Mozambique's Soy Value Chain: Review of development to date and future opportunities

MAPUTO, NOVEMBER 2018

TECHNOSERVE
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Background to ISP and project objectives

TNS has been supporting soybean agriculture in Mozambique for the last 8 year, creating a tangible impact across the value chain.

This "Industry Strategic Plan" aims to provide an holistic value chain update, focusing on:

- **Capturing where the industry stands today, including the impact of TechnoServe's efforts**
- **Developing a vision for the local soy processing industry**
- **Identifying and assessing the feasibility of priority interventions**

Deliverables

The full ISP comprises the following deliverables:

- Update on soybean production, related costs, and required inputs
- Market demand for soy products
- Overview of trade/exports
- Learnings from other countries
- Future vision for the industry
- Action plan/ Interventions

Methodology

- Two full-time Fellows were allocated for this project, with the support of a team manager
- The Fellows have travelled around the country and in Malawi, interviewing current and potential stakeholders
- The ISP started in mid-August and took 3 months of work

During the research stage, we have conducted meetings with players across the value chain in Mozambique and Malawi

Processors	Trading companies	NGOs	Farmers, traders, input distributors
4Eco	S.A Agro Com.	IGC	Small Commercial Farmers (SCFs), Small Holder Farmers SHFs (SCFs) in Gurue
Higest	Royal Plastic	CLUSA	COPAZA
Maeva Oil	Maviga	TechnoServe Malawi	Various traders
Merec		TechnoServe Zimbabwe	Tecap
SBS		TechnoServe Zambia	
King Frango			
Irvine's			
Alif Quemica			
Abilio Antunes			
Novos Horizontes			
Miruku			
Sunseed Oil			
St Gabriel Likuni Phala			

Executive summary: Industry overview

Despite rapid growth over the last decade, challenges along the value chain persist:

- Inputs: SHFs have limited access to appropriate, locally available, affordable improved seed and inoculant
- Production: Lack of available labor in peak months and shortage of land are starting to become a problem
- Processing: Increased raw materials cost and imports pressure limit local processing opportunities; quality issues persist
- Logistics: High cost of transport from North to South; soybeans still not competitive against imports in Maputo
- Enabling environment: Limited Government support for production or processing; limited access to finance

There has been recent interest among local stakeholder in new soy-based products:

- Soy oil: Opportunity exists to increase domestic crushing as demand for soycake increases, especially if southern poultry producers start buying soycake from the north; competition from imported soy oil
- Soy chunks: Product fit and low capex requirements create attractive prospects for a domestic soy-chunks industry, though investment in developing market demand will be required
- CSB/soy porridge: currently a sizeable opportunity but several challenges including competition from imports, quality standards, higher investment requirements in marketing as well as processing

10 year vision to capture this market opportunity and expand to 100,000MT local production of soybeans is ambitious but possible if investment in key intervention areas:

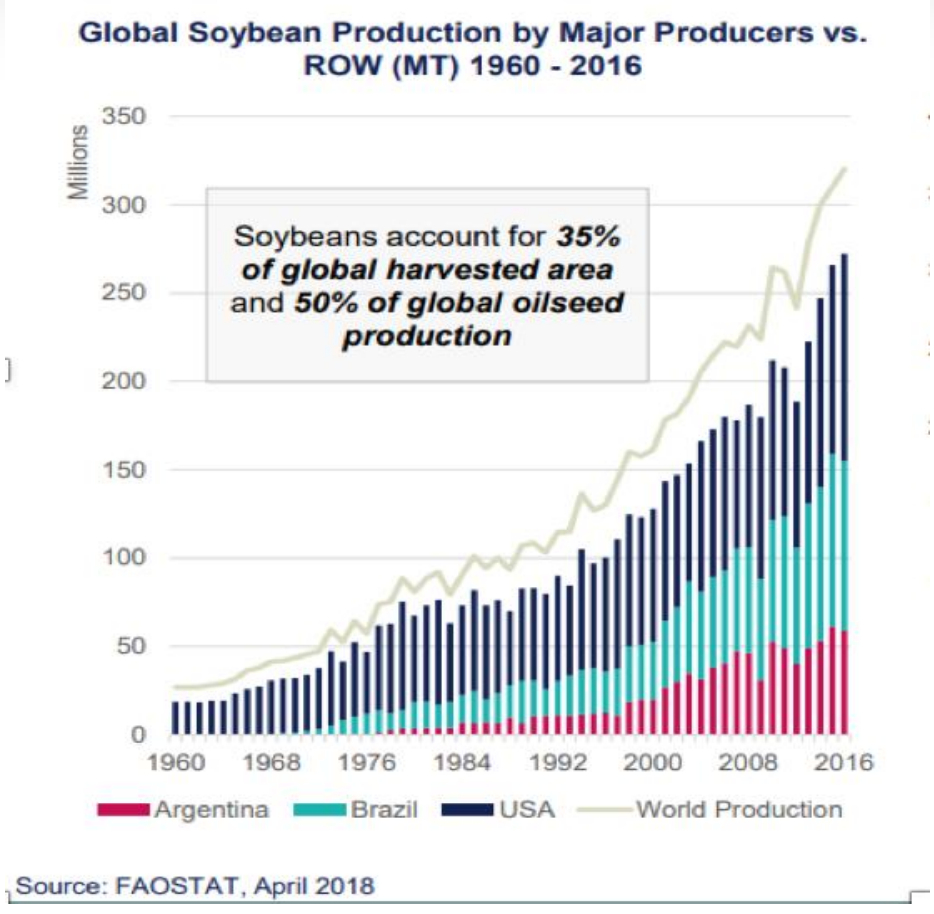
- Increasing production volumes and productivity
- Supporting new and existing processors to capture increasing market demand
- Developing reliable and efficient linkages between producers and processors
- Building demand for high quality soy products for human consumption
- Supporting the industry with key enablers (easier access to financing and policy support)

Contents

Global soybean production has grown rapidly over the last several decades, but Sub-Saharan Africa is still a marginal producer (<1%)

Growth drivers

- Demand growing with
  - Poultry & livestock consumption
  - China, increasing incomes and policies
  - Global population growth
  - GDP increase
  - Global trade policies
- Production growing with
  - Improved genetics
  - New land opening up
  - Increased yields, farm size and advancement of farming techniques



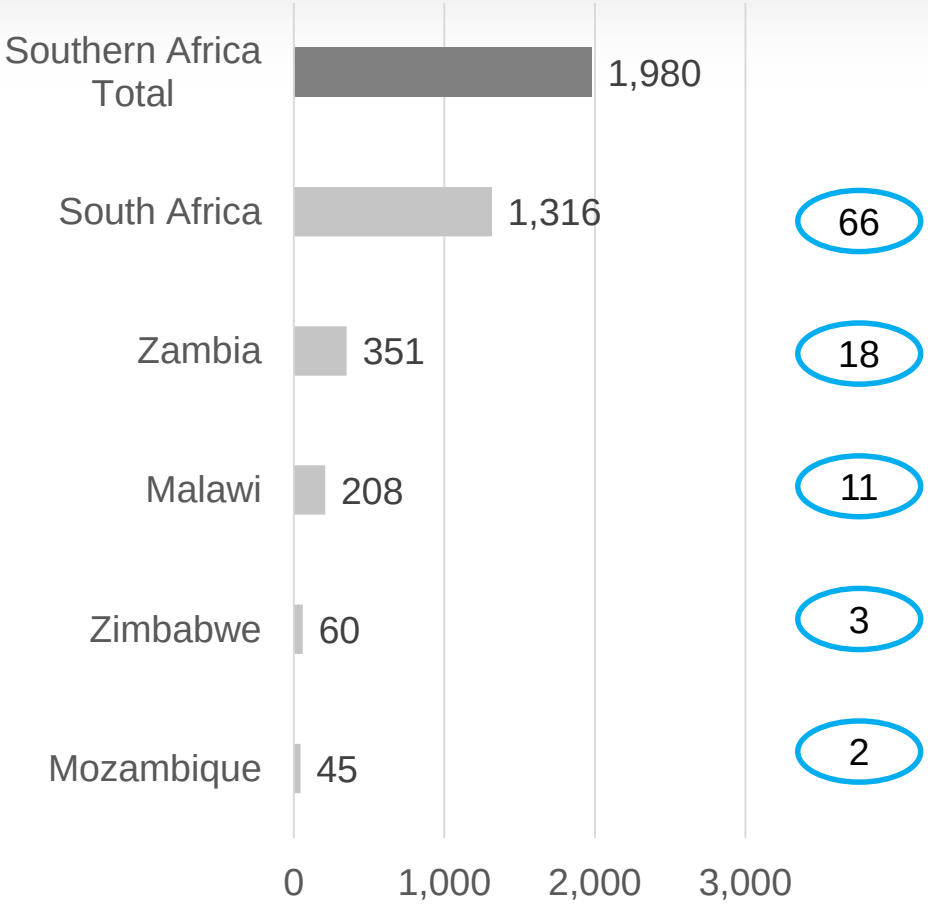
Sub-Saharan Africa represents 0.6% of the global soybean output

SOURCE: FAO; TNS

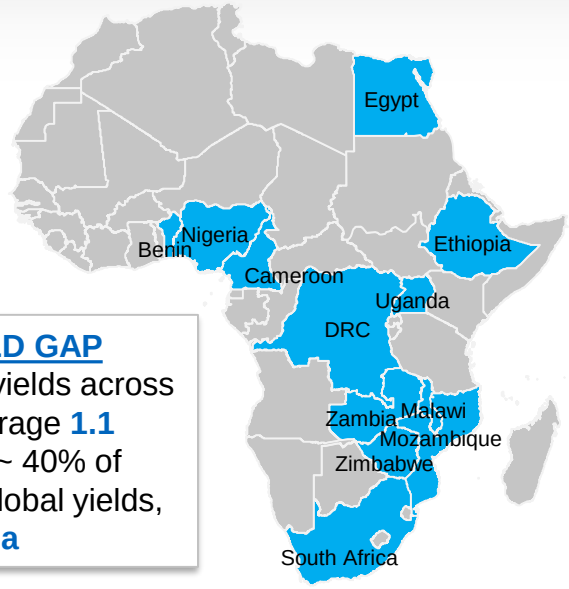
Southern Africa produced 1,021 MT in 2016, with South Africa making up almost three-quarters of production

X Share of region, %

Southern Africa Soybean production, 2018
'000 MT



Countries with production >25 thousand MT, 2018



YIELD GAP
Soybean yields across Africa average **1.1 MT/ha** or ~ 40% of average global yields, **2.75 MT/ha**

Despite the low soybean production rates observed in Africa, the current output **is expected to double in the next ten years** due to a growing poultry and aquaculture feed industry as well as need for improved human nutrition in the region

SOURCE: FAOSTAT; Mozambique: TNS Mozambique team analysis

Soybean production systems and market dynamics vary considerably between the dominant producers and Rest of World (ROW)

Soybean production trends and market dynamics by producer type

USA, Argentina, Brazil (81% Global output)

Price sensitivity: Highly competitive and mature market, characterized by strong price competition and high levels of market concentration

Private sector consolidation: High investment costs involved in soybean cultivation, storage, and marketing have fostered vertical integration within sectors and horizontal operations across commodity sectors and companies

Commercial farming: At the farm household level, the bulk of the world's soybean production comes from medium-to-large size farms characterized by capital intensive production methods and high levels of mechanization

Limited on-farm storage, processing: Considerable value addition occurs in the downstream stages of the production and processing chain, with almost no on-farm storage and/or processing

ROW (19% Global output)

Small scale farming: Production by small- scale farm enterprises, with limited mech. and intensive labor

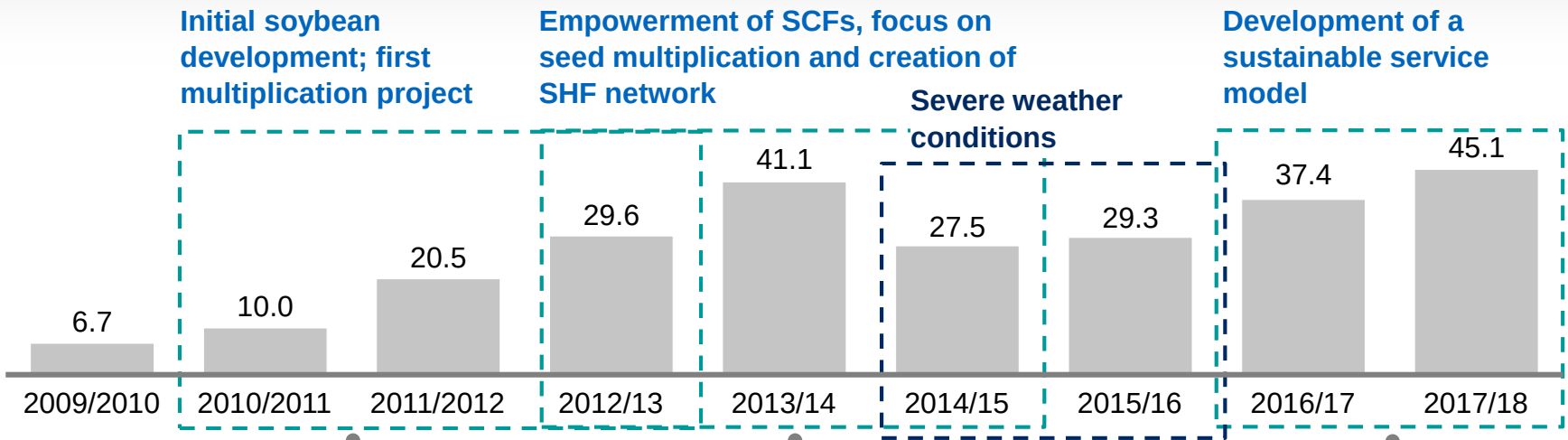
On-farm, local processing: Reliance on on-farm storage and SME processing

Domestic consumption: Greater consumption of harvest at per-farm household

Source: Ttns country analyses ISP (2014), FAO

Mozambique's soy industry has grown rapidly over the last 10 years, driven by increase in the number of farmers, in part due to key TechnoServe interventions

Soybean production, 2012-18, '000 MT



2005-2010 TechnoServe poultry project
- created a new local demand for soybeans

2010 – 2013 TechnoServe - Bill and Melinda Gates Foundation project
- increased soybean production and started first seed multiplication project in the area

2012 - 2015 TechnoServe - Embassy of the Kingdom of the Netherlands (Dutch) project
- creation of a group of strong Small Commercial Farmers (SCFs)
- established the cooperative COPAZA

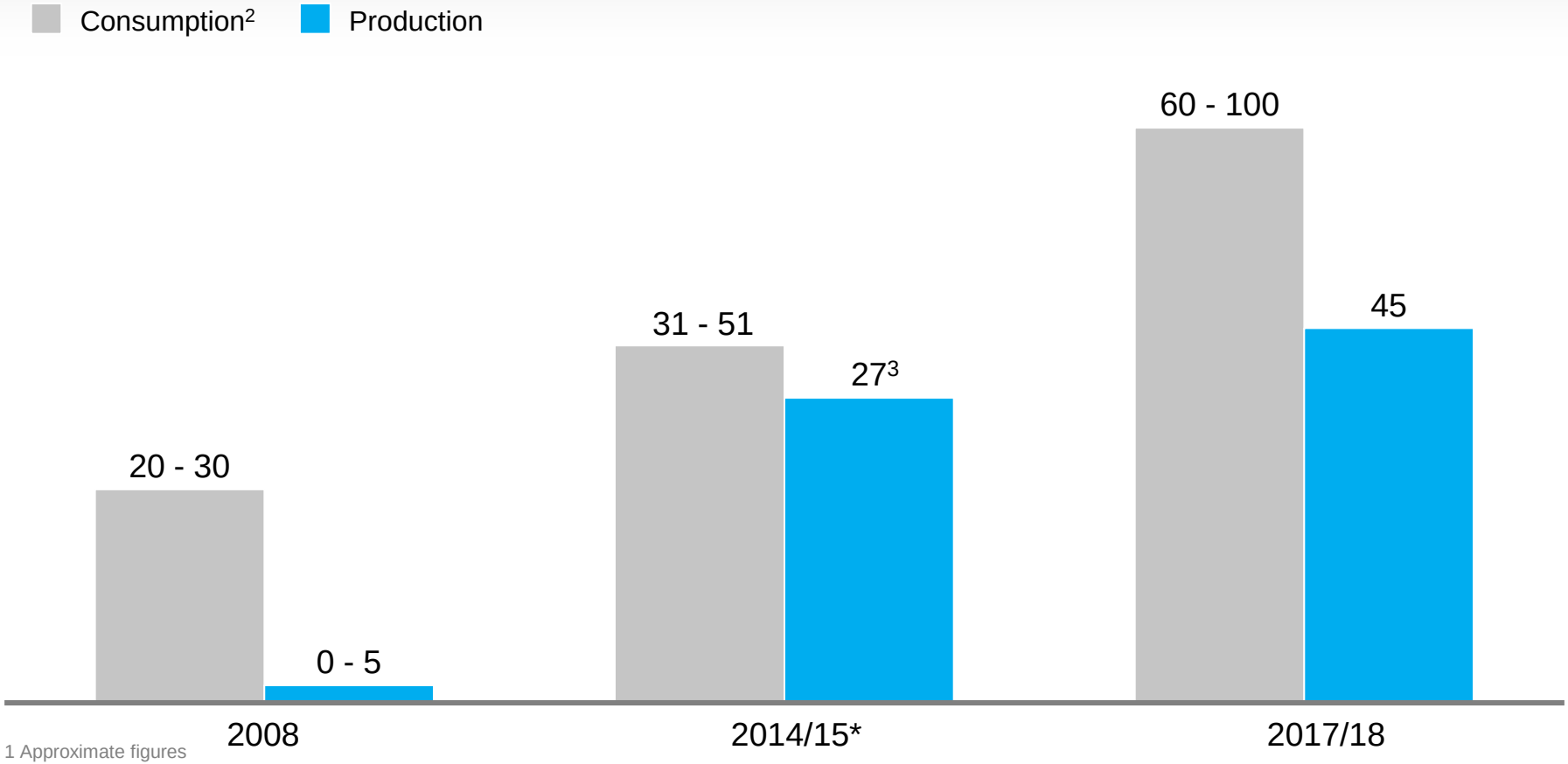
2016 - 2018 Production, TechnoServe Dutch project 2nd phase
- improved the cooperation between SCFs and SHFs
- assisted in the creation of seed company SBS

Source: TNS anlaysis

In the last decade, Mozambique's demand for soybeans increased, driven primarily by soycake demand for the poultry feed industry

Production and demand, Soybean Equivalent[1]

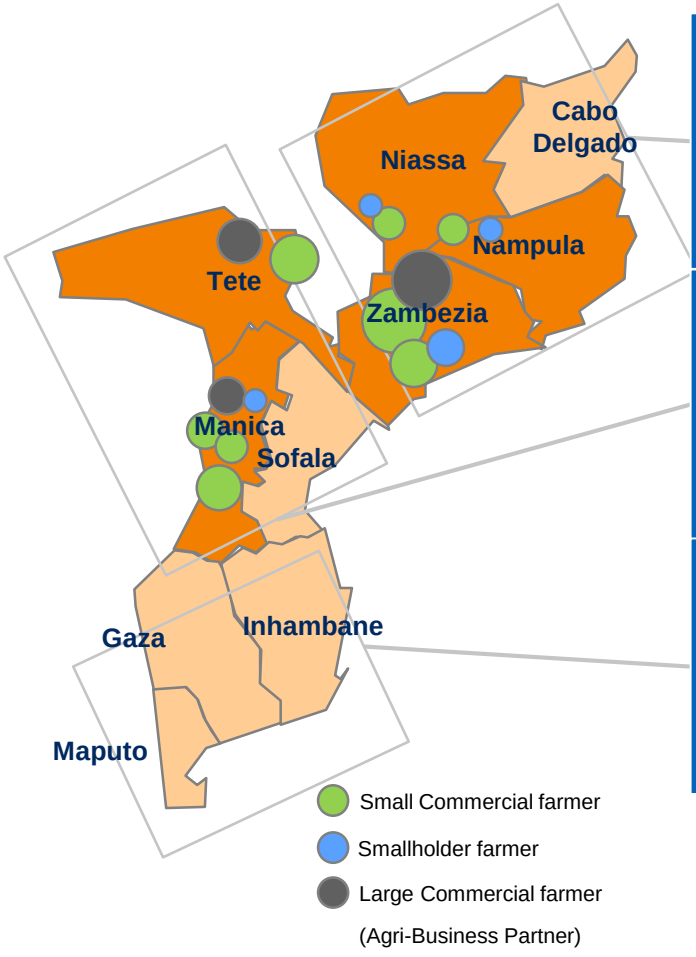
'000 MT



1 Approximate figures
2 Consumption of soybean equivalents for soycake ; exports of soybeans and soycake are also included in the figures
NOTE: Soy Oil is not included
3 * Production in previous year (2013/14) was 42MT; production in 2014/15 season was low due to adverse weather conditions
4 Current domestic demand estimated at 66KMT – exports estimated at 16kMT; Poultry processing plants can raise domestic demand up of ~100KMT, at full capacity

SOURCE: IAMA, TNS analysis; TNS interviews

Mozambique can be separated into three regions (North, Center, and South) that have different characteristics relative to soy industry

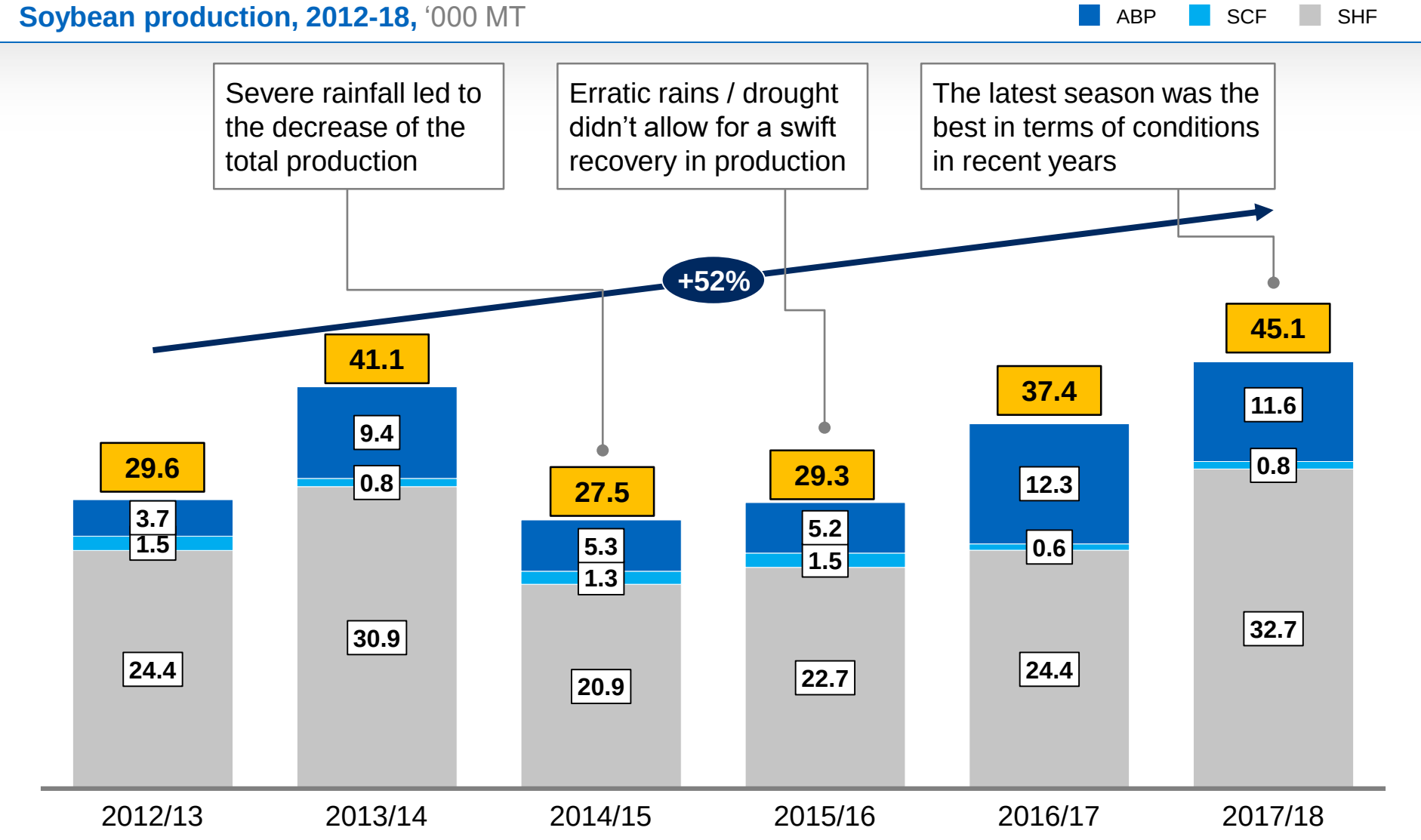


	Soil characteristics	Soy history	Demand	Proximity to demand
North	▪ Good conditions for soy, particularly in some areas of Cabo Delgado, in the highlands of Niassa, and North Zambezia	▪ Production mainly in Lioma, Zambezia ▪ Production growth in the last 10 years	▪ Demand is mainly located in Nampula ▪ Mainly driven by poultry	▪ Current demand (Nampula) is positioned close to production (northern Zambezia)
Center	▪ Good conditions for soy, particularly within Manica and some districts of Sofala ▪ Some areas in northeastern Tete (Angonia, Tsangano) are suitable as well	▪ Production mainly in Tete (Angonia, Tsangano) in the border with Malawi and Manica	▪ Demand is located near Chimoio ▪ Mainly driven by poultry	▪ Current demand (Beira, Sofala) is positioned close to production (Manica and Tete) ▪ Informal trade also occurs with Malawi
South	▪ Poor agricultural conditions for the soy due to the drier climate and sandy soil ▪ Vast non-arable land farther from the coast	▪ No soy production currently occurs in the South	▪ Large demand in Maputo ▪ Poultry sector drives demand	▪ Since no soy production occurs in the South, the nearest production area is in Manica, which is over 1K km from Maputo

SOURCE: TNS

Mozambique's production is dominated by SHFs and has increased steadily to ~45,000 MT, despite very challenging weather conditions in the last years

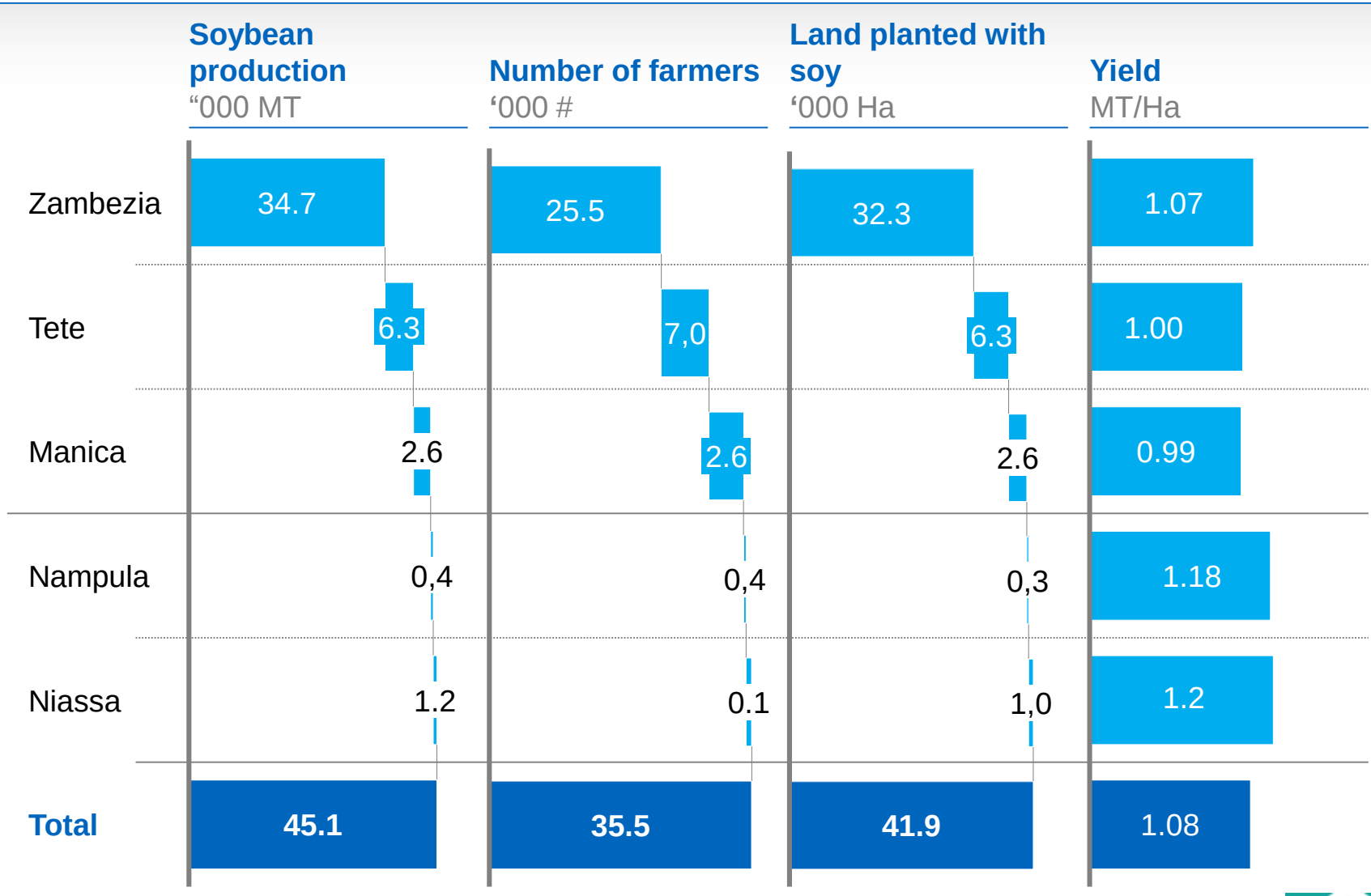
Soybean production, 2012-18, '000 MT



Source: TNS analysis

~80% of the total production comes from the region of Zambezia, while the region has one of the highest yields

Soybean production, number of farmers, land and yield by province 2017/18



Source: TNS analysis

Soybeans are processed into soycake and soyoil, while Mozambique exports mainly unprocessed soybeans

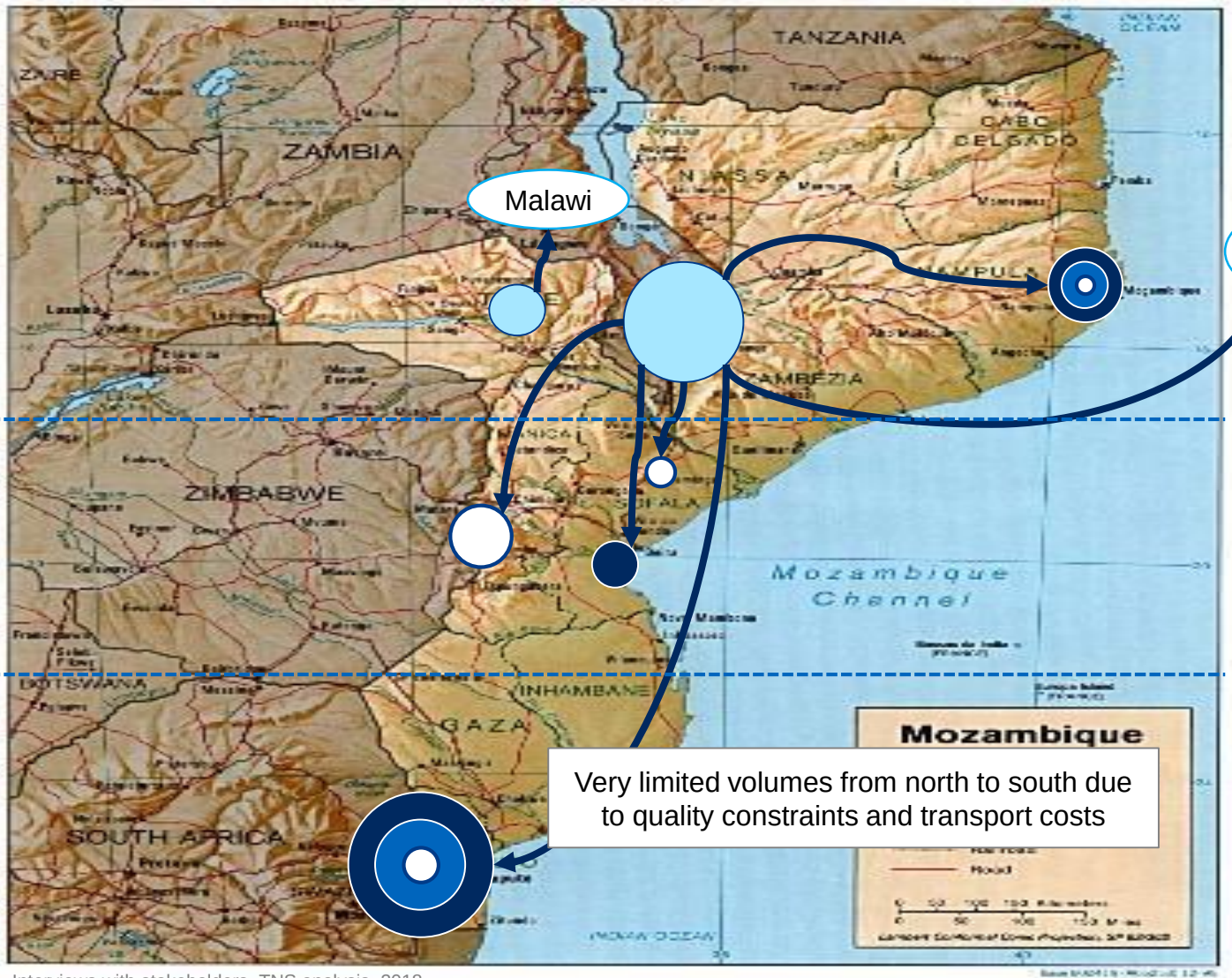
2017 – 2018 Trade flows

Soybean consumption
Soybean production
Soycake consumption
Soy Oil consumption

North

Center

South



- Approx. 16,000 MT originating from the north
- Export flows negligible in the past with the exception of a 3-4000 MT export flow to Nepal in 2014
- May change from year to year depending on global trade scenarios

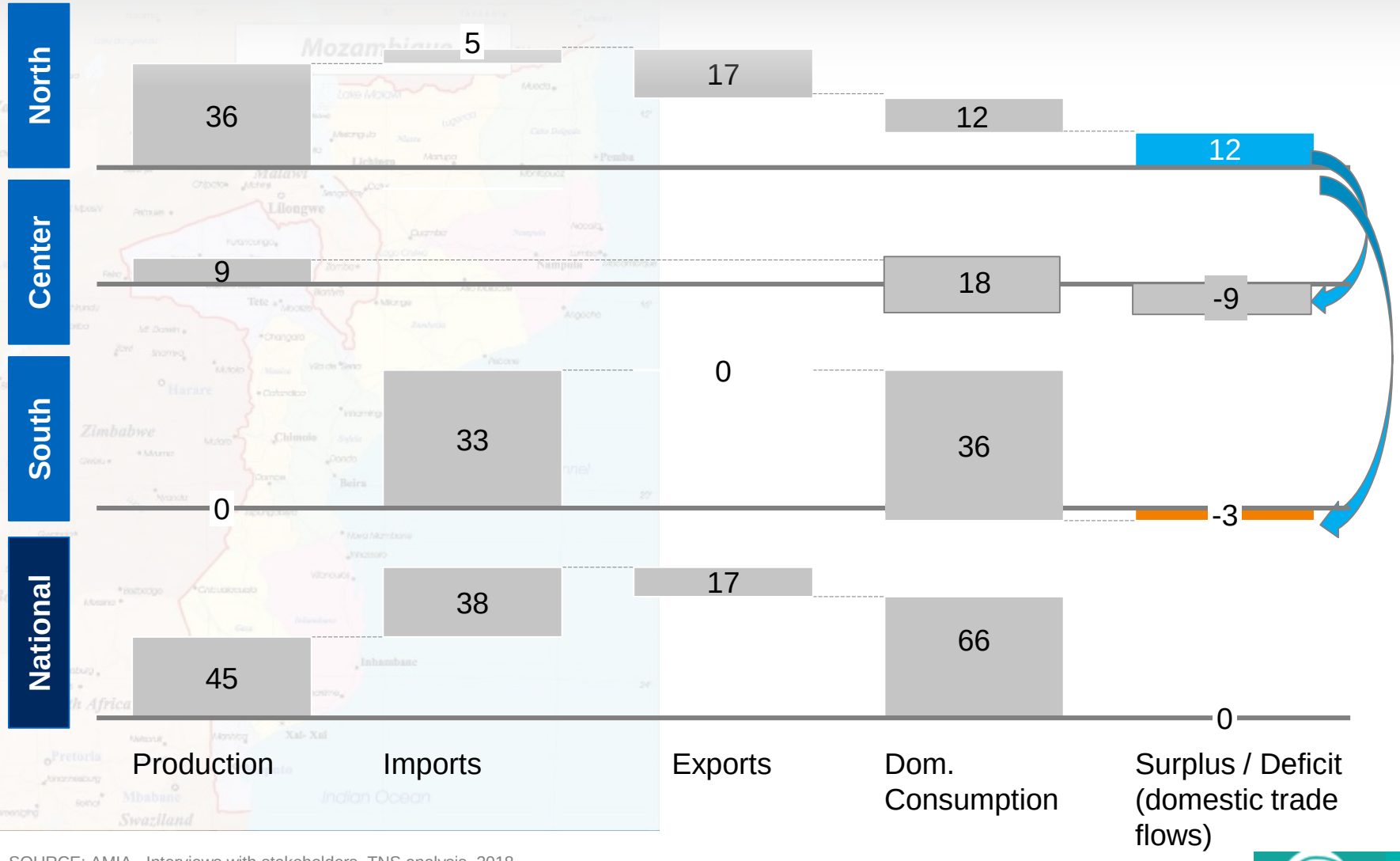
SOURCE: AMIA, Interviews with stakeholders, TNS analysis, 2018

A regional breakout reveals that the North/Center region exceeds its demand through production, while the South has a huge deficit

ESTIMATES

Regional Breakout of Soybean Production and Demand,

000 MT, 2018

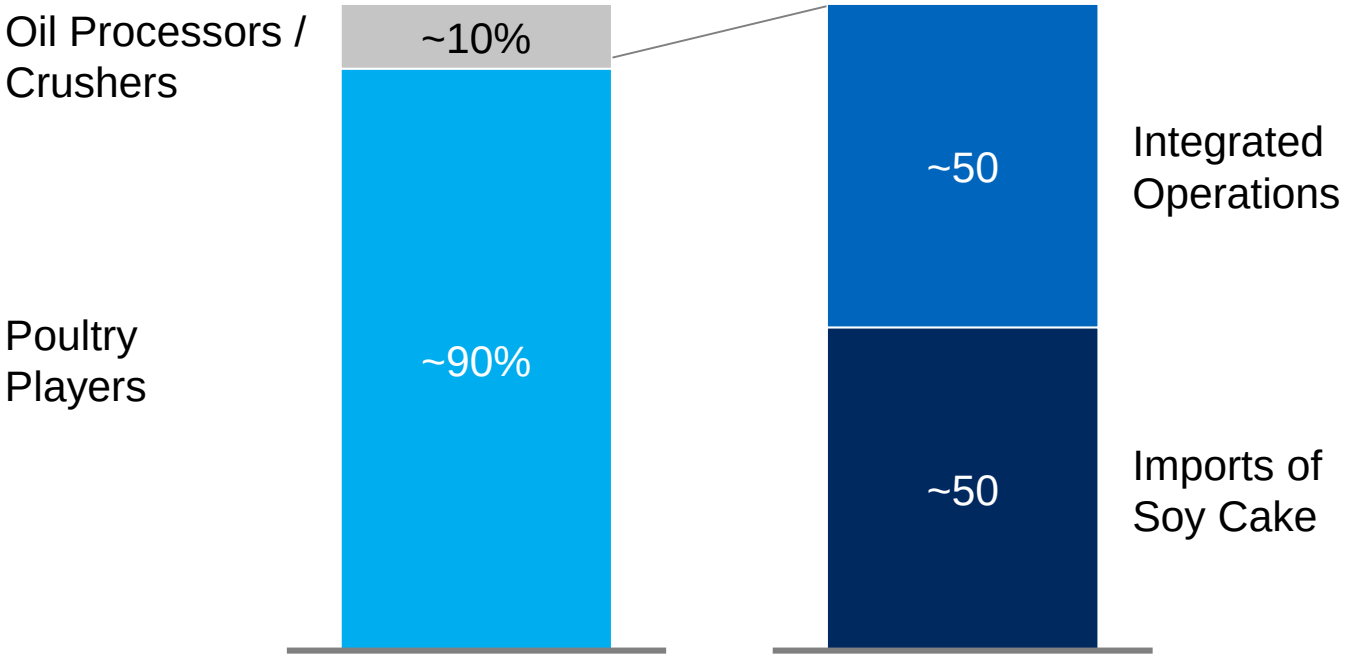


SOURCE: AMIA, Interviews with stakeholders, TNS analysis, 2018

Demand for soybeans is driven by integrated poultry players interested in soycake, and not by oil processors as in other neighboring countries

Distribution of processing sites per type of operations

% of total Soybean demand



Key Insights

- **In Mozambique, the majority of demand comes from the poultry industry, though only 50% poultry players buy soybeans for feed while the rest import soy cake**
- **In Malawi by contrast, the majority of soybean processors are oil processors which crush for oil and export the by-product of soycake to neighboring countries (in 2017-2018, ~4KMT of soycake was sold from Malawi to processors in Mozambique)**

SOURCE: TNS analysis

Contents

Despite rapid growth, the industry continues to face challenges along the value chain

1 Inputs

- Limited understanding of SHFs of importance of quality seed
- Inability to afford access to quality seed, inoculants, fertilizers and irrigation for most SHFs

2 Production

- Sub-optimal agronomical practices
- Limited access to mechanization
- Absence of final product certification for soybeans
- Lack of availability of qualified labor

3 Aggregation and transport

- Aggregation costs from many SHFs are high and currently inefficient
- High cost of transport from North to South
- Lack of storage and warehousing options can affect the quality of the final soybean product
- Lack of transparency on farm-gate prices

4 Processing

- Volatile / high price of raw material (influenced by global demand / exporters) makes operations less competitive
- Lower quality of local soybeans
- Sub-scale operations
- Currently no processing for human consumption

5 Marketing and logistics

- High cost of transport from North to South
- Increasing competition from imports

7 Enabling environment

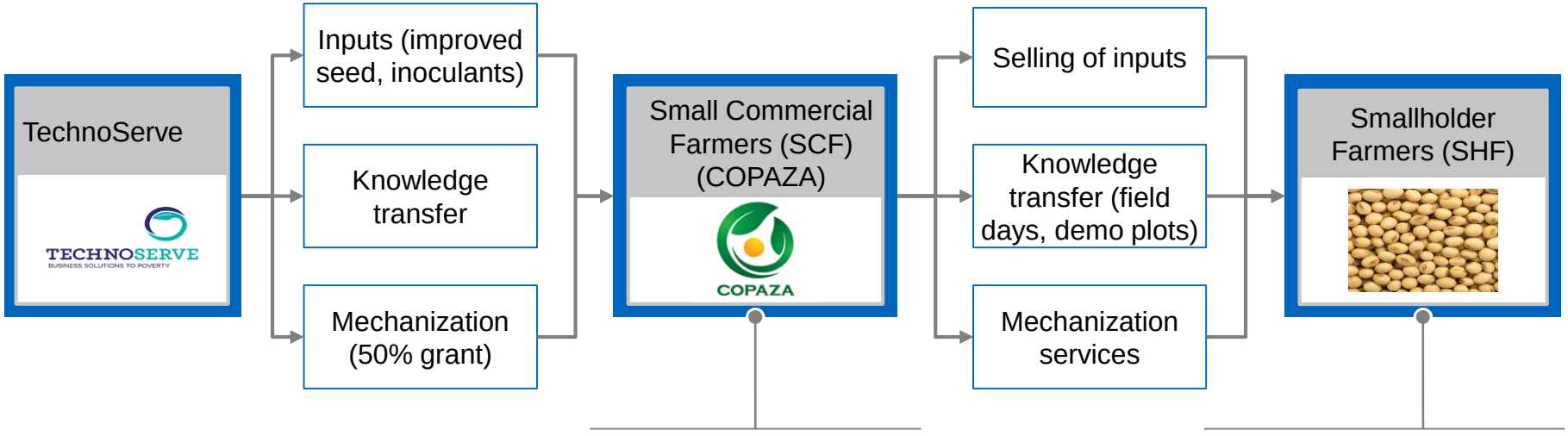
- VAT-free and Duty-free import of soy cake makes it harder for producers in north to sell to southern processors
- Limited access to finance
- Limited Government extension services
- Limited R&D in seed / technologies

Inputs: Increased use of mechanization services and improved seed through COPAZA / “Small Commercial Farmer” model; limited use of other inputs

	Current situation	Key constraints
Seed	• Improved seed use is driven by COPAZA / SCF seed multiplication program • SHFs are dependent on continued government/donor programs (IITA, SUSTENTA, other..) for their seed needs • Initial small investments by commercial seed companies in direct supply to SHFs but limited reach to date. International companies tend to prefer to import seed than multiply locally, though some local seed companies have local multiplication	• Use of retained seed alongside improved seed leads to risk of mixing varieties and reduced overall seed quality, in turn reducing yields • SHFs not yet using improved seed may need additional exposure • Seed loans are often not repaid, without consequence, leading to lack of willingness by SHFs to pay for seed (donor culture)
Other inputs: fertilizer, inoculant	• Inoculants have a high return on investment, yet there’s still low adoption by SHFs • Inputs are mainly bought in local markets rather than from ABPs due to cost • No pressing need / compelling case for use of fertilizer	▪ SHFs not willing to spend on inoculant despite seeing its impact in demoplots ▪ Farmers apply pesticide less than the recommended 3 times ▪ Lack of inoculant supply chain leading to lack of access for most SHFs
Mechanisation	• Through the TNS project all COPAZA SCFs have machines, who they also rent to SHFs • SHFs are willing to pay for mechanization	▪ Limited availability of machinery does not satisfy demand ▪ Lack of spare parts and representation of companies
Irrigation	• Most SHFs are not using irrigation for soy grain production, though some have irrigation for vegetable production as a second crop. • Opportunity to promote irrigation solutions and increase use of (micro-)irrigation	▪ SCFs need further training to understand the opportunity in micro irrigation, and access to irrigation equipment

SOURCE: TNS analysis

TechnoServe has built a soybean value chain center around the Small Commercial Farmer model



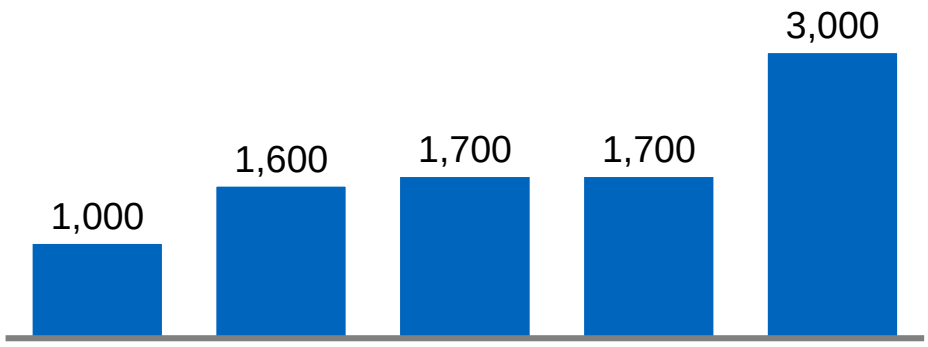
- New class of farmers, developed from SHFs with the help of TechnoServe
- Between 2 and 100 ha
- SCFs have joined the co-operative COPAZA
- SCFs produce certified seed locally for sale to SHFs

- Less than 2 ha on average
- Mainly or all family labor
- Limited access to/use of improved technologies, inputs and markets

SOURCE: TNS analysis

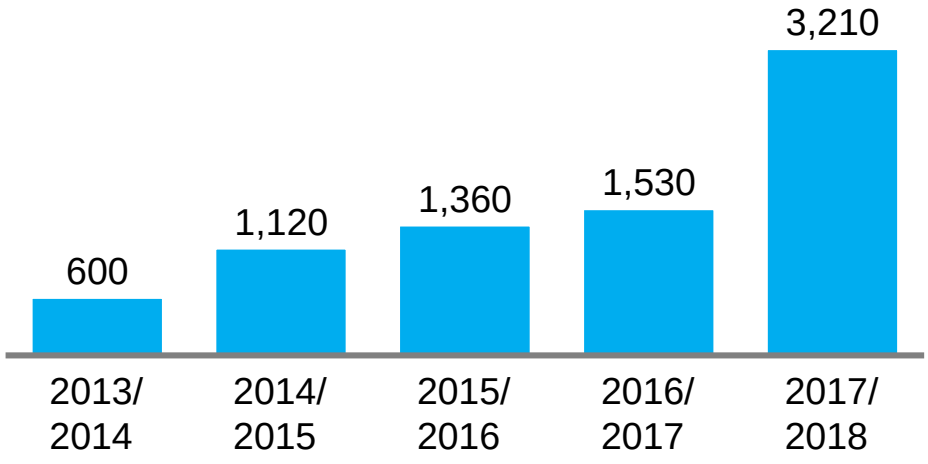
During the course of the last 5 years, the number of SHFs assisted by SCFs has tripled

Number of SHFs assisted by COPAZA, 2013-2018



Significant increase in the season 2017/2018 due to expansion of field days, training sessions

Soybean hectares of SHFs assisted by COPAZA, 2013-2018

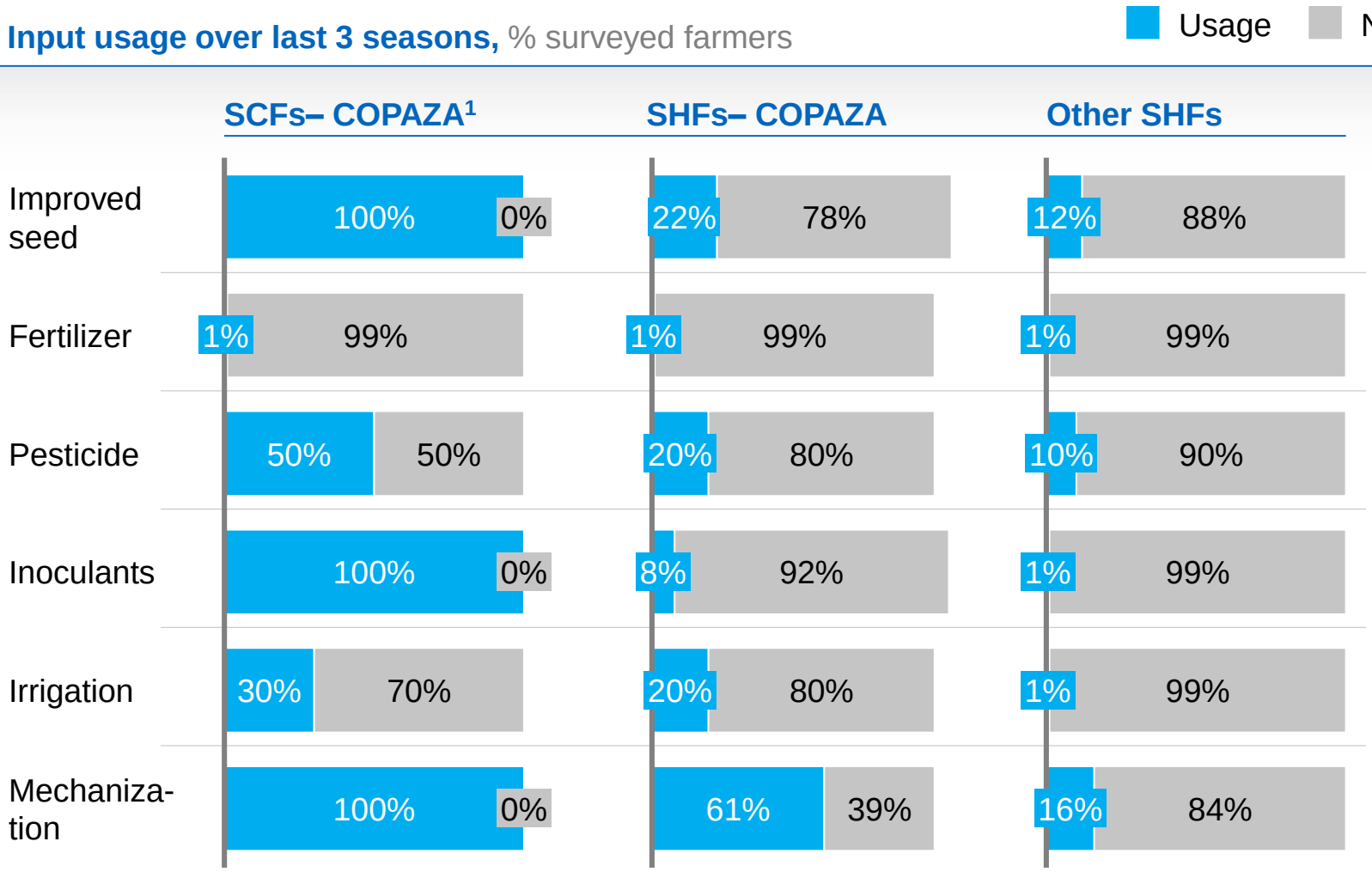


Land used for soy-bean production started at 0.6 hectares per farmer in season 2013/2014 and in season 2017/ 2018 has reached 1.07 ha/farmer

SOURCE: TNS analysis

SHFs supported by COPAZA members use significantly more inputs than other SHFs, particularly seed, pesticide, irrigation and mechanization

Input usage over last 3 seasons, % surveyed farmers



1 SHFs that are assisted by COPAZA through knowledge transfer, mechanization renting or selling of inputs. % represents % SHFs who have used these inputs/services within the last 3 years

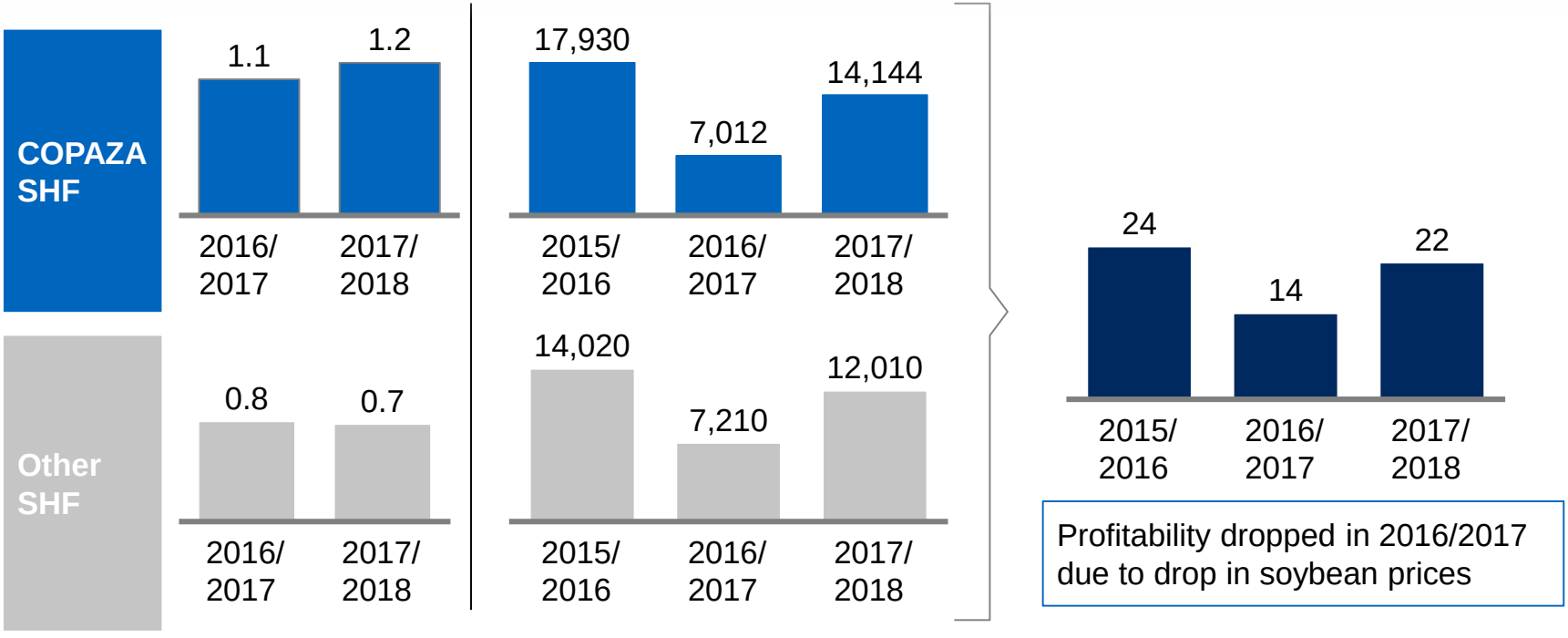
SOURCE: survey of 800 Small Holder Farmers on improved seed, inoculants, mechanization (control and intervention group), team analysis

… while their yields and profits are significantly higher than those of non-supported SHFs

SHF yield, Ton/Ha

Gross profit from soybean per year/ SHF, MZN

Soybean farmgate price (avg) MZN/kg



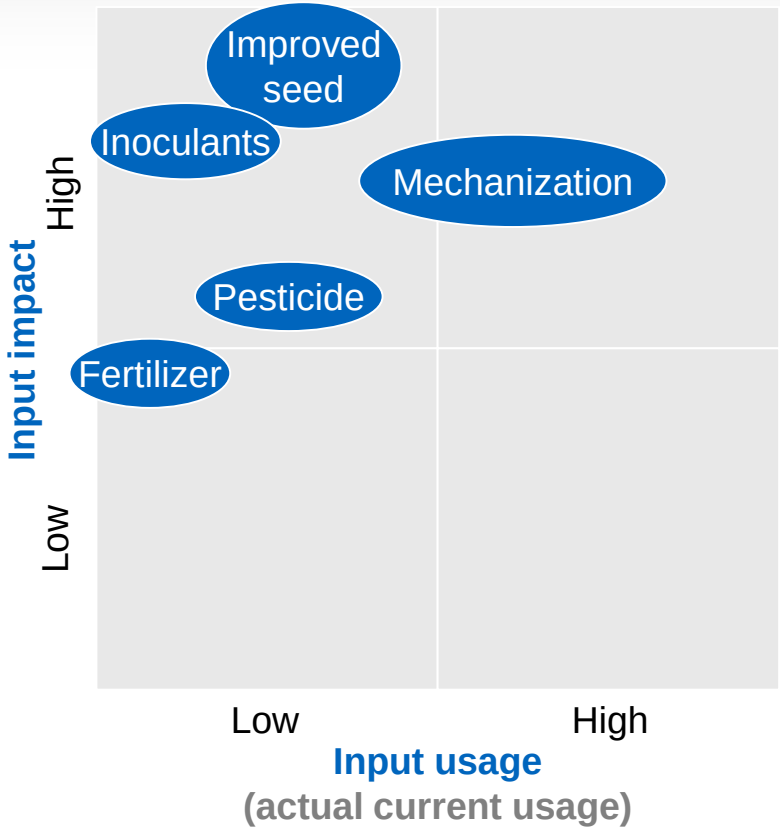
Profitability dropped in 2016/2017 due to drop in soybean prices

The numbers presented relate only to soybean production; the total impact over all crops is greater

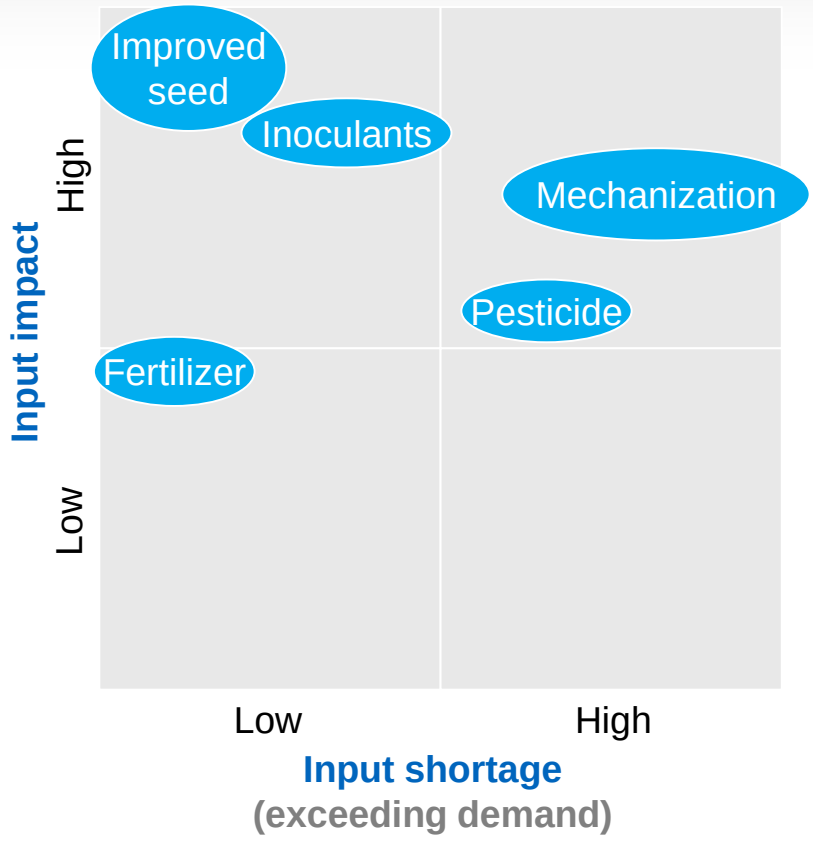
SOURCE: Survey of 800 Small Holder Farmers (control and intervention group), team analysis

Overall input availability is low, with mechanization services not meeting SHF demand; yet there is recently an excess supply of improved seed

Input usage and impact matrix,
SHFs COPAZA*



Input shortage and impact matrix,
SHFs COPAZA*



* SHFs that are assisted by COPAZA through knowledge transfer, mechanization renting or selling of inputs. COPAZA is a cooperative consisting of 33 “Small Commercial Farmers” (SCFs) which multiply and sell seed, and provide mechanized services and advisory services to local SHFs

SOURCE: Survey of 500 Small Holder Farmers, team analysis

Production: lack of availability of qualified labour, and poor production practices (low level of technical know-how)

	Current situation	Key constraints
Land	• In the last 10 years the number hectares has increased to the point that in some areas (especially around Gurue) there is not enough land to cultivate • Due to lengthy procedures, most SHFs do not have land title (DUAT)	• Lack of land limits opportunities for farmers and implies longer commutes (sometimes also to nearby provinces) • Lack of DUAT limits access to credit
Labor	▪ Many families do not have sufficient household labour to manage existing soy production, or to increase ha planted/managed – and may struggle to hire labour due to lack of finance or lack of labour in the area	• Lack of or limited labour and/or availability of mechanised services results in late planting and reduced yields; and limited ability to plant available land • Labor is becoming increasingly expensive in the peak months of January-February-March due to lack of capacity
Agronomical practices	• SHF production practices are generally poor: farmers tend to food needs first and soy – a cash crop – second, resulting in late planting, poor weeding • Few SHFs use improved inputs • Government extension services are very few, and are supplemented by NGO extension, but still there is shortage in certain aspects (access to mechanization)	• Many farmers lack sufficient extension services to assist them to improve production practices • Lack of funding coupled with lack of willingness to pay for inputs result in lower yields

SOURCE: TNS analysis

There are 3 major categories of soy farmers currently in Mozambique

Small holder farmers (SHFs)

- Less than 2 ha on average
- Mainly or all family labor
- Limited access to/use of improved technologies, inputs and markets
- Majority of farmers fall into this category

Small commercial farmers (SCFs)

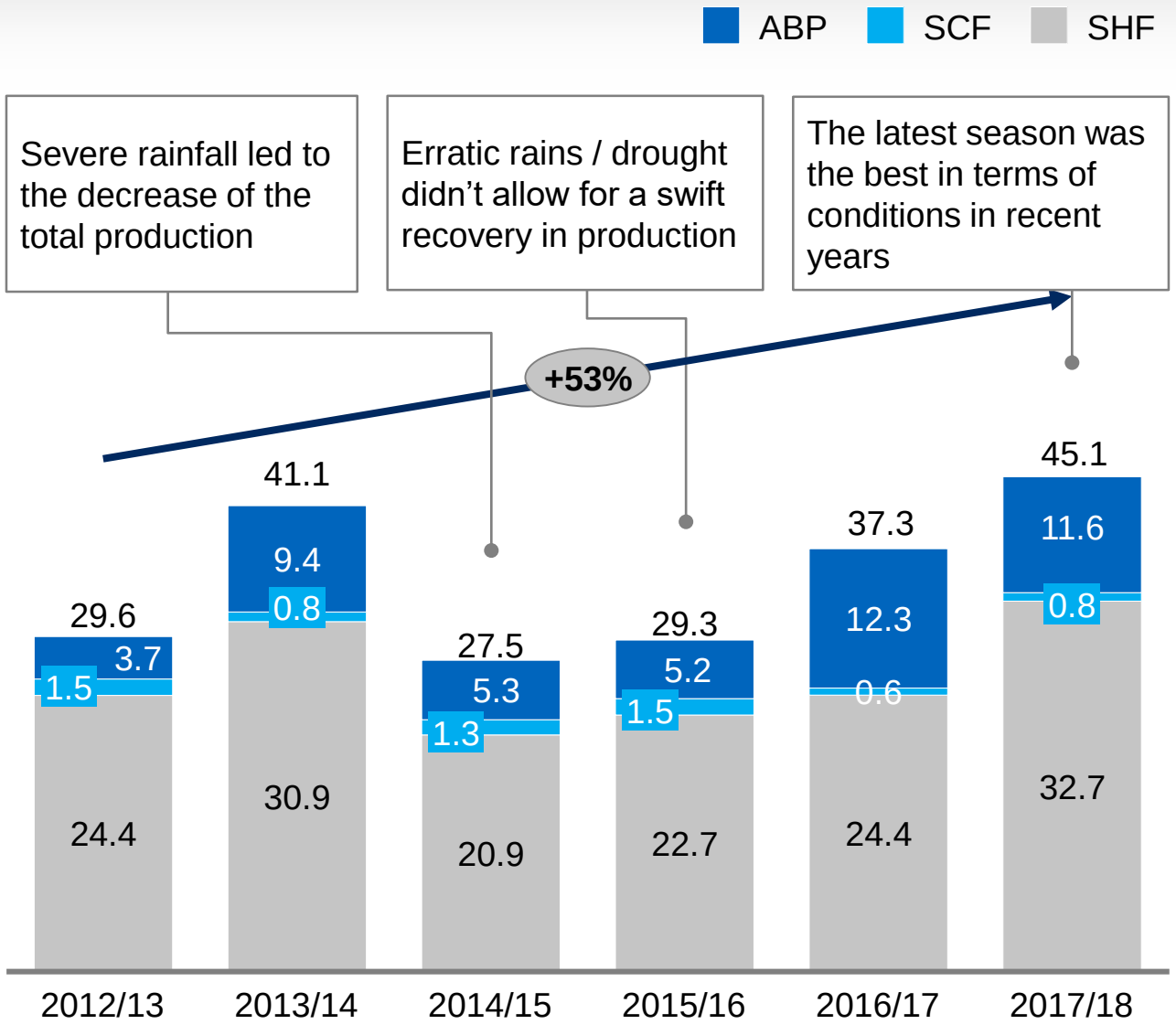
- Between 2 and 100 ha
- Used hired labor and machinery and may use irrigation
- Strong ability to reach and risk with traders and markets
- Demonstrate “best practices” and provide mechanization services to SHF
- New class of farmers, the best SHFs

Agro-business partners (ABPs)

- More than 100 ha
- Mechanized and often irrigated
- Well-linked with input and output market
- Small number of ABPs, often (partially) foreign owned

Production is still dominated by SHFs and has increased steadily to ~45,000 MT, despite very challenging weather conditions in the last years

Soybean production, 2012-18, '000 MT

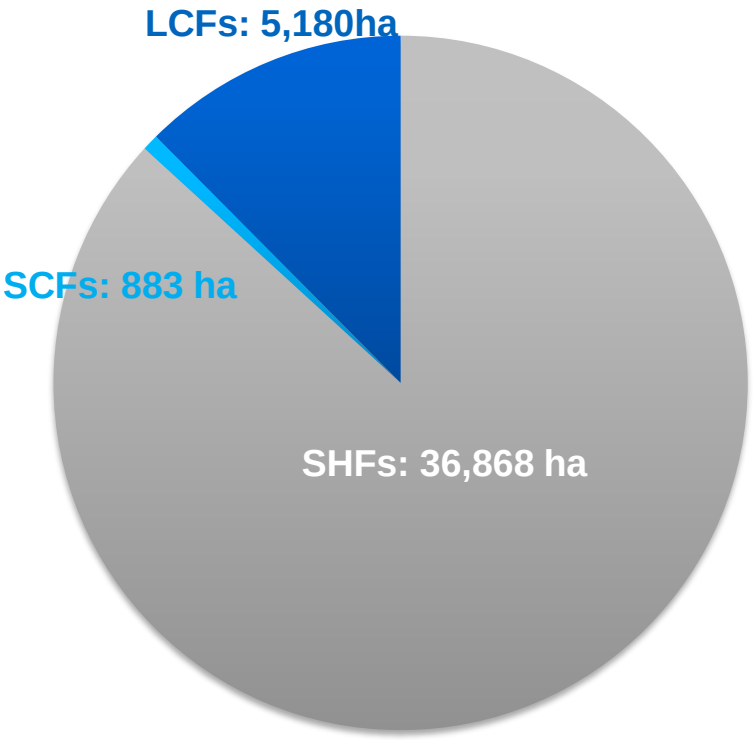


Key insights

- **Only this season production recovered from the severe weather conditions of seasons 2014/2015 and 2015/2016**
- **73% of this year's production comes from SHFs; 77% comes from the region of Zambezia**
- **SCFs have started (and are expected to continue) turning to seed production in the coming years, as it is more profitable than grain**

Currently SHFs make up around 86% production by area (73% volume), and 2 major large scale farms a further 13%

2017-2018, ha



Major LCFs

Company	Location	Ha in 2017/18	Tons in 2017/18
Hoyo Hoyo	Gurue	2,500	5,500
Agro Moz	Gurue	2,200	4,840

Key insights:

- Soybeans are an attractive cash crop for SHFs vs. other options; the number of large ABPs who are producing soybeans is declining as ABPs can deploy their significant technical capacity in more profitable crops
- The number of SCFs cultivating soybeans has decreased over the last few seasons as well as more and more SCFs focus on seed

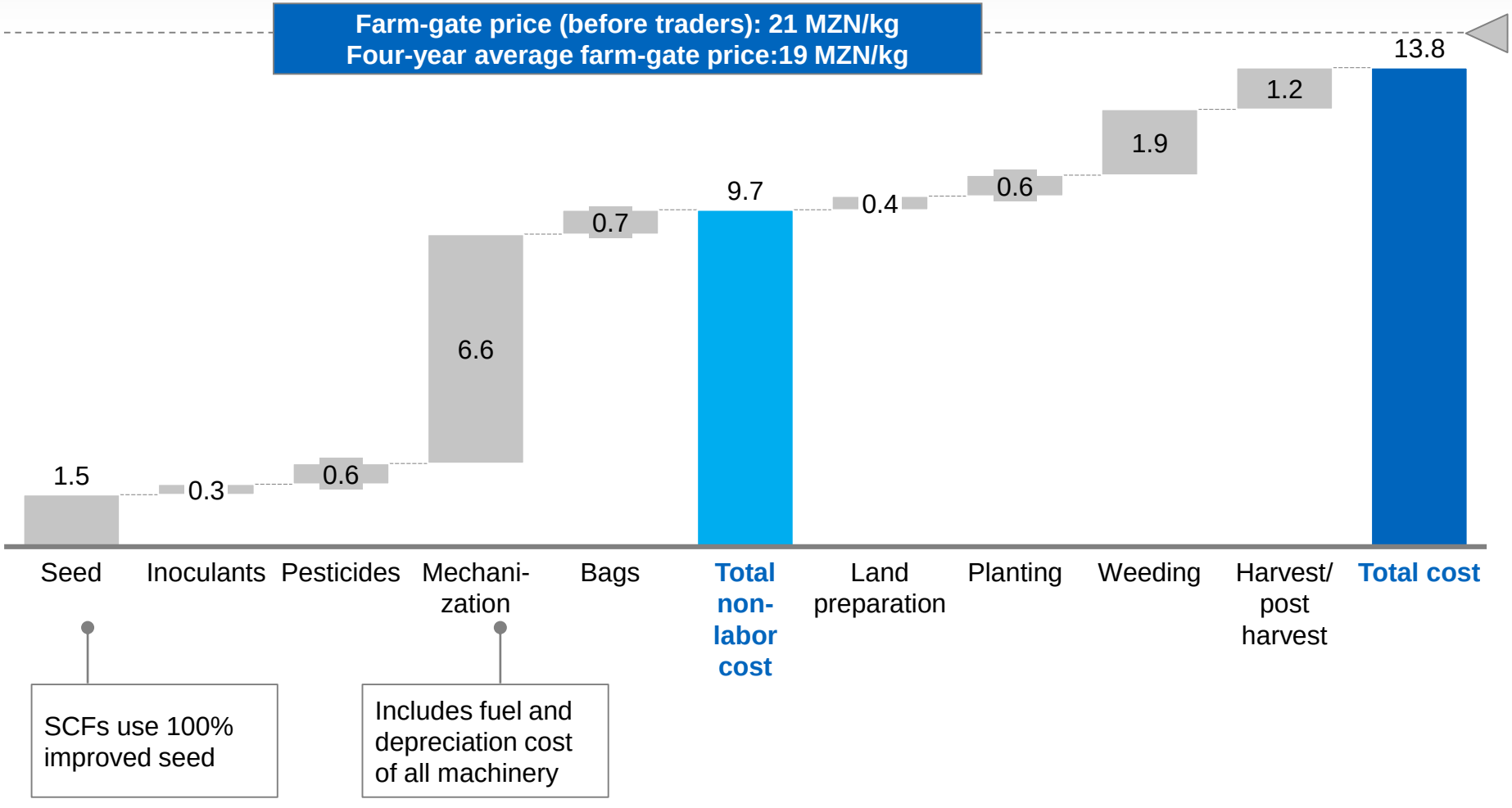
SOURCE: TNS interviews

Small commercial farmer production costs are ~14 MZN/kg, selling this season at a profit margin of 33%

Soybean production cost breakdown for Small Commercial Farmers

2017-18, MZN/kg, assumed yield 1.20 MT/Ha

Cash cost breakdown | **Non cash cost breakdown**



SOURCE: TNS analysis

Small holder farmer production costs are ~16 MZN/kg, with cash cost representing ~7 MZN/kg

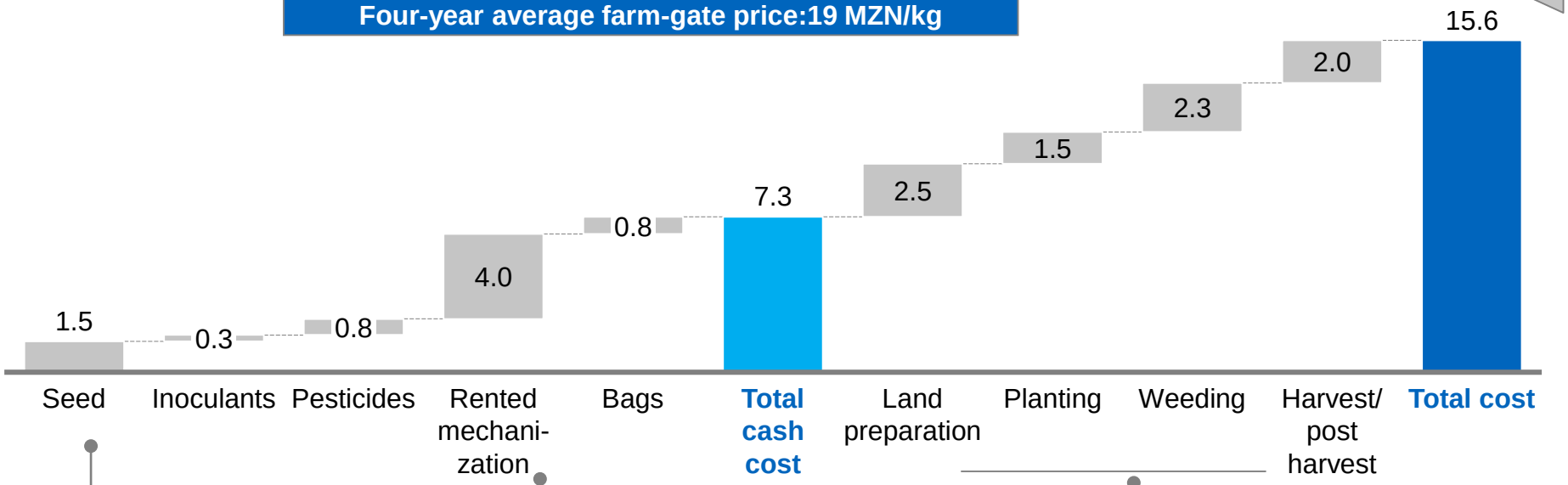
Soybean production cost breakdown for small holder farmers assisted by COPAZA

2017-18, MZN/kg, assumed yield 1 MT/Ha

Cash cost breakdown

Non cash cost breakdown

Farm-gate price (before traders): 21 MZN/kg
Four-year average farm-gate price:19 MZN/kg



Calculated based on mix of 83% of grain and 17% of improved seed that SHFs bought from SCFs

Non-COPAZA supported SHF have lower yield and higher cost

- Average based on split 60%/40% mechanization non-mechanization
- SHFs who use mechanization usually don't use it for all activities (e.g. ploughing, planting, threshing)
- For farmers who use 100% mechanization this cost is 12.000 MZN/MT

Average based on split 60%/40% mechanized/non-mechanized SHFs
For farmers using 100% mechanization the labor cost is

0.5	0.7	2.3	1.4
Land preparation	Planting	Weeding	Harvesting

SHFs usually use own family labour, so categorized as a non-cash cost

SOURCE: TNS analysis

Some cost elements have been steadily increasing due to inflation and currency fluctuations; while seed/grain and labor fluctuate based on soybean price

	Cost insights
Mechanization	▪ Mechanization costs increased due to increase in fuel price
Seed/grain	▪ Cost of seed and planted grain fluctuates between 1.1-1.6 thousand MZN/ha due to fluctuation in price of soy grain
Inoculants/ pesticides	▪ Price of inoculants and pesticides is greatly affected by inflation and currency fluctuations, as all materials are imported
Labor	▪ Labor cost fluctuates greatly based on soybean price and disproportionately affects the profitability of SCFs ▪ Labor demands payment based on expectations on last year's soy bean price – In season 2015-2016, the soy bean price was considered high (25 MZN/kg) and labor cost amounted to 6.9 thousand MZN / ha – In season 2016-2017, laborers asked for a cost amounting to 7.5 thousand MZN / ha, yet the soy bean price dropped to 16 MZN/kg

SOURCE: TNS analysis

Marketing and logistics: need for cheaper in-country transportation options

	Current situation	Key constraints
Transport	▪ Current transport costs from central/northern Mozambique producer regions to Maputo can be 4-6Mt/kg – representing 20 – 25% of the soybean value ▪ Logistics cost of Nacala port high	▪ Southern poultry producers prefer to import soy cake than cover transport costs from northern Mozambique – this limits potential domestic market size SHFs can access
End buyers	▪ Most end buyers prefer to buy through aggregators e.g., commercial farms, Small Commercial Farmers	▪ Some small farmers cannot access end buyer markets, and are disadvantaged by selling through traders ▪ Some SHFs may not be able to access markets, despite strong demand
Storage	▪ Significant lack of storage for large scale and smaller scale producers	▪ SHFs lack storage options, limiting ability to wait for higher market prices
Traders	▪ Early traders begin buying as harvesting starts around end March, establishing simple buying points in rural areas and offering low prices – 20-30% below market price once buying season really begins	▪ Cash flow constraints force farmers to sell part or all of their crop early in the season at a price much lower than later in the season ▪ “Speculative” traders exist and farmers sell to them if desperate for cash

SOURCE: TNS analysis

Enabling environment: access to finance and unfavorable policies are the two main constraining factors

	Current situation	Key constraints
Finance	▪ SHFs and SCFs alike lack necessary access to finance to improve and expand production ▪ Commercial banks generally do not loan directly to SHFs and SCFs, except where development partners participate in blended finance models	▪ SHFs do not have working capital for improved seeds, inoculants, other inputs, or mechanised services ▪ SCFs lack capital to invest in machinery, limiting their ability to kick off mechanised services businesses and serve the needs of other local farmers
Policy	▪ VAT not charged on imports of soycake – disadvantages local producers	▪ Increased incentive for Maputo buyers to import rather than source from northern Mozambique – reducing potential market opportunities for SHFs ▪ Additional government policy or incentives to support soy industry – e.g., support to establish additional storage capacity – is lacking – slowing growth of industry and opportunities for SHFs

SOURCE: TNS analysis

Contents

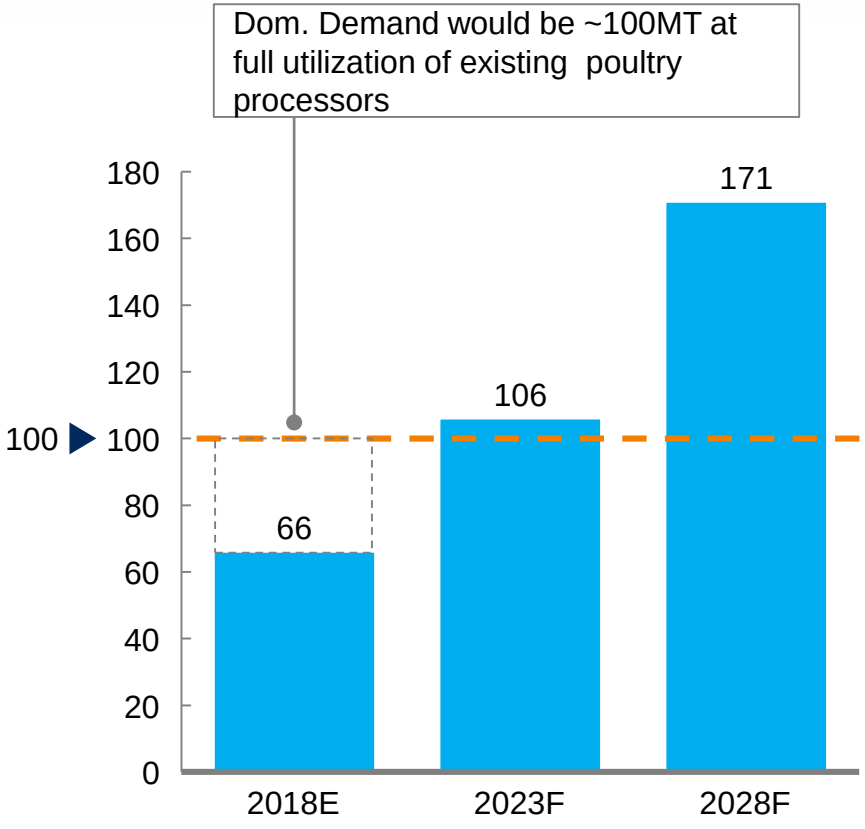
The following section assesses the market opportunity for Mozambique in key soy products

1. Soycake
2. Soy oil
3. Other soy products
   - CSB / fortified porridge
   - Soy chunks
   - Soy milk / yoghurt

The projected growth in the poultry sector translates to increasing demand for soycake, though about 50% of that demand is in the south

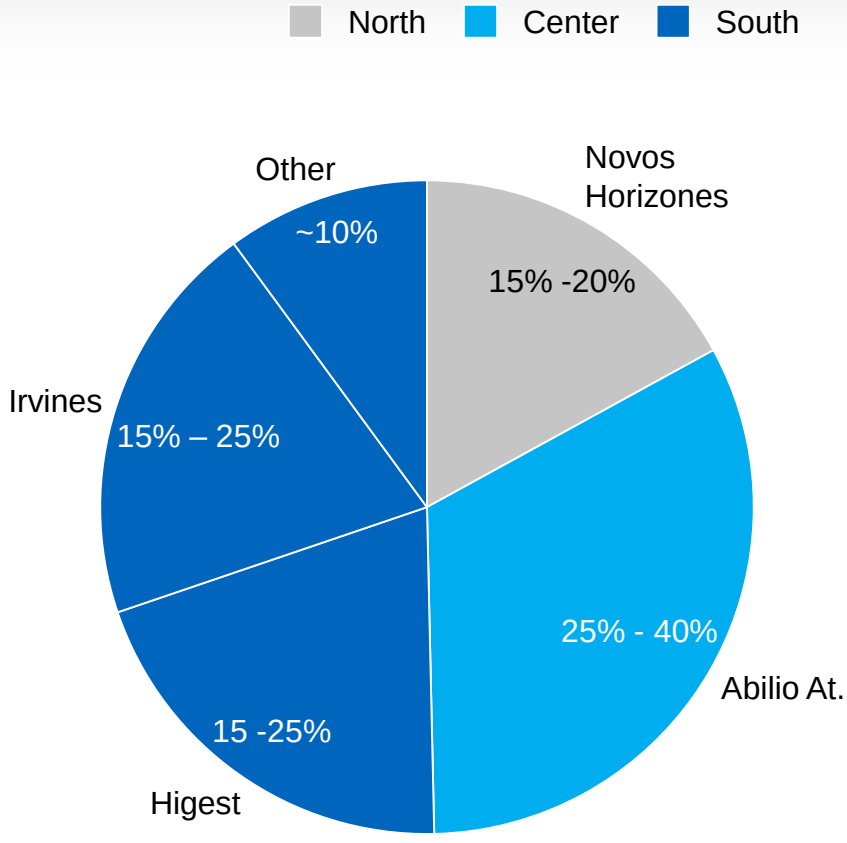
Soycake demand can grow up to 10% p.a. in line with overall poultry market growth

Projected demand for soycake, '000 MT soybeans



Domestic soybean demand by player, Estimates[2],

%

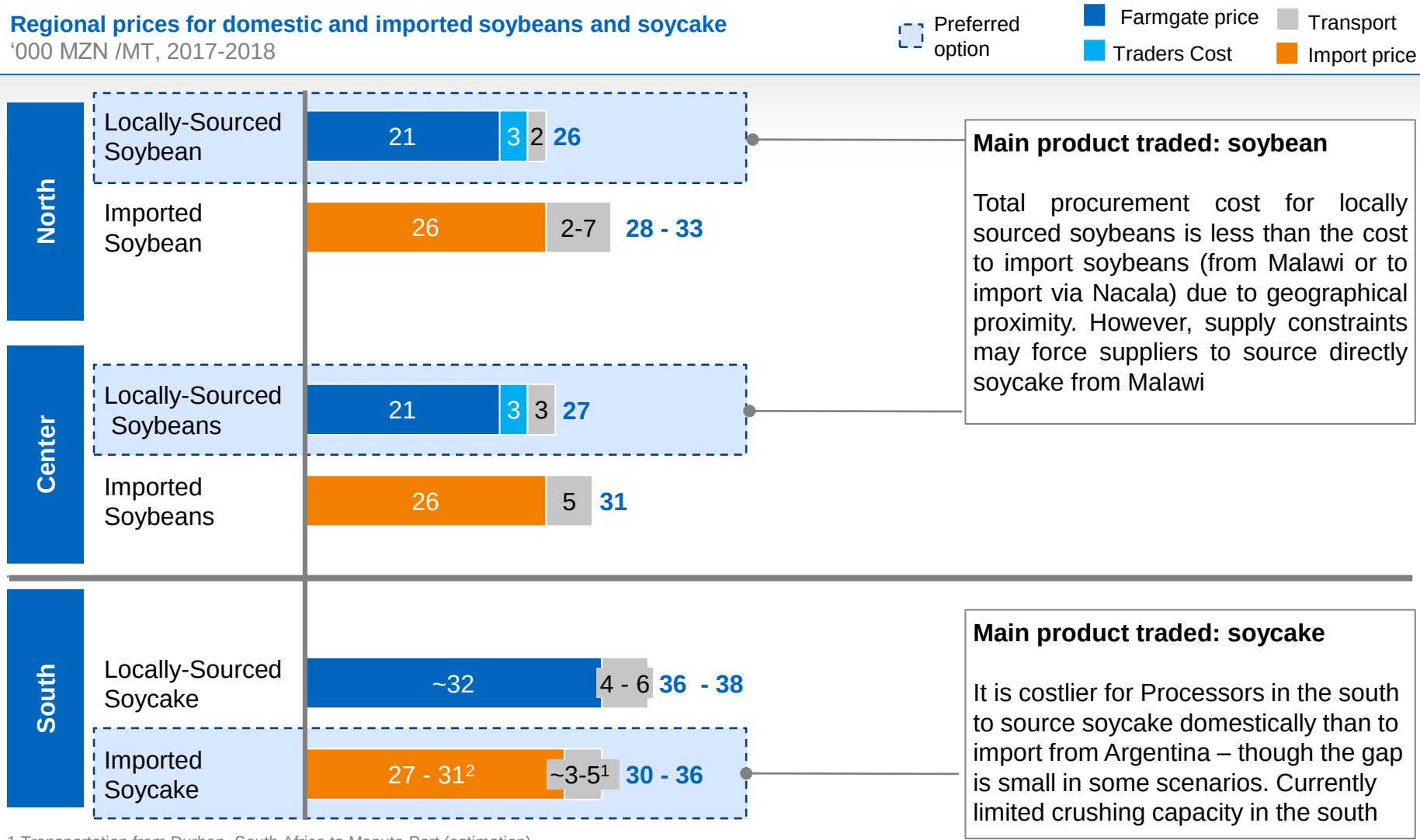


1 TNS Interviews with Poultry players stakeholders, Historic analysis of past years' growth rates, AMA
2 Source: IGC poultry industry study for 2016

At current farm gate and import parity prices, southern processors prefer to import soycake (although local processing is competitive in the north)

Regional prices for domestic and imported soybeans and soycake

'000 MZN /MT, 2017-2018



Main product traded: soybean

Total procurement cost for locally sourced soybeans is less than the cost to import soybeans (from Malawi or to import via Nacala) due to geographical proximity. However, supply constraints may force suppliers to source directly soycake from Malawi

Main product traded: soycake

It is costlier for Processors in the south to source soycake domestically than to import from Argentina – though the gap is small in some scenarios. Currently limited crushing capacity in the south

1 Transportation from Durban, South Africa to Maputo Port (estimation)
2 2018 Price of Soycake sourced from Argentina
SOURCE: TNS Interviews and analysis, 2018

In addition, quality, consistency and other production related issues have prevented southern processors from buying local soybeans

Key challenges identified

Quality issues

- **Soybeans can fall below quality standards in certain properties** affecting the conversion ratio as well as the solubility of the soycake by - product:
  - Purity
  - Size
  - Humidity

Supply challenges

- **Poultry Players require a consistent supply of processed soycake throughout the year,** in order to minimize the needs for working capital, **and therefore a consistent supply of soybeans, which can only be attained by sourcing from intermediaries and** not directly from farmers

Aggregation and batch management

- Domestic production in Mozambique is scattered; the latter is a source of disruption for feed mix processing because **processors have to test, aggregate multiple batches of soybeans** and adjust their formula accordingly

Lack of crushing facilities

- In the Maputo region, **the vast majority of feed players do not have extruders, expellers or solvent extractors**; thus their only option would be to source directly either domestically (few crushing players in the region) or from abroad

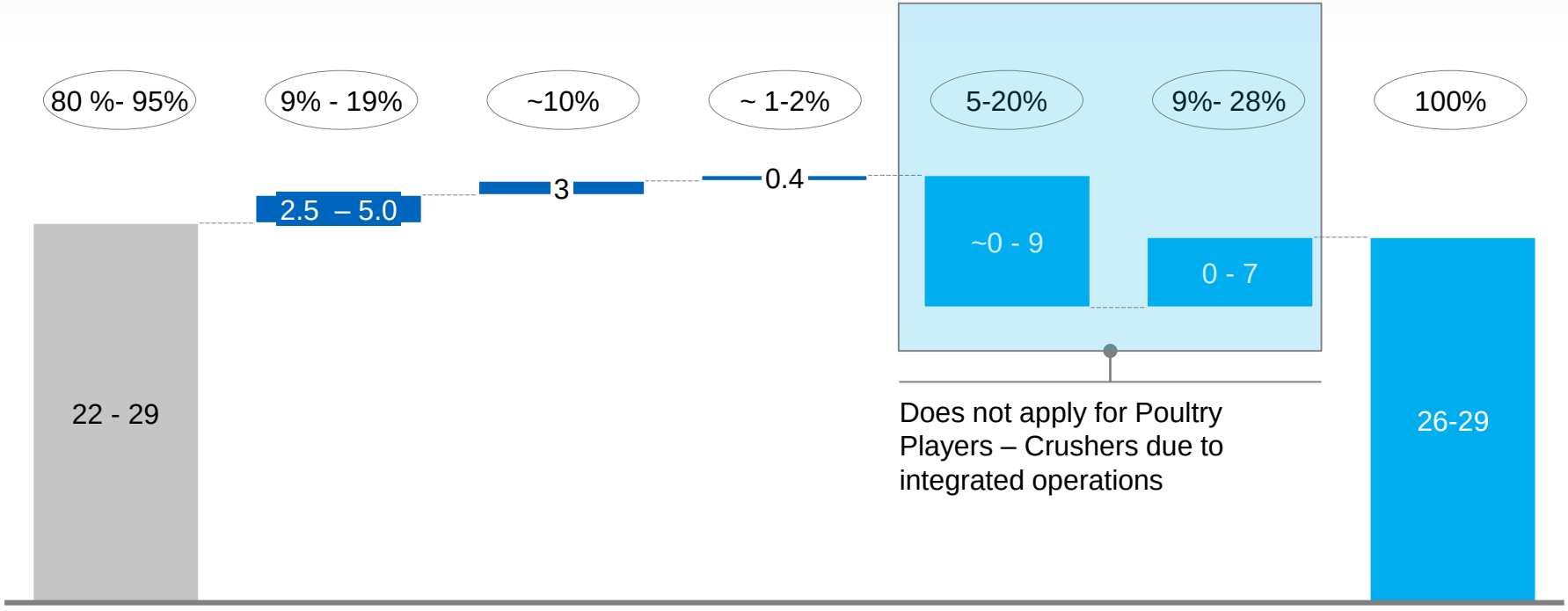
SOURCE: GrainSA; TNS Interviews 2018

Raw materials are the major cost driver of soycake processing, accounting for more than ~80% of the total price

Soy cake
Soy Oil
Other soy products

Value chain addition per step, 2017/18,
'000 MZN / MT of soycake

x% % of final price to Poultry player



Based on 2017-2018 price; 5 year average ranges from 16 – 30 MZN/kg affecting as well the final price of soycake to end customers

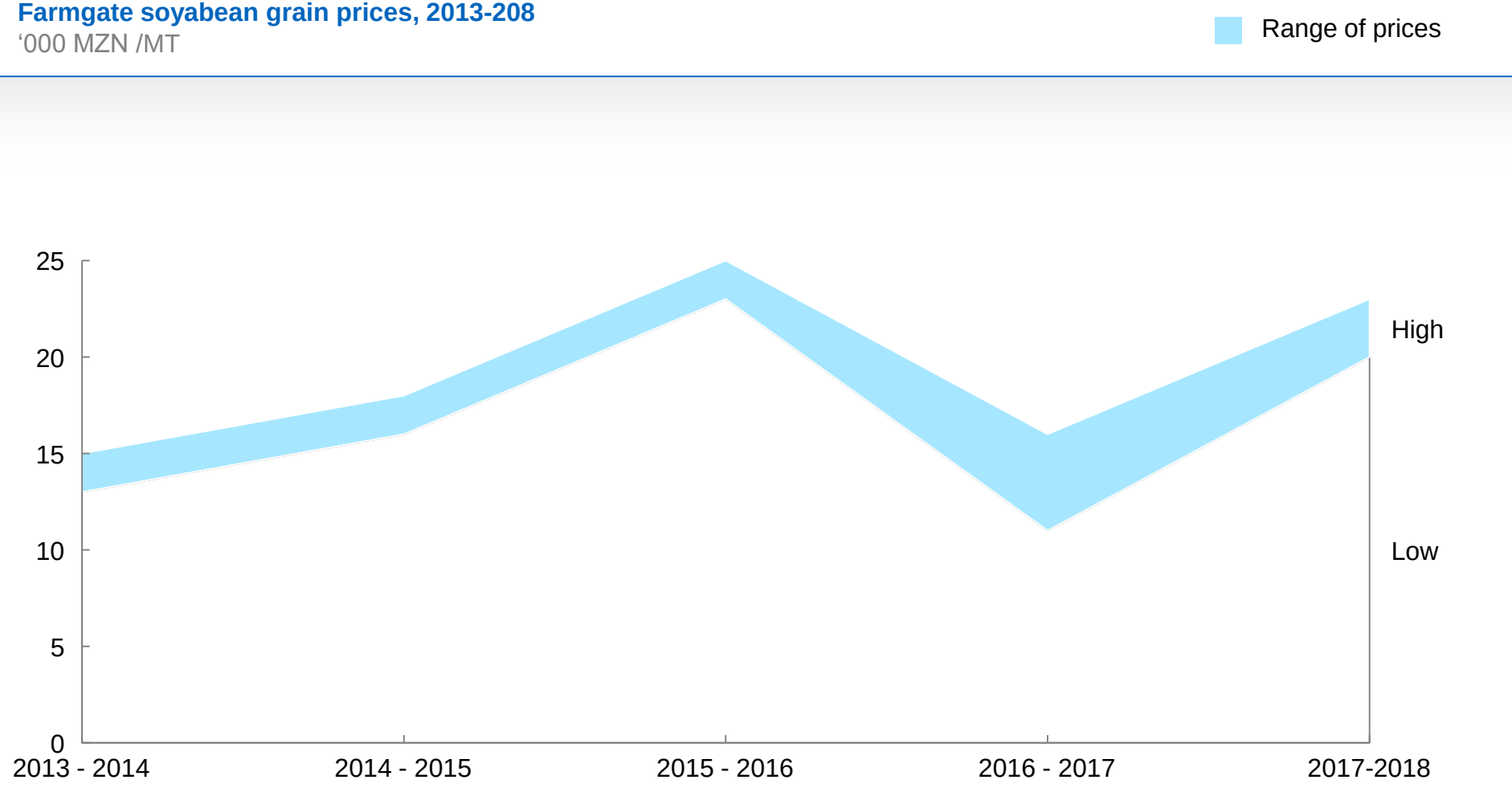
1 Based on the output residuals
2 Price of soybeans per kg of soycake in form of COGS with the hypothesis that the residual 20% is not treated as residual waste but applies as COGS for the processing of Soy Oil

SOURCE: TNS Interviews & Analysis 2018

Farmgate prices have been volatile in the last 5 years; both volatility and recent higher farm-gate prices pose challenges for the local processing industry

Farmgate soyabean grain prices, 2013-208

‘000 MZN /MT



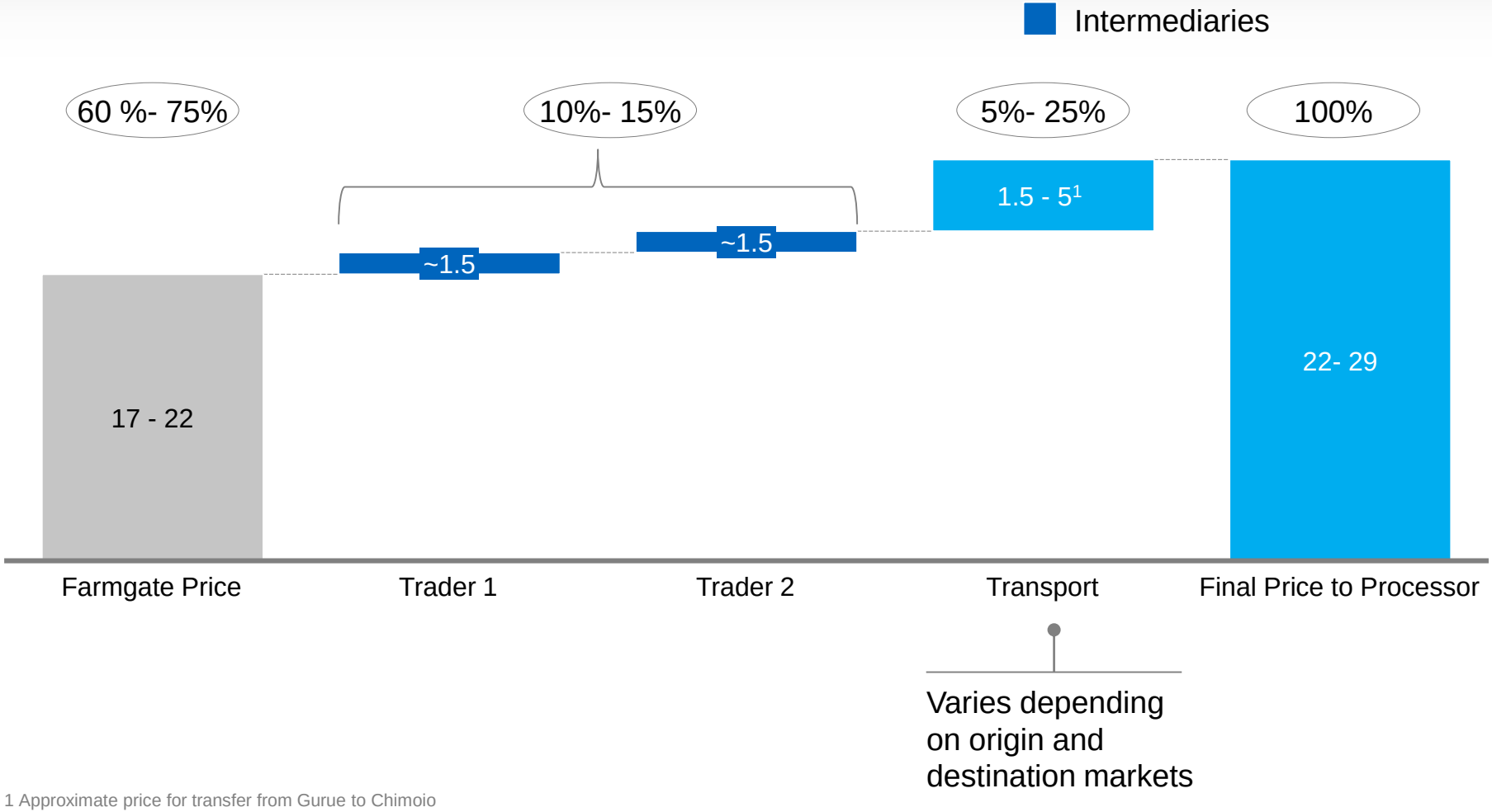
SOURCE: TNS Interviews & Analysis 2018

In addition, aggregation and trading costs add 20-35% to the cost of soybeans delivered to the processor gate

Value chain addition per step, 2017/18

'000 MZN / MT

x% % of final price to processor

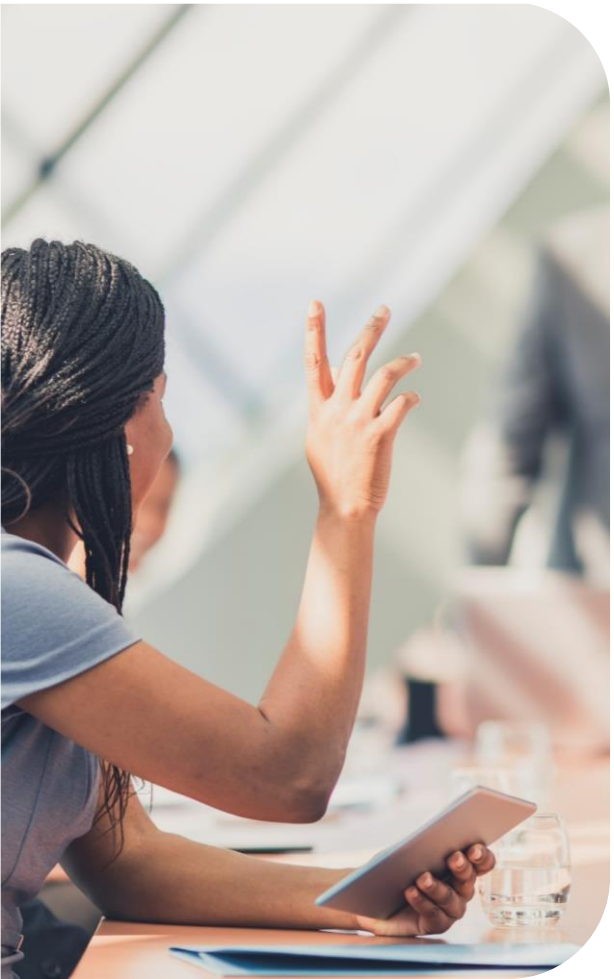


1 Approximate price for transfer from Gurue to Chimoio

SOURCE: TNS Interviews & Analysis 2018

Key takeaways: soy cake opportunity

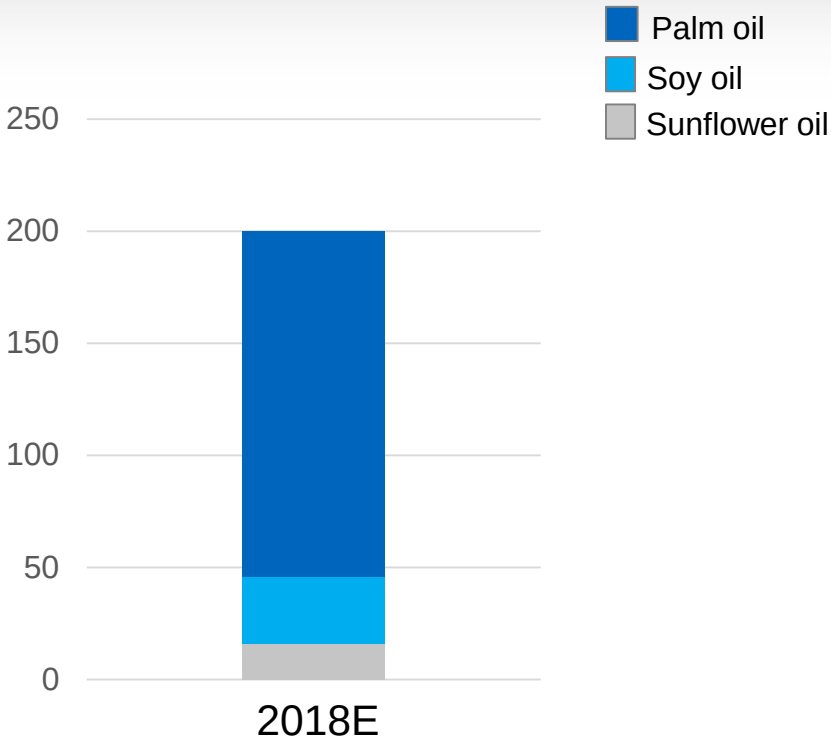
Key takeaways from stakeholder discussion



- **There is an opportunity for domestic soybean production to grow significantly, if the processors from the south start to buy domestically**
- **Quality issues can be addressed** if the poultry industry in the south and the processors establish a **continuous communication** and start exploring **sourcing options and workable aggregation models**; certification schemes could also help in that direction
- Southern processors would be willing to explore buying soycake locally, if **quality issues are resolved** and if the **cost including transport can match the imported price**; **current market conditions do not allow increases in consumer price** due to increasing market pressure from poultry imports
- **VAT free and duty-free imports of soycake should be re-examined** as this measure has taken a toll on the competitiveness of the local soycake processing industry

Mozambique is a net importer of oil, currently importing around 200 MT of oil, of which at least 30K MT is soy oil

Mozambique oil imports, MT 2018



According to industry consensus, in 2018 Mozambique imports more than 30K MT of soy oil

Key insights

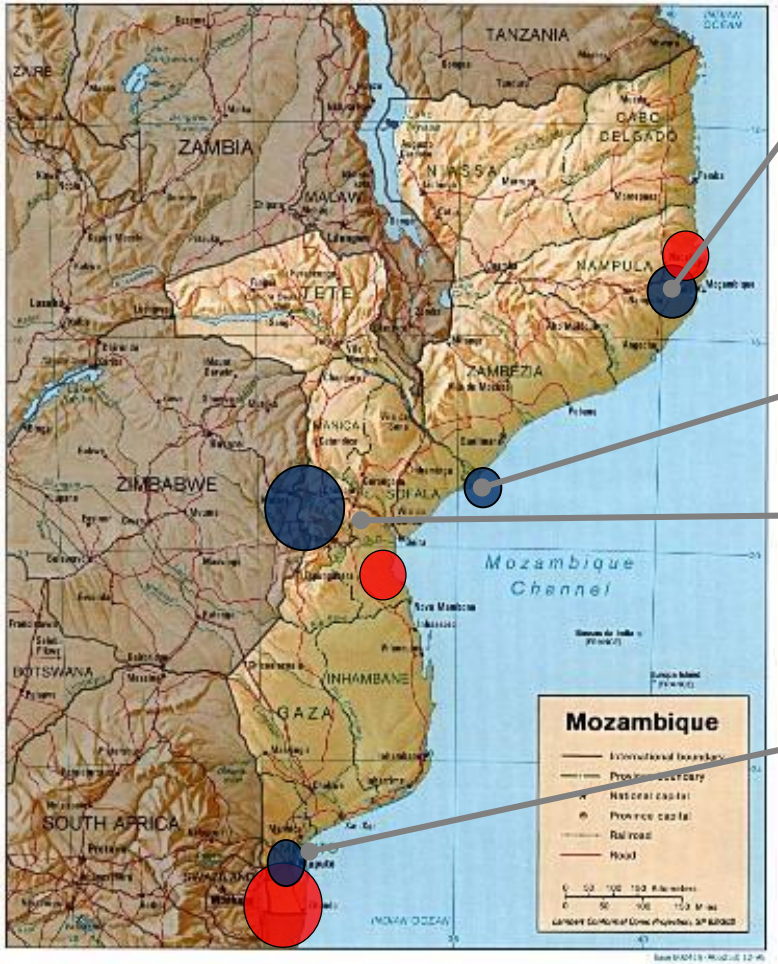
- The share of soy oil has been increasing on average at 30%
- Soy oil can be used for salad, frying, in baked goods – and even for biodiesel
- Soy oil has some health benefits vs. palm oil - it is preferred in light cooking and baking. However, it is not recommended for deep frying
- Distribution tactics differ in the North and Center vs the South, with the biggest differentiation being the packaging
  - In the South, smaller more premium packages are used, whereas in the rest of the country bulk packaging is used
- Processors use capacity for both cottonseed/soy oil – if cottonseed oil price were to decrease in future, it could lead refineries and processors to increase focus on soy oil

SOURCE: % sunflower oil 8% from COMTRADE 2010-2015; IGC Background note on edible oil imports; interviews

Soy oil is mainly imported (crude or refined); high quality soy oil can be produced locally although operations have recently stagnated

Major oil processors and refineries – Solvent Extraction Plants

Solvent extraction plants
Refineries



SANAM Oil – Nampula
20 MT p.a.. capacity

- Stopped soy oil production due to profitability pressures; currently focuses on cottonseed oil

Alif Quimica - Quelimane
10 MT pa. capacity

- Production stagnated due to profitability / working capital challenges

Abilio Antunes – Chimoio
50 MT pa. capacity

- Active – integrated poultry player so can sustain the profitability pressures of oil crushing

HIGEST– Maputo
2 MT pa. capacity

- Active

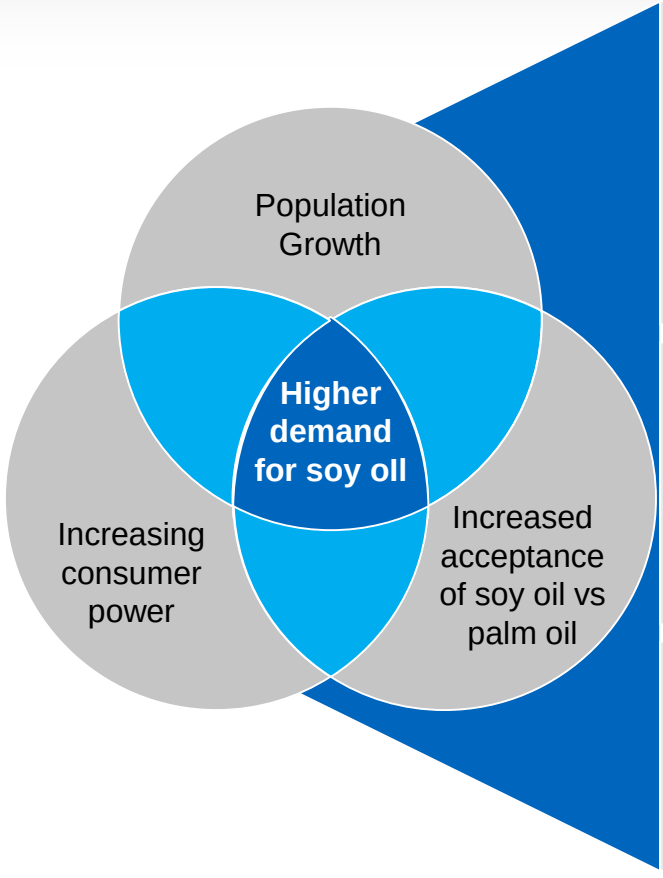
OTHERS

- Additional new small crushing machines being installed – e.g., JFS, EDP, Plexus, AGROMACO

SOURCE: TNS interviews

The demand for soy oil is expected to continue to increase in the coming years by more than 5% p.a.

Demographic, macroeconomic and behavioral factors seem favorable…

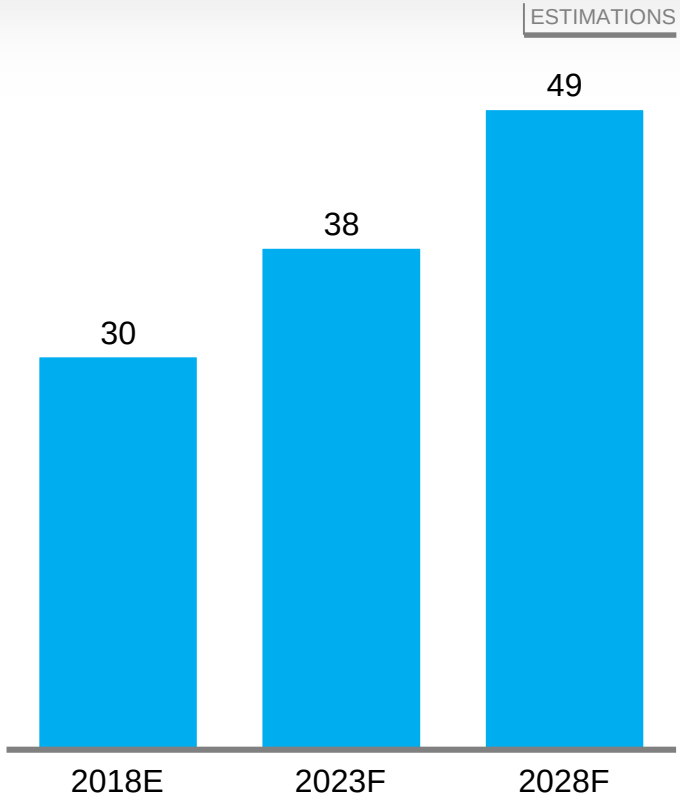


Based on the growth observed the last decade in Mozambique, in 2028 the population will exceed 36 mln people, thereby increasing the available market for soy oil

According to IMF estimates, Mozambique's GDP is expected to grow with more than 5% thereby increasing consumer power[1]

Soy oil has been gaining acceptance against palm oil, even if it is sold at a premium

and can boost current consumption by more than 5%[2]...



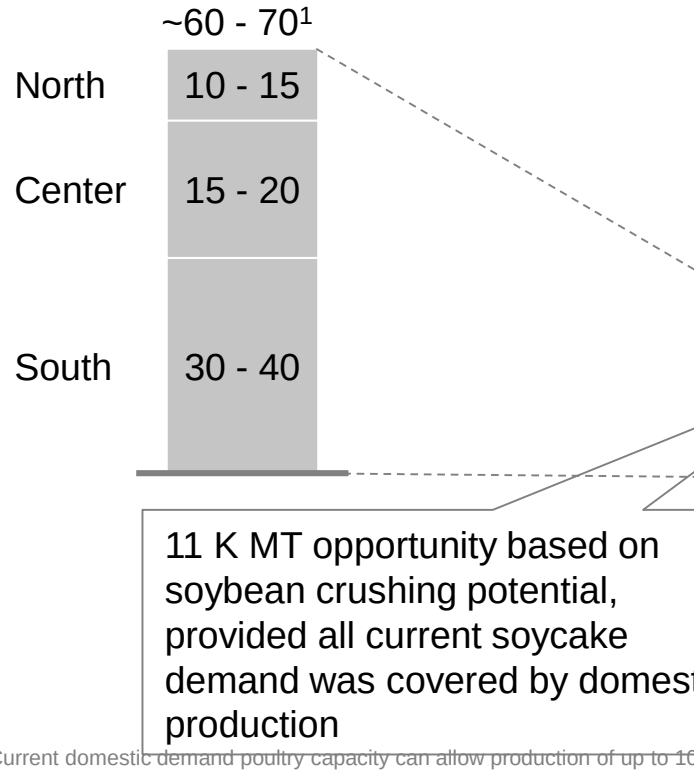
1 IMF estimations
2 Projections for the growth of Soy Oil are based on market estimations of industry stakeholders. A range of 5 – 10% was agreed to be realistic
SOURCE: TNS Interviews with industry stakeholders in Mozambique

Soy cake
Soy Oil
Other soy products

There is an opportunity today for the local feed industry to sell an additional 11kt of crude oil by-product to local refineries or expand operations

Currently, less than 15% of the demand is satisfied by crushing

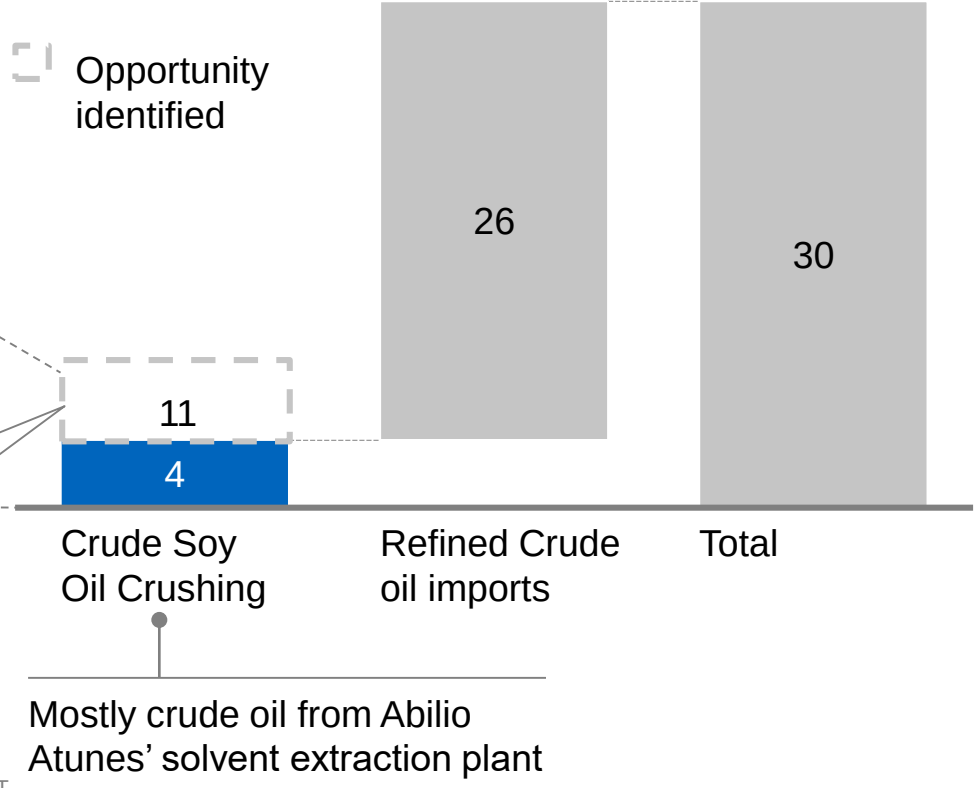
Soybean demand for poultry industry
'000 MT, domestic demand



11 K MT opportunity based on soybean crushing potential, provided all current soycake demand was covered by domestic production

Soy oil demand
000 MT

As demand for soycake increases, so does potential to produce soy oil locally



Mostly crude oil from Abilio Atunes' solvent extraction plant

1 Current domestic demand poultry capacity can allow production of up to 100 K MT

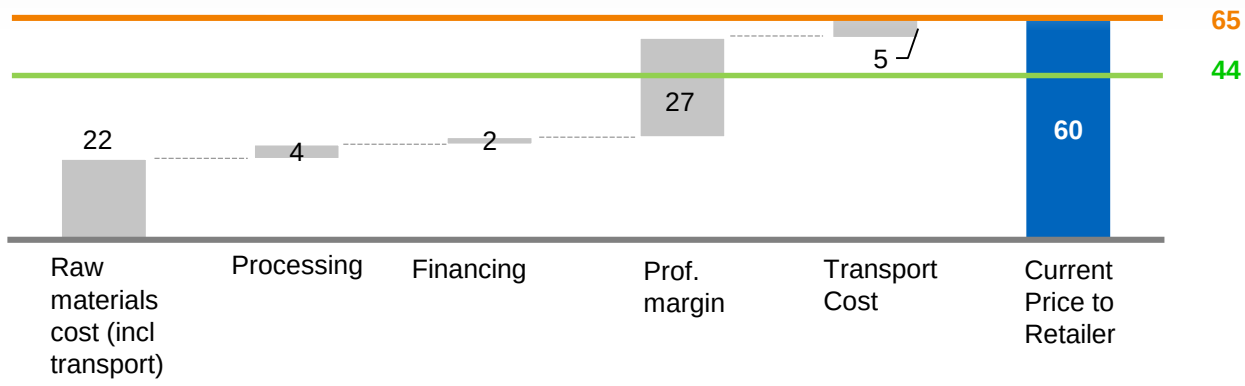
SOURCE: TNS interviews

Crushing and refining domestic soybeans is currently not competitive vs. oil refined locally from imported crude oil, but may make sense for an integrated player

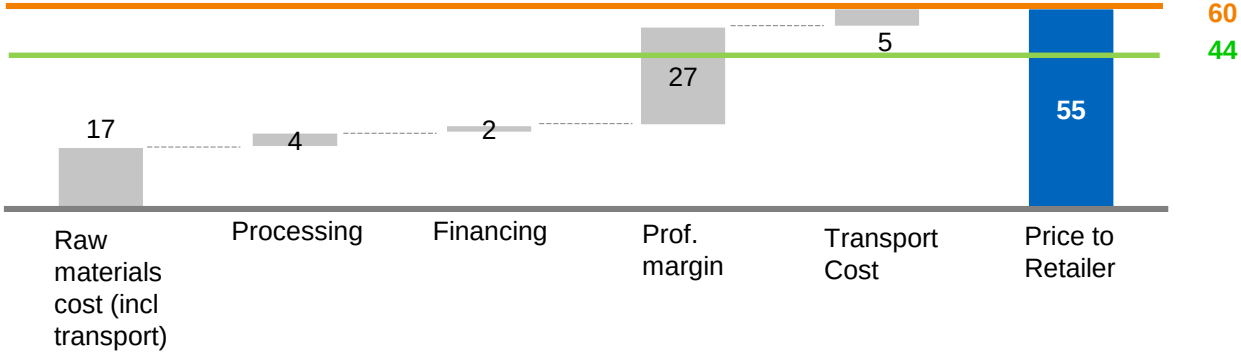
PRELIMINARY

Illustrative breakdown of standalone soy oil processing cost from local soybeans, MZN / kg

Scenario 1: 2017-2018 prices



Scenario 2: Lowest Raw materials Prices over last 5 years



1 Assumes soycake revenue falls proportionately to drop in raw material cost

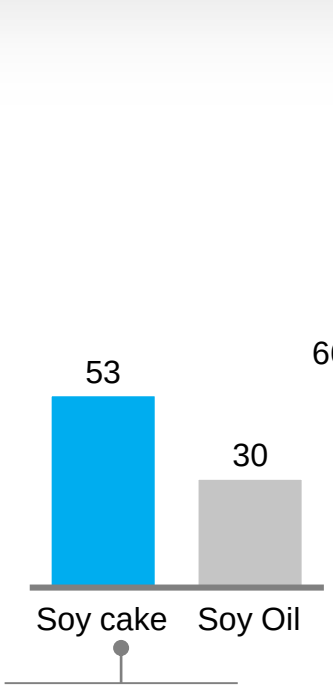
SOURCE: TNS analysis. *Assumes soycake revenue falls proportionately to drop in raw material cost

If crushing becomes more competitive versus imported crude oil, ability to supply 100% local demand will increase as soy cake market increases

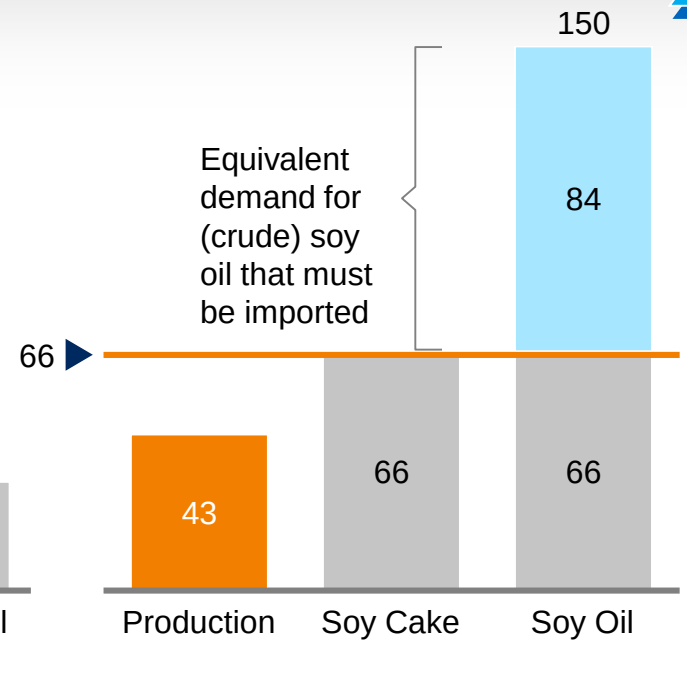
PRELIMINARY

Currently, the demand for soycake and soy oil is not balanced

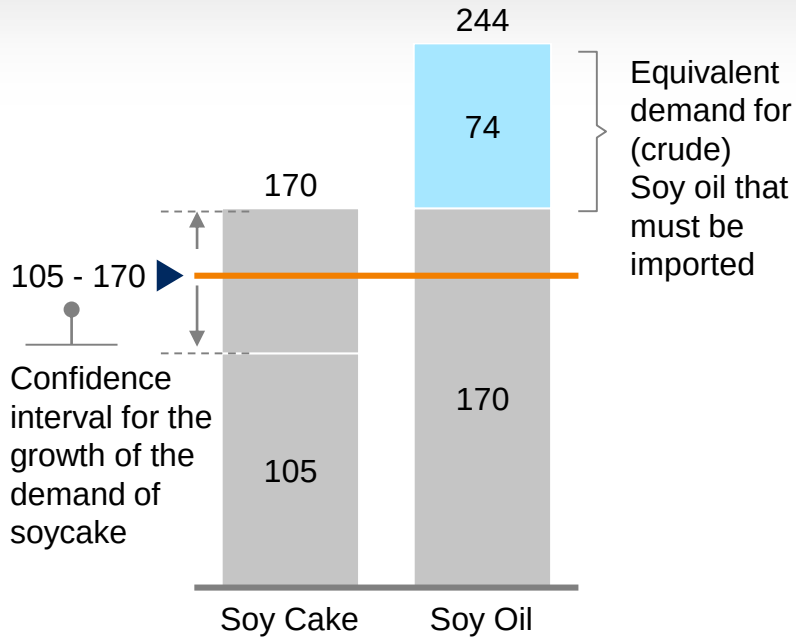
Nominal Demand, MT



Equivalent demand in Soybeans, MT



Increasing growth of soy cake Vs Soy Oil could increase the share of addressable demand

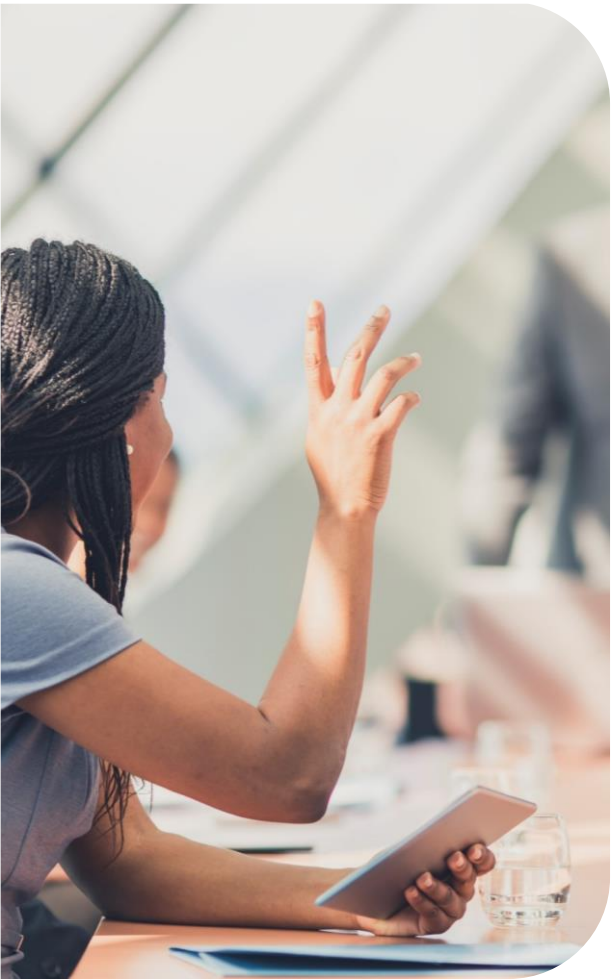


Sale of both soy cake and soy oil required for profitable processing plant operations

SOURCE: TNS analysis

Key takeaways: Soy oil opportunity

Key takeaways from stakeholder discussion



- Currently, **few poultry players leverage the soy oil by-product** mainly due to **absence of relevant infrastructure** (i.e. solvent extraction plant); those who do produce crude oil, sell their products to the local markets or to resellers
- **Crude oil can increase the value of the soybean** and the crushing margin
- **Processors may also consider expanding into refining**, adding additional value to their product
- The **biggest impediment to the growth** of the local crushing industry remains its **lack of competitiveness versus imported crude oil**; therefore trade measures could be examined to assist local processing units

Unlike neighbouring countries, Mozambique has not yet branched into soybean processing for human consumption

Product	Description	Mozambique	Malawi	Zimbabwe	Zambia
Soycake	Soybean meal is the most important protein source used to feed farm animals representing the two-thirds of the total world output of protein feedstuffs	✓	✓	✓	✓
Soy oil	Vegetable oil extracted from the seeds of the soybean (glycine max)	(✓)	✓	✓	✓
Soy chunks	Vegetable meat - It is prepared from defatted soya flour by the process of extrusion cooking	✗	✓	✓	✓
CSB	Blends of partially precooked and milled cereals, fortified with micronutrients. Corn Soya Blend (CSB) is the main blended food by WFP	✗	✓	✓	✓
Soy milk	Plant-based drink produced by soaking and grinding soybeans, boiling the mixture, and filtering out remaining particulates	✗	✗	✗	✓
Soy yoghurt	Soy yoghurt is made by fermenting soymilk with friendly bacteria	✗	✗	✗	✓

SOURCE: TNS interviews

Although demand for other soy products exists, it is currently much smaller in volume than the demand for soycake and oil

Soy cake
Soy Oil
Other Soy products

Mozambique

Zimbabwe Example

		Current Annual Demand, MT, 2018	Projected Demand, MT, 2028, Estimates	Current Market Value Mln MZN	Current Import penetration, %	MTs used for each product %
Soy cake	Soy Cake	54K[1]	145K	~1,800 – 3,000	~60% Imported	96%
Soy oil	Soy Oil	~ 30 K	49K	~1,500 – 3,000	>90% imported	
Soy porridge	CSB, Fortified Flour[2]	~9K	~17K[3]	tbc	100% Imported	Most of it attributable to CSB and fortified flour
Soy chunks	Soy chunks	<1k	10,000[4]	~<100	n/a	~4%
Soy milk and other	Soy Milk	0	1K	n/a	n/a	~0%

PRELIMINARY

1 Refers to domestic demand
2 Based on Final product Retail Price; more than 60% w/w is Maize
3 Assuming a 10% penetration in the total addressable market (54% of children 6-36 months belonging to households in urban within targeted monthly income consuming 3 meals of 40g average serving size per day)
4 Conservative estimate based on a consumption of 330kgs of soychunks/mln population; current penetration rate of soychunks in Malawi reaches 1000kgs/mln people
SOURCE: TNS Interviews, TNS analysis

An investment into different soybean subproducts processing can yield high profit margins in a steady state, but demand is currently in a nascent stage

		Estimated addressable market, Estimation	Profit Margin Estimation	Capex equipment required	CapEx Cost USD	Challenges
Soy porridge	CSB, Fortified Flour	17,000	~20-30[2]%	▪ Mill ▪ Roaster	700K- 2mln ▪ *250kg – 1 ton/ day*	▪ Volatile pattern of institutional demand ▪ BOP / distribution campaigns needed for market entry ▪ Substitute product x3 times cheaper (e.g. maize flour) ▪ Raw material availability challenges (maize)
Soy chunks	Soy chunks	10,000	~20[1]%	▪ Extruder ▪ Dryer	120K – 500K ▪ *0.5 – 2 ton/day*	▪ Small processing players may produce hazardous products due to production process defects ▪ Imports risk from neighboring countries (e.g. Malawi)
Soy milk and other	Soy Milk	1,000	>25%	▪ Fridges ▪ Purifier ▪ Mixer ▪ Steriliser	>400K ▪ *>1 ton / day*	▪ Niche product with limited target population in Mozambique ▪ May only be produced in small quantities unless product is used in NGO campaigns

1 Assuming 20 MT/kg distribution Cost, 30 MT/kg raw materials and processing cost, 10MT/kg financing and other costs
2 Gain Program Analysis

Demand for CSB exists today, and some local processors have expressed interest in starting to process CSB to meet the demand

Opportunities

Sizeable demand

- WFP and other institutions are currently supporting Mozambique through regular assist programs. Currently it is estimated that around 9,000 MT of corn-soy blend are imported from South Africa and are given via assist programs

Existing opportunity for entry in Retail market

- Fortified flours are currently an opportunity that is not exploited in Mozambique; demand is mainly concentrated in lower end products (maize flours) or high-end niche products (enriched complementary feeding programs like Sterilac)

Investment Case Studies (input provided by Gain Program)

JAM (Beira)

- JAM (Joint Aid Management International) is a consulting company which has also started operations on the soya and maize value chain
- Jam currently produces <1 MT of CSB, supplying a school in Beira
- However, JAM is 100% donor funded and still caters only to institutional players

Miruku

- Miruku is currently developing a plant that will produce maize meal and CSB
- Sourcing of raw materials will happen through aggregation from harvests of outgrowers or farmers associations as well as distributors or traders like ETG
- In terms of distribution channel, Miruku is planning to sell to
  - Local retailers
  - Formal markets (currently in the process of drafting contracts with Shoprite and VIP)
  - Informal markets

SOURCE: Gain, TNS Interviews

Fortified flours compete among the established maize flours and niche products like Cerelac

Value addition and Price

	"Avulso"	Existing fortified flours	Branded Fortified Soy Porridge	Existing enriched complementary feeding products	Other existing enriched complementary feeding products
Description	▪ Established products sold informal markets ▪ Not adequate to provide vitamins/ nutrients to fulfill child's needs	▪ Product widely available in official markets ▪ Adds nutritional value		▪ Products that offer complete set of nutrients and vitamins to children	▪ Other products suitable for children older than 6 months
Examples		▪ Traditional maize flours e.g. Top Score		▪ Fortified porridges such as Cerelac, Nestum, Purity, Hero Baby	▪ Fortified yoghurts. Danoninho, "papinhas", etc
Price	▪ MZN 40-45/kg	▪ MZN 50-55/kg		▪ MZN 240-400/kg	▪ MZN 20/serving ▪ MZN 120/ 100g x 6

SOURCE: Gain, TNS Interviews

However, a set of challenges around logistics, competitiveness and quality standards have to be addressed

Risks	Description
Volatile pattern of institutional demand	▪ Demand is currently driven by NGOs / donors; therefore a potential processor will bear the risk of single client base or a drastic drop in demand ▪ In addition, the processor must cater for the increased working capital requirements required based on the elongated payment schedules of these institutions, sometimes exceeding 6 months
Extensive investment in BOP markeing and working capital needed	▪ The consumer demand for CSB or fortified flour in Mozambique is currently negligible. Therefore a potential investor (in cooperation with Government institutions) would need to: – Invest in marketing efforts to boost demand – Have the working capital to sustain operations in the first years of low demand
Substitute products	▪ Maize flour (4x times cheaper than a potential fortified porridge) is now established in Mozambique. Therefore, marketing campaigns have to be launched to communicate the advanced value proposition and the additional price premium required ▪ Switch from institutional to consumer market can also pose significant challenges
Raw materials requirements	▪ Unavailability of inputs can be a problem that will affect both the output pattern from a potential processor: – Maize and soya, the two basic materials, are very volatile in terms of prices and availability in Mozambique – Premix and packaging elements in the product cannot readily be sourced from processors in Mozambique and most likely imports are needed (vs. e.g., Malawi which has own packaging plants)
Institutional demand requirements	▪ WFP and other institutions have set very strict requirements for the production of CSB and other fortified flours ▪ Thus production challenges may not be uncommon in new entries and significant technical assistance will likely be required to support processors to meet standards

Soy chunks can be a substitute of meat in the medium term but would need significant investment to kick-start new market

Opportunities

Attractive cost for consumers

- Soy chunks is the most affordable choice for protein consumption for the local population
- The low cost that soy chunks can reach the population provides an ideal candidate to target the BOP and middle class

Similar taste to animal meat

- The taste and texture of soy chunks, when cooked properly, can be quite similar to the respective qualities of animal meat; thus offering a great alternative for consumers with high acceptance after the initial moment of truth

Wide acceptance by similar and neighboring markets

- In Malawi, soy chunks are becoming quite popular: in 2018, ~10K MT of these products were sold to the local population
- Limited sales also occurred across the border in Mozambique
- Following the case of Malawi, soy chunks seem extremely relevant in Mozambique, both due to their affordability and their qualities but also due to the exposure of the local population to such imported products

Risks

Processing risks

- The processing steps need to abide by certain standards so that the final product is free of processing defects that may prove hazardous to the consumer (e.g. presence of Aflatoxin or mycotoxin)
- In regional countries, health incidents have been observed by the consumption of products produced by local independent suppliers without consistent and standardized production

Import risk

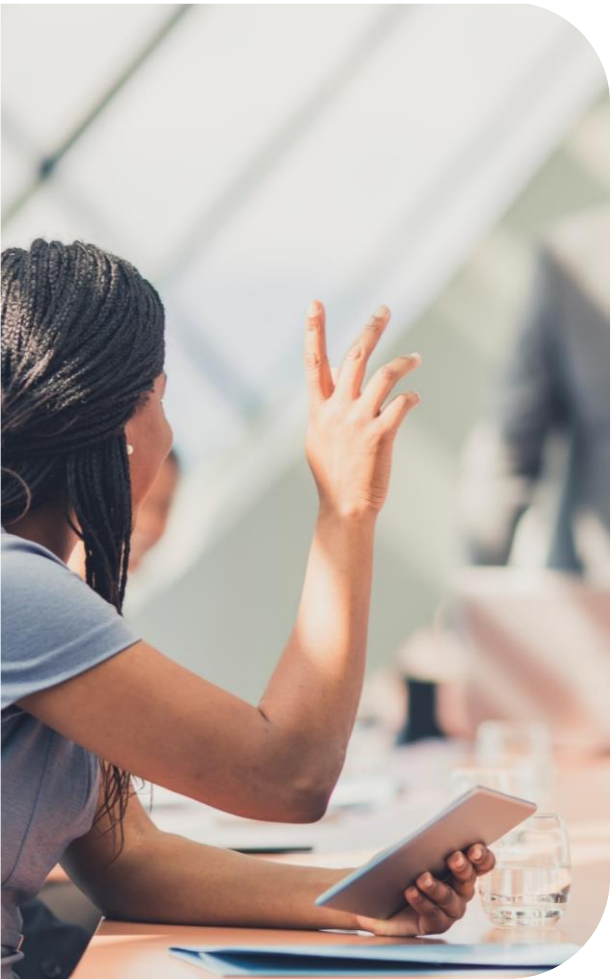
- Currently, Malawi and South Africa have increased their production as the demand for soy chunks is consistently growing
- The proximity of these companies and the high profit margin make exports to Mozambique a potential profitable investment

Nascent stage of demand

- The demand for soy chunks in Mozambique is currently negligible. Therefore a potential investor would need to:
  - Invest in marketing efforts to boost demand
  - Have the working capital to sustain operations in the first years of low demand

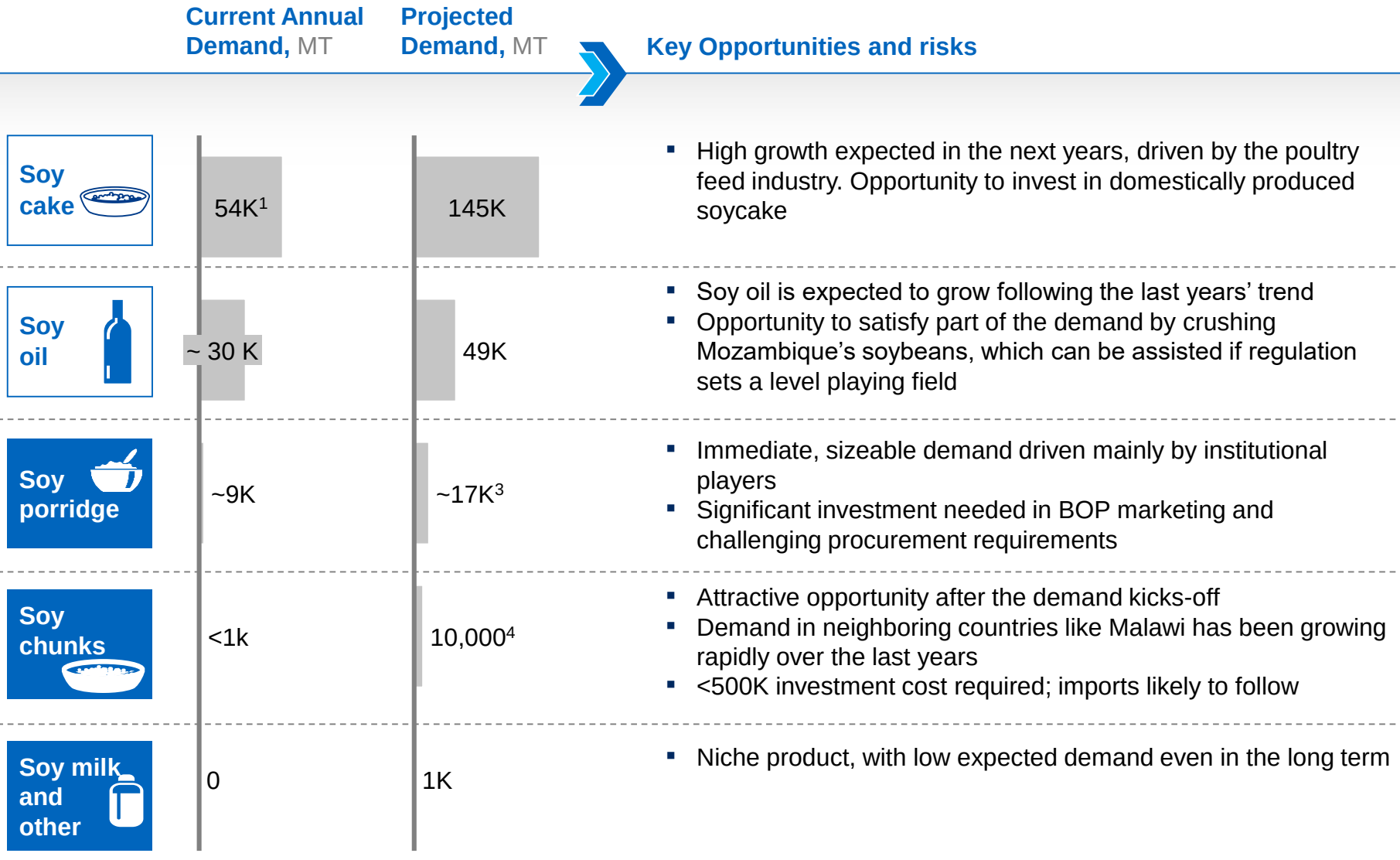
Key takeaways: Other soy products opportunity

Key takeaways from stakeholder discussion



- **Product fit, low capex requirements and straightforward processing** create **attractive prospects for a domestic soy chunks industry**
- To kick-start demand for soy chunks, **processors need to heavily invest in marketing efforts,** potentially with some **public sector support**
- On the other hand, CSB represents currently a sizeable opportunity but **imported products competition, customer acceptance risk, heavy investment requirements in marketing as well as processing challenges** can be **significant impediments** to a potential investment

Summary assessment: Demand will be continue to be driven by soy cake and soy oil, with increasing importance of high value products



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Zambia experience points to possibility to expand from public-sector driven demand into direct consumer demand, to further grow market opportunity

	Description

Nature of demand	• Initially, demand was driven by CSB and HEPS
	• Due to the free distribution of these products as:
	  • Food supplements for HIV and
	  • BOP population that suffered from malnutrition
	  the purchase of these products did bear a significant stigma for the buyer
	• Through successful BOP and middle class marketing efforts, initiated mainly by the government, soy porridges were also sold also to the local population in official or unofficial markets
	• In addition, growth of the product was also supported by the growth of other soy derivatives products like soy flour and soy milk

Marketing efforts	▪ A wide set of marketing measures was used to market these products to the middle class and BOP populations: – Sales representatives – Supermarket and local market campaigns – Repackaging efforts
From Imports to processing	▪ Imported products covered the biggest share of the demand in the beginning, but as demand grew, local processors were attracted to the industry ▪ Nowadays, demand for porridges and similar products is covered by domestically processed products

In Malawi, the processing of soy chunks has soared over the last few years

Description

Examples of end products sold in Malawi

Demand evolution

- Currently Malawi produces over 20K MT of soy chunks p.a.; consumption increases when the availability of fish in lake Niassa is reduced
  - Customers are therefore educated on the need for protein
  - Consumers perceive soychunks as the cheapest source of protein

Marketing

- Short, intense marketing efforts were needed to introduce the product to the market
- Around 4 months were needed for one of the biggest processors to penetrate the market of Malawi
- Marketing efforts included promotions through agents as well as additional price promotions in local stores
- Over 90 agents were used in the beginning for the first phase, however these promotion activities have now stopped

Processing challenges

- There is a diversity of processing plants
  - Plants with high capacity (>2K tonnes/ year - e.g., Waka - Waka)
  - Rudimentary plants using small extruders

Prices

- Price to resellers can reach up to 1,000 KWA - 90 MZN/ kg
- End retailers sell these products for more than 1,400KWA - 120 MZN / kg

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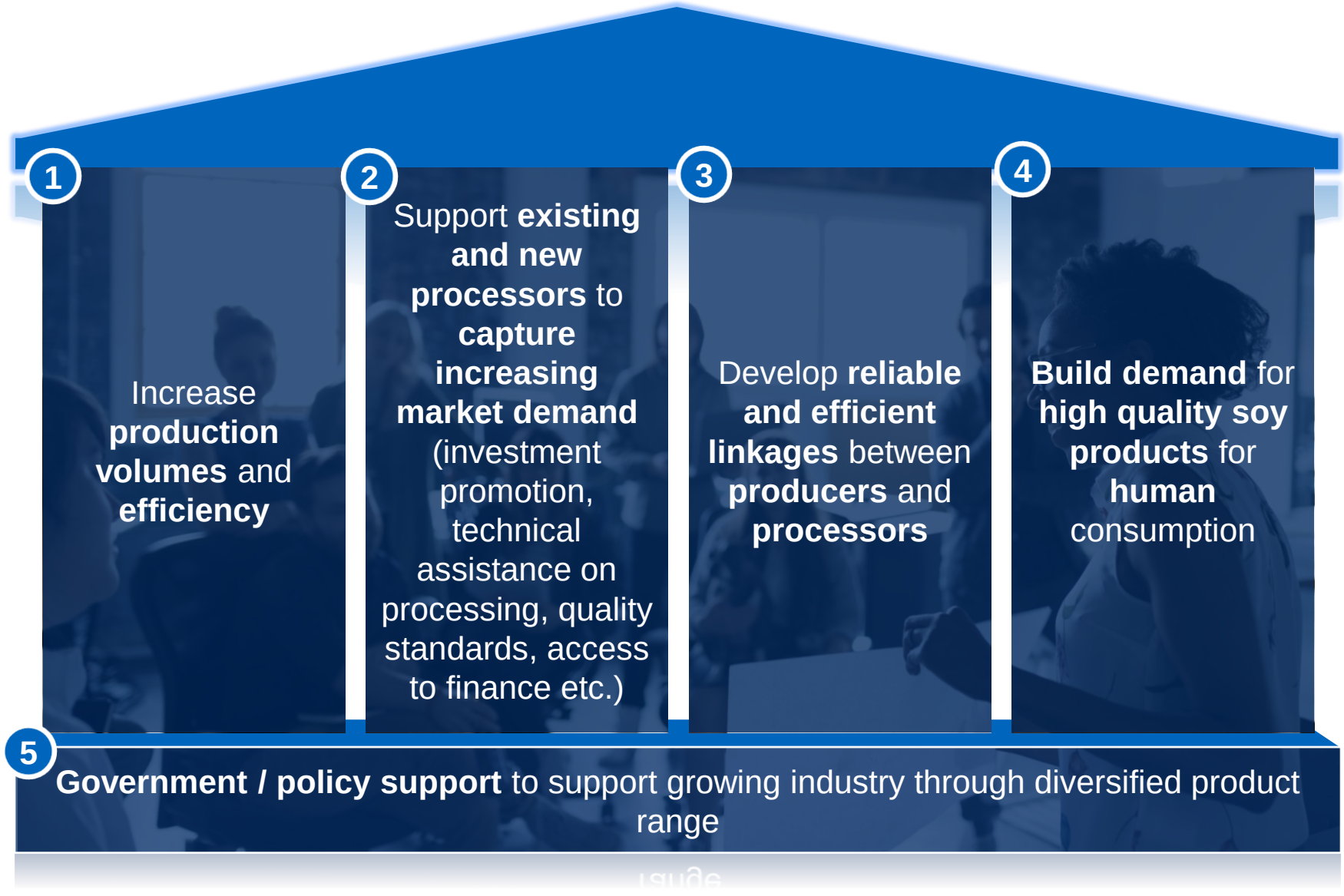
Vision for expanding Mozambique's soy industry

A strong and growing local processing industry that pays fair prices and a premium for quality to local producers, supported by a growing local production industry with SHFs and SCFs at its centre

Snapshot: from 2018		To 2028
45K MT	Soybean production	140K MT
1.0	Yield	1.5
~70K MT	Soy cake production (eq. soybeans)	~140K MT
~30K MT	Soy oil refining	~50K MT
0 MT	Corn Soy Blend local processing	17K MT
0 MT	Soy chunks local processing	10K MT
Non existent grading systems	Quality standards	Set specifications and enforcement of control mechanisms
Lack of Government and financial sector support; lack of policy enablers	Enabling environment	Supportive enabling environment; including policy for imports

Attaining this vision would require interventions in five key areas



Growing a more diversified local processing industry could have many positive impacts – and perhaps some negative impacts in the short term

The growth of the processing industry benefits job creation, product availability and promotes the local farmer market

- Reliable market for ~50,000 local producers, less volatile and subject to global dynamics than exporters who may come and go from year to year
- As local processing industry develops, it may pay premium prices for higher quality soybeans (vs. exporters who may be more likely to export whatever quality is there)
- Job creation in processing plants and marketing (e.g., network of sales agents)
- High-quality processed food products for human consumption improve household nutrition, particularly in lower income HH
- Positive spill – on effect on other industries such as packaging

If local industry requires protection in the short-term, knock-off effects need to be examined

- Export tax could support local processors to buy soybeans in face of competition from exporters, but could also lead to less competition for soybeans and lower prices for SHFs in short-term as well as reduced attractiveness of SHF farming vs other seeds such as corn
- Import tax for soycake could create a stronger opportunity for local soybean producers to supply southern poultry industry, but may also pose sourcing risks for poultry players. Limiting or making imports more expensive could make poultry products, or oil more expensive in Mozambique in the short-term, with knock-on effects on competitiveness of domestic poultry industry

1 In order to increase production efficiency, the use of inputs and production best practices should be promoted, and SCF model expanded

	Challenges to be addressed	Opportunities
Create a viable seed system and increase seed demand	▪ SCF have significant capacity to produce seed (300 kg seed capacity production not utilized), yet not enough clients to sell to ▪ A number of NGOs are providing seed for free, strengthening the donor culture that prevents the inputs industry from growing	▪ Provide additional trainings (via demoplots) to SHFs regarding the benefits of improved seed ▪ Suggest a more targeted disbursement of free seed to the SHFs who meet certain need criteria ▪ Create incentives for seed companies to become active in the area of Gurue and develop a viable, commercially-based seed system – Establish seed outgrowers programs between COPAZA and seed companies ▪ Expand model to other regions
Increase access to mechanized services	▪ Demand far exceeds supply and SCFs prioritize their own fields ▪ SHFs in remote areas are facing long waiting lists	▪ Improve access to mechanised services: Assist in the creation of SCF / service provider hubs that provide mechanized services to local markets ▪ Benefit from the awareness of SHFs about the benefits and connect SHFs to SCFs to promote the full utilization of tractors
Promote the use of inoculants	▪ Despite the low cost and visible results in yield SHFs still don't pay for inoculants, as they except to get them for free ▪ At the same time there is a lack of inoculant supply that makes it hard for farmers to access	▪ Create awareness about the opportunity in increased yields: up to 500 kg/ha more with a cost of 500 MZN for an additional revenue of 10.000 MZN ▪ Create a supply chain that allows for easy access to SHFs ▪ Use demoplots and trainings as platforms to promote best practices

2 For the soycake and soy oil processing industry, main interventions revolve around technical assistance and improved access to financing

	Utilize current crushing capacity	Expand operations of current plants	Invest in new solvent extraction plants
Industry development	▪ Mozambique currently has 3 solvent extraction plants with total capacity of more than 70KT/year ▪ The majority of this capacity is idle (~25KT soybeans are crushed, mainly due to the operations of Abilio Atunes)	▪ In case local soybeans become more attractive for southern processors, investments may be needed for current plants to increase their output	▪ Local players in the south may also wish to expand operations and become integrated to take advantage of economies of scale; that could mean significant new investments in solvent extraction plants and silos
Dependence on soy oil	▪ Increase in processing capacity is also dependent on the competitiveness of domestic crude soy oil production – A competitive price for crude soy oil increases the value add for the crushing / extraction operations and incentivizes increases in output		
Interventions needed	**Technical support** for local processors to improve processing quality and ensure consistency is needed to be provided so that processing plants abide by the requirements of the southern processors **Financing support** may also be needed to incentivize new investments and growth plans		

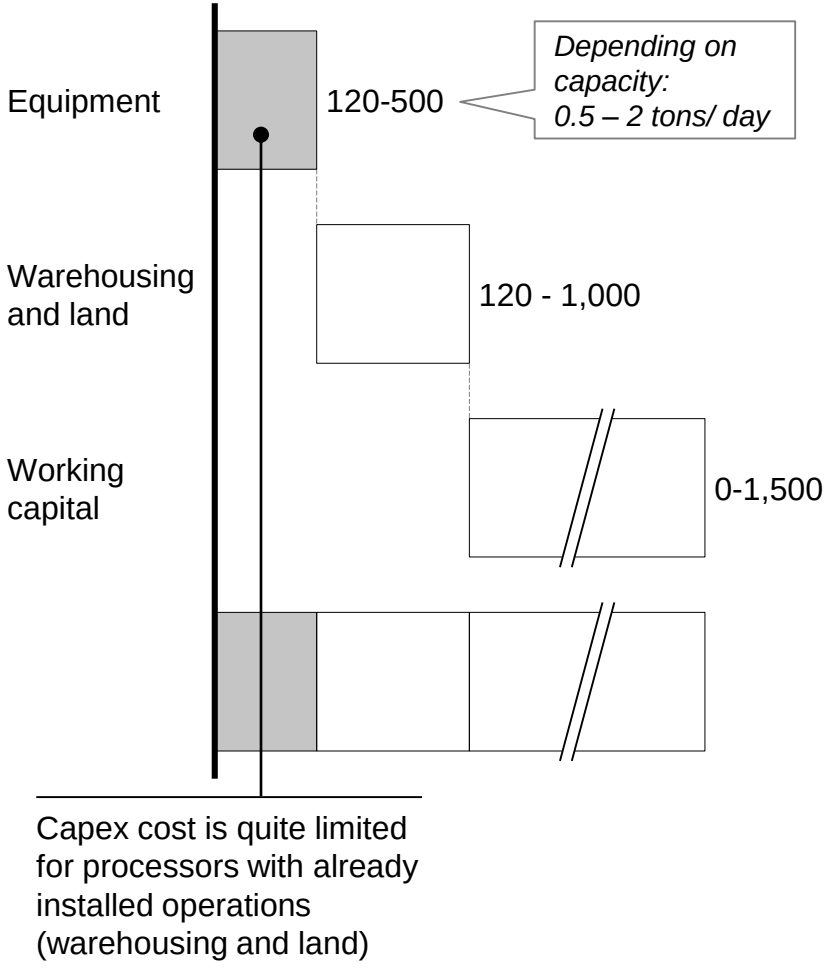
Operations of a standalone player (solvent extraction plant without integrated operations) is not economically viable at the moment

2 To kick-start soy chunks production, financing and technical support along with promotional activities are required

	Imports of soychunks	Local player participation	Growth phase
Industry development	▪ Local populations gradually accept soybeans in their diet, trying at first imported products ▪ Penetration of soy chunks in the north and center of the country will be higher due to proximity to Malawi, the main exporter (already Malawi processors export soy chunks to Mozambique in the areas close to the borders)	▪ Local players take advantage of the opportunity creating their own processing lines	▪ Increasing growth and acceptance by the local population attracts more and more advanced players
Interventions needed	▪ Assistance for legal registration and other technical and business issues ▪ Initiation of marketing efforts by the public sector ▪ Efforts to catalyse and speed transition to Phase 2, e.g., TA and finance programs	▪ Technical assistance to local processors to install and operate soy chunks processing line – Quality assistance to avoid hazardous ingredients in the final product – Packaging equipment and operation ▪ Ease of access to financing, subsidizing investments in capex and/or facilitating access to required working capital ▪ Scaling of promotional activities – Campaigns to increase awareness for the nutritional benefits of soy chunks - awareness campaigns in TV/radio and press – Activities in school (e.g. proposal of certain recipes or sample meal distribution) – Subsidies in promotion and marketing to local processors	

2 Potential investors for soy chunk production include poultry players and standalone solvent extraction plants

Investment required
USD000



- Initial estimates suggest investment payback period could range from 1 to 5 years for an investor with existing land/buildings

SOURCE: Discussion with industry stakeholders, Expert Interviews, TNS analysis

3 Reliable and efficient linkages between producers and processors should be developed through assessing a range of possible aggregation models

Buyer

- Soy processor

Intermediary: Provides critical link in aggregating inputs and output between small-scale production and buyer; often responsible for providing technical assistance as well

Non-exhaustive examples:

- Farmer coop, association, or group
- Mobile or fixed buying station
- Agro-dealer and/or village-based agent
- Small commercial farmer

Individuals: Small-scale producers

- SHFs

4 Marketing efforts to boost human consumption of nutritious soy products should leverage lessons from Malawi, Zambia and Mozambique

Malawi and Zambia

- Brand positioning
- Specific sales tactics – e.g.,
  - Sales agents
  - Supermarket and local market promotions
  - Price promotions etc.

Mozambique

- Learnings from national campaigns to drive industry-level growth, e.g., AMA poultry advertising campaign highlighting benefits of buying local chicken

5 Selected trade measures could be explored to boost domestic processing

	Benefits	Risks
VAT tariff or import quota on imported soycake	▪ Makes domestically produced soybeans more attractive to south processors and a provides a constant demand pool for the farmers ▪ Raises government revenue, which can be used in cooperation with the banking industry to enable easier access to finance	▪ Potentially raises prices for poultry products to consumers (live chicken, frozen chicken and eggs) ▪ Indirectly can lead to substitution of locally produced poultry products from imported ones due the increased production cost deriving from the increase in raw materials cost
Export duties on soybeans	▪ Allows local processing industry to enjoy lower farmgate processing costs and compete with exporters for limited supply ▪ Minimizes volatility in farmgate prices ▪ Makes domestically produced soybeans more attractive to south processors and a provides a constant demand pool for the farmers ▪ Can lead to increased quality in soycake and soybeans due to increased cooperation with the processing industry	▪ May reduce revenue in the short term for producers ▪ Lower farmgate costs may lead local producers to substitute part of their production with other crops, thus reducing the growth of the soybean industry ▪ Decreased production may also be a risk for local processors especially in the North and Center of the country
Import duties on crude soy oil	▪ An option to equate crude soy oil import duty to that of refined soy oil import duty could make the option of crushing to produce crude oil and then refining it in Mozambique more attractive compared to the option of refining imported crude oil ▪ The revenue from these tariffs can be used by the Government in cooperation with the banking industry to finance local soybean crushing	▪ Supply of soybeans is not sufficient to cover demand for soy oil, thus a big share of demand would still need to be covered by imports ▪ Refined oil might no longer be competitive against imported refined oil, making operations of refineries in Mozambique not sustainable ▪ Indirectly can lead to substitution of soy oil with cheaper substitutes (e.g. palm oil)

5 Matching grants and credit sharing schemes can help to stimulate expansion of processing sector and access to inputs for producers

	Matching grants	Credit sharing schemes
Description	▪ Matching funds are funds provided by investors (government, Development NGOs) that are set to be paid in equal amount to funds available from other sources (private sector or Government) ▪ Matching can be useful in CapEx projects concerning new investments ▪ Matching grants ensure that the private sector shares also risk for the investment and at the same time address the lack of capital required	▪ Funding angels (financial institutions, NGOs and donors) provide Letters of Guarantee to processor or input provider, taking a share of the lending risk ▪ Guarantee funds enable working capital for processors if assets are insufficient to secure loans ▪ Commercial entities (processors, agrihub dealers) provide inputs or capital to purchase inputs to farmers; farmers repay full amount after harvest
Examples	▪ Investment in Fortified Soy Flour projects in Mozambique by the GAIN program gain Global Alliance for Improved Nutrition	▪ AFAP provided a credit guarantee to allow agro-hub SAVAL to purchase large amounts of fertilizer at a bulk discount from suppliers and **pass savings to SHFs** ▪ Guarantee fund by USAID run through BCI bank supported working capital finance availability for cashew processors afap · BCI · USAID

SOURCE: TNS analysis and interviews

5 Information dissemination via an Industry Association or working group is also an important measure to boost soybean value chain growth

Knowledge-sharing sessions

Purpose: To share updates on new knowledge pertaining to soy, and discuss market info such as potential price floors (as done in cotton, cashews) and trade activity

Main participants: Private sector, research institutions, development NGOs, experts from government Ministries, extension officers, farmer representatives

Value chain stakeholder meetings

Purpose: To provide a forum for discussion, information-sharing, and consideration of implications of trade measures across all relevant stakeholders

Main participants: Main processors (poultry players, oil refineries and crushers), Major SCFs, Development NGOs, Government officials, Development NGOs