Southern Africa Regional Soybean Roadmap
Final presentation

February 2011

BILL & MELINDA GATES foundation

Agland Investment Services, Inc.
Global Agriculture, Food, and Resource Consultants

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Objectives of today's session

Share the findings of our analysis of the soybean industry across Southern Africa

Share our recommendations for making the industry succeed

Get your perspectives on the challenges faced by the industry and how to address them

Gauge your interest in being part of a regional soy alliance to drive the growth of the industry

Contents

- Background
- Production & productivity
- Demand
- Costs & competitiveness
- Forecast
- Challenges
- Vision & impact
- Recommendations

Background

- Background
  - Objectives
  - Timing
  - Approach
  - Regional production in global context
- Production & productivity
- Demand
- Costs & competitiveness
- Forecast
- Challenges
- Vision & impact
- Recommendations

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Background: TNS, Agland with BMGF support, have conducted a review of the soybean industry in 7 Southern African countries

Our approach: To develop this roadmap, we collected primary data, used existing research and worked with industry leaders and leading global experts in soybeans all along the value-chain.

Project background and objectives

- **Objective**: To develop a *Multi-Country Strategic Soybean Industry Roadmap,* which will:
  - Outline current and potential production of both smallholder and commercial soybean
  - Detail options for surmounting challenges to a competitive, Southern Africa soybean industry
  - Lay the foundation for a regional soybean industry group that can help bolster, sustain and monitor growth in this industry
- **Timing:** This study is part of a four-year program to develop a regionally competitive soybean value chain, focusing first in Mozambique and Zambia. Critical to the success of the program is a deeper and actionable understanding of the potential growth in the larger soybean industry across Southern Africa.

Background: The steering committee of this work ensured that we had guidance from several leaders of the industry

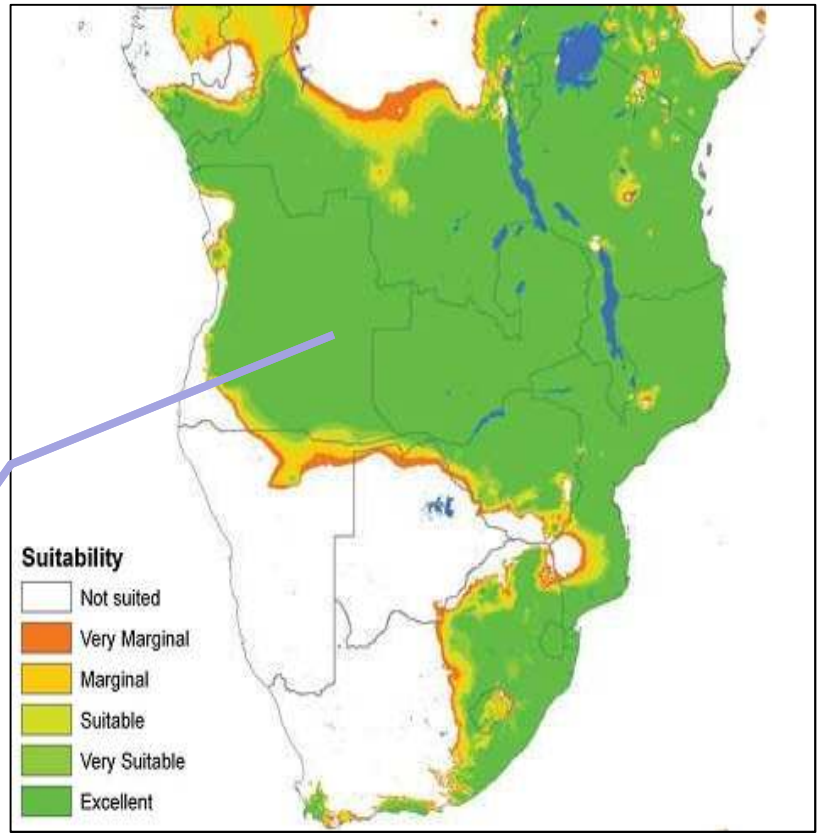
Relevance to Africa: soybeans are both attractive to Africa and well suited to its agro-climatic conditions

Advantages of soybeans

- A robust soybean sector will spur development of other sectors (livestock, particularly poultry)
- Soybean consumption by humans improves nutrition levels
- When rotated with maize, soybean improves maize yields by 10% - 20% by fixing nitrogen in the soil
- Soybean is a relatively simple and low cost crop to grow with a short growing season
- It is relatively easy to add value in-country by processing soybeans
- There is a rapidly growing existing market for soybeans in the region

SSA and Latin America are similar in terms of the important agro-climactic characteristics for soybean production
- the same latitude
- similar evapo-transpiration rates (ET)
- similar solar radiation rates
- similar rainfall patterns (wet summers) and total annual precipitation volumes
- similar macro-climatic patterns driven by west coast - cold ocean water currents and east coast warm ocean currents

Soybean agro-climatic suitability map



Source: Agland analysis, TechnoServe analysis

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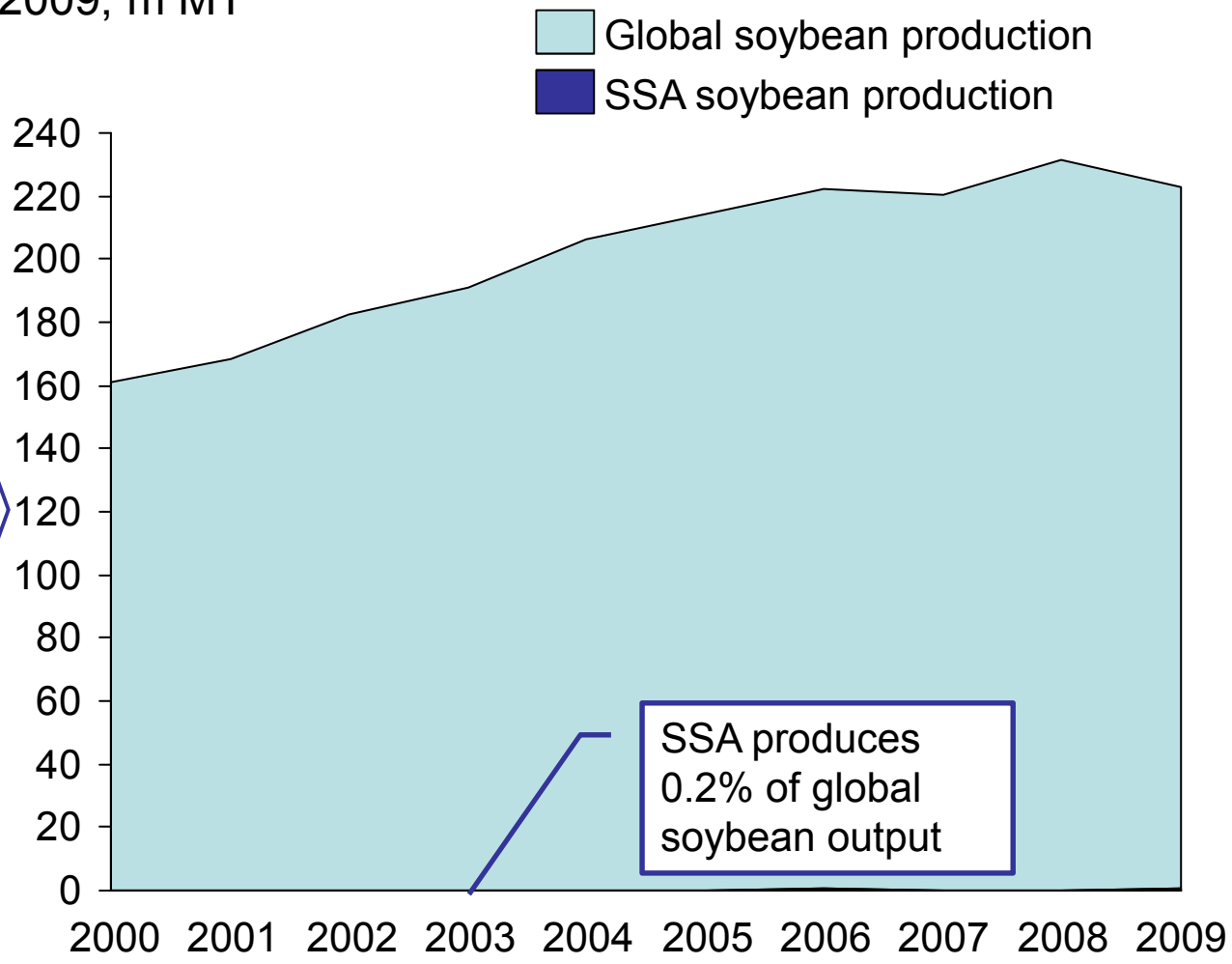
World soybean production: global production has grown rapidly over the last decade, but SSA is still a marginal producer

Soybean production, 2000-2009, m MT

Global growth drivers

- Demand growing with
  - Poultry & livestock consumption
  - China, increasing incomes
  - Global population growth
- Production growing with
  - Improved genetics
  - New land opening up



Source: **FAO**

Production & productivity

- Background
- Production & productivity
  - Regional production
  - Commercial & smallholder output
  - Productivity & inputs
- Demand
- Costs & competitiveness
- Forecast
- Challenges
- Vision & impact
- Recommendations

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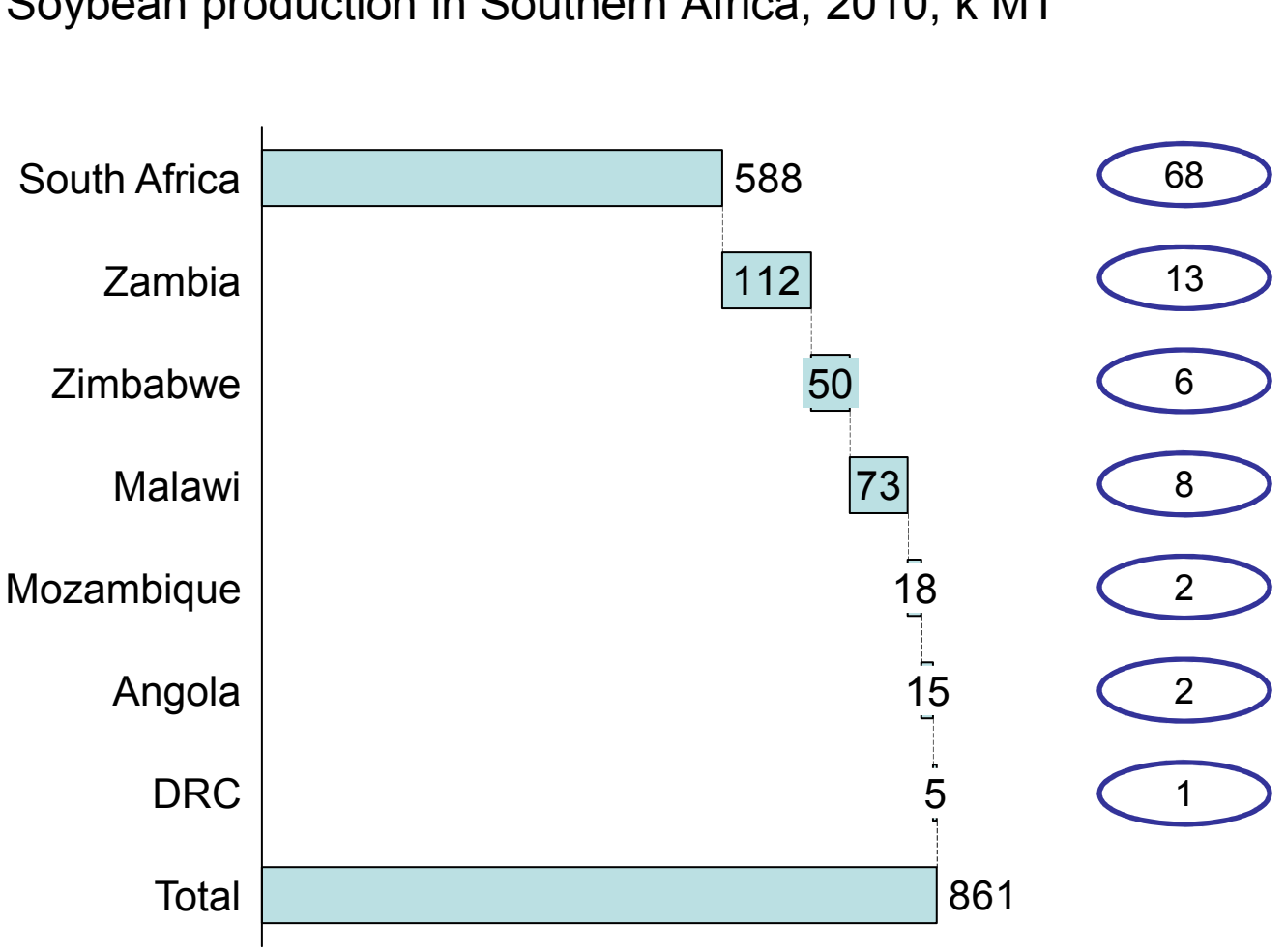
Regional soybean production: the region produced 861k MT in 2010, with South Africa making up 68% of production

Soybean production in Southern Africa, 2010, k MT



"If transport and other infrastructure challenges can be addressed, soybean production has a great future in southern Africa" *Commercial farmer, Zambia*

Source: TechnoServe country analyses, NAMC country analyses

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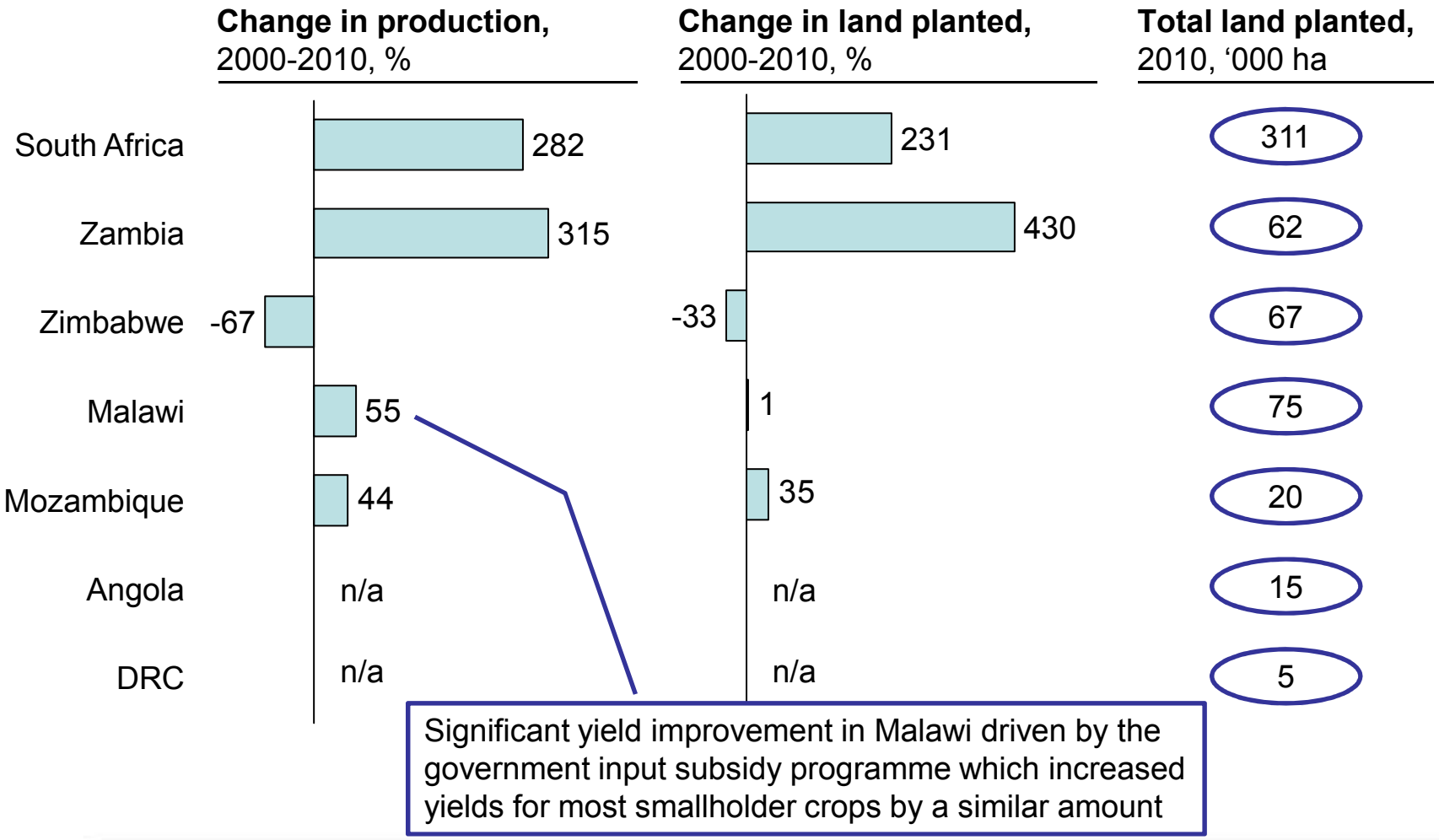
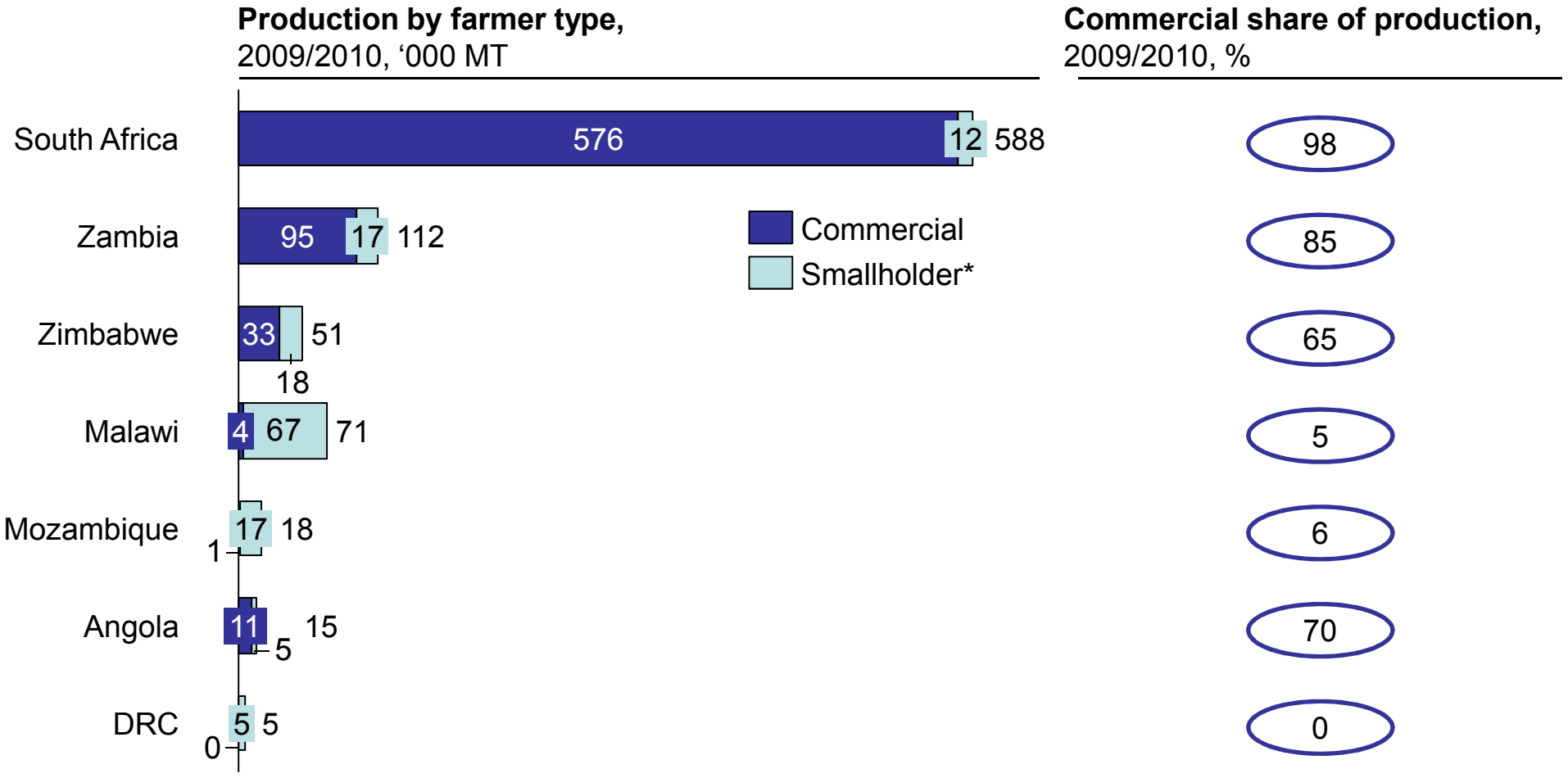
Change in production: production in South Africa and Zambia has grown rapidly, driven by increased land planted



Source: TechnoServe country analyses, NAMC country analyses

Soybean production by farmer type: most of the large producers are dominated by commercial farmers



Source: TechnoServe country analyses, NAMC country analyses

* Defined as farmers planting on less than 3hs in total

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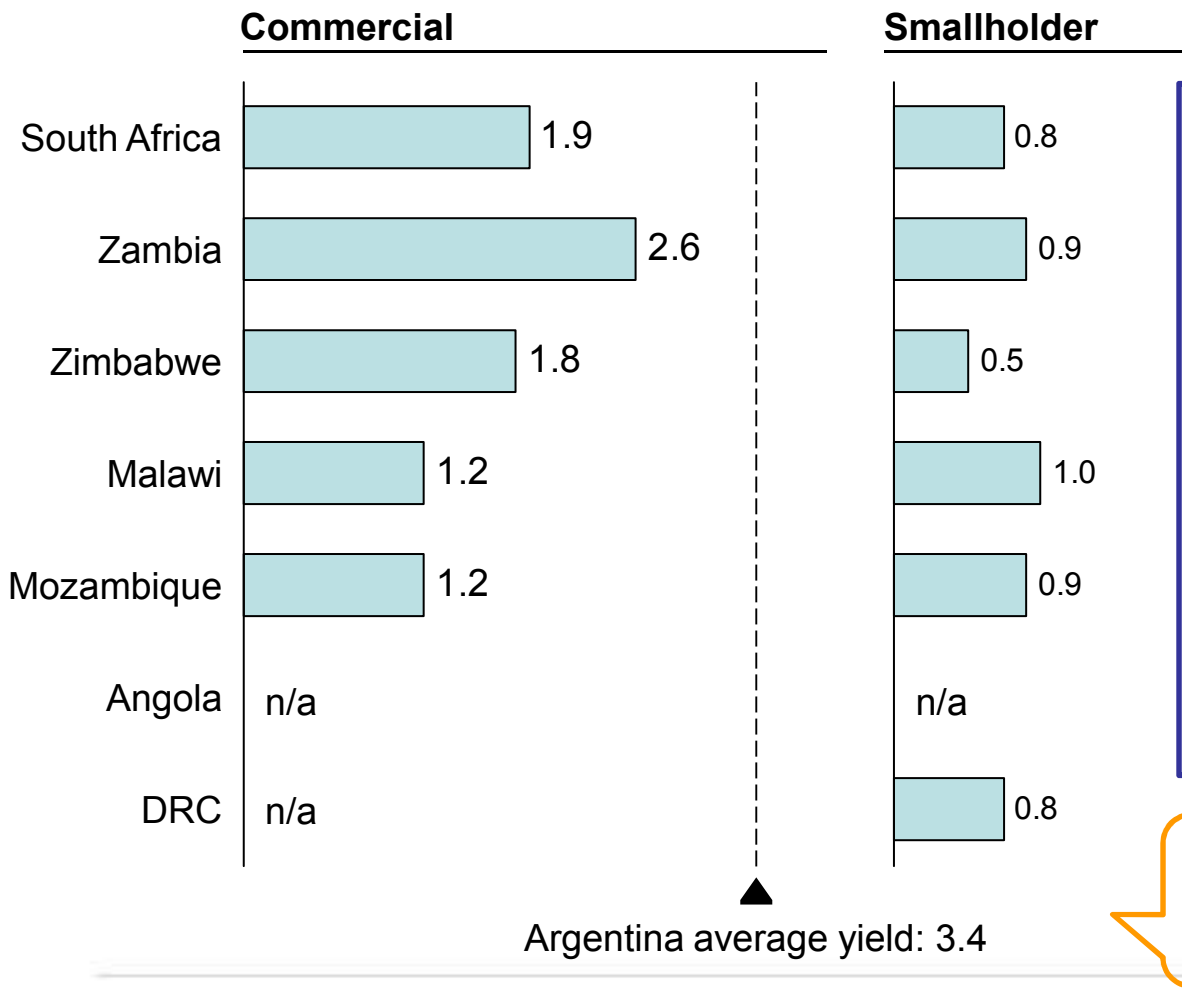
Soybean yields: yields are lower than Argentine yields, making soybean a marginally profitable crop in the region

Soybean yields, 2010, MT / ha



- Across the region, **only the best commercial** farmers with yields above 3.0 **consistently make a profit** from soybeans
- The **best route to consistent profitability** for commercial producers is through **irrigation** (which can double yields, as done extensively in Zambia)
- Soybean is **profitable** for **smallholders** on a **cash cost** basis, but not when the value of their labor is included

"Most farmers expect to make good money on soy 1 year in 3."
Commercial farmer, Zambia

Source: USDA/FAS; International Trade Reports/Oilseeds, TechnoServe country analyses, NAMC country analyses

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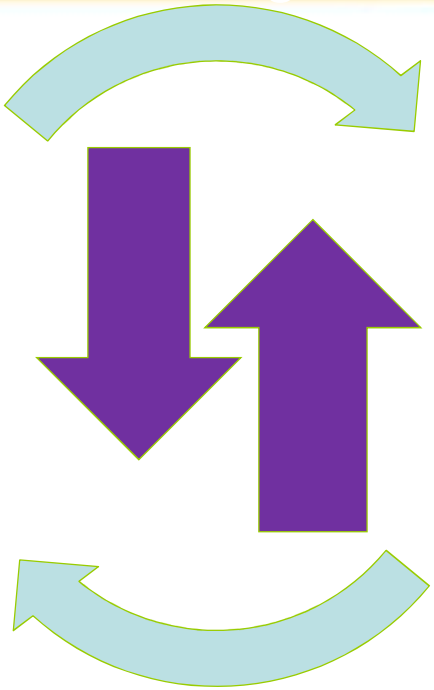
Production practices: farmers in the region typically balance the soybean and maize against each other

- Due to maize surpluses, **maize prices have decreased** despite international maize price increases, which makes **soybean more attractive** (and maize less attractive)
- As farmers **reallocate land from maize to soybean** through crop rotation, **maize prices will rise** as the surplus shrinks



- **Increases in maize prices** makes **soybean less attractive** (and maize more attractive)
- Farmers will then **switch from soybean back to maize**, which would **repeat this cycle**

- Farmers make rational economic decisions on their cropping mix based on:
  - Crop prices & relative profitability
  - Household food security
  - Market access (transaction costs)
  - Subsidies
  - Agronomic knowledge
  - Suitability of soil & water to crop

"Farmers in South Africa decide how much soy to plant based on soy and maize prices the year before." *Commercial farmer, South Africa*

Source: Interviews, Agland analysis, TechnoServe analysis

Farm level decision making: smallholders choose to grow soybeans only when it is more attractive than other cash crops or to diversify their crops

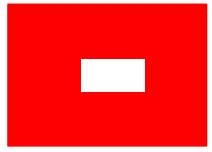
Pros and cons of soybean production for smallholders

Advantages of soybeans

- Low cash input required
- Cash crop with ready market
- Carryover soil nitrogen
- Crop diversification
- Soybean input subsides (Malawi)
- Can be more profitable than alternative cash crops (e.g., cotton in Malawi)
- In countries with significant malnutrition, smallholders value the high protein content
- Not easy to steal

Disadvantages of soybeans

- Yield and income variable by annual rainfall and geography
- Soybeans are not typically consumed by smallholders
- Subsidies (production packages) for other crops
- Transaction cost may be high if the market is distant from producers
- Can be less profitable then alternative cash crops (e.g., tobacco in Zimbabwe)
- Need for inoculant
- Requires processing



On balance soybean is viewed as a rational choice to include in a smallholder's crop mix as witnessed by 200,000+ small farmers in the region that produce the crop annually.

Source: Interviews, Agland analysis, TechnoServe analysis

Agricultural practices: Production practices are only good among commercial farmers in South Africa, Zambia and Zimbabwe

Country	Commercial	Smallholder
South Africa	• The best are world class	• Limited data - v. small number of producers
Zambia	• Well-developed	• Rudimentary • Low priority crop compared to maize
Zimbabwe	• Excellent	• Mostly inexperienced - poor practices
Malawi	• n/a	• Few inputs used, but low-cost producers
Mozambique	• Very few producers • Current producers are poor	• Limited production; few inputs used - exception of improved seed (50%)
Angola	• n/a	• n/a
DRC	• n/a	• Extremely small volumes produced - limited inputs used • Variable, but generally poor practices

"What do smallholders do wrong? Everything." *Extension officer, Zambia*

Source: TechnoServe country analyses, NAMC country analyses

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Utilization of soybean farm inputs: while inputs are widely available, they are only well used in South Africa and Zambia

○ Bad
● Good

	Importance of market	Market characteristics
South Africa	●	• All inputs widely available and used
Zambia	◑	• Inputs generally available, but expensive as most are imported • Commercial farmers use inputs, smallholders do not
Zimbabwe	◔	• Inputs widely available but not widely used, due in part to a lack of credit
Malawi	○	• Poor availability of inputs • Even when available, inputs rarely used
Mozambique	○	• Poor availability and high cost of inputs • Even when available, inputs rarely used
Angola	○	• Inputs imported from Brazil • Commercial farmers use inputs, smallholders do not
DRC	○	• Poor availability and high cost of inputs • Even when available, inputs rarely used

"I don't use any inputs except seeds – this makes soy a cheap crop for me." *Smallholder, Mozambique*

Source: TechnoServe country analyses, NAMC country analyses

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Demand

- Background
- Production & productivity
- Demand
  - Current demand by country
  - Processing capacity
  - Capacity utilization
- Costs & competitiveness
- Forecast
- Challenges
- Vision & impact
- Recommendations

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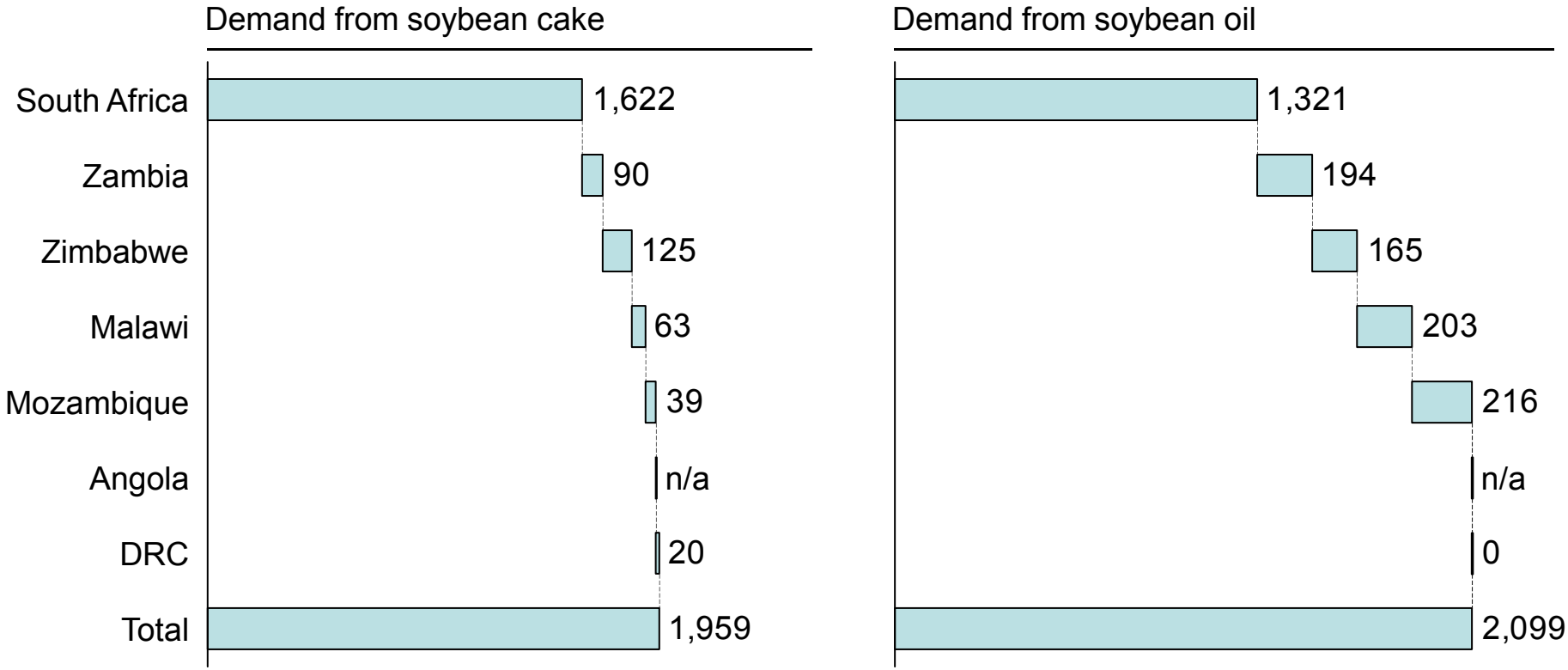
Demand for cake & oil: South Africa dominates the region and oil demand generally exceeds cake demand

Demand for cake & oil in soybean equivalent, 2010, k MT

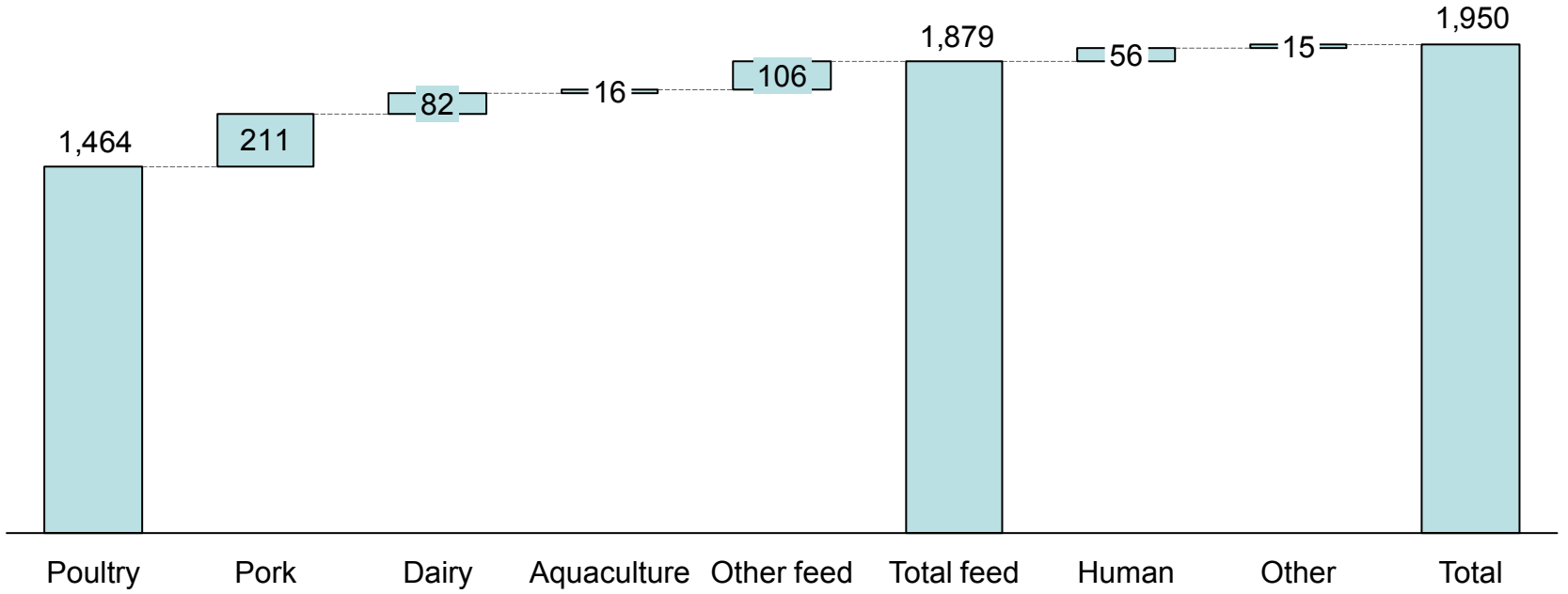


- Throughout this discussion, soybean cake and soybean oil demand are converted into soybean equivalent, calculated by assuming that, when processed, soybean yield 80% cake and 18% oil
- As processors must be able to sell both the cake and oil produced, we have assumed that the market is limited at the lower of the cake and oil demand in each country

Source: TechnoServe country analyses, NAMC country analyses

Disaggregated demand cake: the poultry feed industry is the main consumer of soybean cake across the region

Demand* for soybeans for cake**, 2009/10, k MT



"The poultry market has grown exponentially in Zambia, more than doubled in 10 years…we expect it to grow 25% next year." P*oultry association, Zambia*

Source: TechnoServe country analyses, NAMC country analyses

* Excludes Angola

** Calculated by taking total demand for cooking oil (soybean, palm, sunflower) and dividing by solvent oil extraction rate of 18%

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Competing products: palm oil is a significant competitor for soybean oil, but soybean cake has no competitive substitute

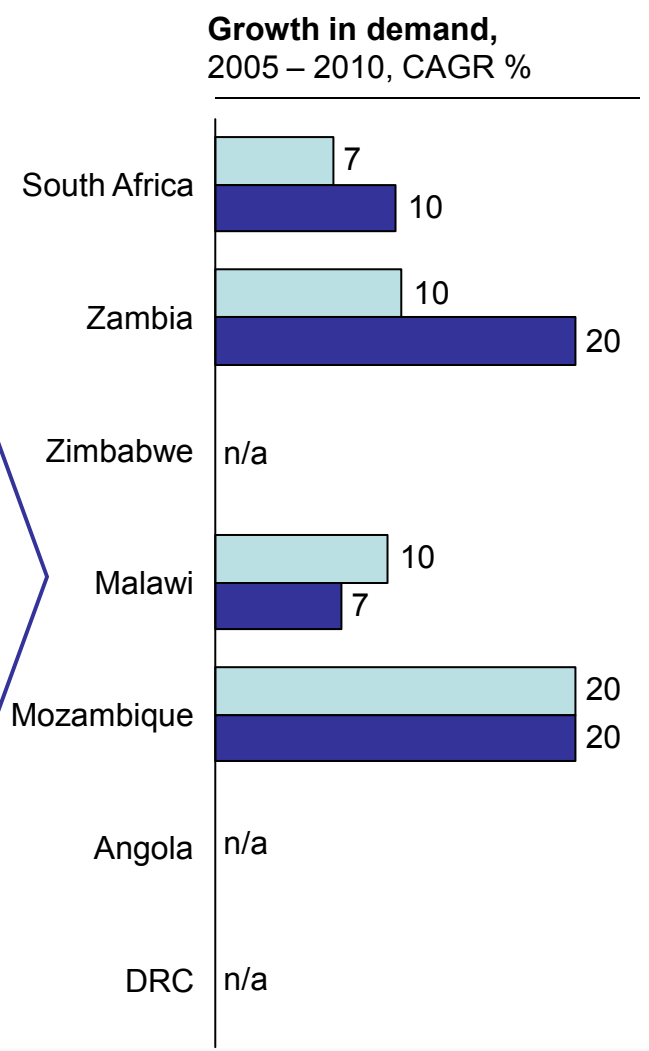
	Main competitor	Strength of competition
Soybean Cake	•Cotton cake	•Weak – limited use for poultry & pigs
	•Sunflower cake	•Weak – lower protein, higher fibre
Soybean Oil	•Palm oil	•Strong – palm oil is 10%-20% cheaper and market is generally price sensitive
	•Sunflower oil	•Strong (South Africa) – sunflower oil is preferred oil in South African market due to taste & health

"Palm oil will play an increasingly important competitive role in the region in the future" *Trader, Zambia*

Source: Interviews, Agland analysis, TechnoServe analysis

Change in demand: the market has grown rapidly over the last 5 years, driven by the poultry market

As average incomes and populations rise:
- Demand for animal protein rises, leading to a growing market for chicken (the cheapest animal protein) and, in some cases, fish
- Demand for cooking oils rise
- In time, consumers will move away from cheap oils and purchase based on taste and health



Demand characteristics

- Cake demand driven by poultry industry
- Vegetable oil market dominated by sunflower oil; soybean oil demand fell by 50% in 2008 due to rise in soybean prices

- Cake demand driven by poultry industry
- Soybean oil is main source of vegetable oil; palm oil is a close second

- Cake demand driven by poultry industry, though aquaculture and pork are also growing rapidly
- Soybean oil makes up 50% of the vegetable oil market

- Cake demand driven by poultry industry and market for human consumptions (Corn Soy Blend and soybean pieces)
- Soybean oil has 70% of oil market; palm oil 25%

- Cake demand driven by poultry industry
- Soybean oil demand is significant and almost all imported

- Cake demand is very low as most poultry is imported
- Soybean oil is all imported

- Cake demand is dominated by poultry producers
- Vegetable oil market dominated by palm oil

Source: TechnoServe country analyses, NAMC country analyses

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Human nutrition: the demand for soybean for human nutrition is important in Malawi and the DRC

○ Low
● High

	Importance of market	Market characteristics
South Africa	◔	• Demand for soy chunks is small but increasing • Cultural challenges in increasing soybean consumption among smallholders
Zambia	◔	• Demand for soy chunks is small but increasing • Cultural challenges in increasing soybean consumption among smallholders
Zimbabwe	◔	• Demand for soy chunks is small but increasing • Previously a significant destination for Corn Soy Blend, but this has tarnished soy's reputation as an aid food
Malawi	●	• Significant consumer and regional exporter of Corn Soy Blend • Long established market for likuni phala • Soy chunks markets is large and growing rapidly (100% growth p.a.)
Mozambique	○	• Cultural challenges in increasing soybean consumption among smallholders
Angola	○	• Low demand as other crops are easy to grow and there are cultural challenges in increasing soybean consumption among smallholders
DRC	●	• Significant use of soybean to fight malnutrition, led by a variety of NGOs
Regional	◔	• Long standing Corn Soy Blend market dominated by World Food Programme

Source: TechnoServe country analyses, NAMC country analyses

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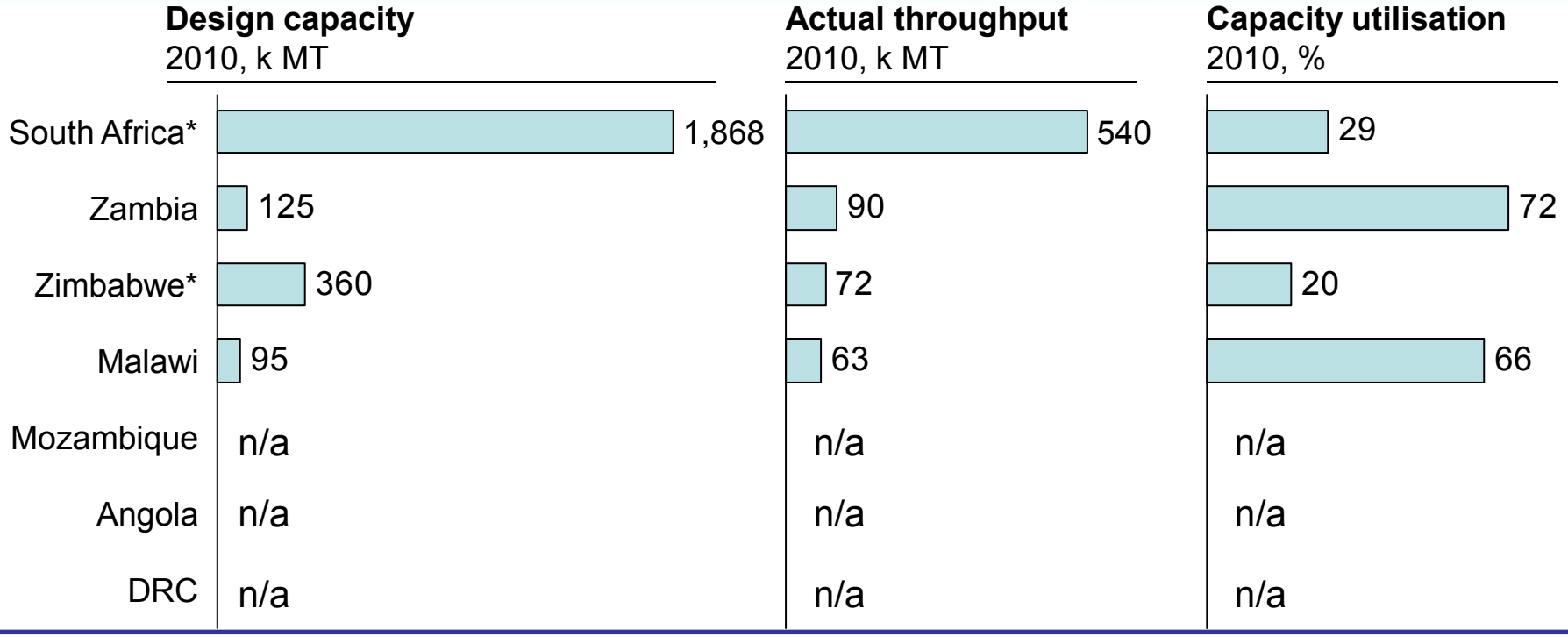
Capacity utilisation: utilisation is low across the region, and more new capacity is coming on line



- 1,648k MT of new capacity is being added as processors seek to capitalise on industry growth
  - 1,333k MT in South Africa
  - 30k MT in Zambia
  - 100k MT in Zimbabwe
  - 185k MT in Malawi

Source: TechnoServe country analyses, NAMC country analyses

* Includes all dual processing capacity

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Cost & competitiveness

- Background
- Production & productivity
- Demand

Costs & competitiveness

- Operating environment
- Unit costs
- Competitiveness
- Trade flows

Forecast

Challenges

Vision & impact

Recommendations

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Policy environment: there is little government support for the industry in the region

○ Bad
● Good

Country	GMO	Land	Trade	Direct government involvement	Govt involvement in competing crops
South Africa	✓	◑ Land reforms are underway, but slowly	◑	○	◑
Zambia	✗	◑	○ Regular administrative bans on exports	○	○ Government subsidises and guarantees maize market
Zimbabwe	✗	○ Mixed / unclear land tenure	◑	○	◑ GMB maize prices distort market
Malawi	✗	○	◑	◑ Some soy seeds distributed	○
Mozambique	✗	◑ • Welcomes	◑	◑ Government supporting smallholders	◑
Angola	✗	◑ commercial investors	◑	◑ Government considering import tariffs	◑
DRC	✗	◑	◑	○	●

"The introduction of five genes in Africa (Bt for caterpillars, Bt/CpTi for beetles, Snowdrop gene for aphids & sapsuckers, Roundup Ready, and nematode resistance) would increase agricultural production on the continent by 20-40 percent." *Plant scientist, Zimbabwe*

Source: TechnoServe country analyses, NAMC country analyses, Agland analysis

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Operating environment: finance is generally difficult to get / afford and transport links are poor

○ Bad
● Good

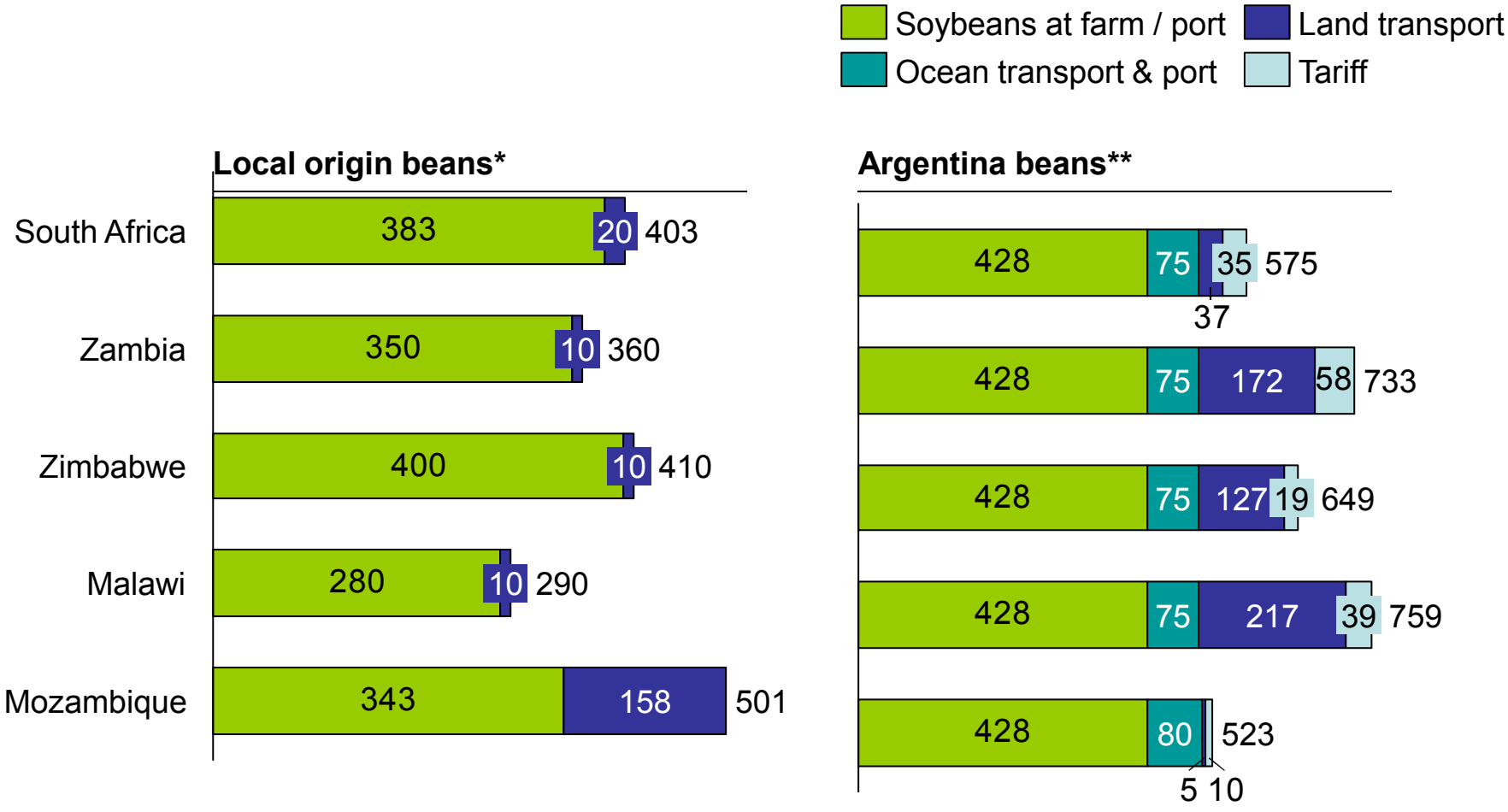
	Credit / finance	Transport & storage
South Africa	● Credit and finance available to commercial farmers	● Transport links are good • Adequate storage
Zambia	◑ Credit and finance is available to commercial farmers, but is expensive	◑ Transport costs are high and secondary road quality is poor • Storage facilities are improving
Zimbabwe	○ Significant lack of liquidity in the country in general	● Transport links are good • Adequate storage
Malawi	○ All smallholder production with little access to finance	◑ Roads are reasonable but prone to flooding • Shire-Zambezi waterway could improve access to ports • Storage is adequate
Mozam-bique	○ All smallholder production with little access to finance	○ Transport is poor • Production is far from demand • Inadequate storage
Angola	○ Difficult to access finance, though New Agricultural Bank should help	○ Transport is poor but improving with investment in rail and ports • Inadequate storage
DRC	○ All smallholder production with little access to finance	○ Transport is poor but improving • Inadequate storage
Regional		○ Border delays hamper regional trade

"The region is generally competitive on soybean production costs, but poor infrastructure and high transport costs constrain competitiveness globally; must be able to get it out for $30-40/mt, not $100." *Trader, Zambia*

Source: TechnoServe country analyses, NAMC country analyses, Agland analysis

Soybean delivered cost: domestic soybeans are competitive against imported soybeans in all countries

Cost of soybean delivered to local processor, December 2010, USD / MT



Source : USDA/FAS; International Trade Reports/Oilseeds.TechnoServe country analyses, NAMC country analyses

* Costs Include: soybeans & transport

** Costs Include: soybeans, duty & transport

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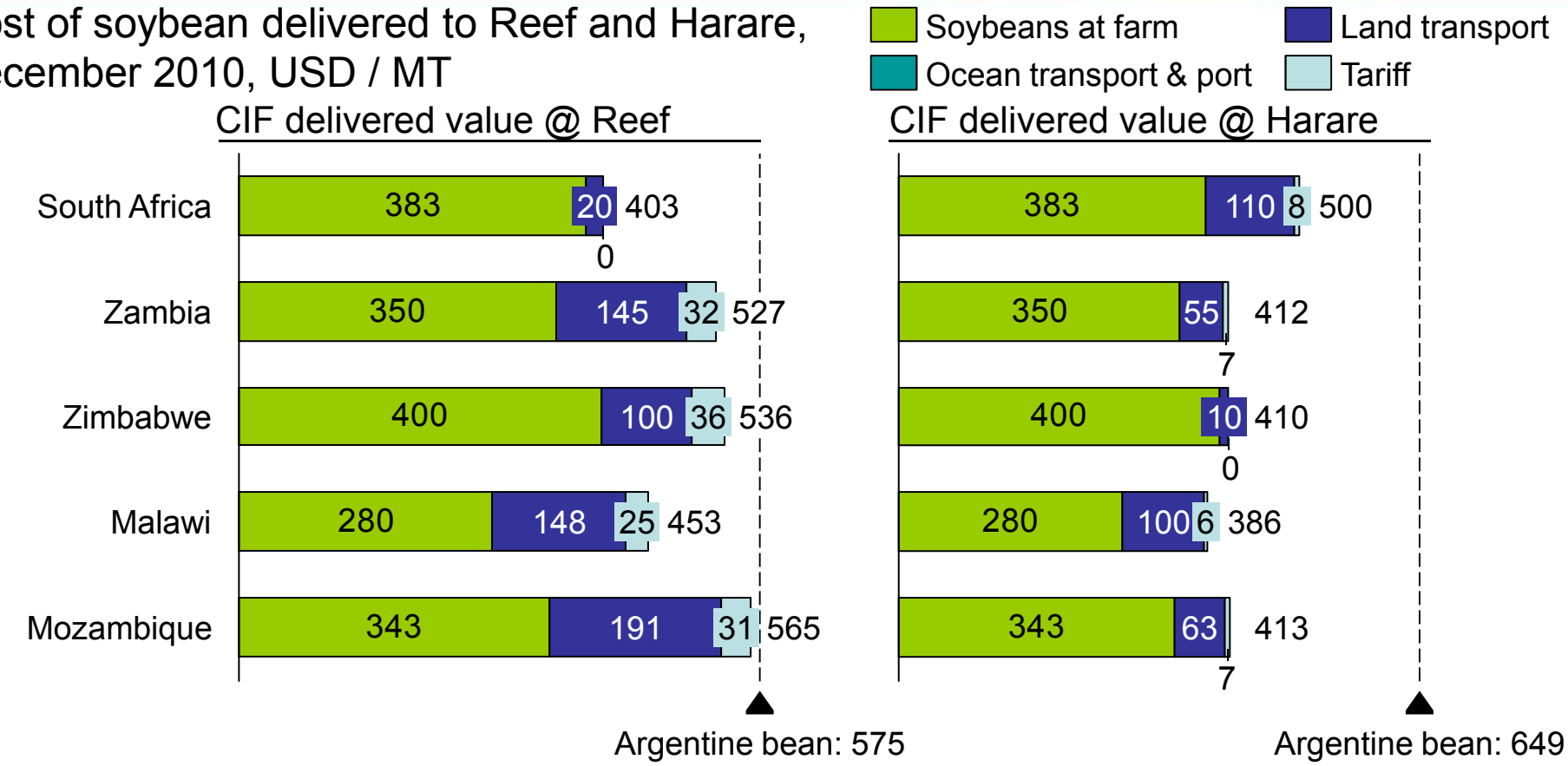
Soybean delivered costs: on a pure cost basis, trade within the region is competitive against Argentine beans

Cost of soybean delivered to Reef and Harare, December 2010, USD / MT



- While regional beans are price competitive vs. Argentina, Argentine beans are competitive because
  - They are a more reliable source
  - There are lower aggregation costs

Source: USDA/FAS; International Trade Reports/Oilseeds,TechnoServe country analyses, NAMC country analyses

* Defined as cost of imported soybeans to main market less cost of transport from main domestic production area to main market

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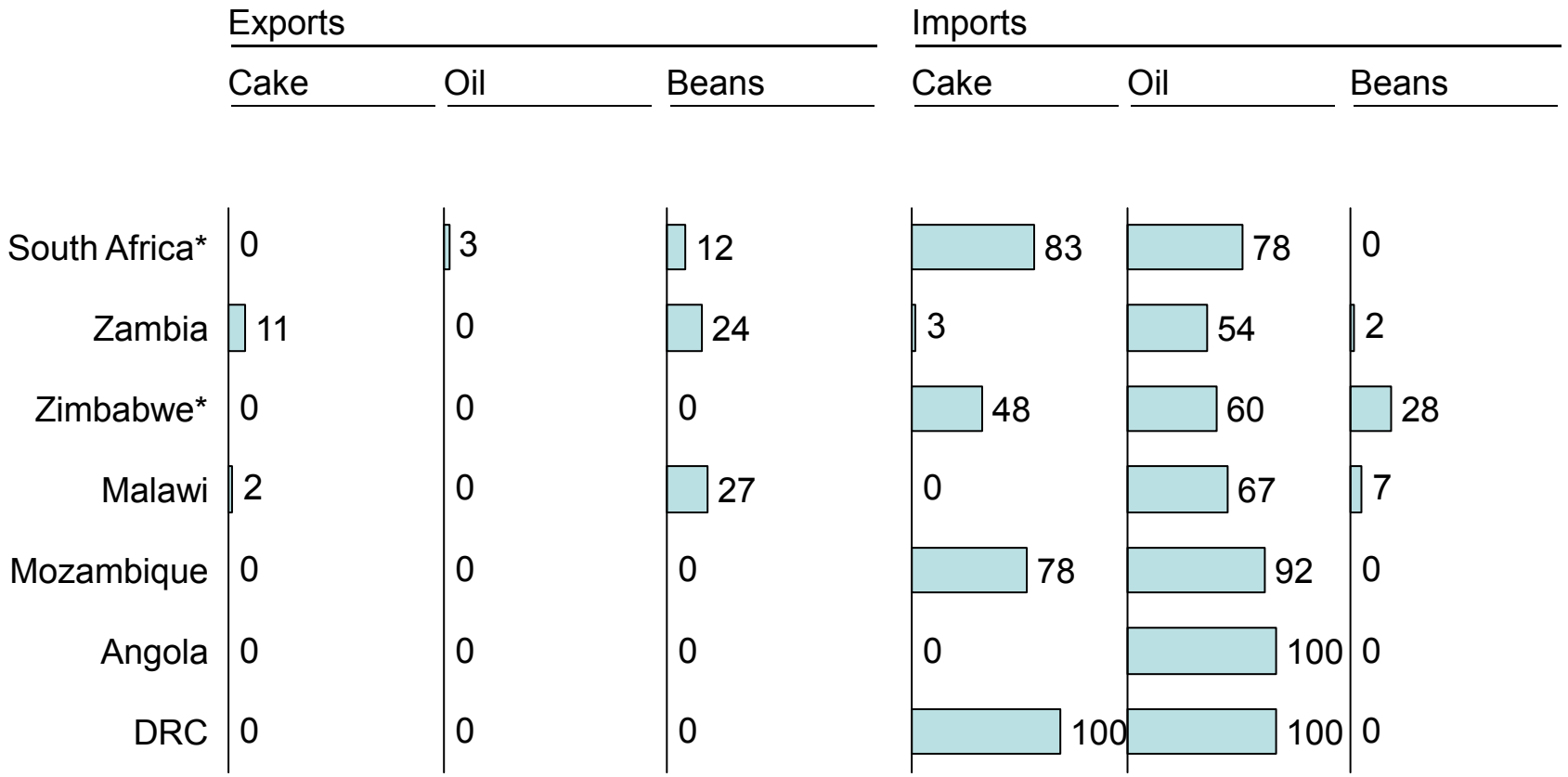
Regional trade: The region is a significant net importer of processed soybean products

Imports and exports as share of domestic demand, 2010, %



"When I want soy cake from Argentine, I pick up the phone and 6 weeks later it is here – no problem." *Processor, South Africa*

Source: TechnoServe country analyses, NAMC country analyses

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Forecast

- Background
- Production & productivity
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- Costs & competitiveness
- Forecast
  - Forecast demand and drivers
  - Production estimates
  - Yield improvements
- Challenges
- Vision & impact
- Recommendations

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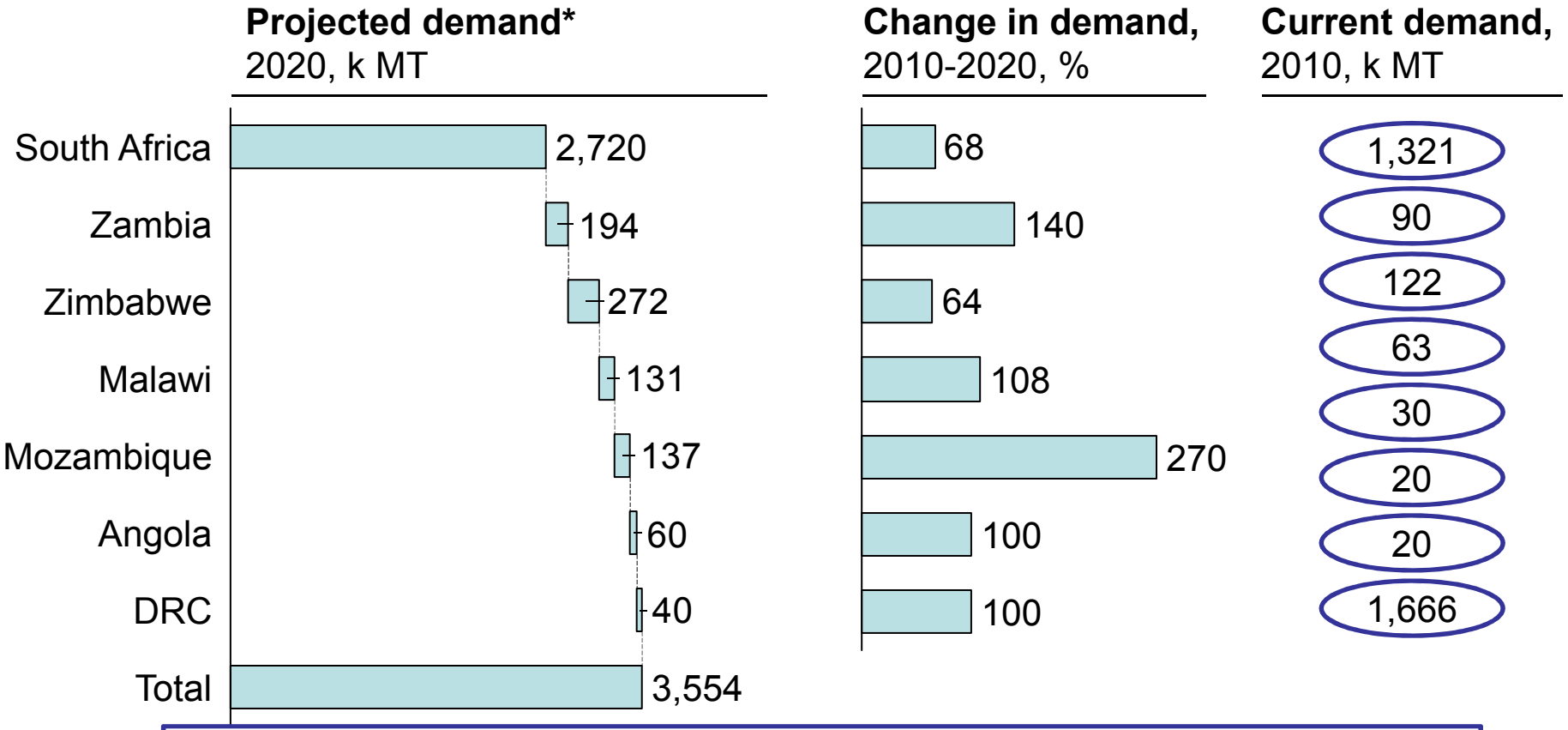
Demand forecast: Demand is expected to more than double in the next decade



- The market for soy oil in all countries except South Africa and Zimbabwe is already so large that, even without growth, it can already absorb all of the additional oil that would be produced to meet projected cake demand

Source: TechnoServe country analyses, NAMC country analyses

* Growth projections based on a triangulation between the perspectives of experts in the soybean industry and in industries that use soybean, growth projections for the main users of soybeans, historic growth, and projected GDP and population growth

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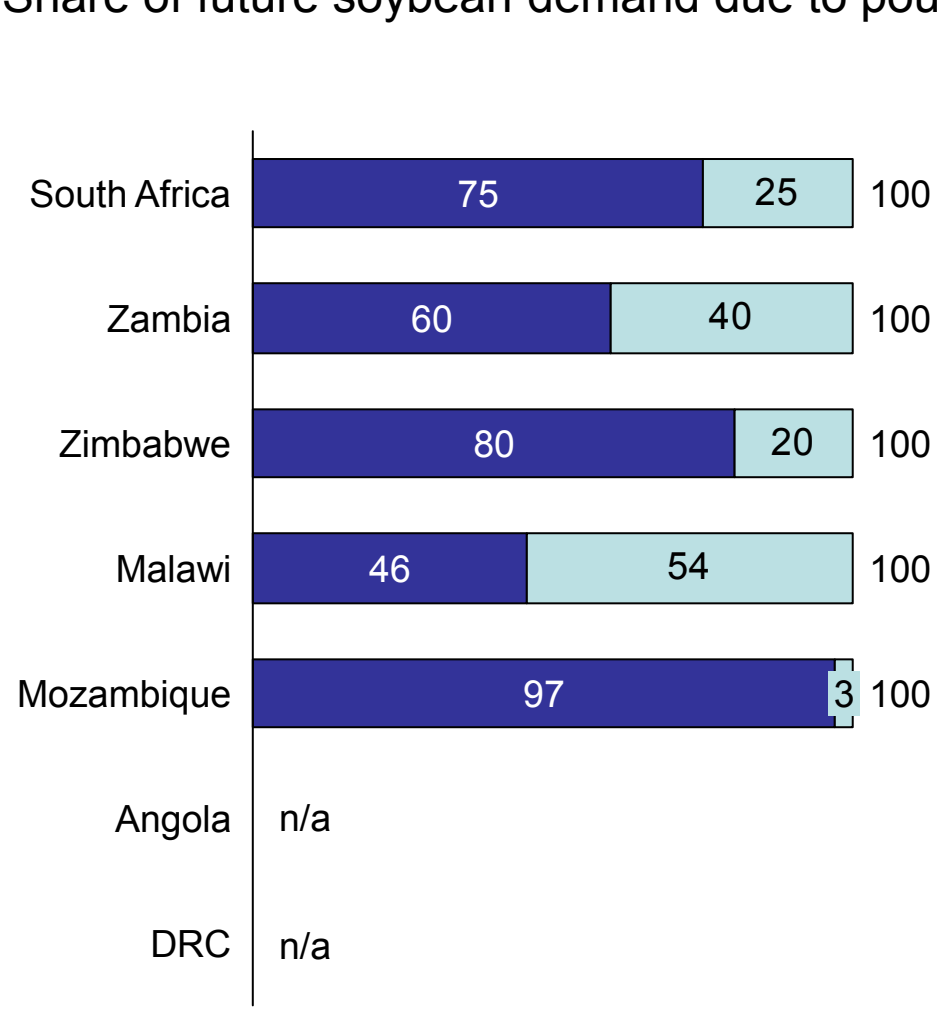
Demand drivers: the poultry market is expected to continue to be the main driver of soybean in the next decade

Share of future soybean demand due to poultry growth, 2010-2020, %



- Poultry will continue to be the key growth driver for soybean cake demand
- Palm oil will become an increasingly important competitor to soybean oil in the second half of the decade
- Human nutrition market will be an important source of growth in Malawi and DRC

Source: TechnoServe country analyses, NAMC country analyses

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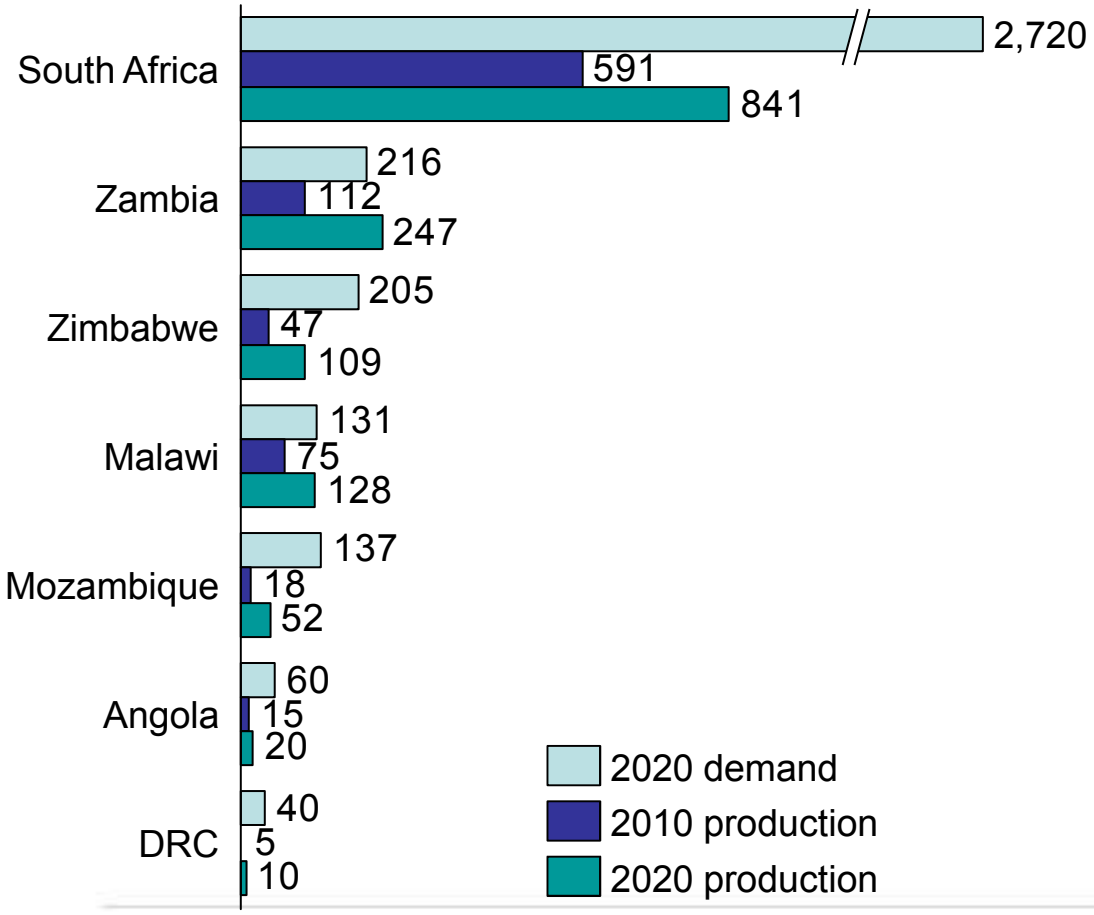
Projected trade balance: without significant action, the region is likely to remain in deficit for the next decade

Projected demand vs. current and projected* production, k MT



Assumptions	
Yield change, % p.a.	**Additional area**, %
1	30
1	100
6	30
2	37
1	260
0	30
0	100

Source: TechnoServe country analyses, NAMC country analyses, Agland analysis

* Based on no significant intervention in the soybean industry

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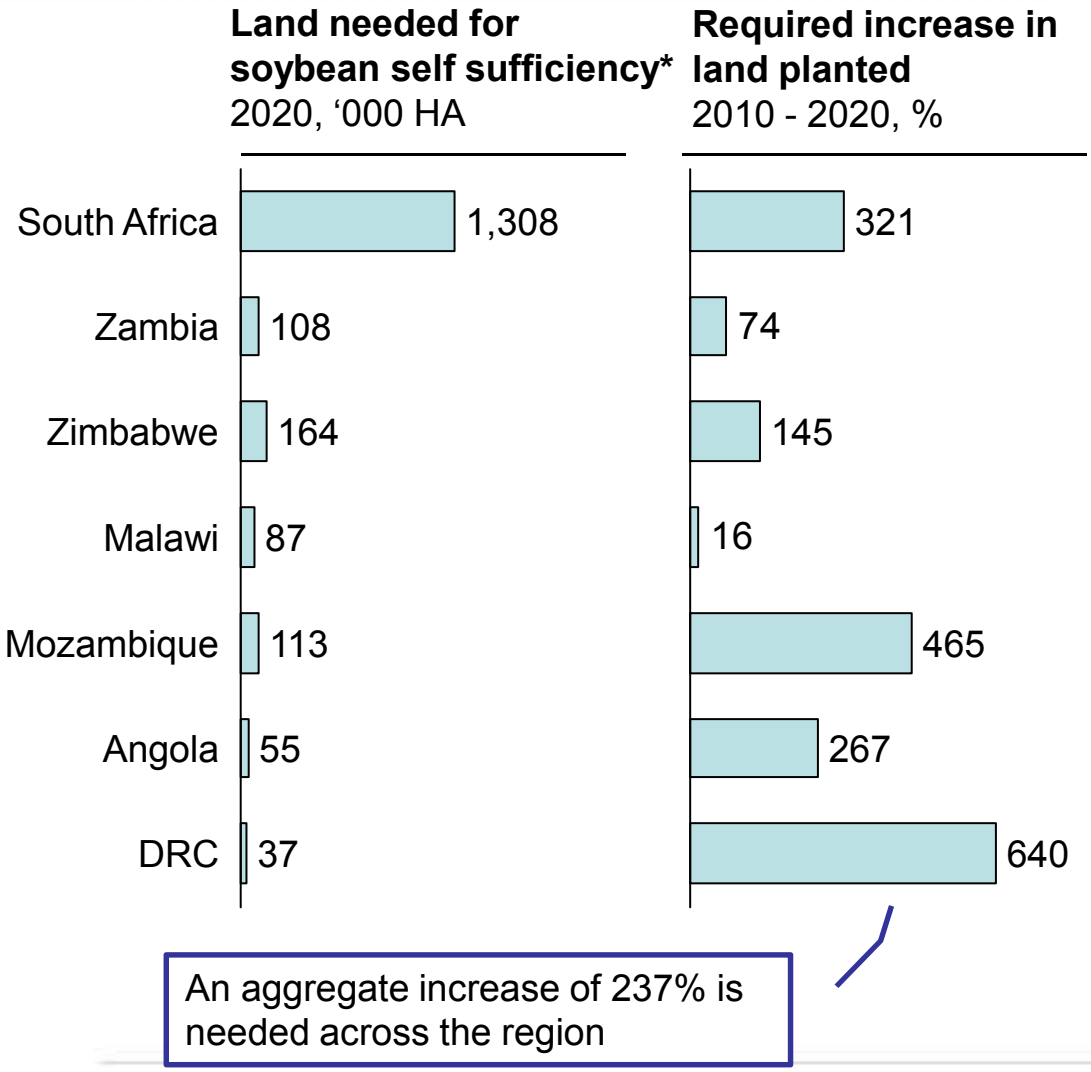
Resource base: the region would have to increase the area planted with soybean by 237% to be self sufficient by 2020



Comments

- Requires a shift of land from maize
- Requires improved infrastructure and clearer land tenure to open up new land
- Requires clearer land tenure and credit to open up new land
- Requires a shift to maize / soybean rotation among smallholders
- Requires a continued expansion of soybean programmes
- Requires an improvement in market linkages
- Requires a continued expansion of soybean programmes

Source: TechnoServe country analyses, NAMC country analyses, Agland analysis

* Assumes yield improvements detailed on previous page

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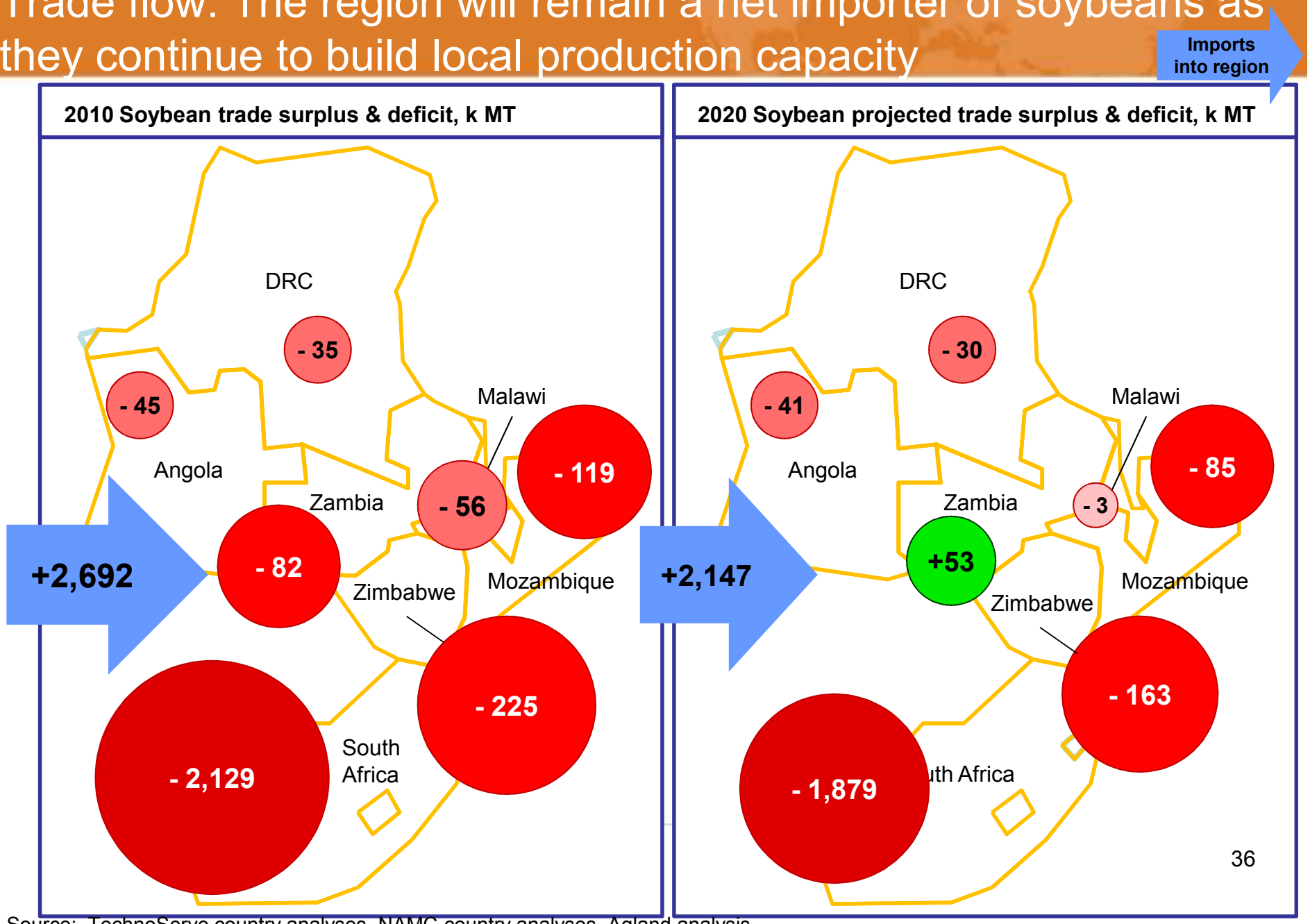
Trade flow: The region will remain a net importer of soybeans as they continue to build local production capacity



Source: TechnoServe country analyses, NAMC country analyses, Agland analysis

Challenges

- Background
- Production & productivity
- Demand
- Costs & competitiveness
- Forecast
- Challenges
  - Soybean specific challenges
  - General challenges

Vision & impact

Recommendations

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Challenges: the region faces a number of challenges specific to soy that the industry should address

Challenge	Impact	Countries affected
Poor agronomic practices	• Poor agronomic practices, particularly among smallholders, mean that yields are 25% lower than they could be, reducing total production and farmer profitability	• Angola, DRC, Malawi, Mozambique, Zimbabwe • Zambia (smallholder only)
Poor input quality and prices	• Farmers (particularly smallholders) choose not to use inputs, leading to lower yields (by up to 25%) and higher costs	• Malawi, Mozambique, DRC
Poor application of research	• While there is considerable research on how to increase soybean yields, poor links to producers mean that much of it is not applied, reducing yields	• All except South Africa
Lack of free trade in soybean products	• Inconsistent trade policy and a lack of free trade limits regional production and keeps prices high	• All, particularly Zambia
Lack of unused land	• A lack of unused suitable means that future production increases will require a reduction in land used to produce competing crops (usually maize)	• South Africa, Malawi
Inconsistent cake protein content	• Variations in the protein content of domestically processed cake makes it less attractive than Argentine cake	• South Africa
Lack of credit	• Credit not available to small holders	• All, except South Africa

Source: TechnoServe country analyses, NAMC country analyses, Agland analysis

Challenges: in addition, the region faces wider challenges which can only be addressed in partnership with others

Challenge	Impact	Countries affected
Unclear land tenure	• Unclear land tenure discourages commercial production and reduces financing available • This is particularly true in Zimbabwe where the land resolution process has not been completed	• Angola, DRC, Malawi, Mozambique, Zambia, Zimbabwe
Poor transport infrastructure	• Poor transport and border delays make it difficult to get the product to market and reduces the competitiveness of soy produced in the region, hampering trade	• In-country: Zambia, Mozambique, DRC • Cross-border: all
Difficult business environment	• The business and policy environment is generally difficult, increasing the cost and risk of operating in country	• Angola, DRC
Non-GMO policy	• The use of non-GMO seeds reduced yields (by up to 20%) and increases production costs	• All except South Africa
Government involvement in competing crops	• Government support for politically charges competing crops (e.g., through input subsidies and guaranteed price and purchase programmes) distort the market against soybean production	• Zambia, Malawi, Zimbabwe
Low national priority of soybeans	• Soybean is a low priority crop (given its low production volumes, low price and cultural barriers to consuming it), making it hard to effect policy change in its favour	• All

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Source: TechnoServe country analyses, NAMC country analyses, Agland analysis

Vision & impact

- Background
- Production & productivity
- Demand
- Costs & competitiveness
- Forecast
- Challenges
- Vision & impact
  - Vision
  - Economic activity
  - Smallholder
- Recommendations

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Vision: we believe the industry could produce 1.2 – 1.4m MT profitably by 2020, driven by commercial producers while supporting 400k smallholders

The industry today

- Total **production** of **<850k MT** across the region with **almost no regional trade**
- **Little commercial production** outside South Africa, Zambia and Zimbabwe
- **200,000 smallholders** producing soy, but with **little expertise and skills**
- **Yields** as low as **80% below** international standards for **smallholders** and **50% below** for **commercial producers**
- **Marginally profitable crop** for commercial producers and profitable only on a cash cost basis for smallholders
- **Low utilisation** of processing capacity

Our vision for the industry

- Total **production** of **1.2 – 1.4m** MT across the region with **increased regional trade**
- **Commercial production well established** in all countries in the region, driving the growth of the industry
- **400,000 smallholders** producing soy, with **good skills** and **market access**, with **support from the private sector**
- **Yields** within **50%** of best international standards for **smallholders** and within **25%** of best international standards for **commercial producers**
- **Consistently profitable** crop for commercial producers and smallholders
- Processing capacity **utilisation significantly improved**

Source: TechnoServe country analyses, Agland analysis

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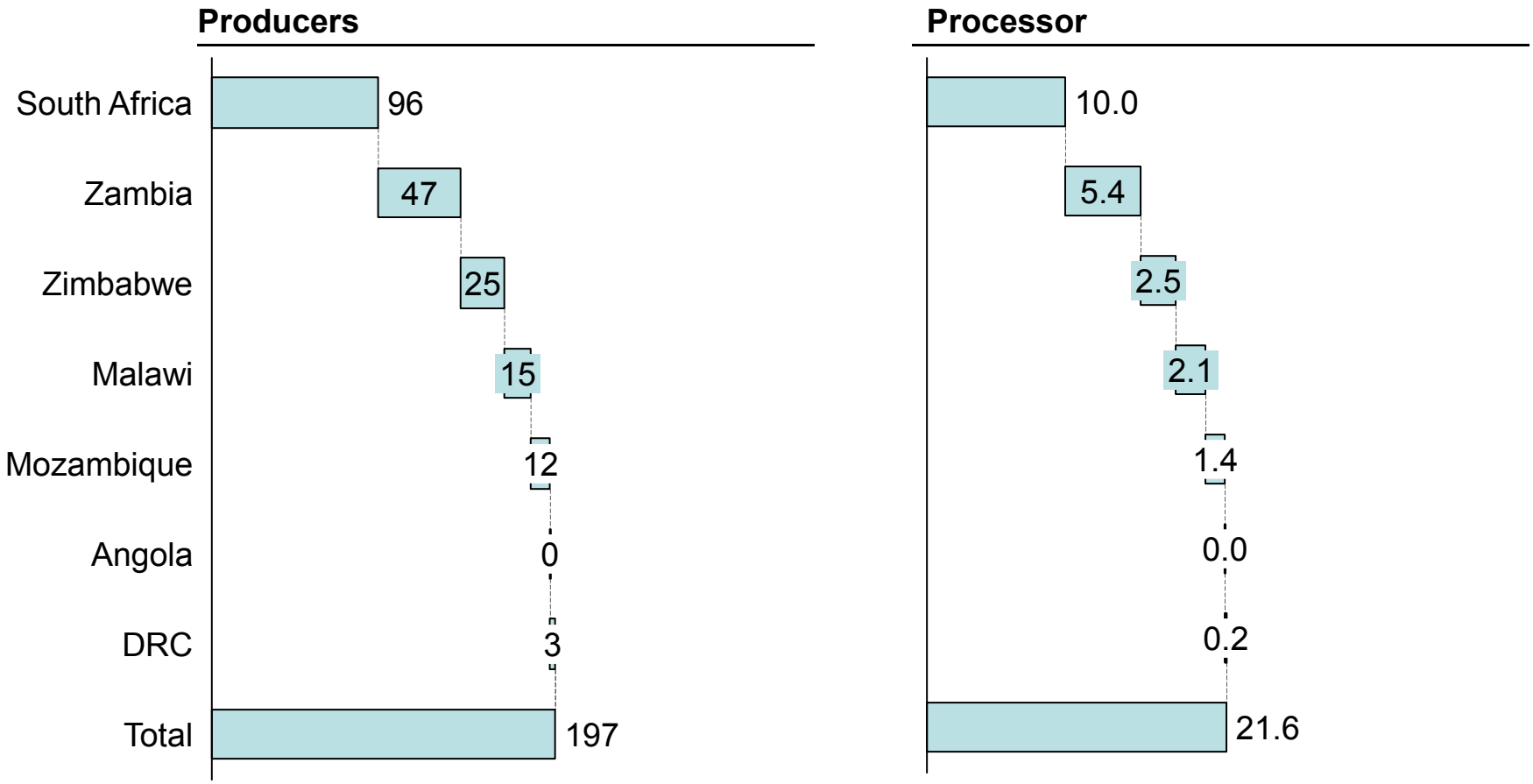
Economic impact: the growth of the soybean industry could create $ 217m p.a. increased income for the region by 2020

Additional income from growth of soybean industry, 2020, m USD p.a.



Source: TechnoServe country analyses, Agland analysis

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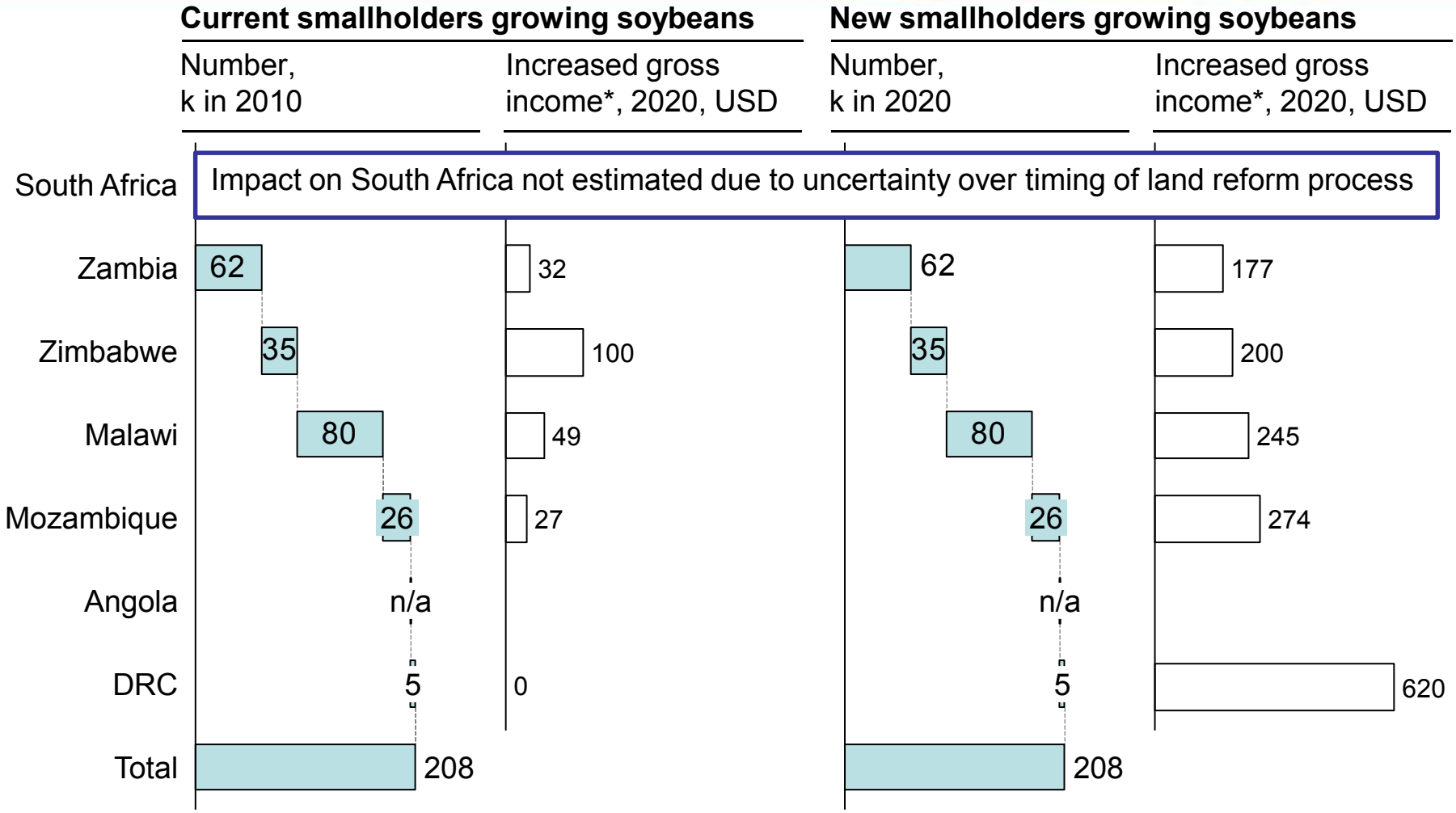
Smallholder impact: this could improve the lives of over 400k smallholders by between $30 and $600 p.a.



Source: TechnoServe country analyses, Agland analysis

* Allows for the cash and labor costs incurred by smallholders, a 10% increase in maize yield when soybean is rotated with maize but excludes the opportunity cost of profits from alternative costs and the benefits of crop diversification

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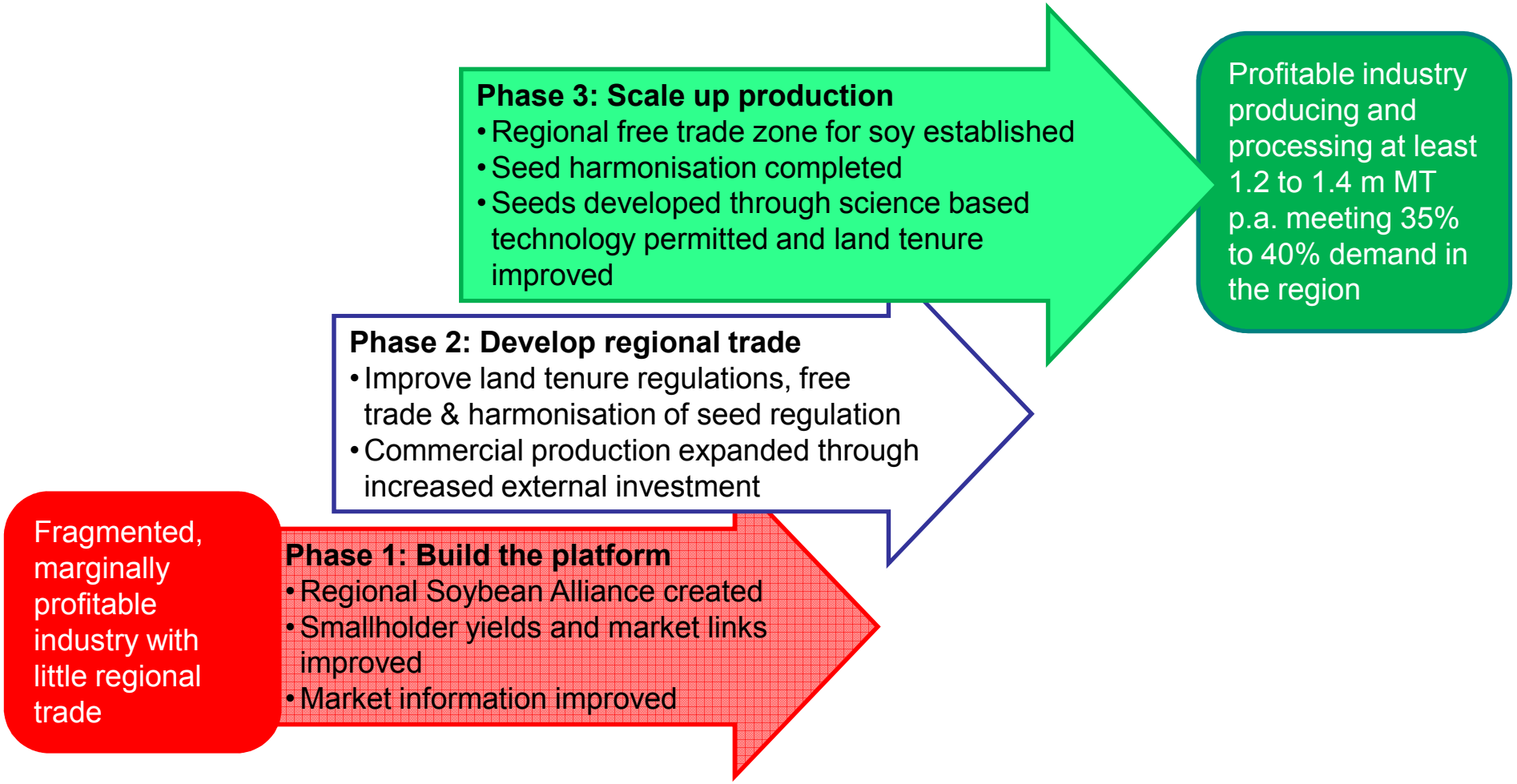
Recommendations

- Background
- Production & productivity
- Demand
- Costs & competitiveness
- Forecast
- Challenges
- Vision & impact
- Recommendations
  - Steps to industry growth
  - Recommendations for each step

Recommendation: We propose a three phase process to developing an industry that profitably produces 1.2 – 1.4 m MT of soy by 2020



Source: TechnoServe country analyses, Agland analysis

Phase I: Recommended actions (1/3)

Category	Action	Timing	Impact
Industry co-ordination	**Regional**: Establish a sustainable regional soybean alliance within an appropriate, existing institution; hire staff	4 mo.	• Build capacity
	National: Identify national-level partners/institutions to lead efforts in each country (select partner based on historical performance & industry vision)	6 mo.	• Build capacity
Industry information	**Monitoring:** Alliance coordinates, with national partners, the development of a regional stocks and trade flows monitoring system, including web-site development and SMS messaging capability; hire staff and/or contract with host country soybean partners	Year 1	• Increased market transparency
	Training: Alliance coordinates training for national partners involved in stocks/trade flow monitoring; collaborate with USDA/NASS	Year 1-2	• Data quality Improved
Regional integration	**Seed certification**: strategic plan to fast-track regional seed certification/harmonization; identify key policy-makers & organizations	Year 1-2	• Reduce transaction costs
	Free Trade Area planning: strategic plan to promote soybean free trade area; line up grassroots and political support; engage regional org's (COMESA, SADC, ACTESA, SACU, etc.); identify incentives for each country	Year 2-3	• Reduce transaction costs • Improved source reliability

Source: TechnoServe country analyses, Agland analysis

Mainly smallholder Mainly commercial Both smallholder and commercial

Phase I: National Associations & Regional Alliance

	Regional association: Sub-Saharan Africa Soy Alliance (SASA)	National associations
Mission	Catalyze the sustainable growth of a globally competitive soy industry in Africa	
Scope	• Sub-Sahara African with a focus on supporting countries with the highest production potential	• Country specific
Members	• National associations • Stakeholders with a regional agenda	• Local public and private sector stakeholders from across the value chain
Functions	• Advocate for regulatory and policy change at a regional level • Promote soy production and consumption across the region • Support establishment of high performing national soy associations in all member countries • Facilitate linkages between member countries (e.g. organise an annual conference, collate member directory) • Liaise with international soy related institutions • Provide services to members (e.g. Market information services)	• Advocate for regulatory and policy change at a national level • Promote national soy production and consumption • Address specific barriers to industry growth across the value chain (e.g., through working groups) • Represent members' interests at SASA • Provide services to members (e.g., Training)

Source: TechnoServe country analyses, Agland analysis

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Phase I: Recommended actions (2/3)

Category	Action	Timing	Impact
Commercial expansion	**Farm feasibility:** With partners (e.g. ,Trans-Farm Africa), develop commercial farming feasibility studies / business cases for Zambia, Zimbabwe, DRC, Angola, Mozambique	Year 2-3	• Improved source reliability
Smallholder expansion	**Build supply chain**: Create field departments within companies that buy or sully soybeans small farmers, developing capacity to deliver extension services to famers and aggregate smallholder production (including small holder mapping activities)	Year 2-3	• Increase yields • Reduce unit, transaction costs
Seed improvement	**Improve genetics:** In concert with local universities & MOA's implement GMO soybean & maize trials in selected countries	Year 1	• Reduced unit cost
	Commercialise research: Link field departments with university researchers in each country to identify and test / demonstrate new soybean genetics and production practices in field environments	Year 2-3	• Reduced unit cost
	Education & advocacy: Through the Alliance, develop a 5-year regional strategic plan (identify specific benefits of new genetics for each country), educate key policy-makers and the public on biotechnology, starting by identifying policy-makers and opinion-makers; develop an educational exchange program with EMBRAPA (Brazil), IITA	Year 2-3	• Reduced unit cost

Source: TechnoServe country analyses, Agland analysis

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Phase I: Supporting smallholder soybean farmers and supply chain development via private extension services

Private company: field department example activities	Impact
•Soil testing & soil fertility management training	•Reduced risk & higher yields
•Irrigation training & irrigation development advising	•Reduced risk & higher yields
•Inoculants use	•Higher yields & income
•Weed control / management	•Higher yields & income
•Insect & pathogen management	•Reduced risk & higher yields
•Improved genetics	•Reduced risk & higher yields
•Optimize plant populations	•Higher yields & incomes
•Farm business training – record keeping	•Business skill development
•Link small farmers to soybean supply chain & develop price risk mitigation mechanism	•Reduced transaction costs
•Foster new entrants to soybean farming	•Increased area planted

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Phase I: Science based technologies

Looper damage in Zambian soybean field, February 2011

Source: Agland analysis

- **Target Genes:**
  - BT & CpTi ⇒ worms
  - RR ⇒ reduced labor
  - Snowdrop ⇒ aphides / suckers
  - Improved digestibility
- **Activities:**
  - Demo's & trials
  - Policy maker education
  - Regional policy harmonization

"The regional ban on GMO's has relegated farmers to using antiquated genetics, and they will become less and less competitive over time." *Seed company, South Africa*

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Phase I: Recommended actions (3/3)

Category	Action	Timing	Impact
Human consumption and nutrition	**Reduce malnutrition:** Develop human nutrition feeding centres pilot project in the DRC, linked with smallholder soybean producers	Year 1-3	• Improved health
	Expand human consumption: Examine Malawi case study to identify ways of incorporating soybeans into diet of general population and work with companies to roll out the products for human consumption in neighbouring countries	Year 2-3	• Improved health • Increased market
Market expansion	**Address needs of end-users:** Link field departments into downstream industries (poultry, pork, dairy, etc.) and others, to facilitate communication of SPS, product specifications and other technical issues of importance to final consumers.	Year 2-3	• Reduced unit cost • Increased efficiency
Research	**Targeted research:** Soybean Alliance provides targeted support to agronomic, policy, trade, food security, research through grants and joint proposal development etc.	Year 2-3 (into Phase II, III)	• Strengthens industry via targeted research
	Competing crops: Analyse the effect of policy on competing crops on soybeans and influence the national conversations around those competing commodity crops to promote soybeans	Year 2-3 (into Phase II, III)	• Reduce market distortions

Source: TechnoServe country analyses, Agland analysis

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Phase II: Recommended actions (1/2)

Category	Action	Timing	Impact
Industry Co-ordination	**Long term funding of Alliance:** Regional soybean alliance seeks and obtains outside funding, and becomes financially self-sufficient at end of Yr 5	Year 5	• Sustainability
Industry information	**Trade flow information:** Publicly available trade monitoring information activities becomes financially self-sufficient by support from industry partners and others.	Year 5	• Sustainability
Regional integration	**Seed & free trade regulatory language:** Regional & national soybean alliance partners & regional institutional partners (COMESA, etc) propose regulatory language for seed certification protocols and soybean free trade area.	Year 4	• Improved policy environment
Commercial expansion	**Facilitate commercial farm investments**: In parallel with land tenure improvement activities, promote farming/soybean sector investments in the region; provide business case / feasibility studies (including DRC & Angola) via trade shows and investment conferences.	Year 4-5	• Improved industry economies of scale
	Farm enterprise zones: Partner with national business development agencies in each country to educate on and advocate for commercial farming zones available to domestic and international investors, including the development of required infrastructure (e.g., irrigation, transport)	Year 4-5	• Improved business environment and source reliability

Source: TechnoServe country analyses, Agland analysis

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Phase II: Recommended actions (2/2)

Category	Action	Timing	Impact
Smallholder expansion	**Launch second wave of buyers:** Expand and fine tune field department model, recruiting new companies that develop and purchase from small farmers	Year 4-5	• Improved supply chain efficiency
Seed improvement	**Continue science based crop improvement trials:** Via cooperation of universities, seed companies and government agencies continue to test & deliver improved genetics	Year 5	• Reduce farmgate unit cost
Human consumption and nutrition	**Expand feeding centres:** Work with donors to roll-out feeding centres & soy-human nutrition activities in the DRC.	Year 5	• Improved health
	Malawi model roll out: Expand Malawi human consumption model across the region	Year 4-5	• Improved health
Market expansion	**Corporate Social Responsibility:** promote CSR activities that support soybean sector development, for example, in Angola and the DRC.	Year 4	• Expand Soybean industry to new areas
Land tenure improvement	**Land tenure:** Work in concert with other stakeholders to improve land tenure laws, including titling for selected agricultural tracts available to investment community.	Year 4-5	• Improve access to credit

"Land tenure system in Zambia is a problem; most land is lease-hold." *Trader, Zambia*

Source: TechnoServe country analyses, Agland analysis

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Phase III: Recommended actions (1/2)

Category	Action	Timing	Impact
Industry co-ordination	**Governance:** Review performance and governance of alliance and national partners to renew the strategy and refine organisation structures	Year 6	• Improved governance
	Grow the Alliance: Identify countries that provide strategic benefit for Alliance and execute expansion	Year 6-10	• Expand industry
Industry information	**Expand services:** Review performance and identify new services and technologies that optimise the collection and delivery of information to the industry (e.g., GIS, satellite monitoring of conditions)	Year 6-10	• Reduce industry costs • Reduce risk
Regional integration	**Roll out policy & regulatory reforms:** Regional soybean alliance and national partners work with governments to adopt free trade area reforms and roll-out new policies/regulations.	Year 6-10	• Reduce transaction costs • Reduce trade risk
Commercial expansion	**Support growth of commercial soybean farming:** Continue to work with governments to streamline investment processes	Year 6-10	• Improved infra-structure and source reliability

"Must have free trade at the borders first." *Trader, South Africa*

Source: TechnoServe country analyses, Agland analysis

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Phase III: Recommended actions (2/2)

Category	Action	Timing	Impact
Smallholder expansion	**Independent funding for supply chain development activity :** Phase out support for field department activities and turn over management and funding to the regional soybean alliance and national partners.	Year 6-10	• Sustainability
Seed improvement	**Seed industry reform roll out:** Regional soybean alliance and national partners work with governments to adopt seed industry reforms and roll-out new policies/regulations.	Year 6-10	• New policy adopted
Human consumption and nutrition	**Independent funding for feed centres:** Transition funding of feeding centre / human nutrition activities in DRC to other donors.	Year 6-10	• Sustainability
	Commercial soybean products in market: continue to roll out Malawi human consumption model across the region	Year 6-10	• Improved health
Market expansion	**Suppliers address technical requirements of end-users:** Work with industry supply chain to better meet the technical specifications / needs of end users	Ongoing	• Reduced cost • More competitive industry
Land tenure improvement	**Land title & tenure policy & regulations roll out:** Work with governments to adopt land tenure and titling improvements and roll-out new policies/regulations.	Year 6-10	• New policy adopted

Source: TechnoServe country analyses, Agland analysis

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Questions for you

- **Do you agree with our vision for the industry?**
- **Do you agree with our recommendations? What will it take to make them happen?**
- **How best can SASA contribute to the growth of the soybean industry? Will you join it?**

Source: TechnoServe country analyses, Agland analysis

Thank you

Q & A

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