

Soy Value Chain in Mozambique – *Results and Challenges*

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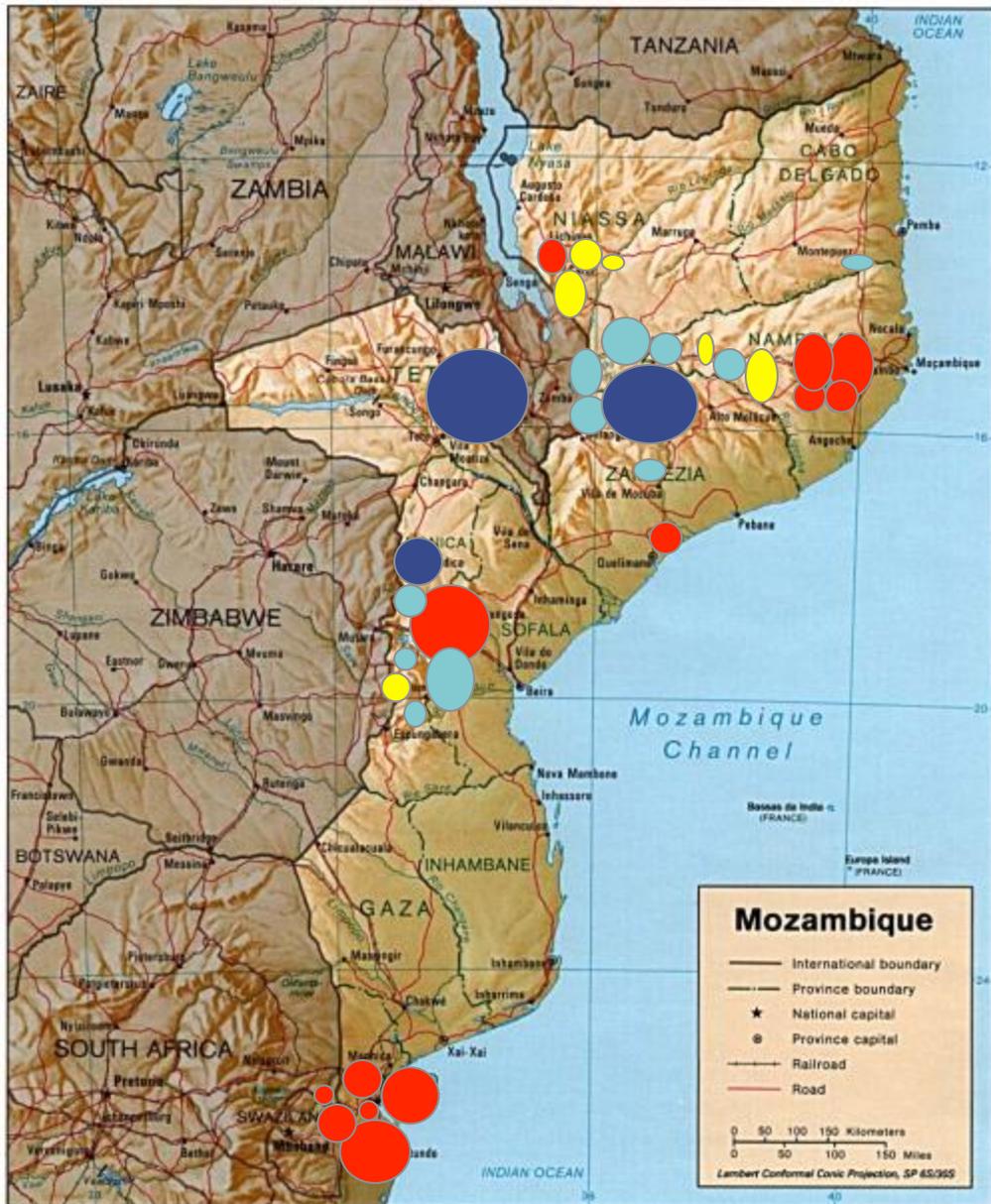


1. Actual Soy Situation in Mozambique



Soy in Mozambique

-  Feed / Poultry/ Oil industries
-  Small Farmers – Extension provided by CLUSA and others
-  Large Commercial Farms + Small Commercial Farmers providing Extension to Small Farmers
-  Plantation Forestry Companies providing Extension to Small Farmers



The context is positive for soy development in Mozambique

Soy is a new crop in Mozambique (beginning in 80-85 and then after 2005/06)



Soybean has growing demand in the domestic market (*poultry industry growing at 60% per year, and large vegetable oil consumption*)

Agro-ecological conditions are favorable in various Mozambique regions for soy cropping

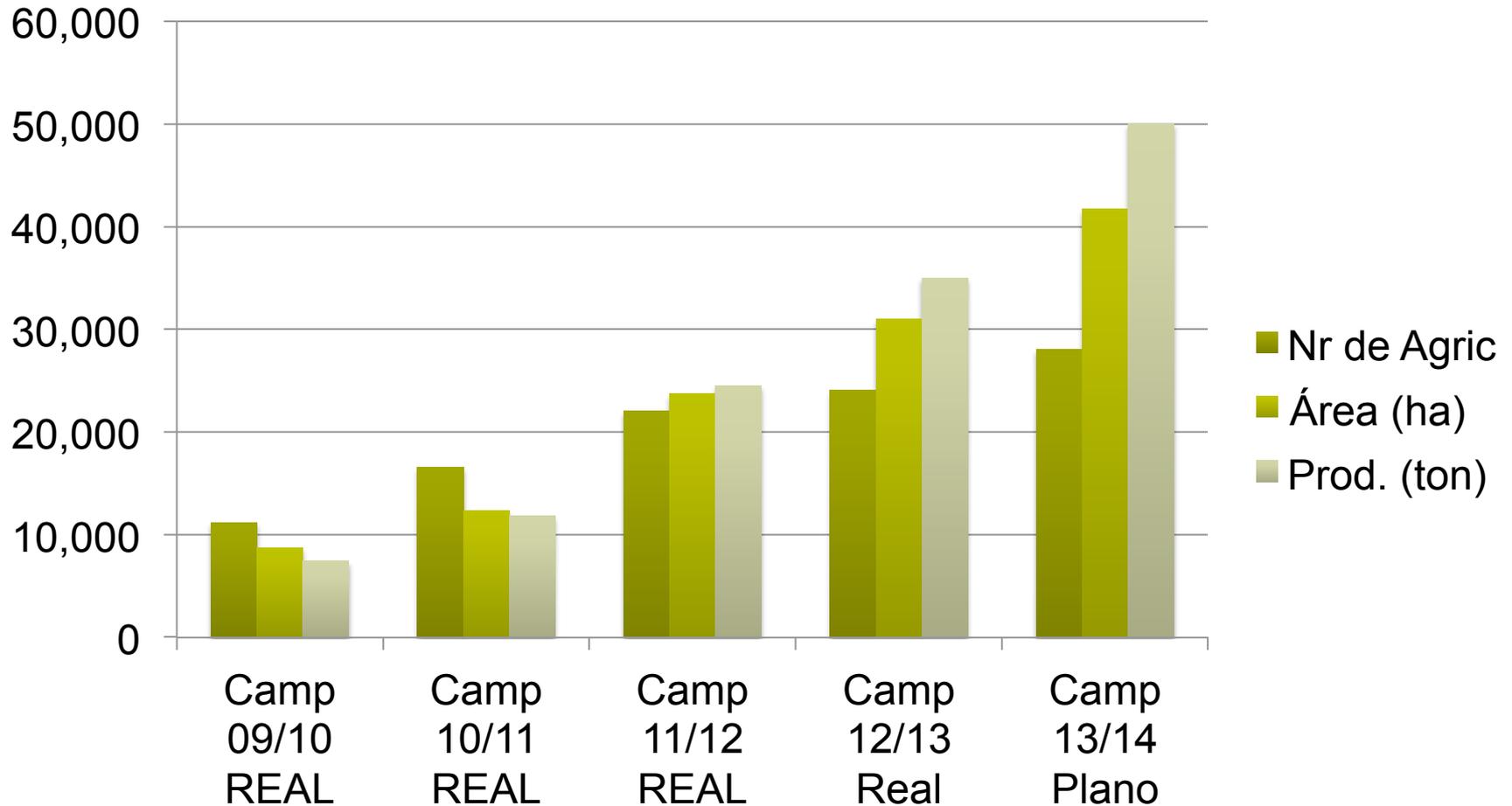


The commercial private sector is increasing the investments in the soy value chain



Soy in Mozambique from the 09/10 season until now

Total National, per Year/crop season,



Soy in Mozambique – Comparison by Season

	<u>09/10 Season</u>	<u>12/13 Season</u>	<u>Estimated 13/14</u>	
• # of Farmers	11,214	24,071	28,034	+ 4,000 / 2.5 x
• Area (ha)	8,736	30,987	41,717	+10,730 / 4.8 x
• Tons Produced	7,440	35,020	50,035	+15,000 / 6.7 x
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• Ha/Farmer	0.78	1.29	1.49	
• Ton/Ha	<0.85	1.13	1.20	

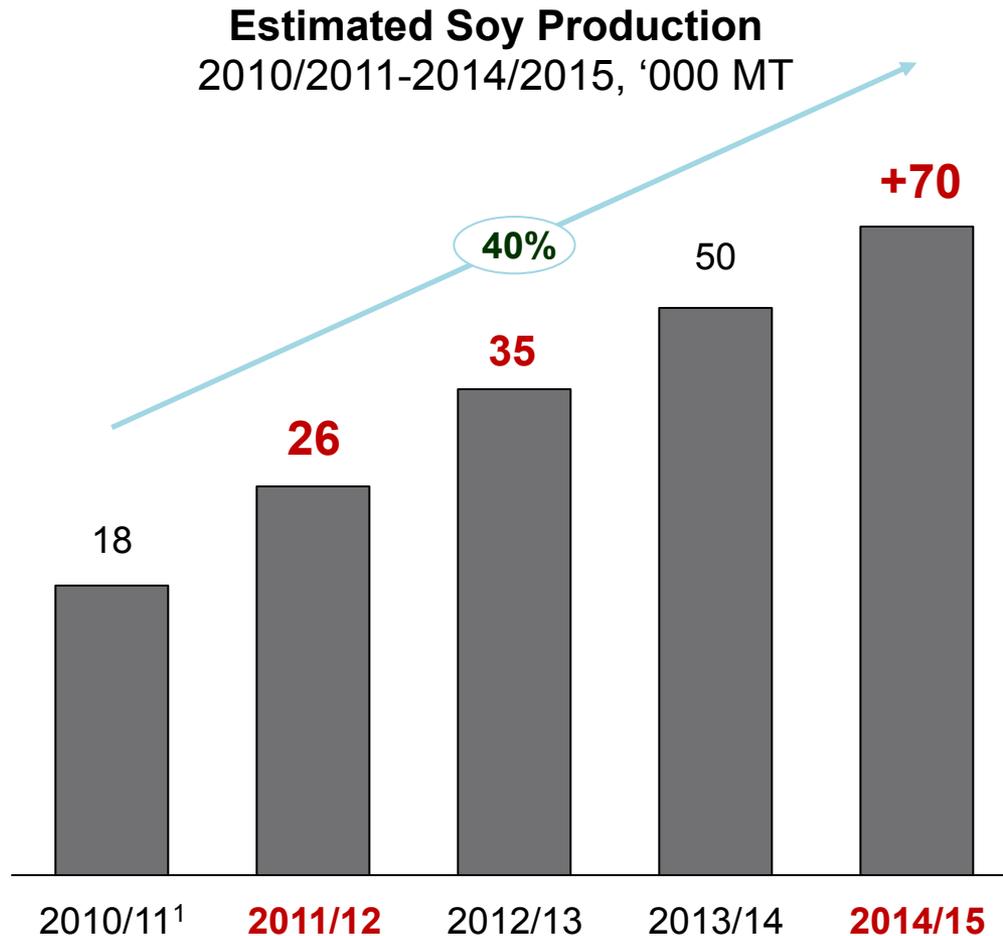


Main Reasons for Growth of Soy Production

- **Internal market** Strong domestic demand, increasing in various regions – feed, poultry and oil industries growing
- **Good farm-gate prices** to the producers: equivalent to \$450-\$615 USD/ton
- **Incentives** and a **technical package** for the producers, funded by donors, including: seed varieties, inoculant, high quality demo plots, field days, training sessions, etc
- **Other investments in the industry** Capital intensive farms and companies, in north and center regions, providing scale and knowledge to the industry as a whole



We expect soy production in Mozambique to **double** over the next two seasons to at least **70,000** tons per year!



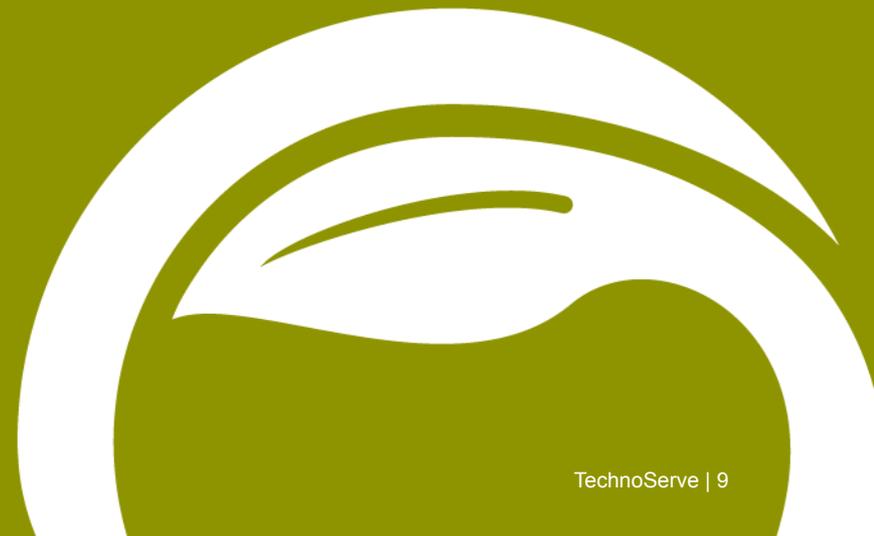
- Soy production is growing at 40% per year through increases in:

- **cultivated areas** and
- **increases in yield**



¹ Included around 6,000 Metric Tons crossing-over Malawi border;
Source: TechnoServe (Southern Africa Regional Soy Study, 2011)

2. Producer profiles, farming systems and margins



Technology levels/Farming systems

- **Smallholder Farmer (SHF)**

(<2 ha, avg)



- **Small Commercial Farmer (SCF)**

(>2 ha and <50-100/200 ha)



- **Large Commercial Farmer (LCF)**

(>100 or >200 ha)



Smallholder Farmer – Angonia in Tete Province



SIWAMA/SCF Cooperative: - Seed multiplication field (40 ha)
Weed control with animal traction



Small Commercial Farmer – Alto Zambezia - 12/13 Season:
*10 ha soy seed multiplication + 7 ha soy grain + 5 ha sugar bean +
4 ha irrigated horticulture*



Rei do Agro - Large Commercial Farm – 12/13 season: 690 ha (+/-1,300 tons soybeans) + 250 ha extension to 61 small farmers



Soy Profit Margins in Mozambique – SCFs (Small Commercial Farmers)

Farmer region	Yield – kg/ha	Cost – Mt/kg	Income – Mt/kg	Margin / Profit (Mt/kg)
A-Niassa	800	10.53	13.00	2.47
	<u>1,000</u>	8.42	13.00	4.58
	1,200	7.02	13.00	5.98
B-Alto Molocué-Zambezia	<u>1,000</u>	10.69	14.00	3.31
	1,250	8.55	14.00	5.45
	1,500	7.12	14.00	6.88
C-Gurué-Zambezia	<u>1,000</u>	13.20	16.00	2.80
	1,500	8.80	16.00	7.20
	2,000	6.60	16.00	9.40

Profit Margin:
 from 2.80–4.60 Mt/kg,
 equivalent to **\$95-\$160**
USD per ton, for an
 average 1,000 kg/ha

Profit Margin:
 from 5.45–6.00 Mt/kg,
 equivalent to **\$185-\$205**
USD per ton, for an
 average 1.200–1.250 kg/ha

3. Model / Strategy



Usually, investment in agribusiness in Mozambique by major new (usually foreign) investors is based on:

Intensive Commercial Agriculture ONLY



Mozambique needs **large commercial farms** to achieve **economies of scale**, and to increase availability of **technologies and knowledge**, however there are **SIGNIFICANT RISKS**:

- **Land conflicts** with local small farmers and traditional rural leaders;
- **Poorly trained local staff** for correct using of intensive capital equipment;
- Significant difficulties related to **logistics of key inputs** – requiring high inventories, and underutilized assets;
- Major possibility of **other problems** such as theft and improper use.
- Lack of understanding of **social aspects and labor** with impact on productivity



An investment in agribusiness **MUST** be made according to the Mozambique reality:

A good BALANCE between core farming and an out grower/extension services model to smallholder farmers, based on capitalization of SCF/small commercial farmers!



Concentrate the intensive investment in core farm:

- Add value “supplied” by own-farm production plus production purchased to small farmers , grown with assistance from the commercial farm
- Definition of the “area of influence” - better integration – reinforce linkages and mutual “dependence” on an economic basis

Agricultural services can be provided to the “out growers and small commercial farmers” by the large commercial farm:

- Improved inputs – better seed varieties, agro chemicals, inoculant, etc
- Some agricultural services, such as mechanization, agro-processing, use of irrigation, training, etc



TechnoServe actions in Mozambique promoting this approach:

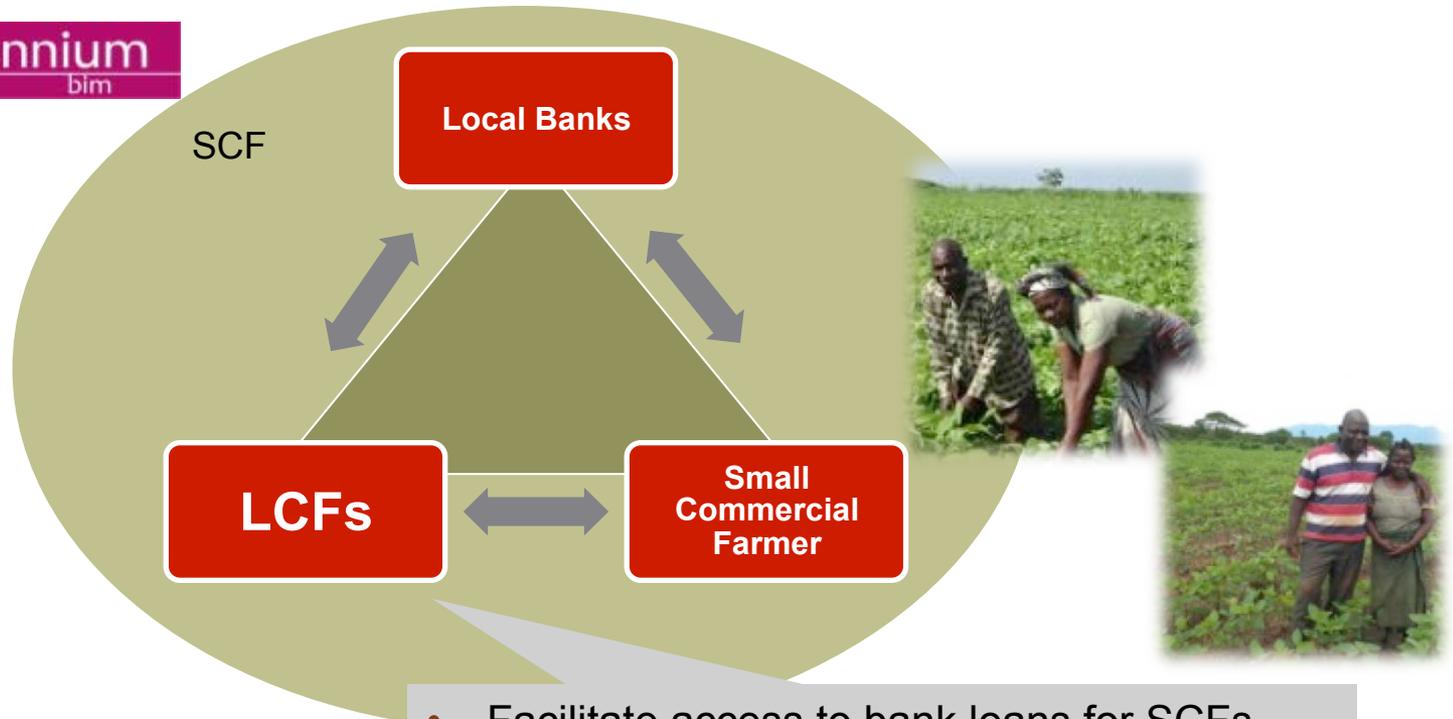
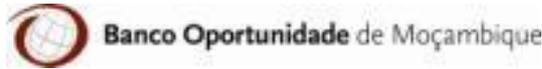


Direct support to large commercial farms and small commercial farms using the out grower model

- **Selling/distribution of improved seed varieties and inoculant** to small farmers, on declining subsidy basis - executed by the commercial farms (LCFs + SCFs) in their zone of influence
- **Technical support –**
 - **Training** (3 courses/3 days each, per crop season)
 - Subsidy for **Demo Plots** installation
 - **Field Days**
 - **Scholarships** for sons/daughters of key SCFs
 - **Co-financing** salaries/recruitment of **young agricultural technicians** (in LCFs and some SCFs)
- **Facilitate linkages/contacts** between buyers/feed and poultry industries, etc with producers - periodic meetings, support the creation of business associations, cooperatives, etc.



Importance of the triangle: LCFs/companies - local commercial banks - SCF/small commercial farmers



- Facilitate access to bank loans for SCFs, selecting the more developed in agro-technique and agro-commercial aspects
- Help insure that all soy produced is purchased at good farm gate prices

3.a. Capitalization of SCFs **based on Seed Multiplication**



SM4ESCF – Seed Multiplication, Zambezia: Capitalization of 50 SCFs:

- Tractor for land preparation and threshing + Small Irrigation scheme + Demo Plots, Field days, Training + Creation of a new Cooperative with a Seed Processing Unit



Land preparation



Threshing



Irrigation

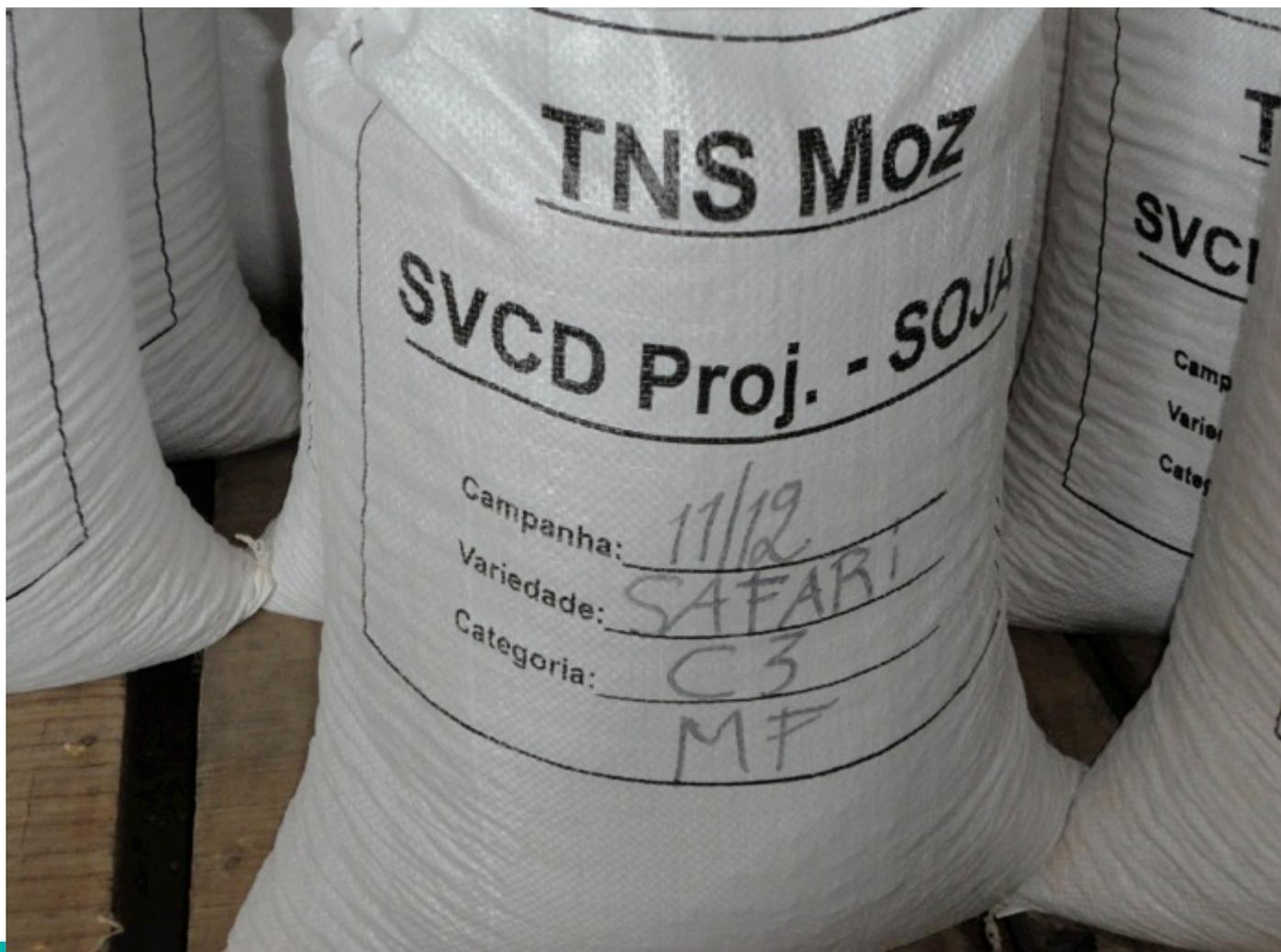


Seed Production



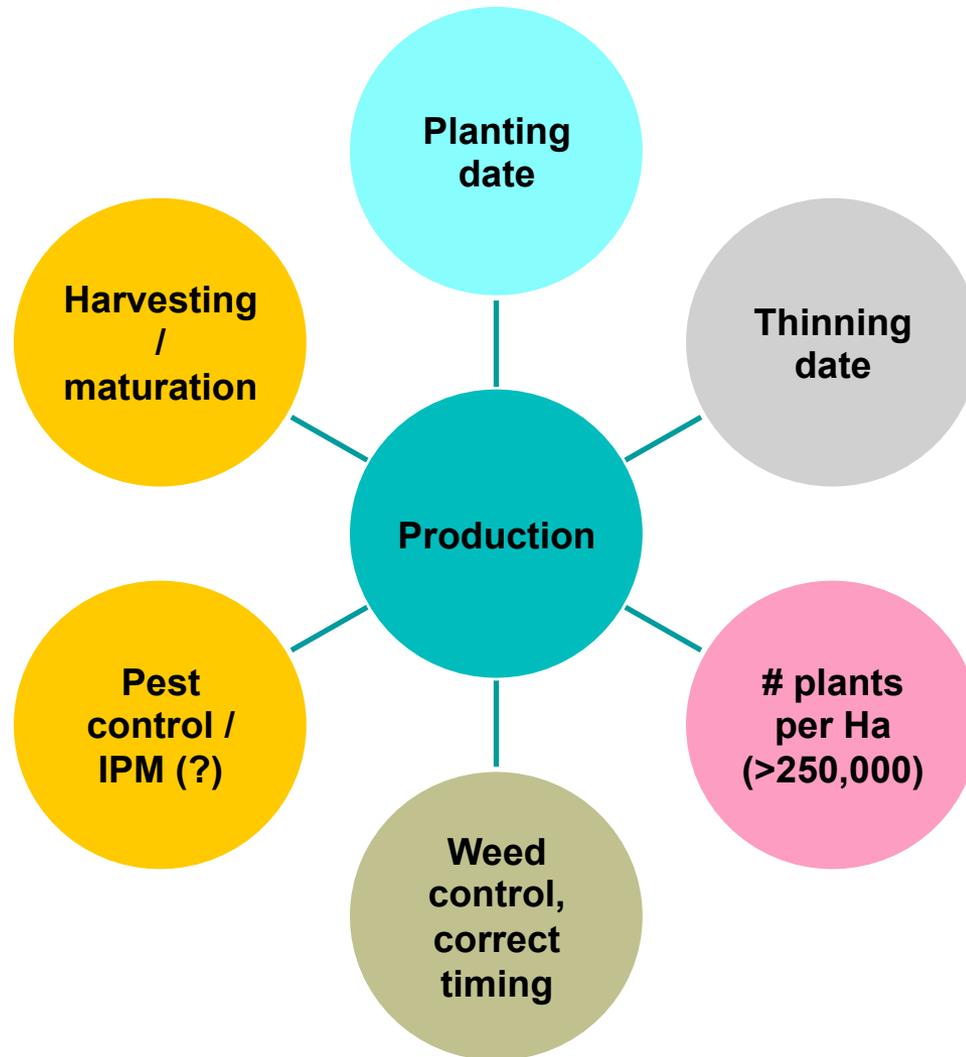
Seed Processing

**Certified soy seed / produced by SCF, grading C3
(selling price = \$1 USD/kg)**



4. Technology diffusion

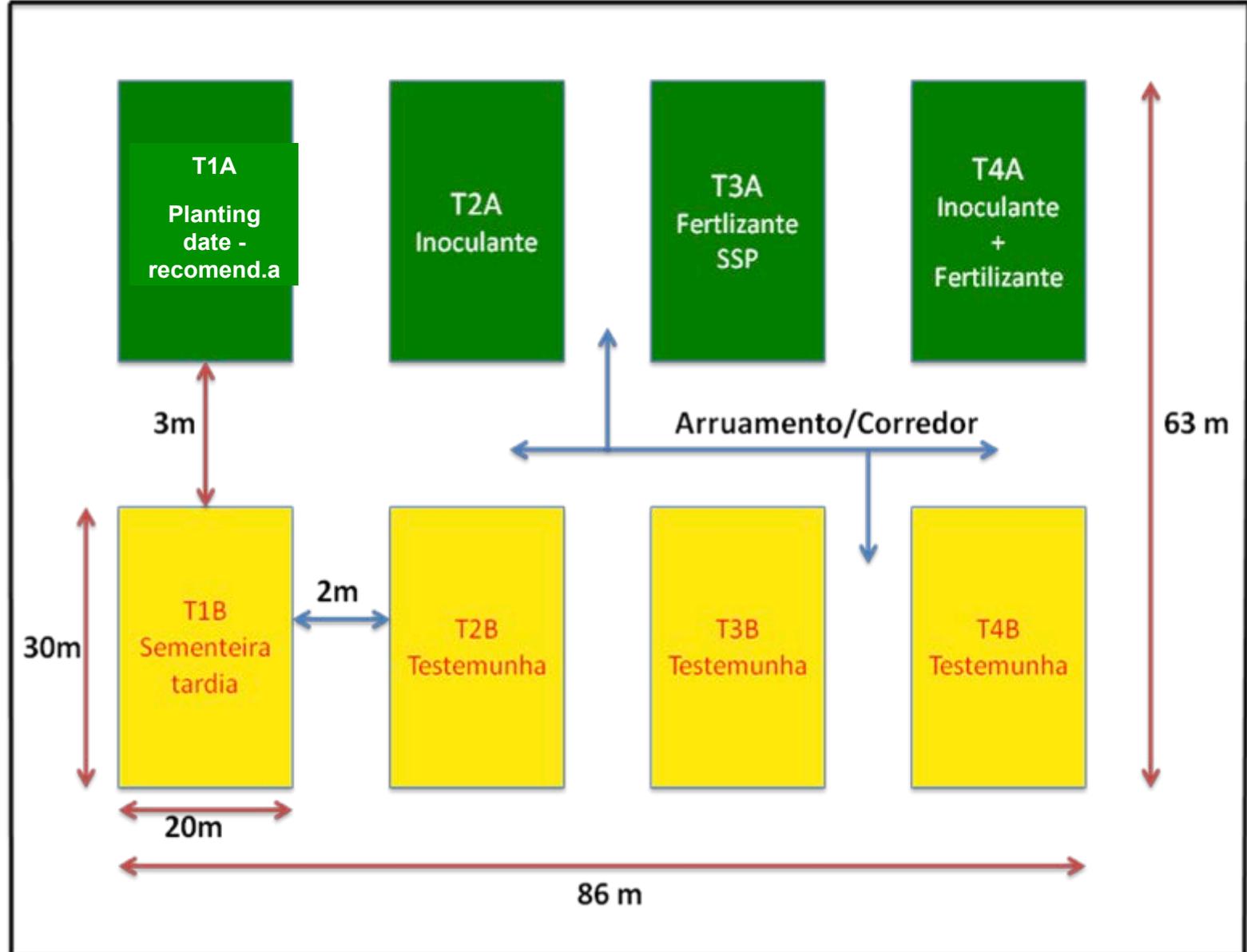
Main agricultural factors linked with yield/ha



DEMO.PLOTS



Demo Plot – Model used 12/13 season (135 installed – 125 approved/good performance)



Training in a Demo Plot / Field Day - Gurué



2 Field Day in 12/13 season = 6,100 small farmers 25% women, average 46 small farmers / demo plot field day



1^o. – March (*pre-harvesting*)

2^o. - May (after be harvested –
already weighed / bagged)

Demo Plots

- Global data –12/13 season:

Região	Rendimentos por Hectare							
	T1A	T1B	T2A	T2B	T3A	T3B	T4A	T4B
NORTE	1,083	640	1,526	1,050	1,379	1,060	1,626	1,027
CENTRO	922	601	1,273	838	1,256	854	1,572	851
ANGÓNIA	1,020	540	1,458	982	1,457	1,016	1,854	1,118
Rend. média por hectare (kg)	1,048	606	1,480	1,008	1,391	1,026	1,690	1,037

+472/ha avg with inoculant (dosage 200 gr/ha);
+365 kg/ha with SSP (dosage 200 kg/ha)





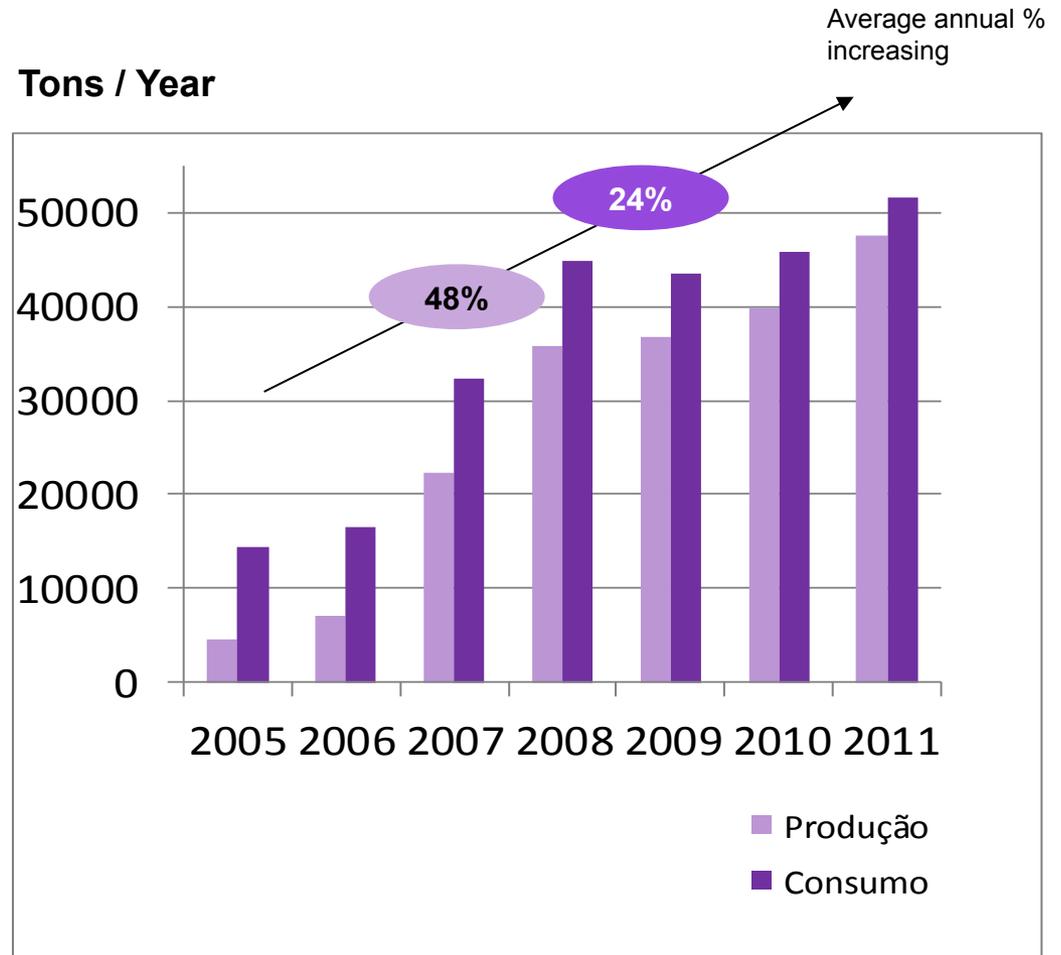
Innoculant = higher yields/ha

Soybean planted with zero tillage / Zambezia - new technique with key aspects regarding zero tillage + direct planting = soil conservation / cost reductions



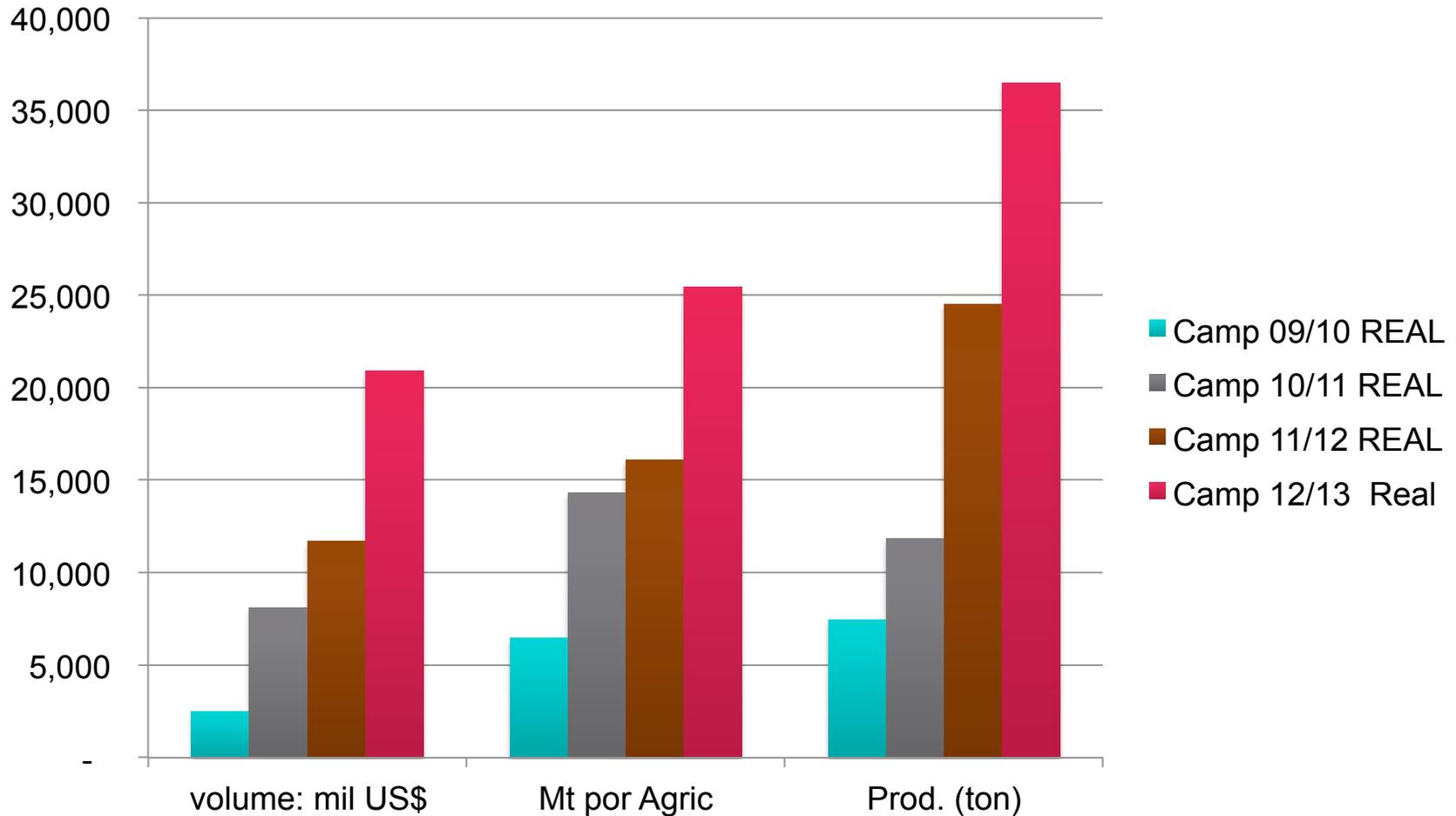
5. Market

Domestic soy demand is based on growth of the feed industry for poultry production

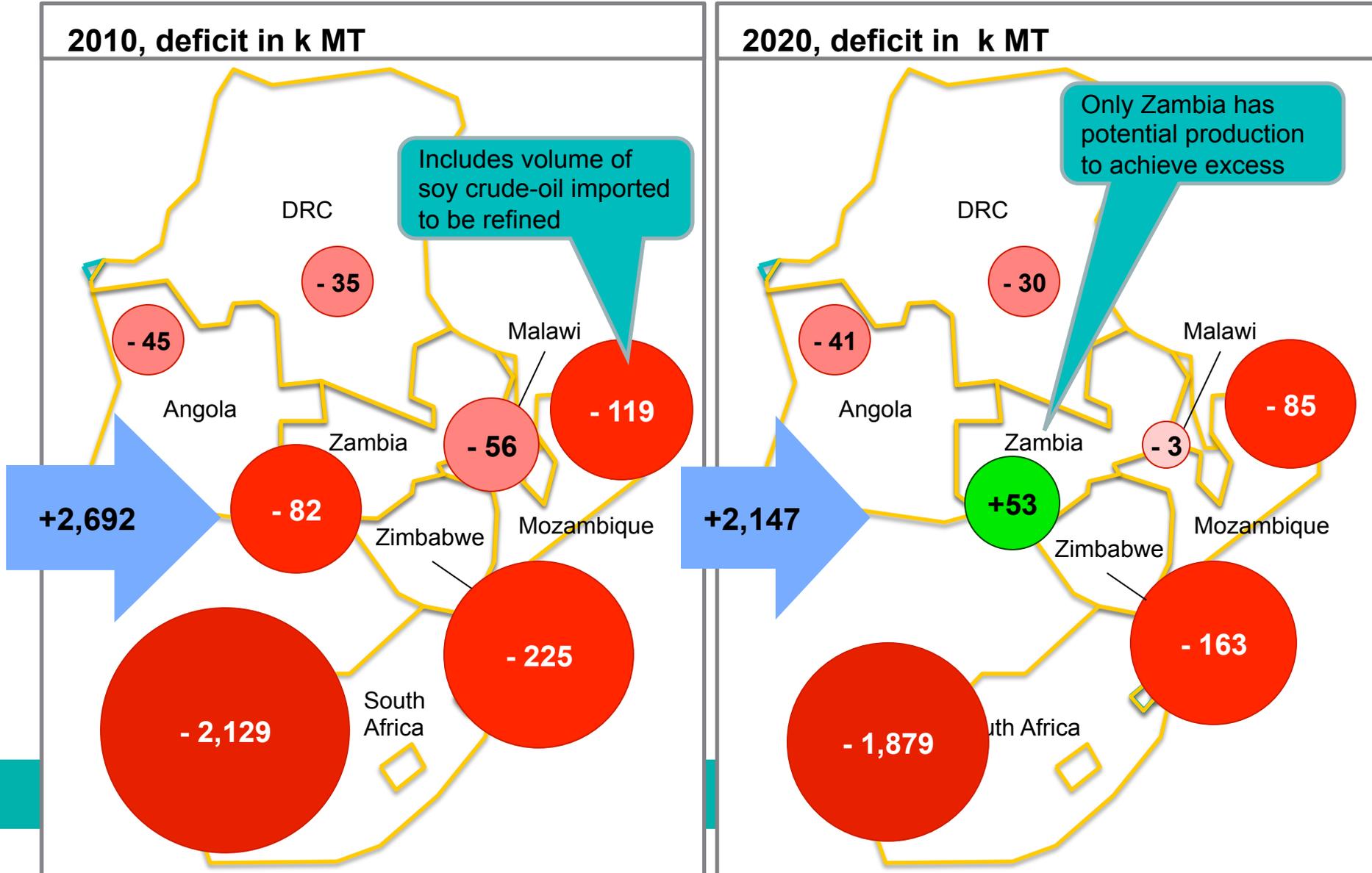


Soy grain - sales volume in Moz – progress since 09/10 till 12/13 season (farm gate price basis)

Totais Nacionais, por Ano, desde 2009/10



In 2020, Mozambique and main neighbor countries will continue to import soy and soy cake, although at lower rates



Manual threshing – Small farmer – Gurue/Zambezia



Small farmer: manual cleaning, post-harvest, before bagging - Zambezia Province



Threshing machine / SCF - Manica Province



Africa Century LCF silos with elevators and dryer - capacity for 4,000 ton grain



**Alif Quimica, Quelimane – solvent extraction plant in construction,
30-40 ton/day = 10,000 ton/year of soybean**



Solvent plant - Abílio Antunes - Manica: Largest soy buyer in Moz = 11,500 ton in 2012, 13,500 ton in 2013 - capacity 60 ton/day = 18,000 ton/year



6. Challenges

TNS Soy actions now are focused on:

- 1. Capitalization SCFs - expand from 50 to 100 with equipment, irrigation, seed cooperatives
- 2. Diffusion of technology – maintain same approach
- 3. Maintain vision for soy in Mozambique – collect and diffuse data and information
- 4. Seed Multiplication – intensification through capitalization of SCFs
- 5. Support / Facilitate New Investments - LCFs with intensive capital ONLY IF promoting out grower model through SCFs
- 6. Define soy zones -
 - precise varieties
 - preferred farming systems

