

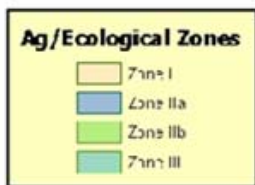
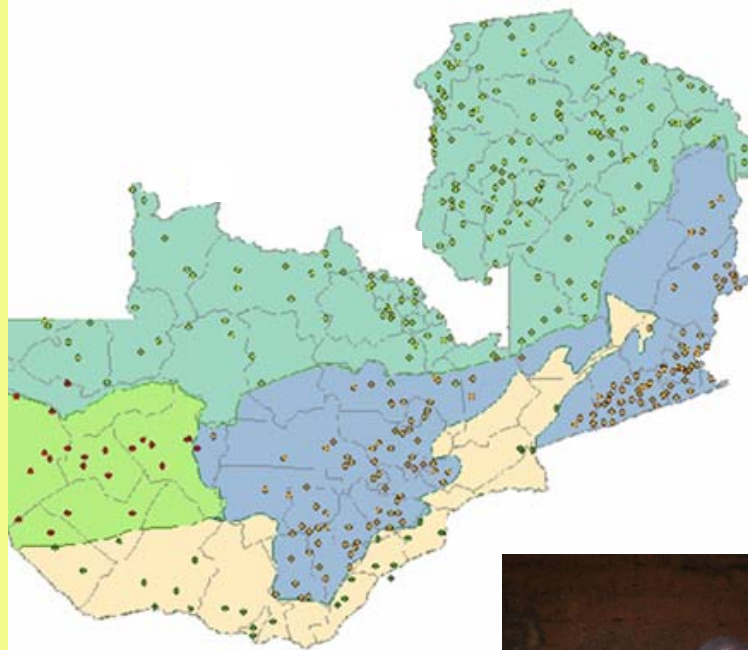
Zambia Agricultural Surveys: A Voice for Smallholders?



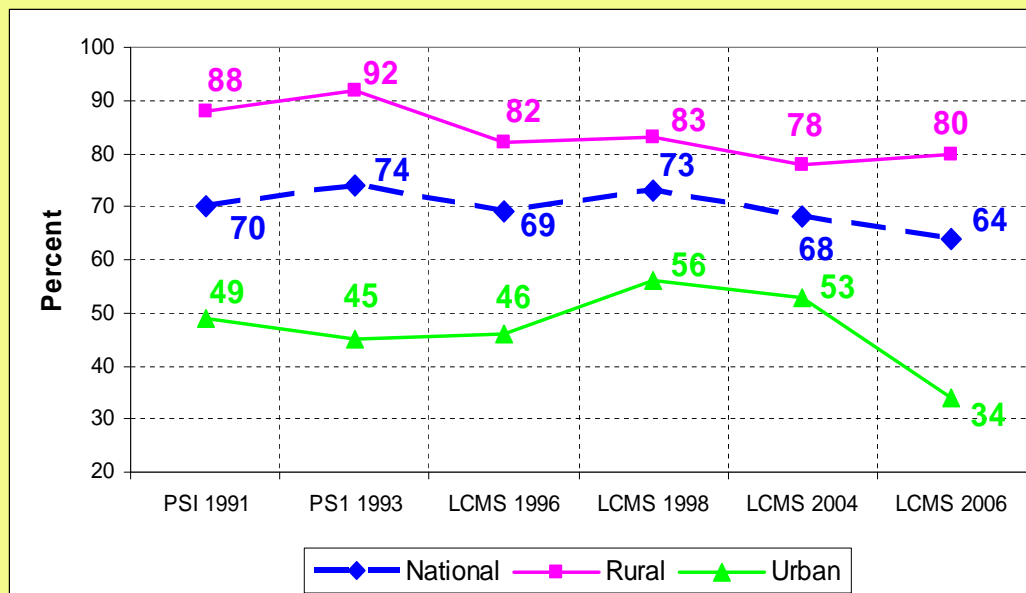
FSRP/Zambia
Presentation by Antony Chapoto
Norwegian Embassy/Zambia
February 11, 2010

Outline of presentation

1. Trends in smallholder farm production and marketing
2. Land constraints and disparities in Zambia
3. Smallholder farmers' maize market characteristics
4. Fertilizer Support Programme (now FISP)
5. Potential emerging urban market for smallholder farmers products
6. Competing models of roles of state and private sector in food markets



Poverty Rates in Zambia Over Time



Trends in Smallholder Crop Production & Sales - 2001 to 2008

- ❑ Maize, groundnuts and cotton show increase or general stability in number of growers, total production and sales
- ❑ Number of households growing cassava has declined but production has increased
- ❑ Sweet potato production and number of producers has been declined
- ❑ Because of rapid growth in rural ag households, production per household has not improved (except for maize)

% of Small/medium-Scale Farmers Growing Crops

Attributes	Crop	1999/00	2002/03	2006/07	trend
% HH Growing	Maize	80	80	84	↑
	Cassava	38	39	34	↓
	Groundnuts	36	42	38	↗
	Sweet potatoes	28	19	13	↓
	Cotton	6	10	10	↑

Zambia National Production

Attributes	Crop	1999/00	2002/03	2006/07	trend
		Tonnes produced			
Total Production	Maize	1,346,983	1,365,103	1,960,692	↑
	Cassava	794,82	836,127	948,669	↑
	Groundnuts	62,733	89,159	98,415	↑
	Sweet potatoes	180,224	138,088	136,125	↓
	Cotton	46,271	123,085	125,229	↑
Total # ag. smallholder HHs		1.21 mill	1.25 mill	1.51 mill	↑

Zambia National Production per Agricultural Household (mt/hh All HHS)

Attributes	Crop	1999/00	2002/03	2006/07	Trend
Production per ag. Household (tonnes)	Maize	1.20	1.09	1.30	↑
	Cassava	0.71	0.67	0.63	↓
	Groundnuts	0.06	0.07	0.06	→
	Sweet potatoes	0.16	0.11	0.09	↓
	Cotton	0.04	0.10	0.08	↘

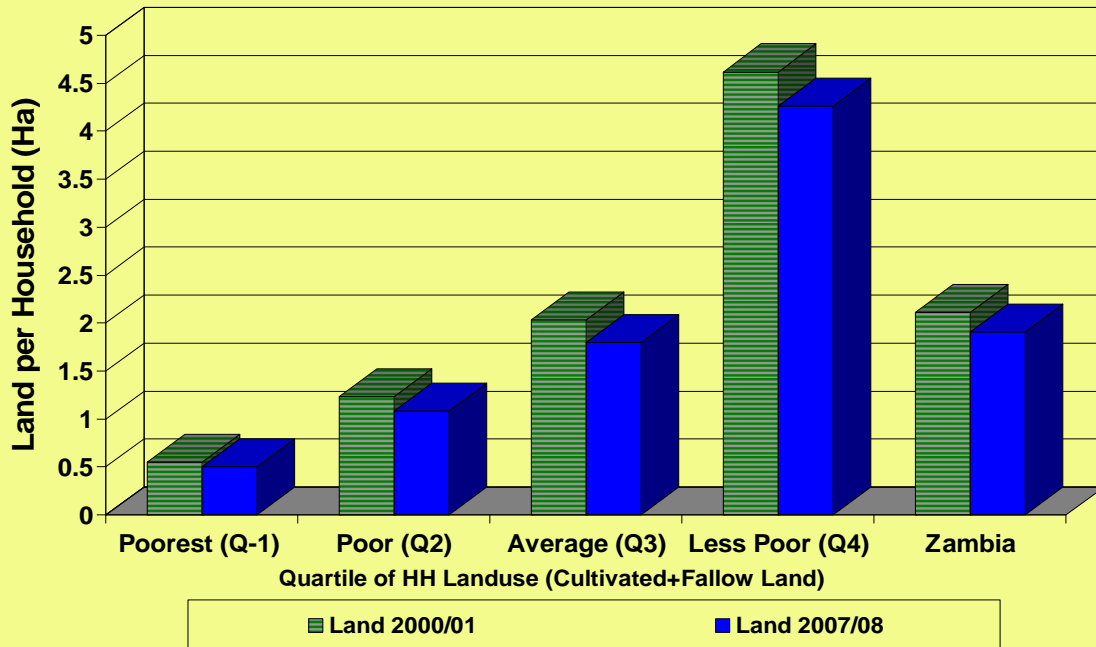
% of Smallholders Growing the Crop who Sold

Attributes	Crop	1999/00	2002/03	2006/07	
% HH Growing who sold crop	Maize	36	36	38	↗
	Cassava	34	25	26	↓
	Groundnuts	43	48	46	↘
	Sweet potatoes	39	41	46	↑
	Cotton	98	98	98	↔

Under appreciated Fact #1

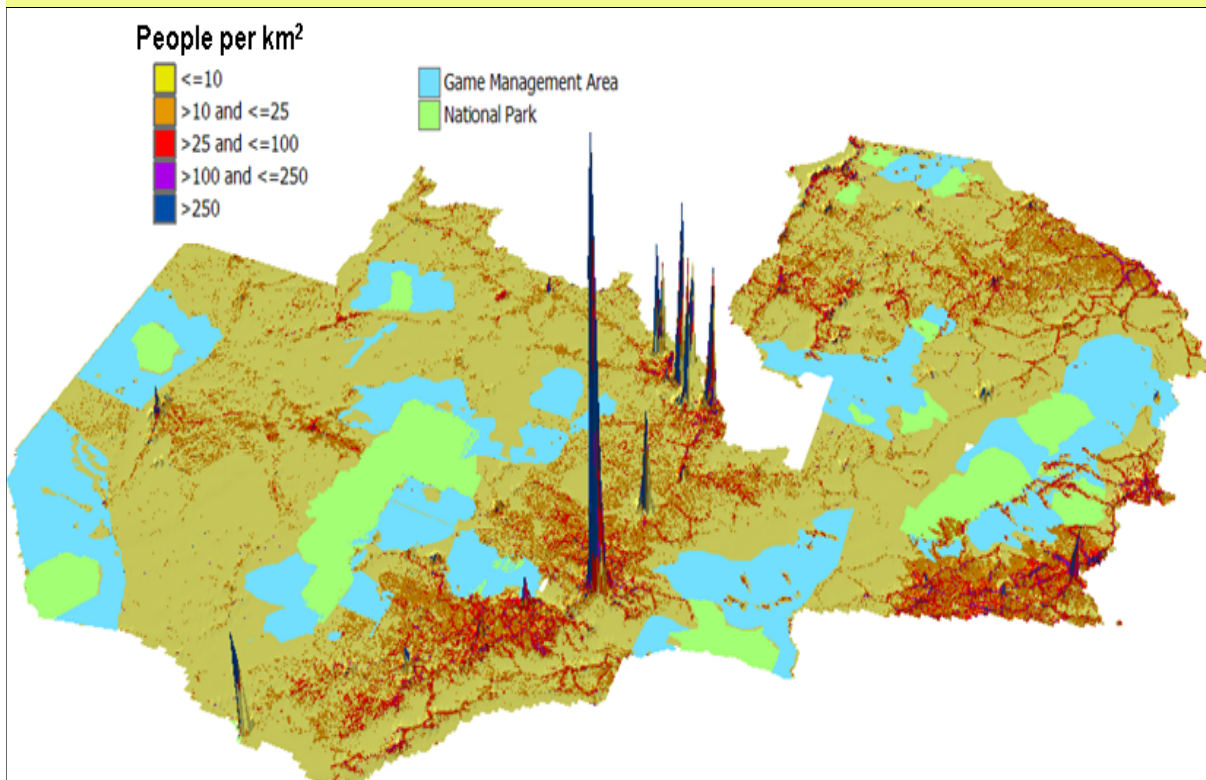
- **A large share of smallholder households are land constrained**
 - 25% of smallholders have less than 0.5 hectares of land
 - 58% of households indicate that there is no unallocated land in their village

Farm Size (Cultivated + Fallow Fields) For Small & Medium-Scale Farmers, 2001 and 2008



Source: CSO/MACO/FSRP 2000/01 & 2007/088 National-Level Supplemental Rural Livelihood Survey

Population Density, Zambia



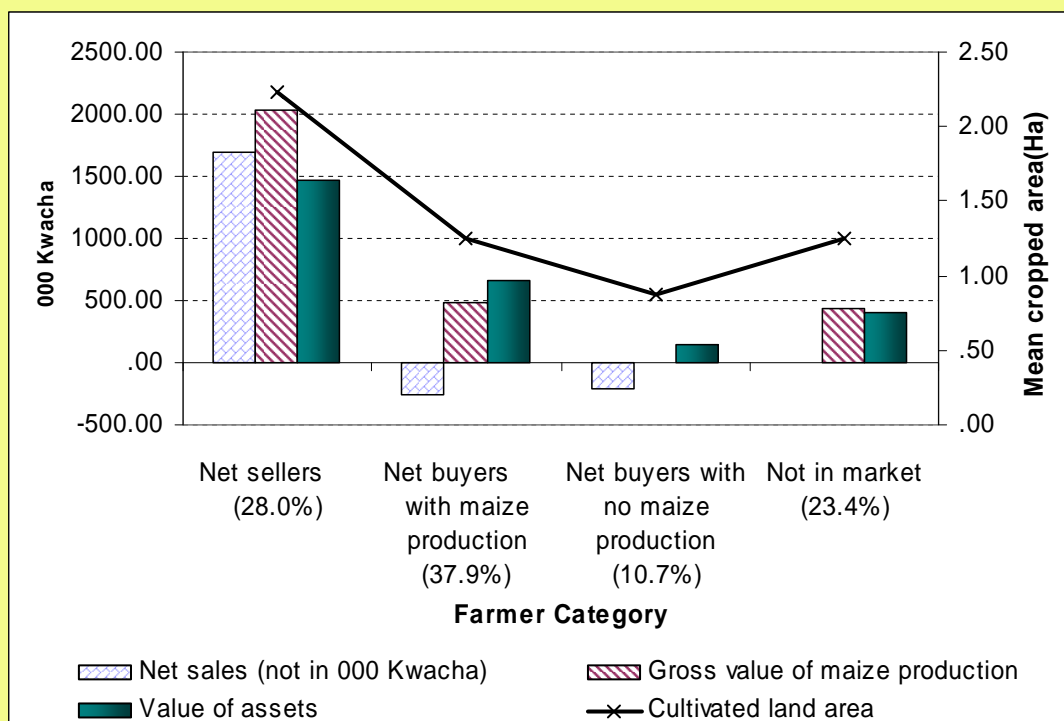
Land Constraints

- ❑ Rural settlement follows public investment in rural infrastructure
- ❑ Land constraints in a land-abundant country is not a paradox
 - ❑ economically viable arable land requires access to basic services, water, schools, roads, and markets.
- ❑ The basic public investments to make settlement economically viable have yet been made in many areas of Zambia

Under appreciated Facts # 2

- ❑ **Most rural farm households are buyers of maize (or net buyers)**
 - 28 % of smallholders are net maize sellers
 - 49 % of smallholders are net supplemental buyers of maize (11 % did not produce any maize);
 - 23 % produced but did not sell nor buy maize
- ❑ Highly concentrated patterns of surplus generation - 2% of farm households account for 50% of marketed maize surplus
- ❑ Maize market position is highly associated with area cropped and household assets

Maize Production, Sales and Assets



2008 (07/08 Crop Marketing Season)

Disparities in livelihoods within smallholder agriculture, Zambia

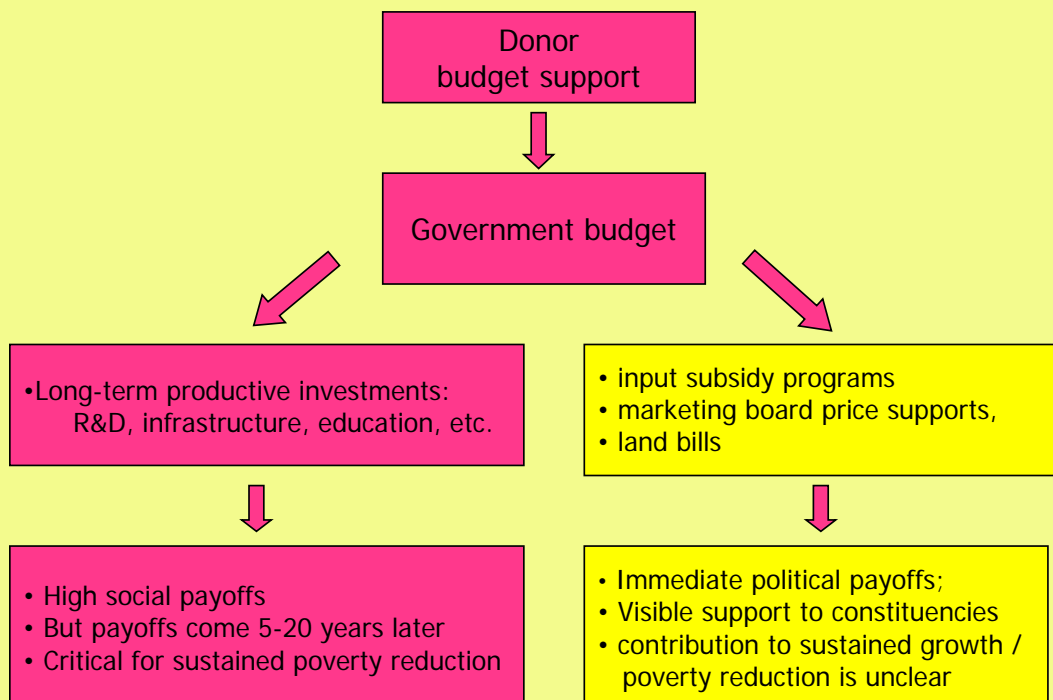
	N=	Farm size (ha)	Asset values (US\$)	Gr. Rev., maize sales (US\$)	Gr. Rev., crop sales (US\$)	Total hh income (US\$)
Top 50% of maize sales	30,150 (2%)	7.2	3,703	3,199	3,354	7,624
Rest of maize sellers	467,320 (31%)	1.9	257	172	252	1,272
Households not selling maize	1,010,014 (67%)	1.1	129	0	57	756

Source: CSO Supplemental surveys, 2008

Effects of Raising Maize Prices Above Market Clearing Levels

- ❑ Since smallholder sales are so concentrated, FRA price-raising policies have highly regressive effects on income distribution
 - ❑ Higher maize prices hurt the majority of the population who are net maize buyers
 - ❑ Net maize buyers tend to be relatively poor farmers
- ❑ Many of these smallholders need technology to produce on less area enough maize to eat & raise incomes from selling other crops and labor services

Political economy of public resource allocation

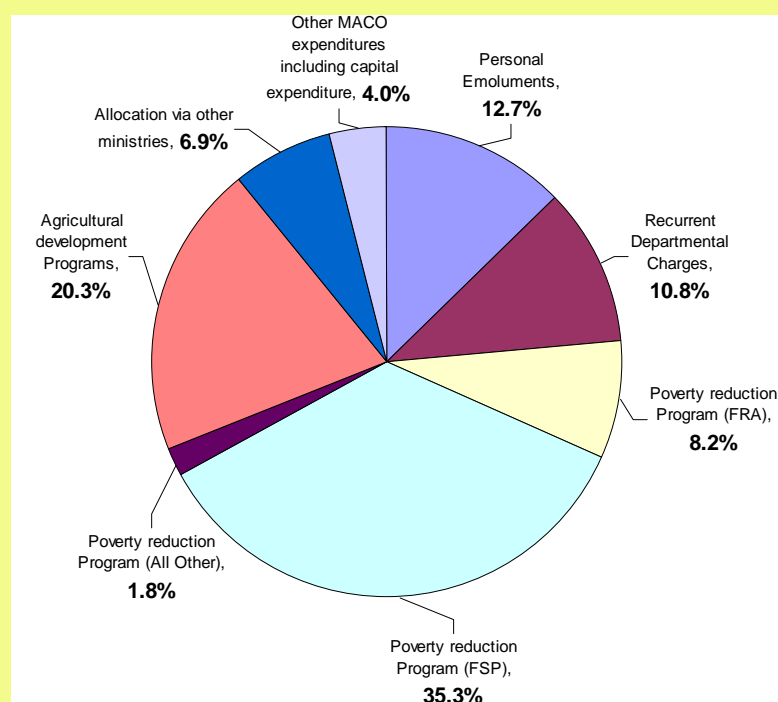


IFPRI review of rate of return studies

	Returns
Subsidies	Negative – 12%
Investments	
- research & extension	35% to 70%
- roads	20% to 30%
- education	15% to 25%
- communications	10% to 15%
- irrigation	10% to 15%

❑ If we believe these findings, they have major implications

2009 Allocation of Public Budget to Agriculture



Fertilizer Support Programme/FISP

- ❑ The FSP programme was designed to improve:
 - ❑ Household and national food security and incomes (production and productivity, ie yields)
 - ❑ Access to agricultural inputs by smallholder farm households
 - ❑ Build the capacity of the private sector in input marketing (Importers and Agro-dealers)
 - ❑ help cushion smallholder farmers from adverse effects of unfavorable weather conditions

Fertilizer Support Programme/FISP

- ❑ FSP has been in operation for eight years since 2002/2003 agricultural season

- ❑ To date, FSP (now FISP) has distributed:
 - ❑ a total of 502,000mt of fertilizers,
 - ❑ valued at above ZMK2,000 billion,

Comparison of Small & Medium Farm

Source of Acquisition of Fertilizer - Mostly for Maize

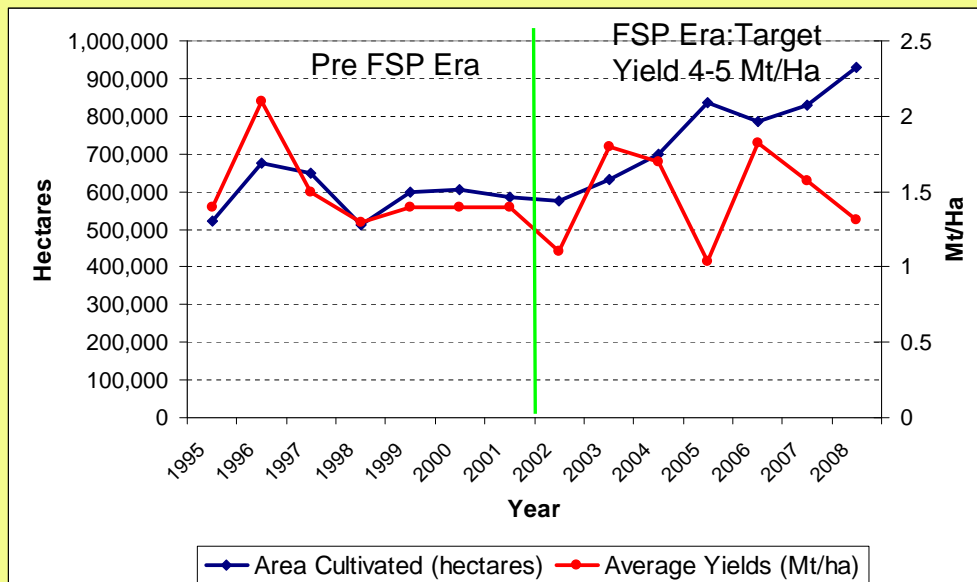
Year	Crop Forecast Survey/SS – Main Source of Fertilizer Identified as FSP		FSP Data on Program Accomplishments		CFS/SS Main Source –of Fertilizer Identified as Private/Commercial Purchase	
	# Small-holders	Metric Tons Fertilizer	# Small-holders	Metric Tons Fertilizer	# Small-holders	Metric Tons fertilizer
02/03 SS	102,450	28,956	120,000	48,000	207,080	50,476
03/04 SS	101,139	33,034	150,000	60,000	171,274	41,507
03/04 CFS	49,824	13,461	150,000	60,000	131,598	24,937
06/07 SS	164,229	61,248	210,000	84,000	303,697	95,169
07/08 SS	140,612	43,596	125,000	50,000	286,514	89,951
07/08 CFS	56,271	14,706	125,000	50,000	259,717	59,366
08/09 CFS			200,000	80,000		

Farmers' declarations FSP fertilizer received

FSP Records of fertilizer distributed to farmers

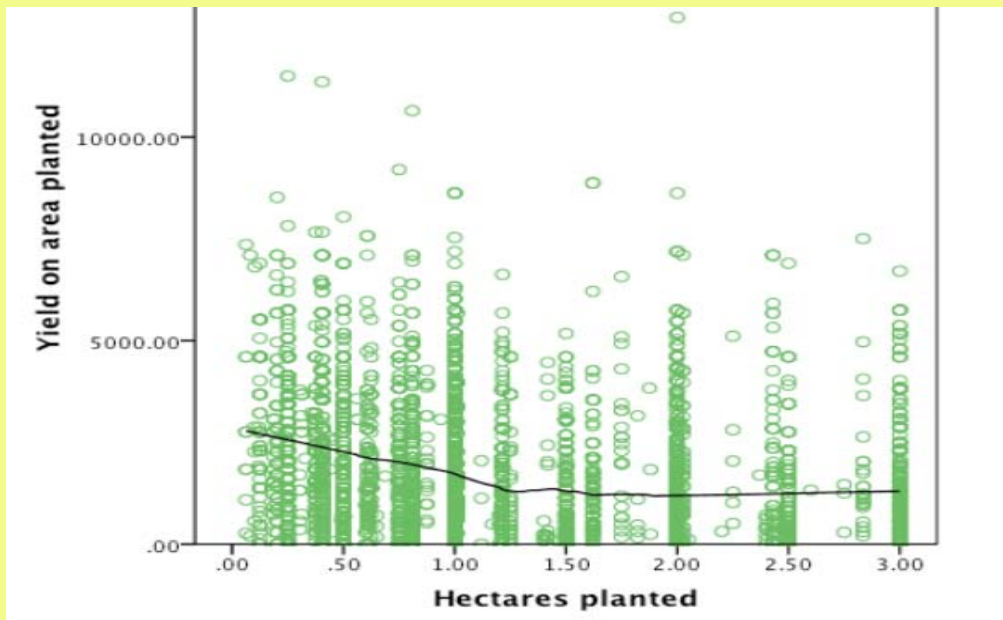
Farmers' declarations of open mkt purchases

Maize production: Area cultivated and Average yields



CFS 07/08 Maize Yield With Fertiliser by Plot Size

(Smaller Plots = Higher Yields?)



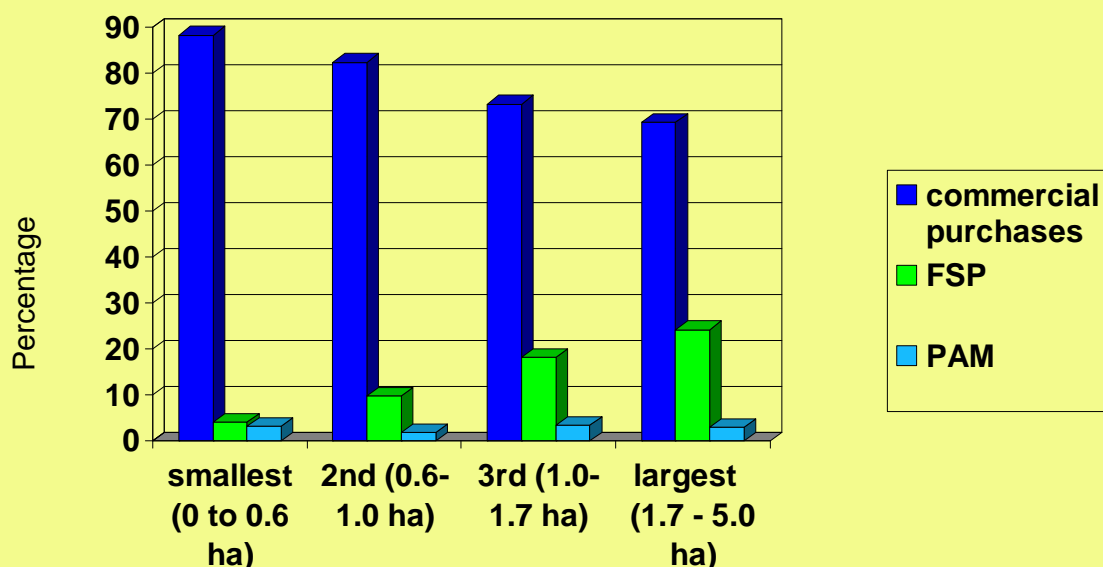
Smallholder farmers declared fertilizer Source – 2006/07 Ag Season

- ❑ Users of fertilizer obtain most of their fertilizer from commercial purchases than from FSP sourced fertiliser
 - ❑ 53% of household receiving subsidized fertilizer in 2007/08 had previously purchased from the private market.
 - ❑ Among them, 34% were still engaged in the private market.
- ❑ 70% of all households never purchased private fertilizer, never received subsidy

Fertilizer Use & Source Patterns By Maize Sales Groups, 2002/03

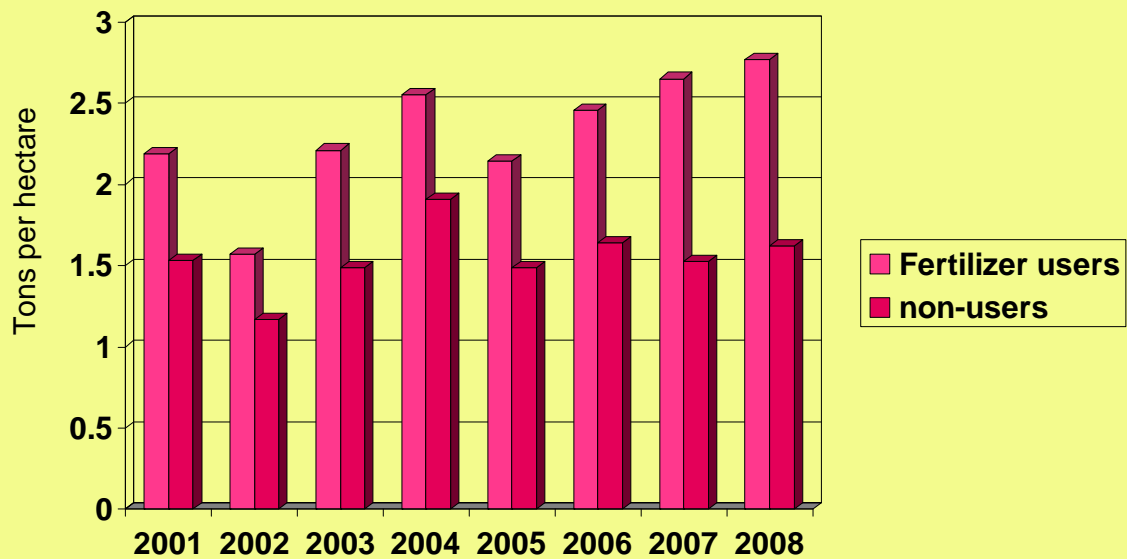
Maize Sales Groups	% receiving FSP fertilizer	% purchasing fertilizer from retailers	----- kgs per hh-----	
			Received from FSP Users Only	private retailers Users Only
Top 50% of maize sales Smallholders	38%	54%	1,011	815
Rest of Smallholder maize sellers	21%	30%	248	225
Households not selling maize	9%	13%	173	157

Zambia: Fertilizer Acquisition Sources Among Small-scale Farmers Using Fertilizer on Maize, 2003/04 and 2007/08**

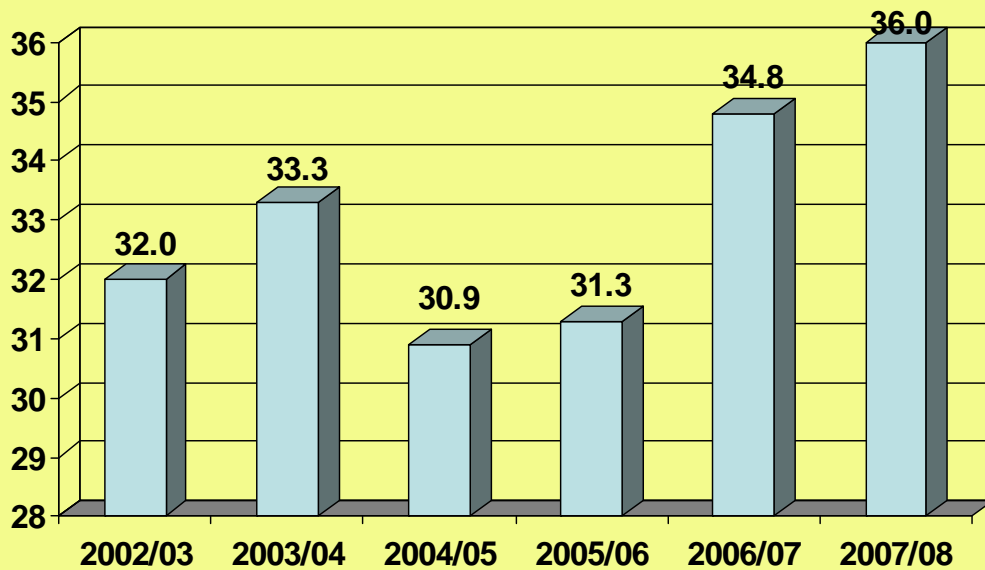


** note: NGOs and other farmers account for less than 6% of primary fertilizer acquisition source by small-scale famers

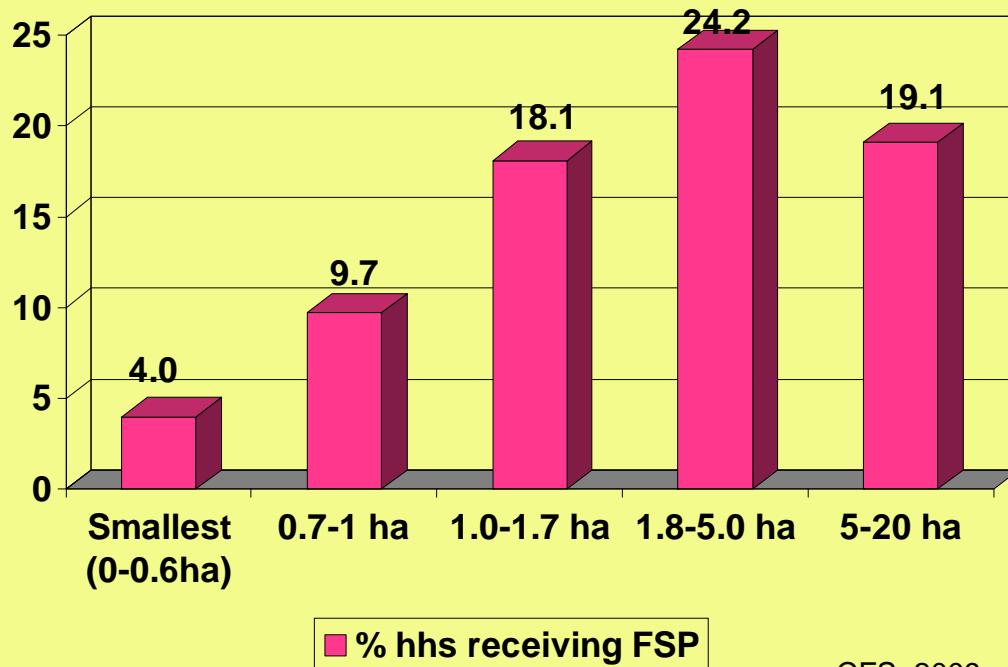
Zambia: Maize Yields (mt per hectare of area harvested), Fertilizer Users vs. Non-users



Zambia: Trend in % of Smallholders Using Fertilizer Nationwide



Zambia: % of Farms Receiving FSP, 2007/08



Maize Productivity Patterns & Trends Summary

- ❑ Increases in maize production have come largely from area expansion not yield improvements
 - ❑ Maize yield potential not being achieved even in the era of FSP
 - ❑ large portion of smallholder with declining maize yield over 03/04 to 07/08
- ❑ By 2007/08 only 35 % of smallholders have become fertiliser users
- ❑ Yield improvements among fertiliser users is greatest among smaller land holding categories
- ❑ Generally, maize yield strongly associated with rainfall both amount and timing

Potential market: Urban Food Consumption Patterns

- ❑ Overall the combined importance of meat, eggs, fish & dairy has surpassed the role of cereals/staples.
- ❑ For poorest, cereals still dominate
- ❑ Vegetables important group, especially for poorest
- ❑ Poultry & eggs have become very important & dominate the meats group outside Lusaka

Potential market: Urban Food Consumption Patterns

- ❑ Among staples, maize still dominates for lower income consumers, but wheat has become very important for all urban consumers.
- ❑ In Lusaka, wheat products dominate among staples except for the lowest expenditure groups
- ❑ Cassava important in Mansa & Kasama, esp. among low expenditure quintile of consumers
- ❑ Poultry & eggs have become very important & dominate the meats group outside Lusaka

Urban Food Budget Shares For Key Products

Food Item	-----% expenditure share -----			
	Lusaka	Kitwe	Mansa	Kasama
Cereals & Staples	24.1	27.4	28.0	27.2
Dairy items	5.2	3.6	1.7	2.0
Meat & eggs	16.8	15.6	12.7	14.5
Fish	7.6	8.4	12.4	12.5
Vegetables	13.7	15.0	11.4	14.2
Fruits	3.6	4	3.7	4.0
Other Foods	16.4	17.1	16.9	18.4
Tobacco & alcohol	5.3	4.6	6.3	4.0
Food away from home	7.3	4.3	6.9	3.2
	100.0	100.0	100.0	100.0

Competing models of roles of state and private sector in food markets

Model 1

Model 2

Model 3

Rely on markets state role limited to:

- Public goods investment
- Regulatory framework
- Strengthening of institutions / defense of property rights
- Policies supportive of private sector entry and competition

Primary reliance on markets

- but role for *rules-based* state operations
- e.g., buffer stock release in response to defend stated ceiling price
- Marketing board purchases at stated floor price announced in advance
- Transparent rules for initiating state imports

Role for markets and *discretionary* state intervention

- Based on premise that private sector cannot ensure adequate food supplies in response to production shortfalls
- Justification for unconstrained role for state interventions in markets to correct for market failures

What is the right strategy?

- ❑ There is no credible government commitment to Model 1 (**full liberalization**), hence Model 2 (**markets with rule-based state operations**) is preferred
- ❑ However, questionable whether Model 2 could be perceived as credible either
 - ❑ Many governments insist on unconstrained authority to intervene whenever necessary (i.e., Model 3)
- ❑ With low level of trust and commitment problems, Model 3 (**ad-hoc interventionism**) is likely to become the long-run equilibrium
 - ❑ Model 3 has in fact become the dominant model among the main maize-producing countries in the region

