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October 9, 2014

Changing Agricultural Aid through Understanding Farmer Seed Systems

Speakers

Robert Bertram, *Chief Scientist, USAID Bureau for
Food Security*

Julie March, *Agriculture and Food Security Technical
Advisor, USAID Office of U.S. Foreign Disaster
Assistance (OFDA)*

Louise Sperling, *Senior Technical Advisor, Catholic
Relief Services*

Upcoming Agrilinks Events:

- Ag Sector Council Seminar, October 22
“From Smallholders to Shareholders: Optimizing Private Sector Partnerships for Smallholder Impact”
- AgExchange, November 18-20
“Feeding the World in 2050: How Human and Institutional Capacity Development Can Support Agricultural Innovation Systems”



Robert Bertram

USAID Bureau for Food Security

Robert Bertram is the Chief Scientist at the USAID Bureau for Food Security, where he serves as a key adviser on a range of technical and program issues to advance global food security and nutrition. In this role, he leads USAID's evidence-based efforts to advance research, technology, and implementation in support of the U.S. Government's global hunger and food security initiative, Feed the Future.



Julie March

USAID Office of U.S. Foreign Disaster Assistance

Julie March is the Agriculture and Food Security Technical Advisor for the USAID Office of U.S. Foreign Disaster Assistance (OFDA). With an academic and practical focus on agriculture, ecological, and farming systems, she has supported the integration of systems thinking into disaster response, recovery, and resilience programs. At USAID/OFDA, her work has helped move international disaster programs beyond early forms of seed assistance and led to enhanced tools and assessments for designing interventions that contribute to sustainable systems.



Louise Sperling

Catholic Relief Services

Louise Sperling is a Senior Technical Advisor at Catholic Relief Services. She has managed programs in 25-plus countries in sub-Saharan Africa, Asia, and Latin America that involve typical and high-stress smallholder farmer systems. Notably, she led assessment missions after the 1994 Rwandan civil war and genocide, post-earthquake in Haiti, and pre-referendum in South Sudan. Consulting for many agencies (USAID/OFDA, U.N. system, World Bank, Rockefeller Foundation), Sperling has authored over 70 articles. A new website, seedsystem.org, shares practical and policy advice for practitioners intervening in crisis and chronic stress contexts.



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Changing agricultural aid through understanding farmer seed systems

October 10, 2014

Louise Sperling, Catholic Relief Services

Julie March, USAID Office of US Foreign Disaster Assistance



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Key Points

- How has humanitarian aid for agriculture changed
- What are the driving forces of that change
- What tools are sharpening response
- What is the potential impact on emergency programs
- What is the potential benefit to development programs

Changing landscape for seed programming



Complex emergencies:

- Chronic stress
- Conflict
- Displacement
- Irregular weather

IDP camp garden program, Darfur

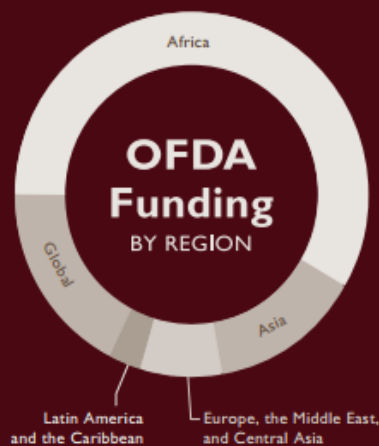
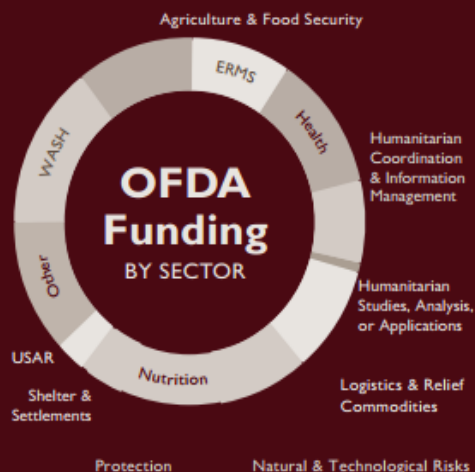


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Types of Disasters Requiring OFDA Assistance



OFDA also responded to one of each of the following disasters: cyclone, drought, earthquake, fresh water shortage, munitions explosion, refugee influx, and tropical storm.



63

OFDA
Disaster
Responses

54

Countries
received
OFDA
Disaster
Support

24

Floods in
FY 2012.
Floods were
the most
frequent
disaster.

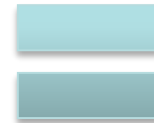
Global
response
priorities
(2012)



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Evaluation of seed aid

Acute need



Chronic need



Seeds





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Do No Harm (?)

- Competition
- Dependence
- Limiting access to new varieties
- Disrupting local markets
- Reducing resilience

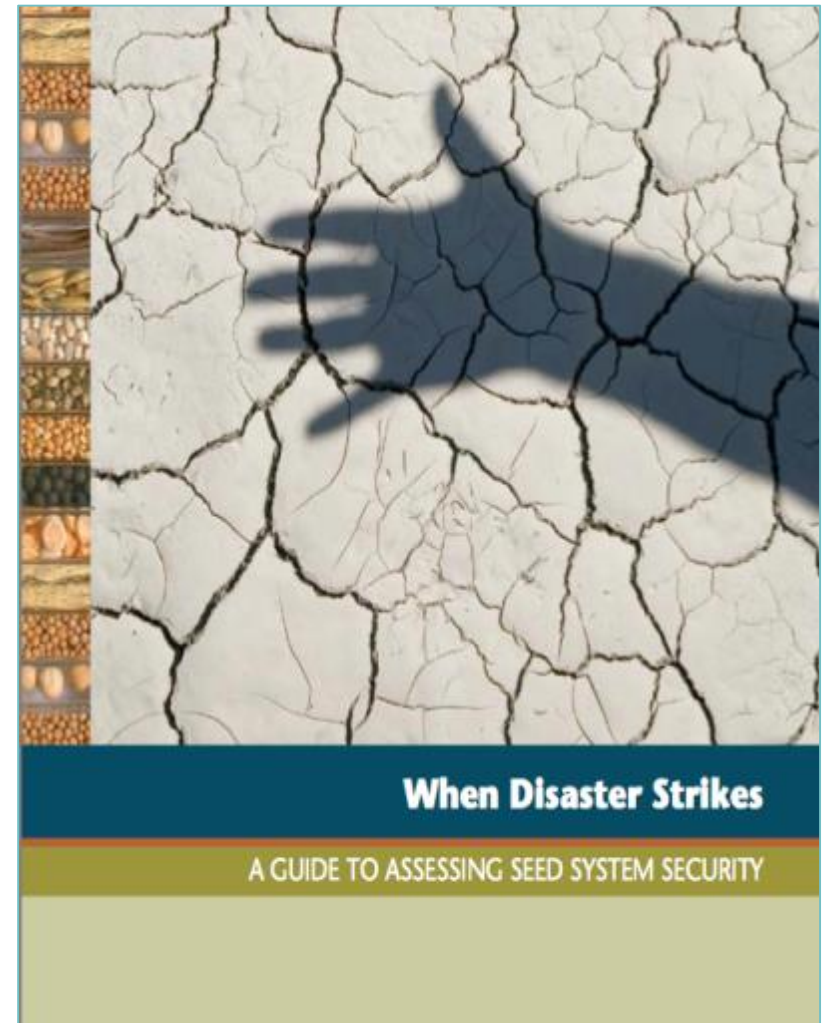




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Assessment based interventions

- Evaluate rather than assume
- Track trends
- Engage stakeholders
- Ease transition



Emergency, chronic stress, and development responses to strengthen smallholder farmer seed systems

[More about us](#)



Humanitarian Assistance

Decision guides to identify effective seed system response, 'how-to' technical information, and manager checklists for proposal development and field evaluation.

For more, see [Aid Response Advice](#).

photo credit: s.walsh/crs

What our partners are saying:

"These resources steer us away from seed relief dependency--and towards solving national problems."

AD, former Ethiopian government minister

"SeedSystem represents new thinking on the role that agriculture plays in building resilience."

LP, Senior Humanitarian Advisor, USAID

"The tools you provide help even non-

RESOURCES AVAILABLE IN Other Languages

Many of our resources are available in French or Portuguese

French:

- [When Disaster Strikes Assessment Guide](#)
- [Aid Response Advice: practice briefs](#)
- [Seed System Security Assessment: specific tools](#)

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COMMENT

Changing aid through understanding farmer seed systems



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FAO 'SEED' Funds: Emergency and Early Rehabilitation programs

- 1996-7 US\$ 51 million
 - 2002-3 US\$ 349 million
-
- 2003-5 400 projects
 - 2008-2010 Seed aid plans for 48 countries
-
- **2011** **special relief funds 744.5 million**

Seed and Commercial Development

- ▣ \$US 45 billion/yr Commercial seed sector
- ▣ \$US 15 billion/yr GM (genetically modified)
- ▣ (\$US 6-15 billion/yr 'Informal sector')

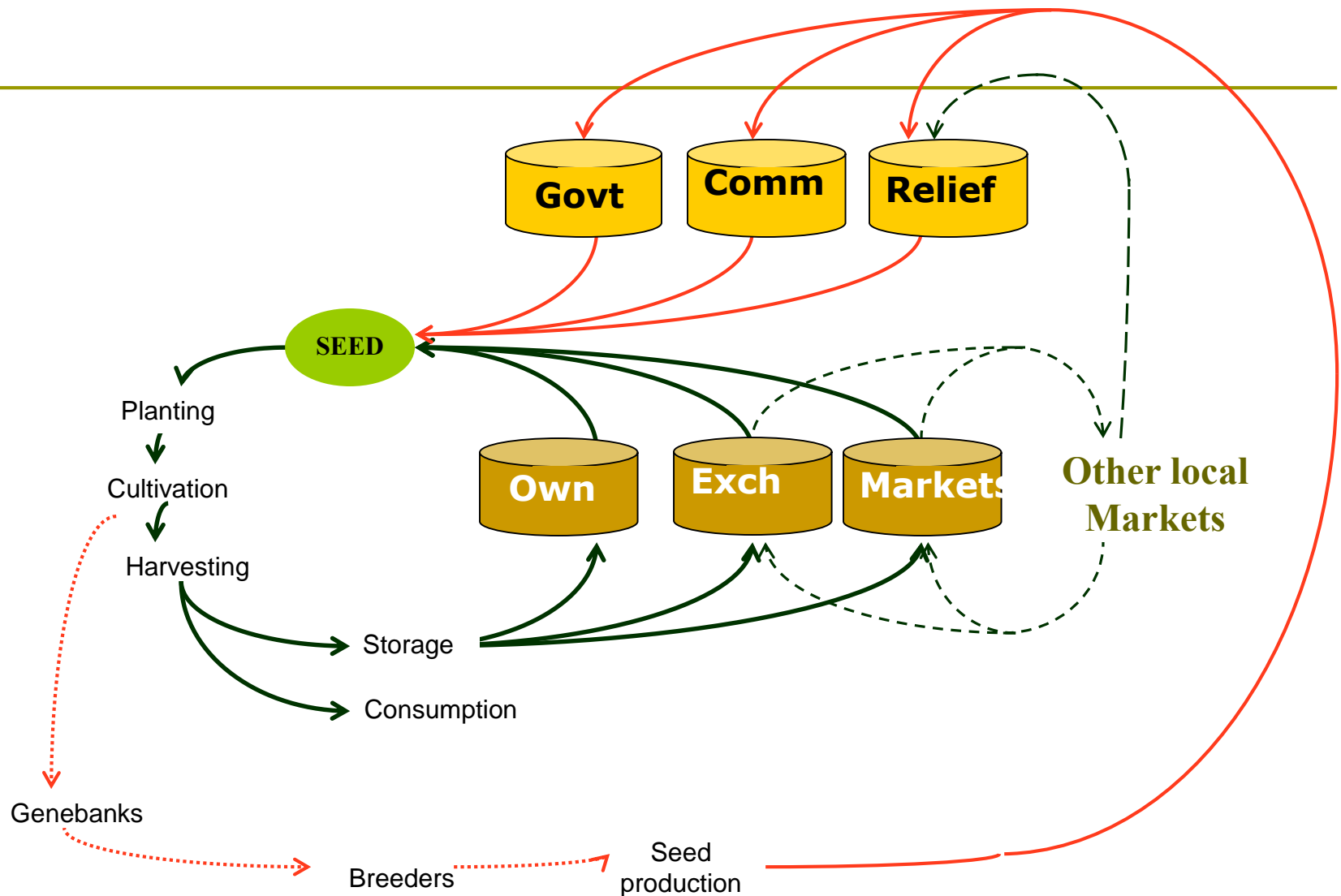
(Bonny, FOSE, 2014)

Seed is vehicle for new varieties

Across Africa, seed systems move varieties, especially:

- Maize (hybrid, OPV)
- Horticultural seed (vegetable)
- Groundnut
-?

Channels through which Farmers Source Seed



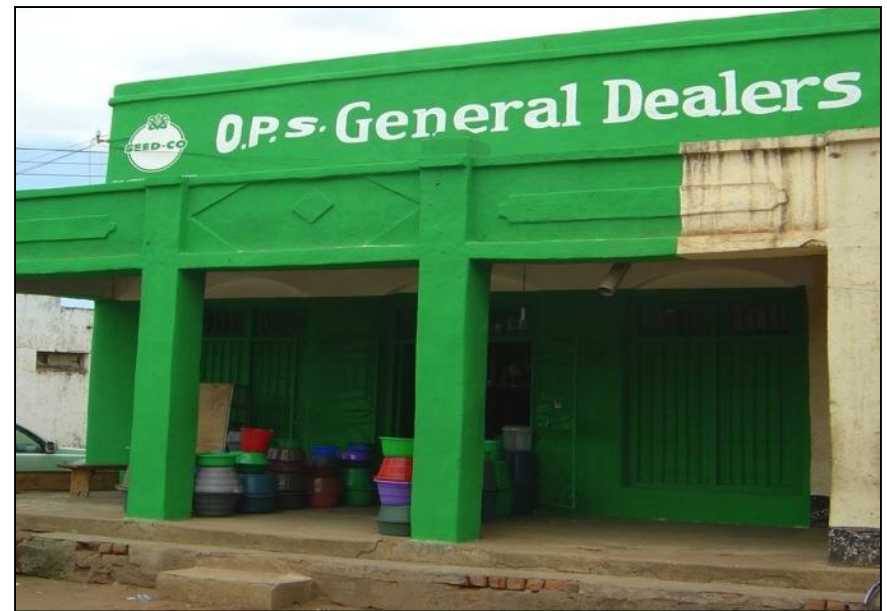
Seed markets

Informal seed markets



Many crops: cereals , legumes

Agro-dealers/ seed companies



Maize, vegetable seed

Informal seed markets

Distinguishing Grain vs. Potential Seed



- ❑ Not all grain can be sown.
- ❑ But some 'grain' also is very good seed
 - ✓ Adapted (right variety)
 - ✓ Good quality

—————→ 'potential seed'

Seed systems during disaster:
what happens?

Farmer Bean Seed sources during Rwanda Emergency

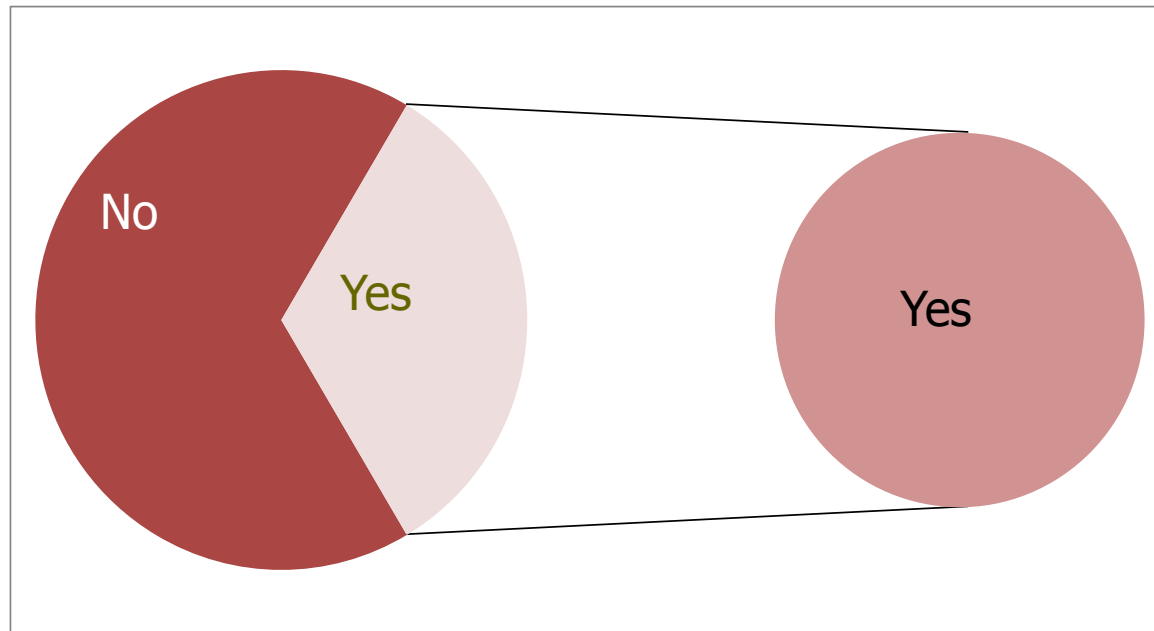
Source	Sept 1994 % Total seed (N=143 farmers)	Sept 1995 % Total seed (N=883 farmers)
Own Stock	45	40
Relief aid	28	6
Market	26	52
Friends/neighbors	<1	1
Kin	<1	1
Total	100	100

Rwanda: post-war/genocide, 1995, beans

(n=883)

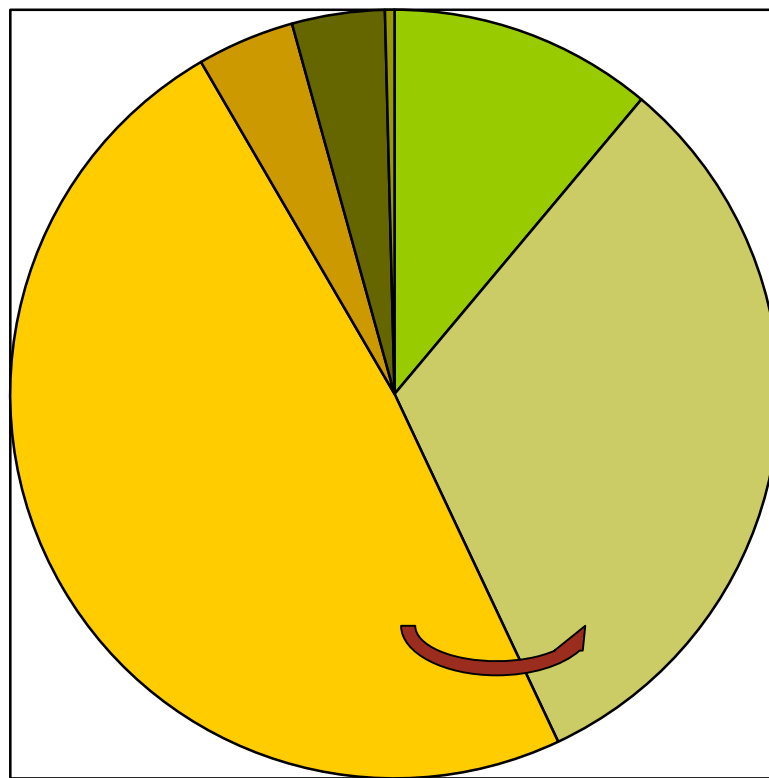
Varieties lost?

Varieties available locally?



Problem? = money/barter

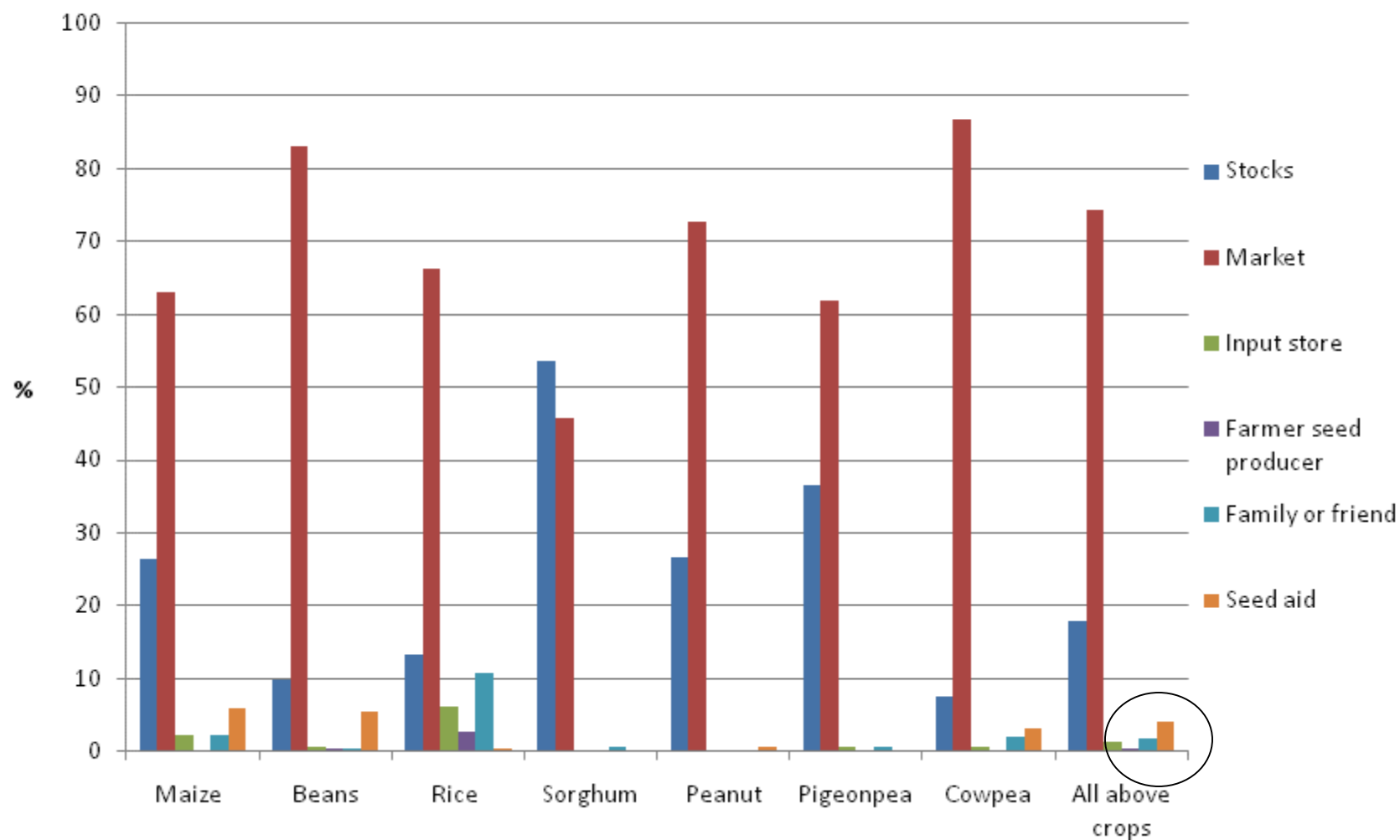
Kenya Drought 1997: Where Farmers Sourced Maize Seed (N-172)



- Seed Aid**
- Home Saved**
- Market**
- Stockist**
- Relatives**
- Other**

Haiti earthquake: 2010

Percentage of seed quantities farmers used this season,
by source and crop - All sites



Seed Systems in Stress:

Basic findings- 1

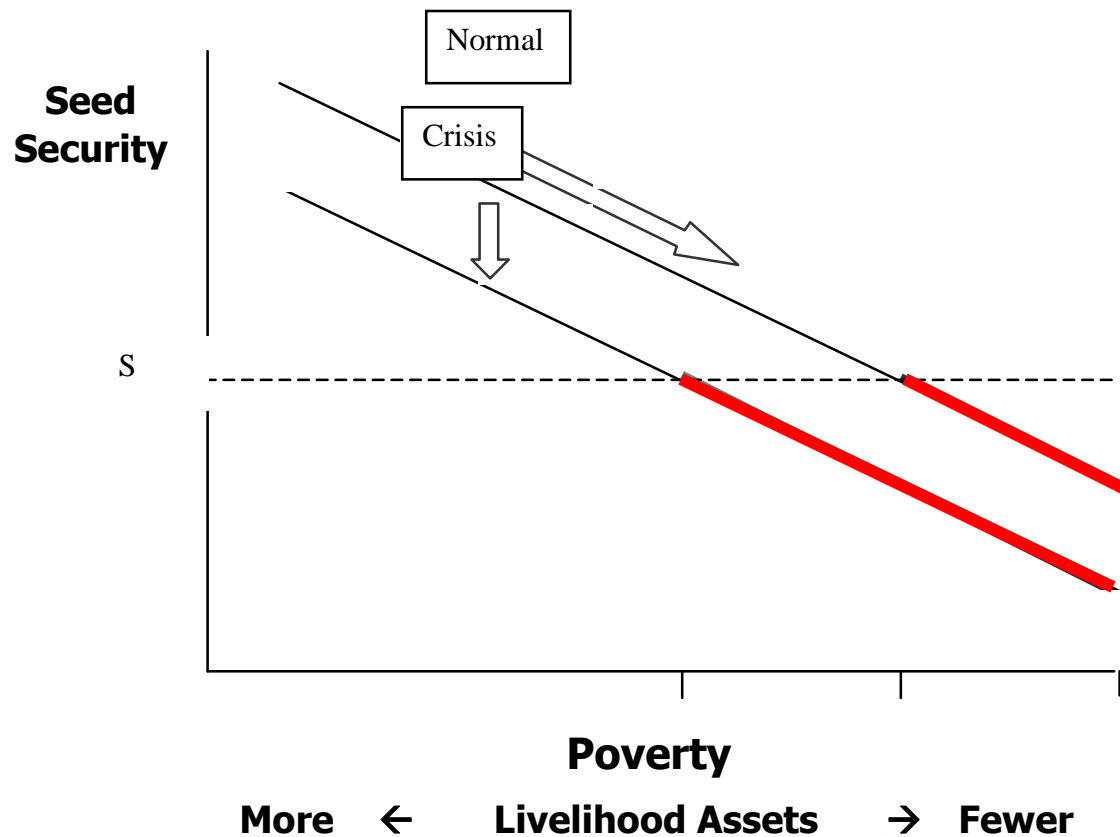
- ❑ Local Systems relatively durable– and resilient
- ❑ Common Farmer problem: ACCESS
 - ❑ **Availability rarely problem**
- ❑ For some crops, local grain/seed markets provide a core of seed system stability. (**esp for the poor**)

Kenya: Numbers of times farmers received seed aid 1992-1997

Region	Sample	Avg	Mode	High	Low
Machakos	46	1.8	2	4	0
Baringo	46	1.4	1	3	0
Makueni	33	2.2	1	5	1
Embu	40	3.1	4/3	10	1

Sperling, 2000

Acute and Chronic Seed Insecurity:



Seed Systems in Stress: basic findings (2)

- ❑ **In areas of 'chronic stress', acute seed interventions are not effective responses.**

(need to address longer-term chronic + developmental – from beginning of response)

Repeated Seed Aid Delivery in Many Countries

Site	Extent of Seed Aid
Burundi	28 seasons: since 1995
Eastern Kenya	92-93; 95-97; 2000-2002, 2004, 2006, 2009, 2010, 2011
Zimbabwe	Near continuous since 1991 (food aid, seed aid or both)
Malawi	15 seasons or more, since 1992
Timor Leste	Since 2000 ? (+ ongoing)
Ethiopia	Since 1974 : 34 years

Seed Security :
matching responses to specific problems

Seed Security Framework

Parameter	Seed security
Availability	Sufficient quantity of seed of appropriate crops available within reasonable proximity, and in time for planting
Access	People have adequate income or other resources to purchase or barter for seed
Quality	Seed is of acceptable quality <ul style="list-style-type: none">• 'healthy' (physiological, analytical, +sanitary quality)• adapted and farmer-acceptable varieties

Seed System Problems– and appropriate responses

Parameter	AcuteChronic
Unavailability of seed	Direct distribution of seed	-(rarely happens: except for new varieties) Seed sector production capacity
Farmers do not have access to seed	Vouchers and cash (w/seed fairs)	Income generation activity; Agro-enterprise development- value chains

Seed System Problems– and appropriate responses

Parameter	AcuteChronic
Seed of poor quality	<p>Seed fairs with quality controls</p> <p>Direct distribution of test samples of quality seed</p>	<p>Programs to improve seed quality</p> <ul style="list-style-type: none"> - seed companies - on-farm (CBSP) - in local markets
Lack of appropriate varieties/crops	<p><u>Limited</u> introductions new varieties</p>	<p>Introduce new varieties/ with technical support</p> <p>Variety selection/ breeding</p>

Problem X



Strategic Goal Setting

- Focus short-term (stop gap)- or link relief to development?
- Support formal or informal systems- both- and why?
- Crops for the commercial sector ONLY – and why?
- Single crop focus ---or basket of crops?
- Crops to deal with problems of flood/drought-prone areas/system resilience
- Crops/varieties to address nutritional issues (and needs for crop diversification)
- Seed issues only-- other inputs? Insurance vouchers? Agro-enterprise?

Seed System responses: RESILIENCE /NUTRITION lens

Parameter	AcuteChronic
Farmers do not have access to select seed	DiNERS (diversity and nutritional fairs for environmental resilience Vouchers tied to legumes	Seed production + marketing tied to legumes Vegetable seed enterprises Information-rich strategy-nutrition/dietary diversification

PRACTICE BRIEF



Seed Aid for Seed Security

ADVICE FOR PRACTITIONERS

When and How to Respond with Vegetable Seed Programming

Interest in relief activities focusing on vegetable seeds is growing due to the unique role they can play in supporting both nutrition and income. This brief will inform and guide the interest in vegetables and highlight distinct features of vegetable seed response, compared with staple crop seed response.¹

In many settings and situations, vegetables can help in special ways due to their inherent position in agriculture, commerce, and culture. These are summarized in Table I through three key lenses: cropping strategies, marketing strategies, and nutrition, with more detail offered later in the brief.

Vegetable seeds can help spur nutrition and income gains.

TABLE I
Why Vegetable Seed May Be Helpful in a Crisis

	Cropping	Marketing/ Livelihood	Nutrition
Vegetable	Decreases risk from crop	Spreads risk that demand will be	Can increase



Seed Security vs. Food Security:

Moving towards sharper assessments/tools

Food Security and Seed Security are related

but are not the same

- ❑ Households can have enough seed to sow a plot...
But little to eat
- ❑ Households can have adequate food..... but lack
access to the seed they need to make plots
productive

‘Routine’ Seed Security Assessment’ c. 2005

□ No Assessment

□ Food Need Assessed= Seed need assumed

□ Production (harvest) drop= Seed Need assumed

(but assumptions – not facts-- shaping response...)

SORGHUM SEED BASICS: Ethiopia example

Crop	Miesso (Lowland)
Surface Area per Household	3/4 ha
Sowing needs (kg– for area)	11-12
Harvest/yield (good year)	1600 kg
% Harvest needed for seed (good year)	0.75
Harvest/yield (bad year)	260 kg
% Harvest needed for seed bad year	4.6

 Production shortfall does NOT equal seed shortfall

Methods development:

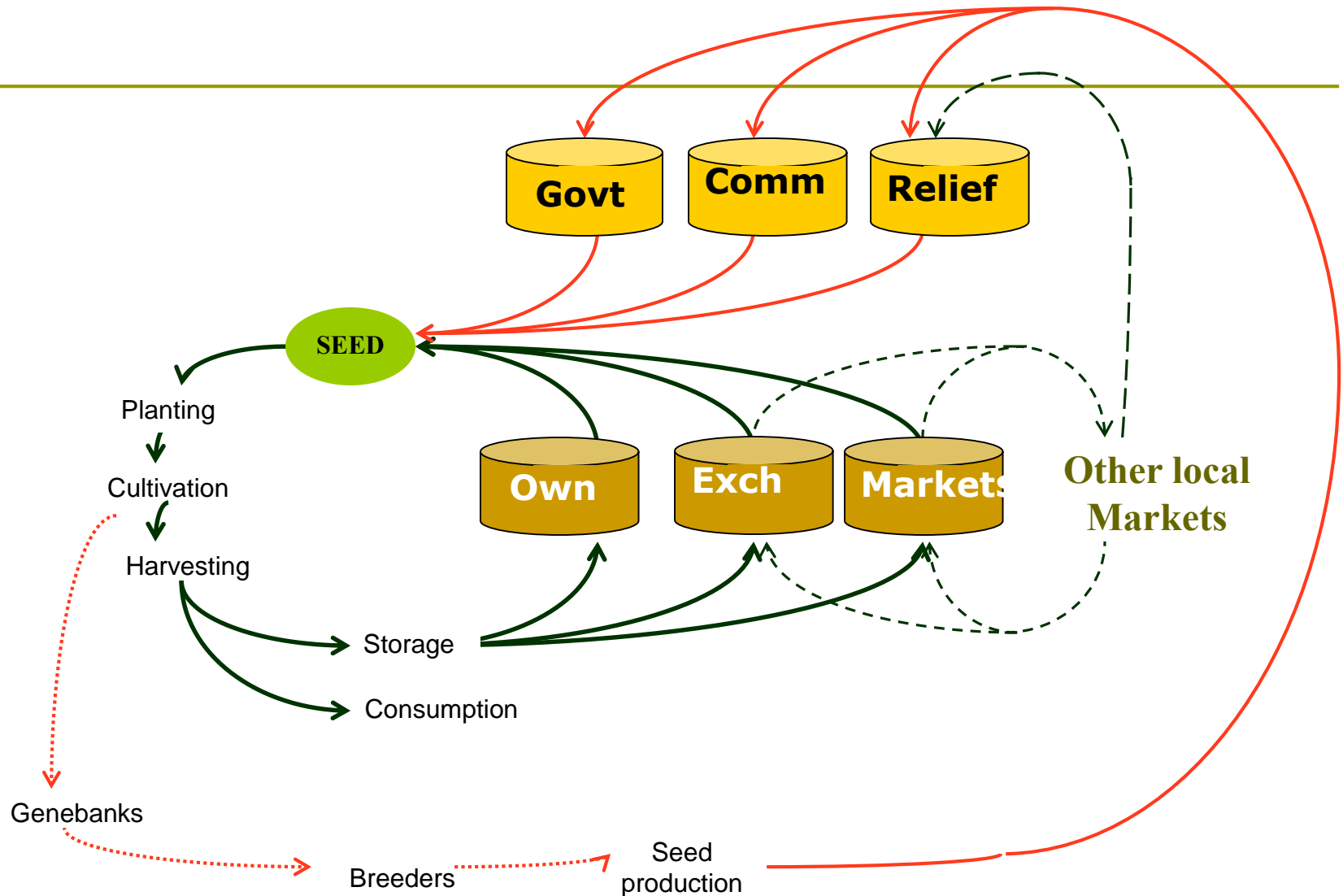
Seed System Security Assessment (SSSA)

Vision: SSSA

- ❑ NOT calculating seed needs

- ❑ Looking at functioning of **seed systems**
- ❑ Assessing if there is problem
- ❑ Matching problem to response
 - ❑ Acute problems
 - ❑ Chronic problems
 - ❑ Developmental opportunities

Channels through which Farmers Source Seed

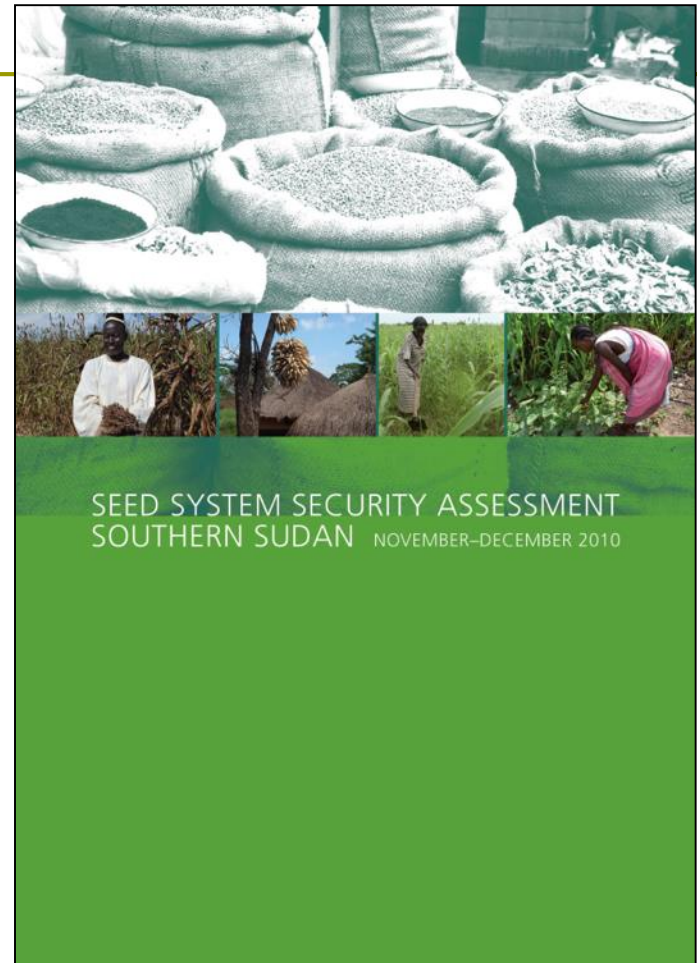


Focus: key crops + seed supply channels (sample)

Crop	Home saved (%)	Social networks (%)	Local markets (%)	Commercial sector (%)	Seed aid (%)	Total (%)
Maize	45	5	15	10	25	100
Rice	55		15		30	100
Cassava	70	30				100
Beans	20		80			

Recent SSSAs

- ❑ South Sudan
- ❑ ~~Eastern + Coastal Kenya~~
- ❑ East + South Madagascar
- ❑ Eastern DRC
- ❑ Zimbabwe
- ❑ Southern Malawi
- ❑ South + East Zambia
- ❑ (Northern Mali 2005-06)
-
- ❑ Timor Leste
- ❑ Haiti



RESULTS

- Action plans- what to do now!
(emergency/recovery)
- Action plans- what to do next 1-5 seasons
(chronic stress/ developmental opps:) ...

Example: Zimbabwe SSSA 2009

Context:

2008: \$US 150,000,000 given (seed + fertilizer)

2009: same plans- 600,000 households. 1/2 population

Rationale

Currency had been worthless/ (1 US- 50 billion \$Zim)
presumed aftermath drought

Assumed high-stress- 'no seed'

50000000000000 RESERVE BANK OF ZIMBABWE

50 000 000 000 000

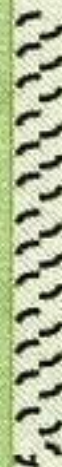
*I promise to pay
the bearer on demand*

**FIFTY
TRILLION
DOLLARS**

for the Reserve Bank of Zimbabwe

*Dr. G. Gono
Governor*

HARARE 2008



50 000 000 000 000

AA2631007

RESULTS: Zimbabwe- SSSA 2009

Informal systems

- ▣ Harvest good- 160% increase
- ▣ Social networks strong- provide 18-38% seed
- ▣ Markets have large , good quality supply potential seed. **Even strong black market for hybrid maize.**
- ▣ Specialized seed producers (FFS) have surplus-
they want aid community to buy!

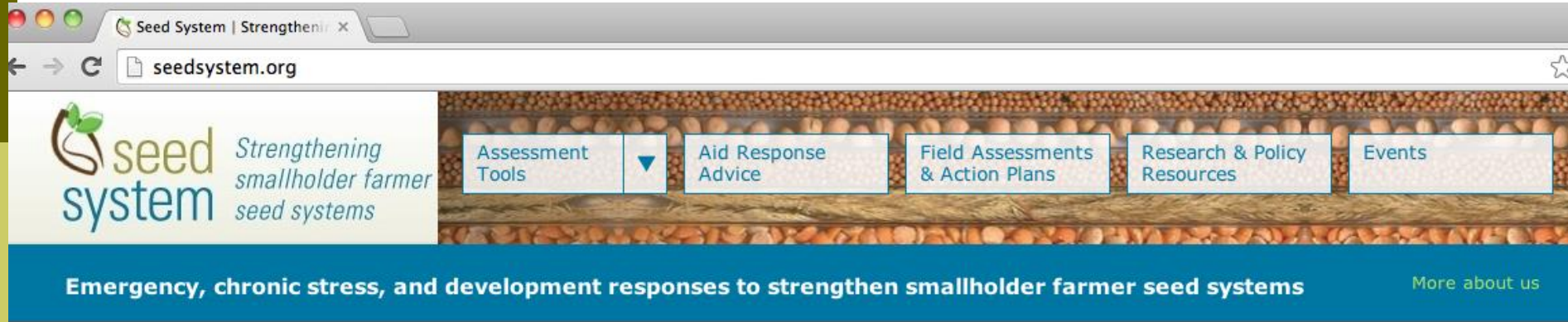
Formal: agro-dealers starting to open up- maize



RESULTS: Zimbabwe SSSA

- Real problems- access- no currency circulating/ low purchasing power
- The direct seed aid being proposed-
 - 1) not needed
 - 2) would damage functioning channels- (esp shops)

2009/10: Donors largely moved to voucher, market subsidy tools



Humanitarian Assistance

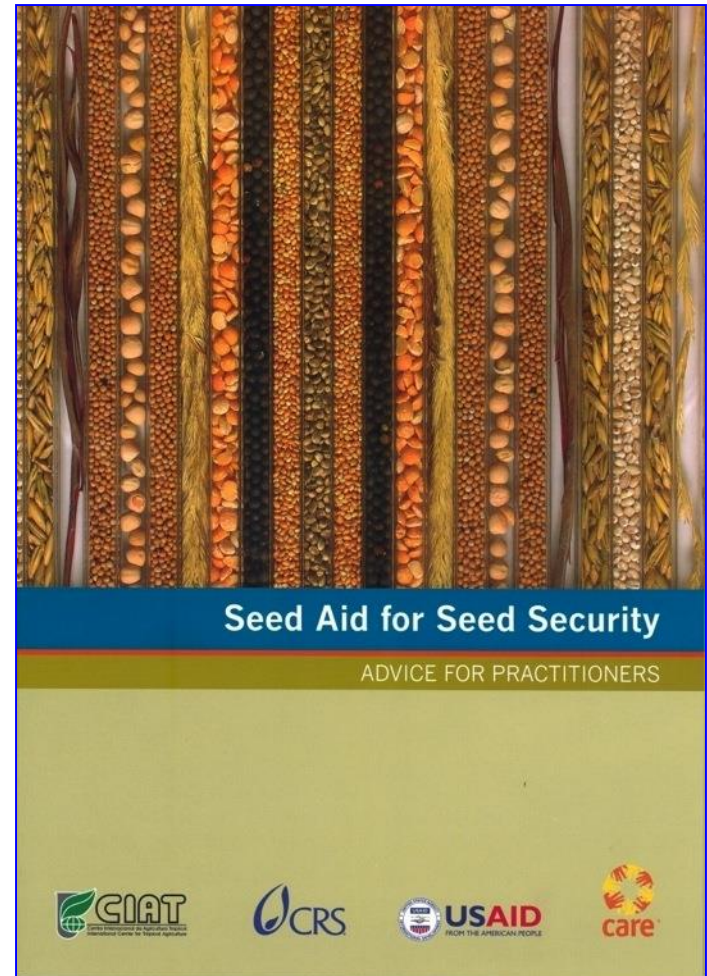
Decision guides to identify effective seed system response, 'how-to' technical information, and manager checklists for proposal development and field evaluation.

For more, see **Aid Response Advice**.

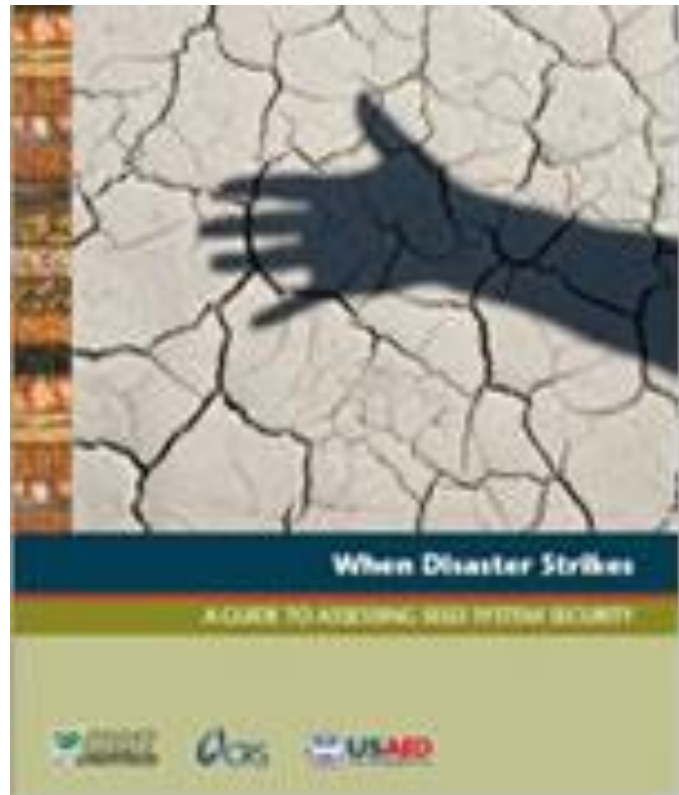
photo credit: s.walsh/c

Better Practice Advice: Implementers

- ❑ New Varieties + Seed Relief
- ❑ Agrobiodiversity + Seed Relief
- ❑ Markets + Emergency
- ❑ The Power of Evaluation



Guide: Seed System Security Assessment



- ❑ 7-step guide
- ❑ Chronic + acute stress
- ❑ Development opportunities

Summary; Emergency response

- ▣ Seed systems relatively resilient:
.....local markets core of stability
- ▣ Access main problem- **rarely** availability
- ▣ Seed response has to be tailored to goal
(nutrition; moving commercial crops)
- ▣ Food insecurity **≠** Seed insecurity
- ▣ SSSA methods exist, should be used, sharpen response

PART II:

Where do smallholder farmers access the seed they plant?

Lessons from SSSA:

-- for developmental actions

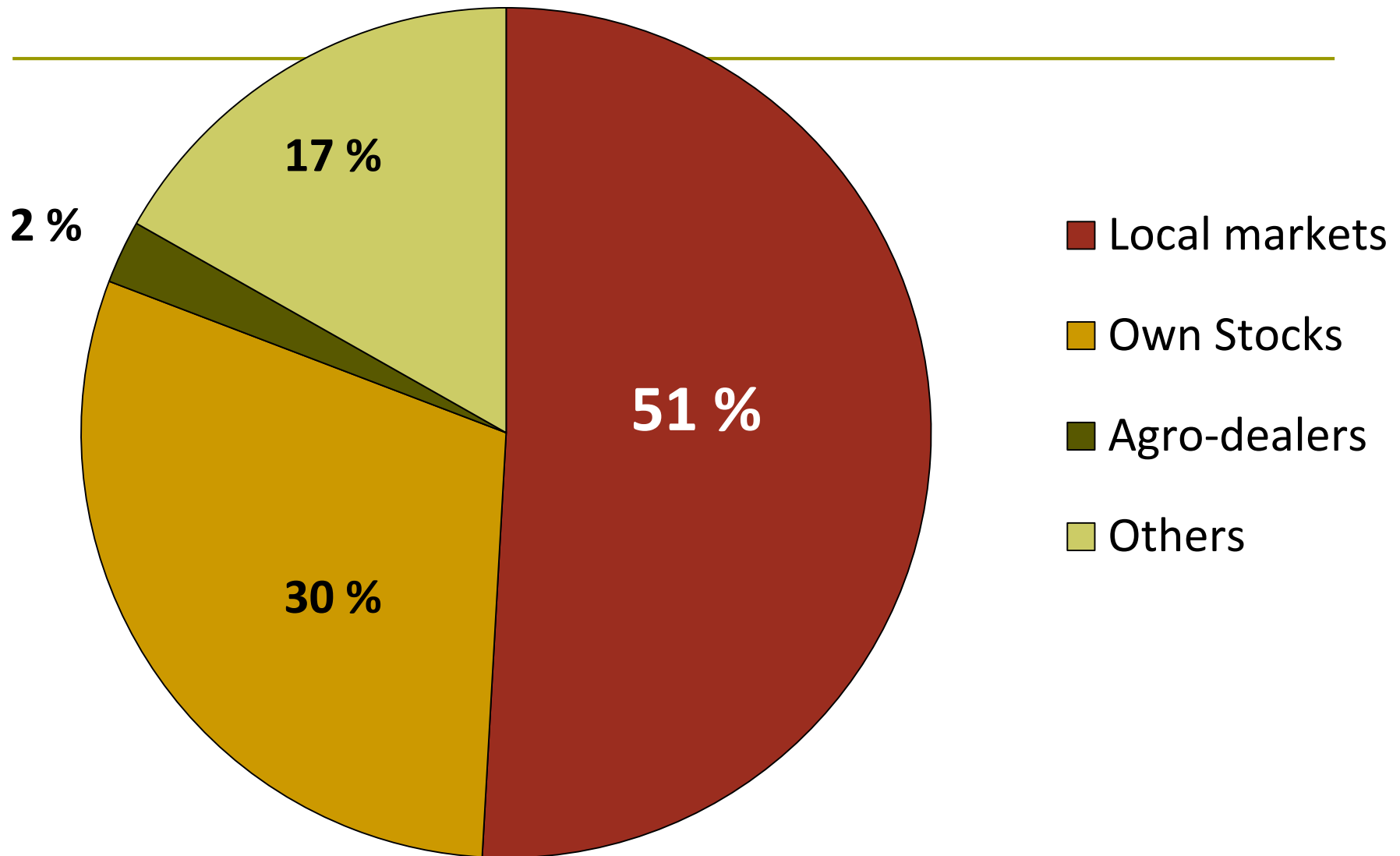
Seed System Security Assessments :

n = 10 ,120 observations

SSSA Country	Date	Stress context		N
		Immediate (acute)	Longer-term (chronic)	
Malawi	2011	Drought	Low purchasing power	682
Kenya	2011	Drought	Decline of maize, low purchasing power	745
DR Congo (Katanga)	2012	Ongoing conflict	Low innovation, weak infrastructure	548
Haiti	2010	Earthquake	Weak state, low innovation	3564
S Sudan	2010	Post-conflict	Weak state & infrastructure	3986
Zimbabwe	2009	Political Instability/ Currency Collapse	Declining purchasing power	595

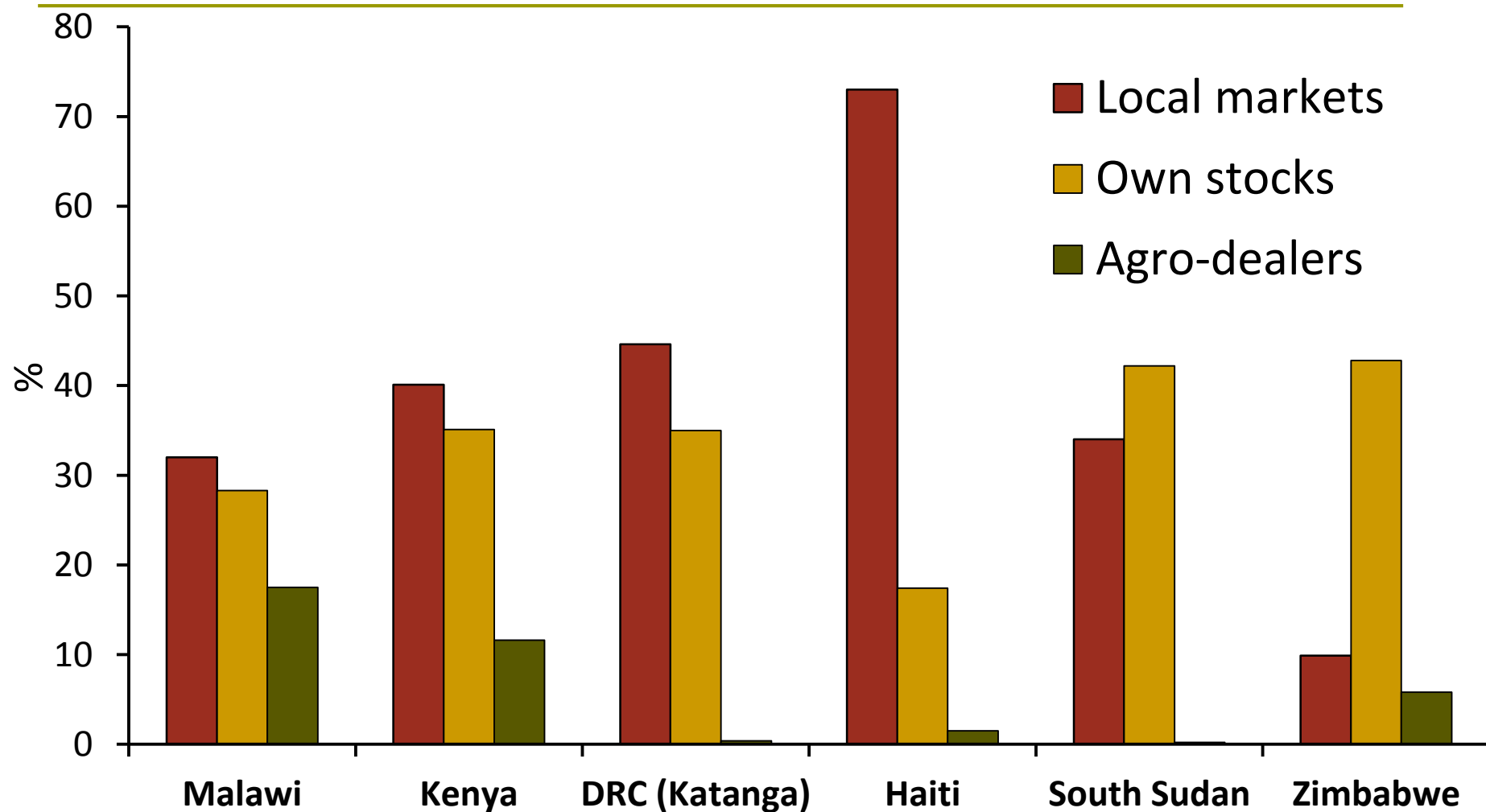
% of seed supplied – all crops

n= 10,120



Seed Sources - all crops

n=10,120



Crops supplied by local markets– for seed

Maize

Bean

Groundnut

Sorghum

Pigeonpea

Cowpea

Sesame

Green Gram

Rice

Cassava

Irish Potato

Millet

Okra

Cabbage

Yams

Carrots

Tomato

Leeks

Onion

Lima Bean

Pepper

Mustard

Sweet Potato

Bambara Nut

Eggplant

Taro

Pumpkin

Chickpea

Spinach

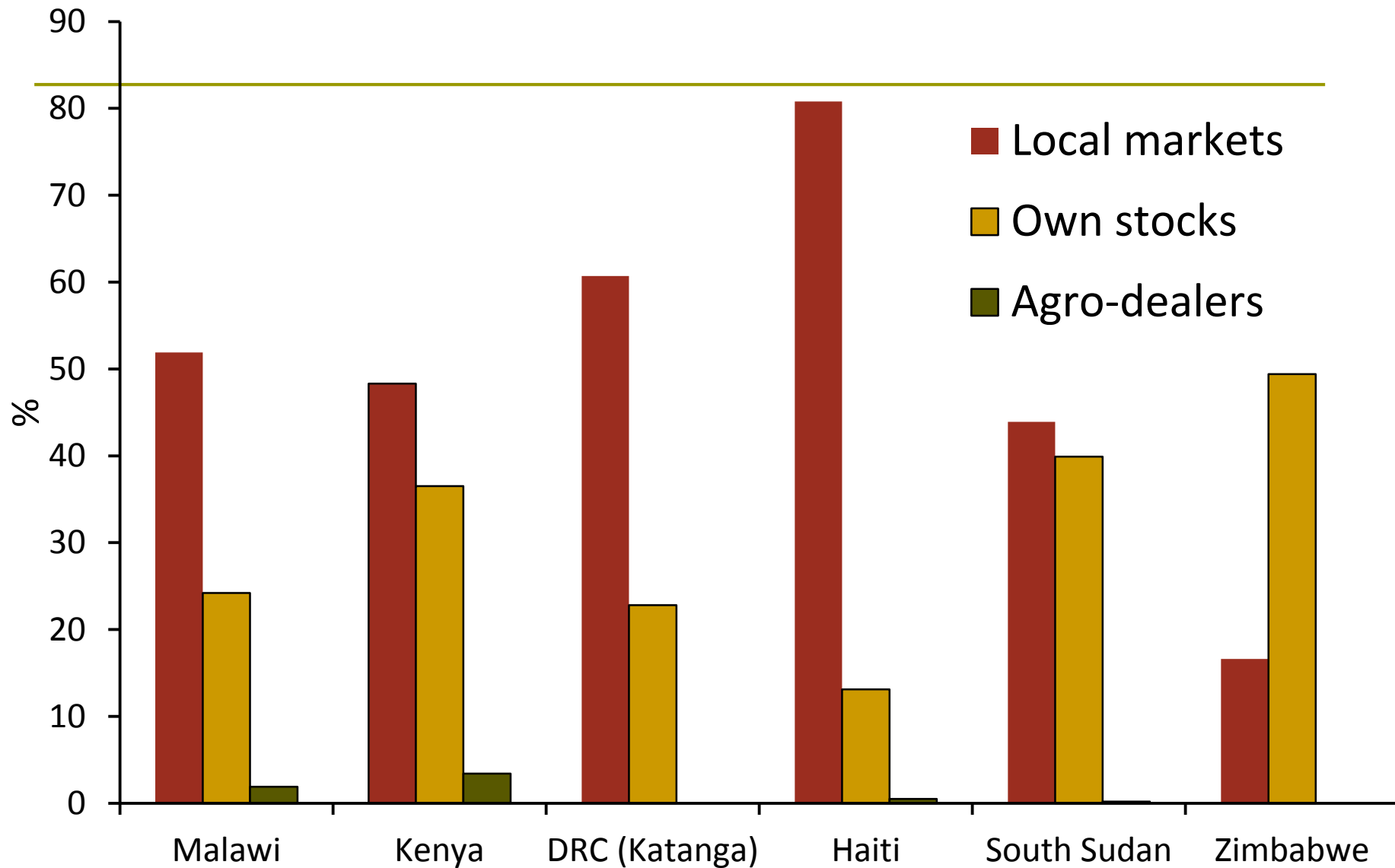
Greens

Cotton

Pea

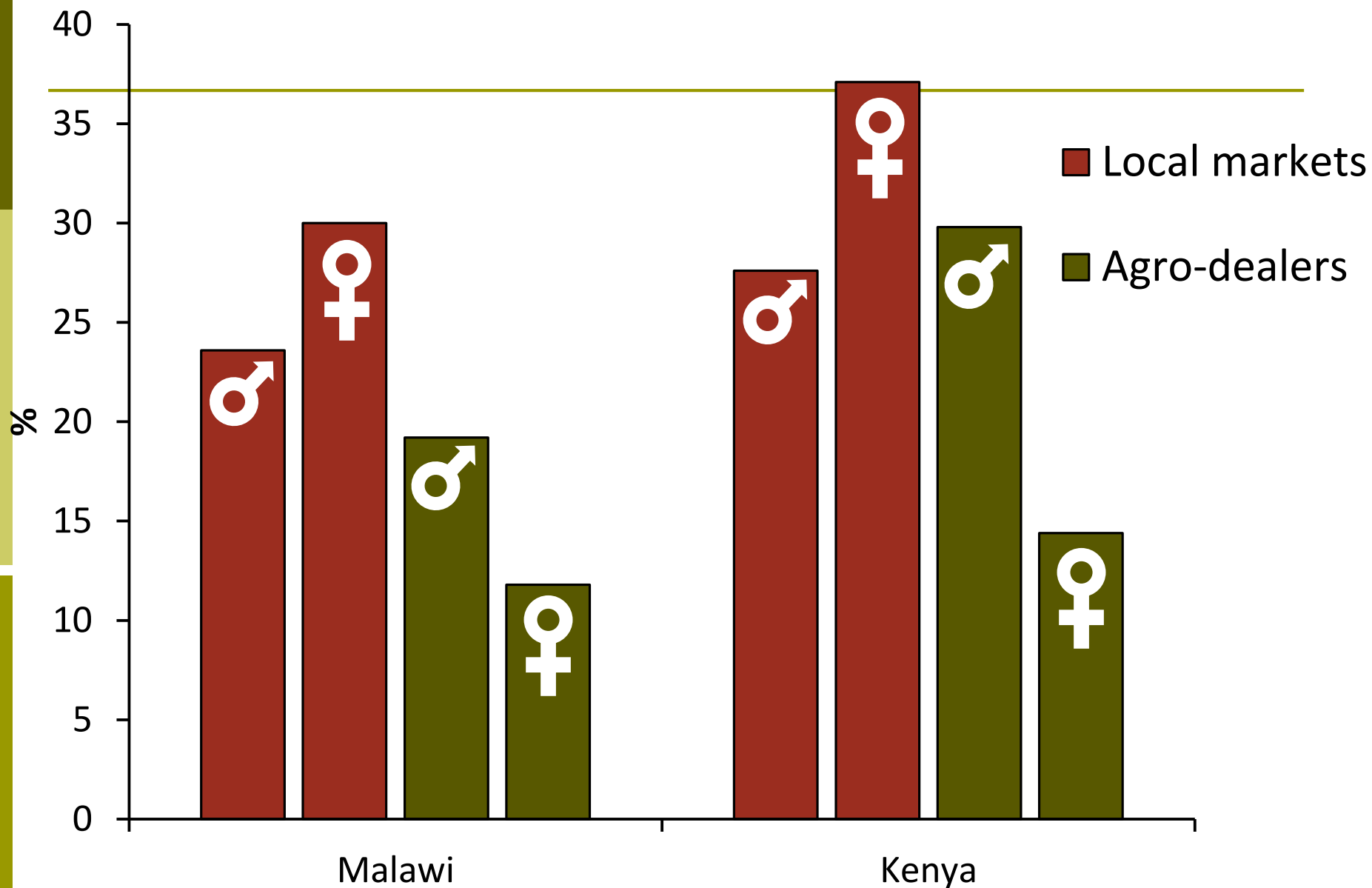
Seed Sources - legumes

n=3,324



Maize market sources, by gender

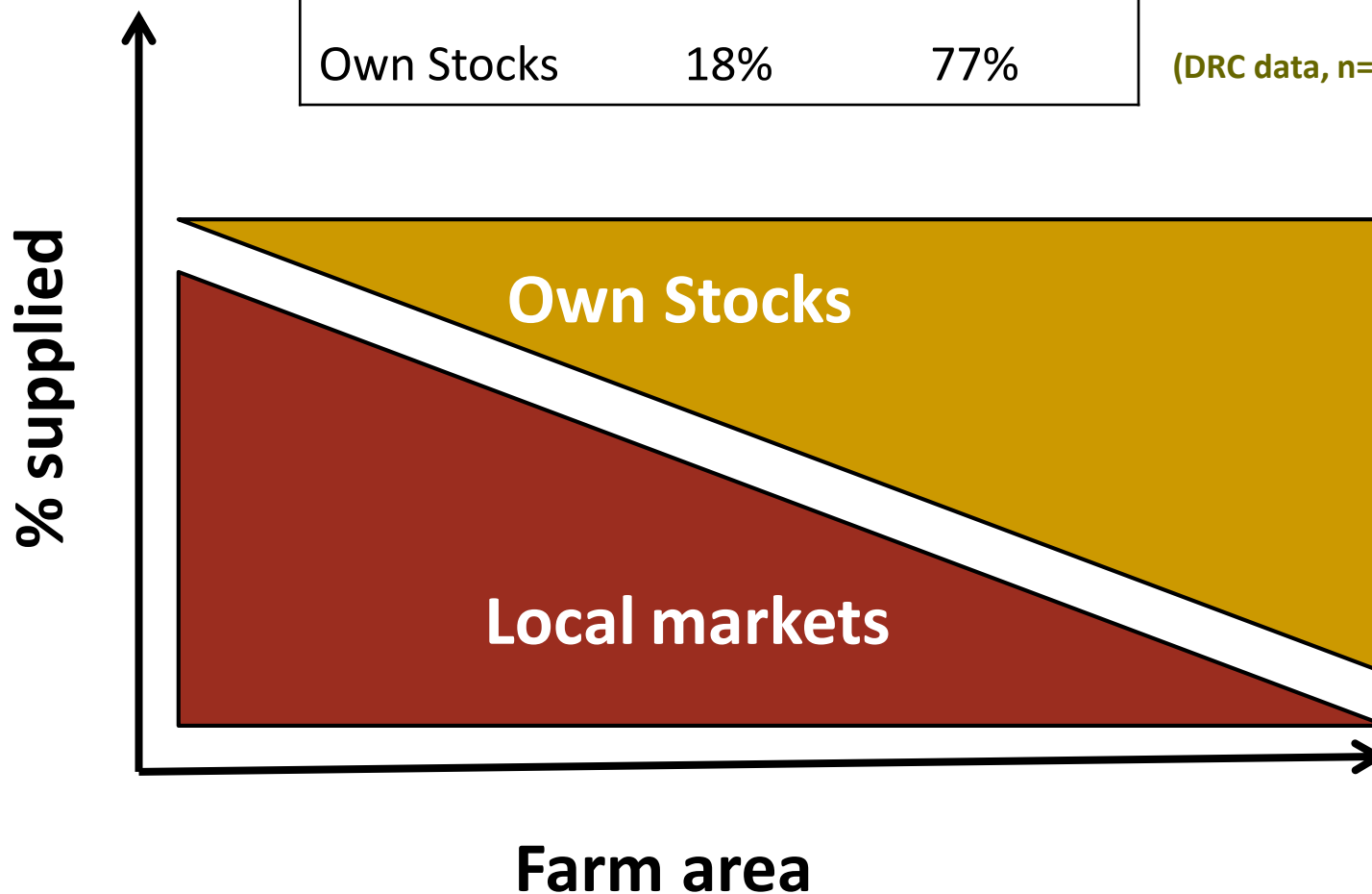
n=464



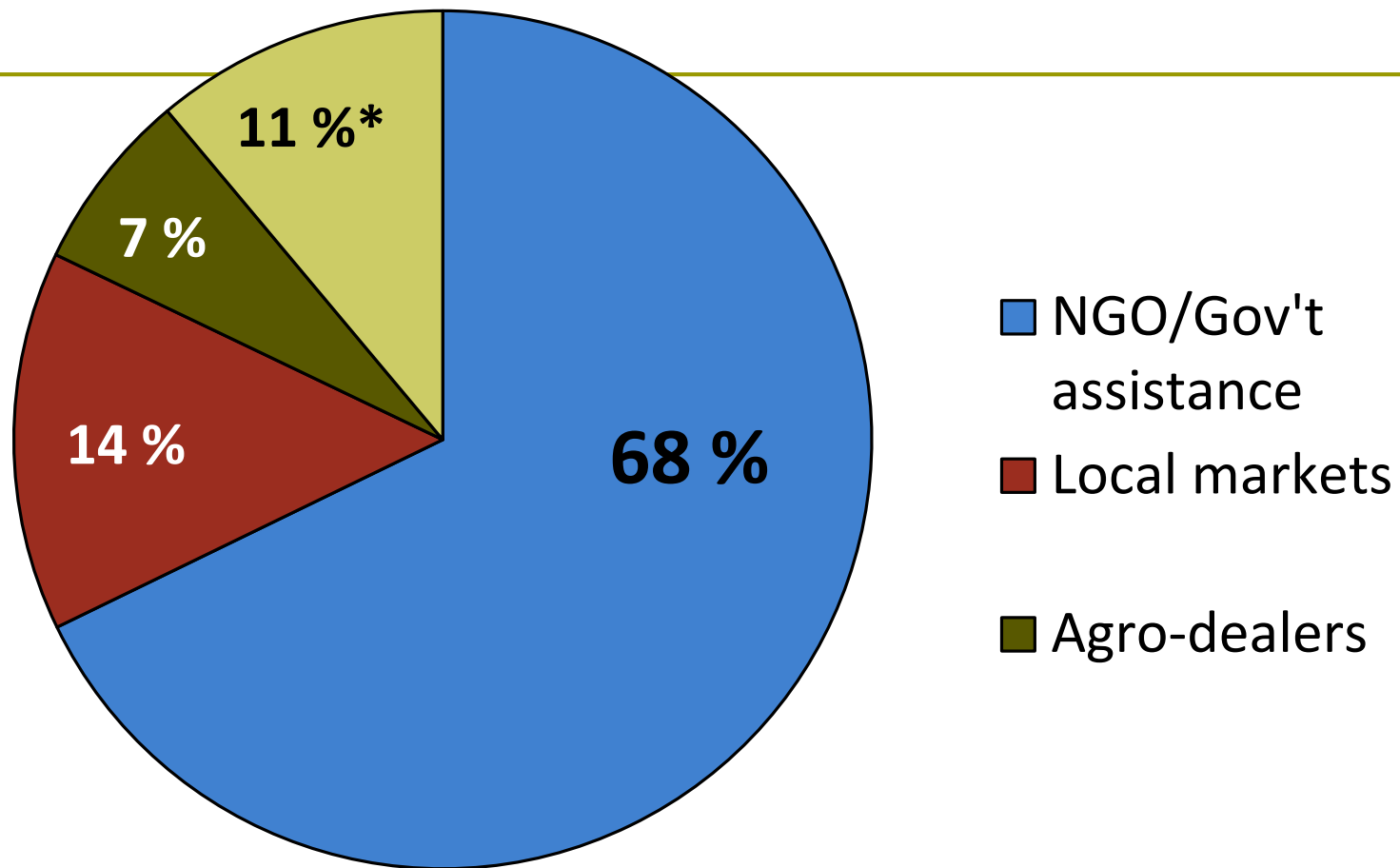
Local Markets and farm area

Source	< 0.5 ha	> 2 ha
Local Markets	54%	18%
Own Stocks	18%	77%

(DRC data, n=548)



Sources of new varieties (n=1, 683)



Includes:

social networks 7.5%; contract growers 0.2%
community seed groups 1.7% ; other 1.7%

To strengthen seed systems— one thrust: **build on markets: local and formal**

LOCAL MARKETS

- ✓ Provide heart of seed supply-Crisis periods, For the poor
- ✓ Ensure diversity/tailored response (wide range crops)
- ✓ Supply especially nutrition-linked crops
- ✓ Offers place for innovation-new varieties

FORMAL MARKETS; maize, horticultural seed

Key points for impact-oriented seed system interventions (for scaling)

Agro-dealers



Few legumes— except for FISP, sometimes

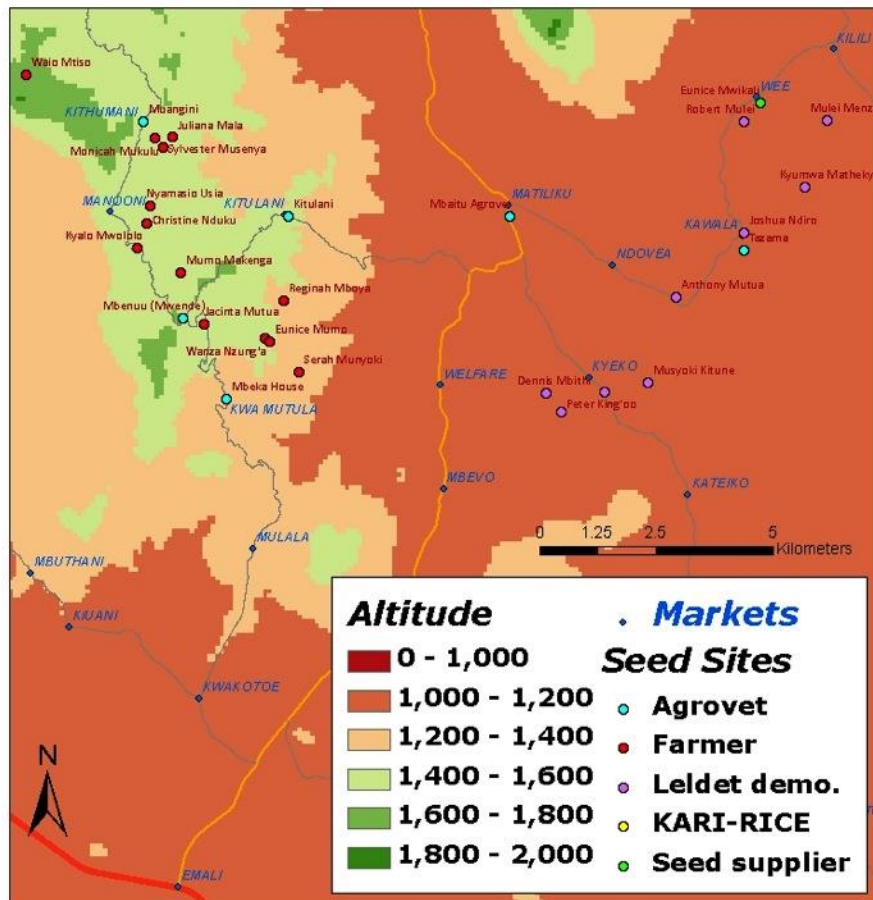
1. Expand proximity of agro-dealer outlets (AGRA approach)

Mapping

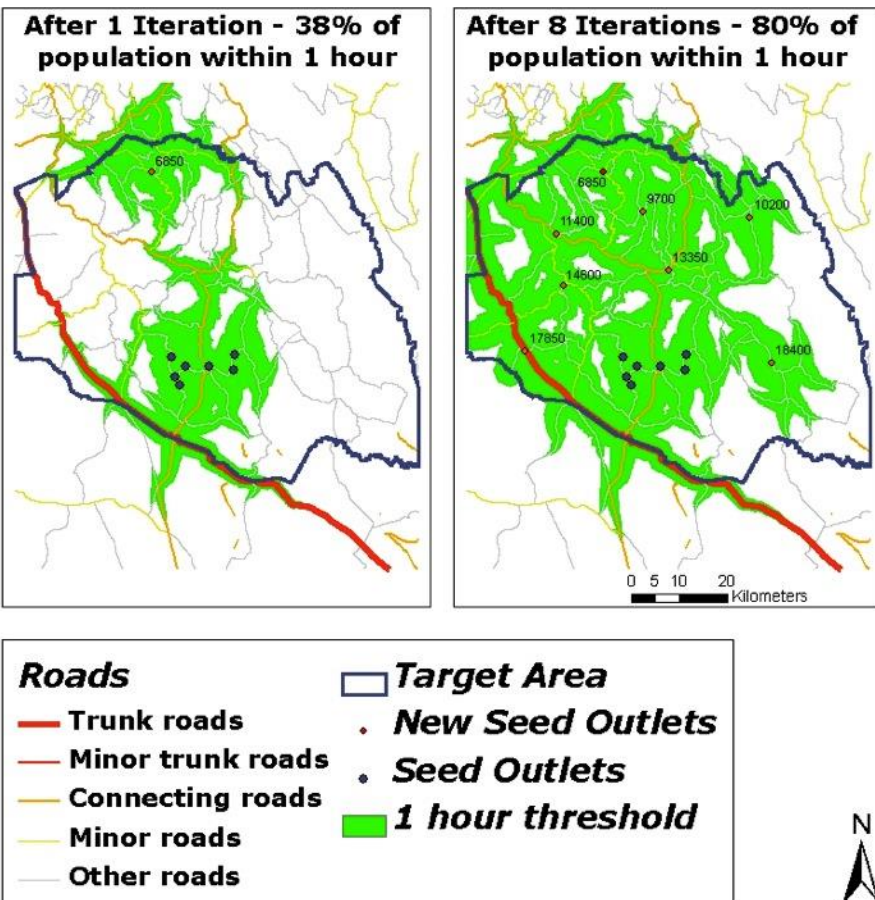


Recommendations

Sites collected for Nodes of Growth



Location of new Seed Outlets - Nzaui



23% farmers currently within 1 hr. seed outlet

(Farrow et al 2010)

2. Expand type of 'outlets'

- a. License 'Mom and Pop' stores
- b. Encourage sale in 'public venue'
 - Supermarkets (Malawi)
 - Open markets (across Africa)



3. Design delivery **toward** smallholder: small packs



- **Get new varieties to farmers**
- **Uncover demand**
 - **Varieties**
 - **Seed**
- **Expand market for certified**

TLII 2012: 943, 170 packs sold
6 crops in 13 African countries

4. Transfer/feedback strategic information



- a. Catalyze SMS two-way information networks for farmers on location of seed suppliers**
- b. Spur cellphone feedback on variety performance and seed quality- farmers**
- c. Engage farmers + large traders on their marketing experience with select varieties**

5. Invest more on the 'back end': Storage



New frontiers! **leveraging local seed markets**

Entry point-- Large traders !

6. Traders move new varieties

- ❑ New legumes
(beans gnuts)
- ❑ New crops
(horticultural)



7. Traders can sharpen seed quality (for 95% seed!)



8. Transfer/feedback strategic information for farmers + traders



- a. **Catalyze SMS two-way information networks for farmers on location of seed suppliers**
- b. **Spur cellphone feedback on variety performance and seed quality- farmers**
- c. **Engage large traders on their marketing experience with select varieties**

APPLIED Developmental insights: SSSAs

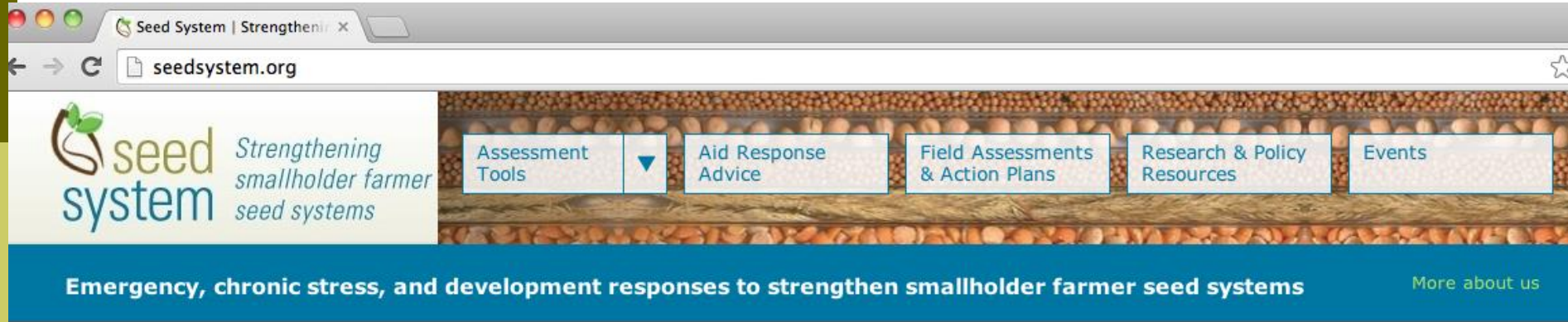
□ Actively catalyze integrated opportunities:

multiple leverage points , e.g.

- expand outlets (even non-seed)
- design delivery **for** smallholder farmer (e.g. small packs in kiosks)
- develop strategic information and feedback systems

□ Don't ignore the elephant in the room -- informal sector: (51% from markets, 90% seed overall)

□ Invest (\$\$\$) in the sustainable-- at scale



Humanitarian Assistance

Decision guides to identify effective seed system response, 'how-to' technical information, and manager checklists for proposal development and field evaluation.

For more, see [Aid Response Advice](#).

photo credit: s.walsh/c

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USAID/BFS

jmaccartee@usaid.gov



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November 18-20