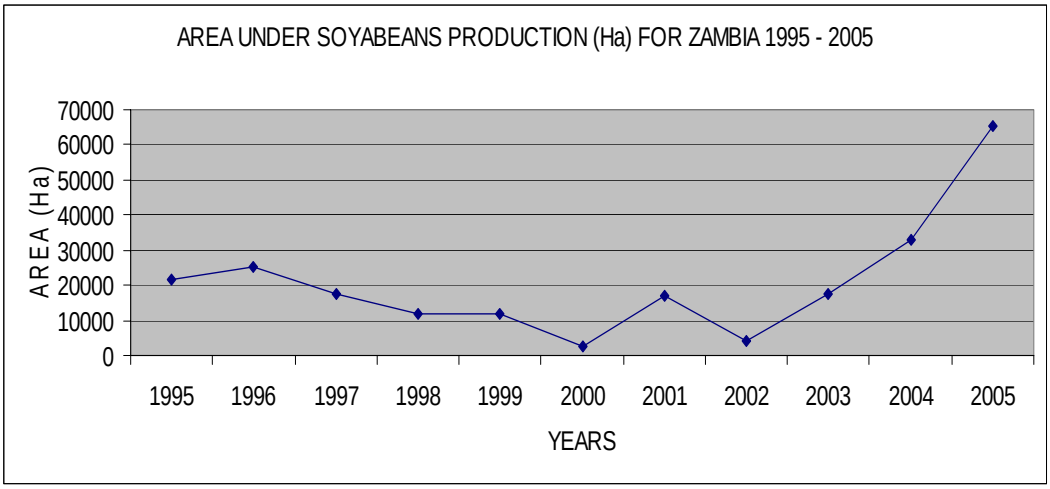
Area under Maize production 1995-2005



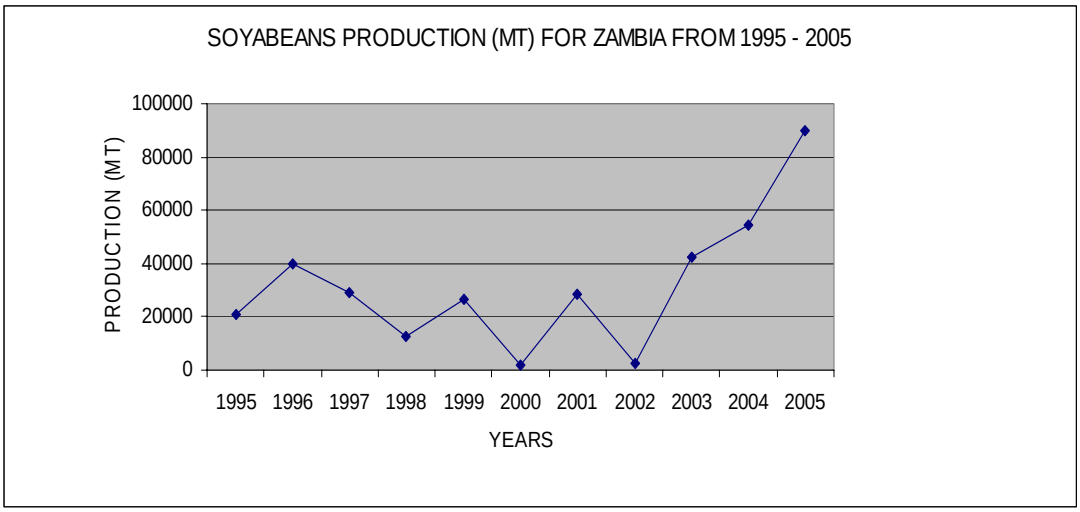
Maize production 1995-2005



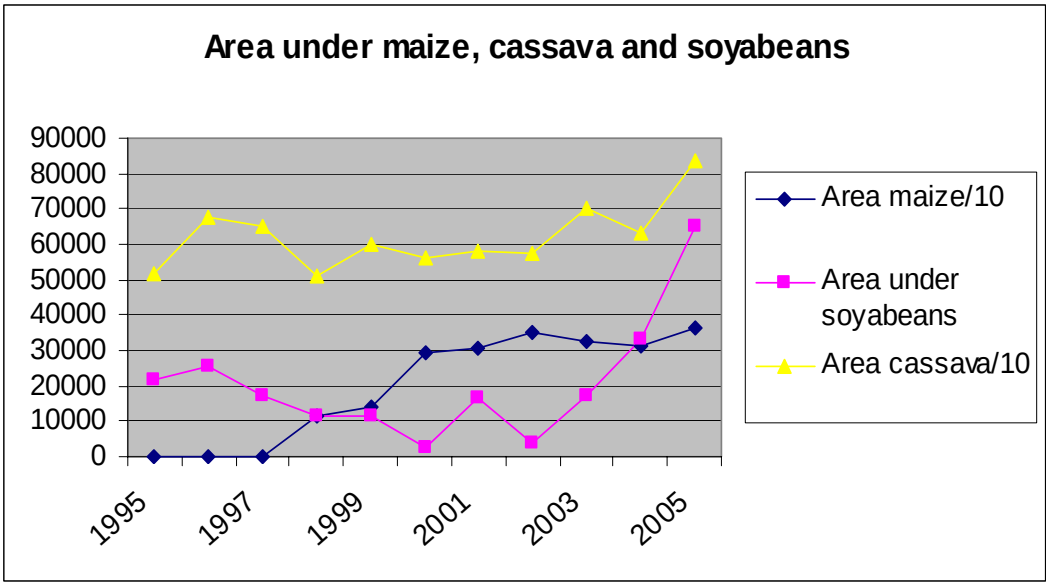
Area under Soya beans 1995-2005



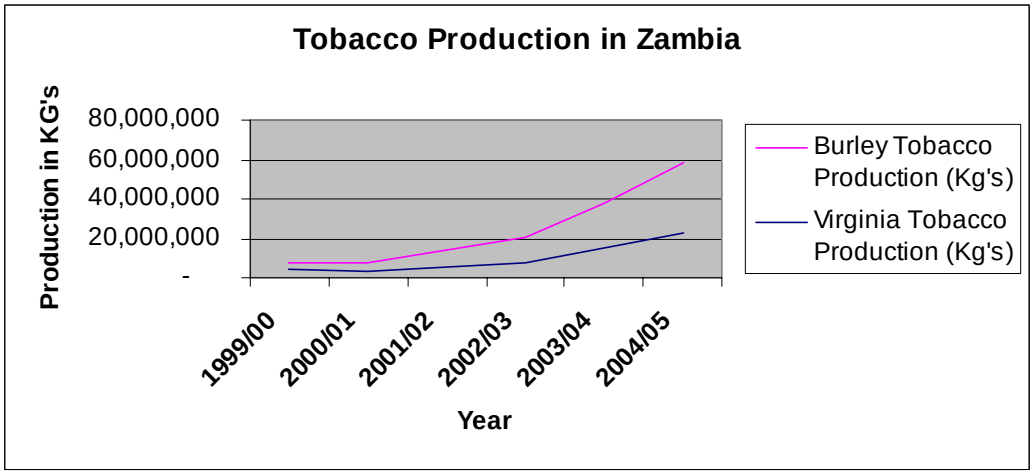
Soya beans production 1995-2005



Area under Maize,Cassava and Soya beans



Tobacco production



Seed Cotton production