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PPVC Deep-Dive

Banana Value Chain

Unlocking growth in Malawi's horticulture sector

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Farming out of poverty



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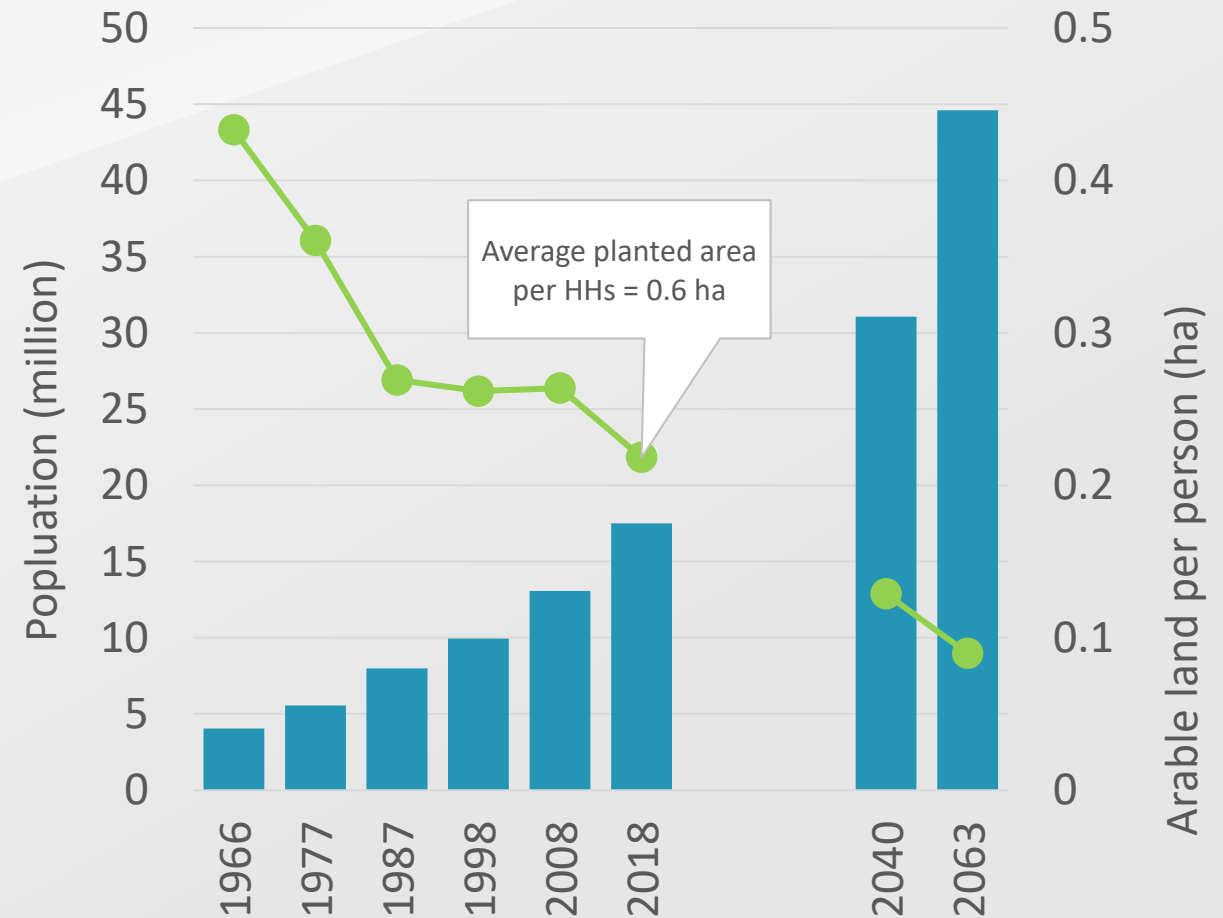


Why prioritise fruit value chains in the Malawi context?

Item	Banana	Maize
Yield (T/ha)	18.00	1.75
Price (Mk)	253 000	611 000
Income (Mk)	4 554 000	1 069 250
Costs (Mk)	884 314	459 717
Margin (Mk)	3 669 686	609 533

Modernising fruit value chains have a much higher value to land use ratio

- Even larger yield gap (18 vs 50 t/ha)
- Strong growth linkages to input supply (fertiliser etc)
- Higher labour multiplier per hectare
- Ability to utilise irrigation potential
- Malawi has a strong suitability profile for banana production
- Long-term investment and returns (vs annual crops)





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The Global Banana Market

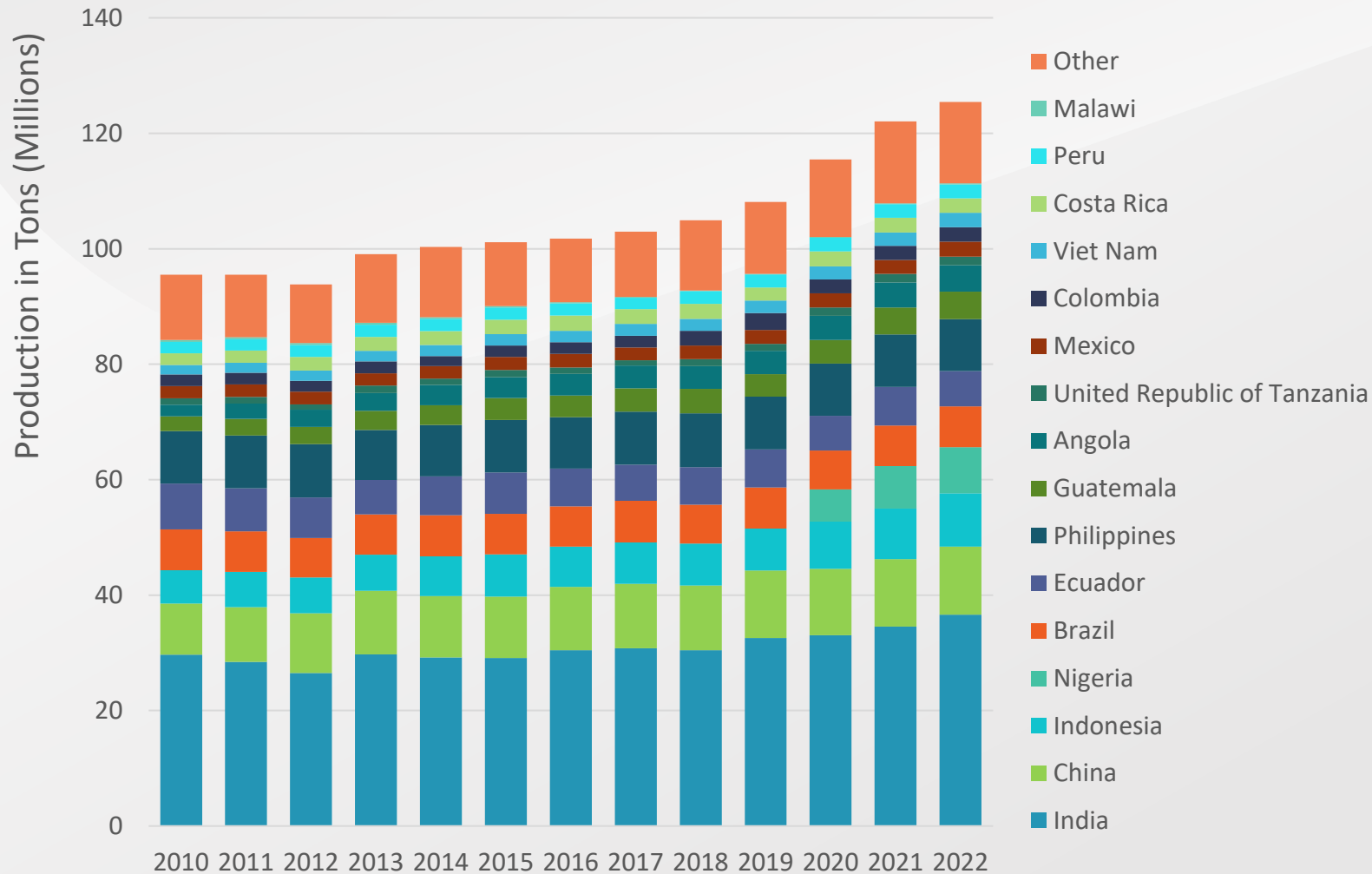
Global Supply



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Strong growth in the world largest traded fruit commodity



Global production was around 140 million tons in 2022

Annual Growth over the past decade:

- Volume = 3%
- Area planted = 1.8%
- Yield = 1.2%

India + China + Indonesia produce 40% of global production, but consume the bulk of their own production

Malawi produce 0.12% of total supply

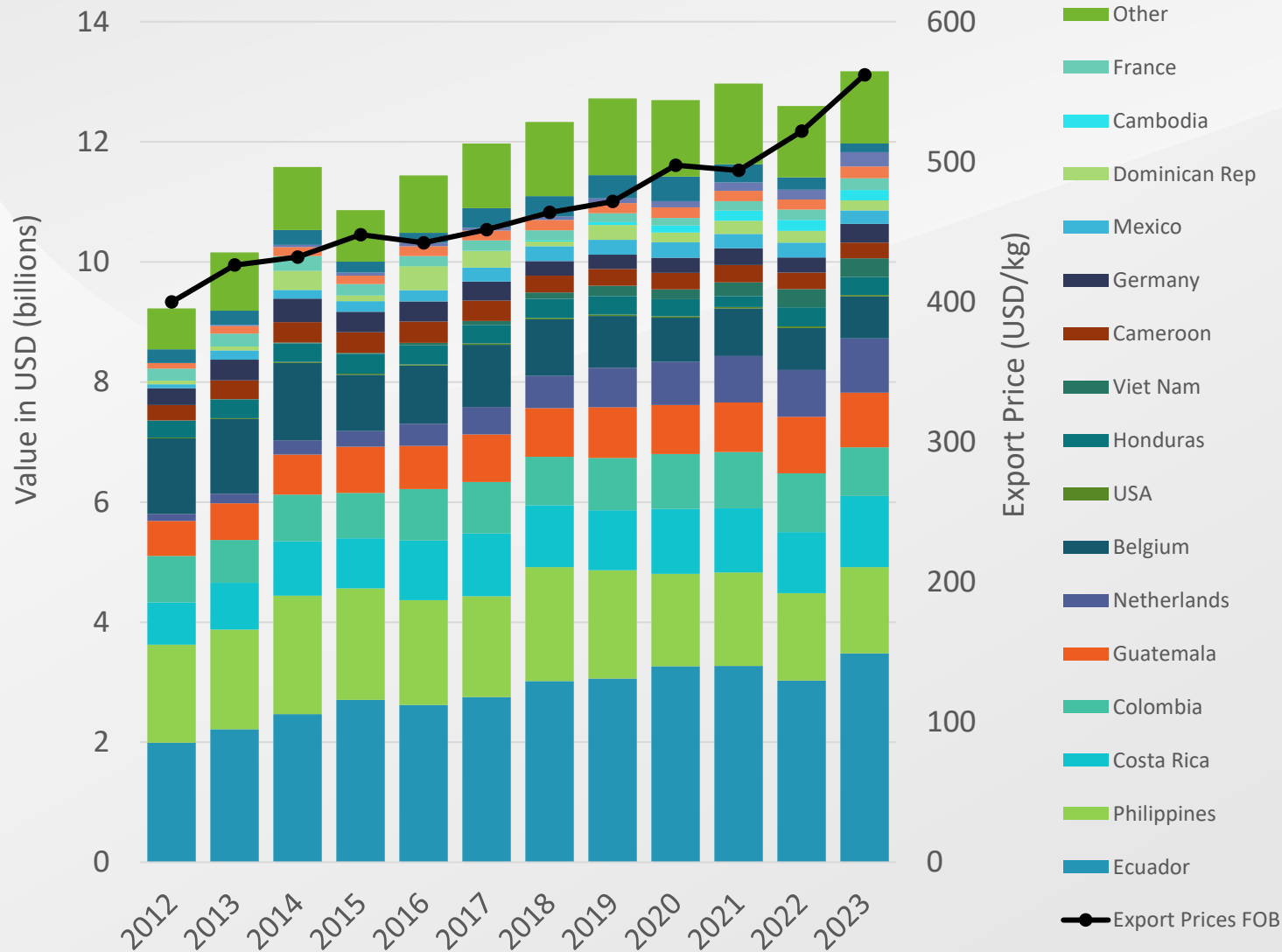
Global Trade



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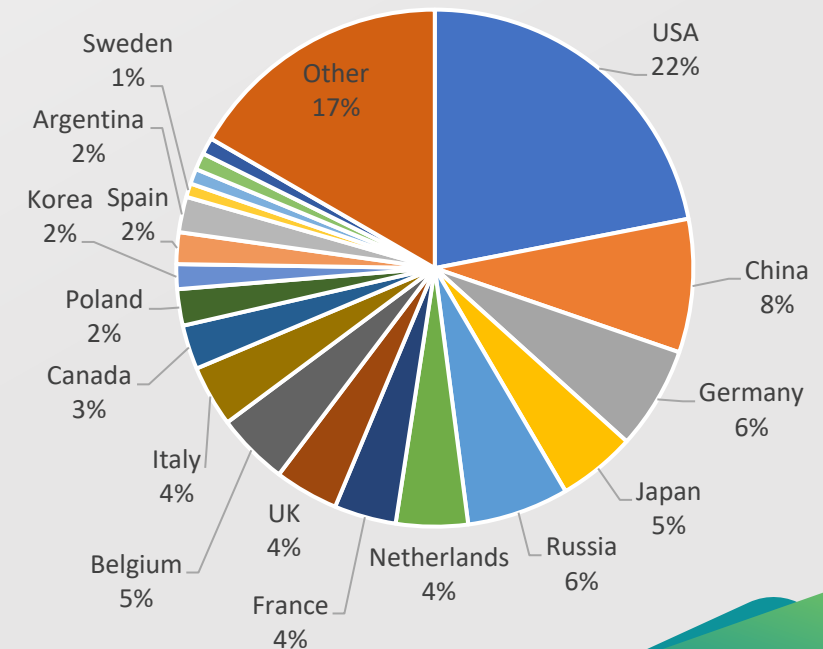


A few exporters dominate the market; prices are trending upwards due to strong demand growth



- Ecuador continues to dominate the export market with 25% of the market
- Interestingly, only 14 million tons are traded or 10% of total production

Importers by volume share 2023



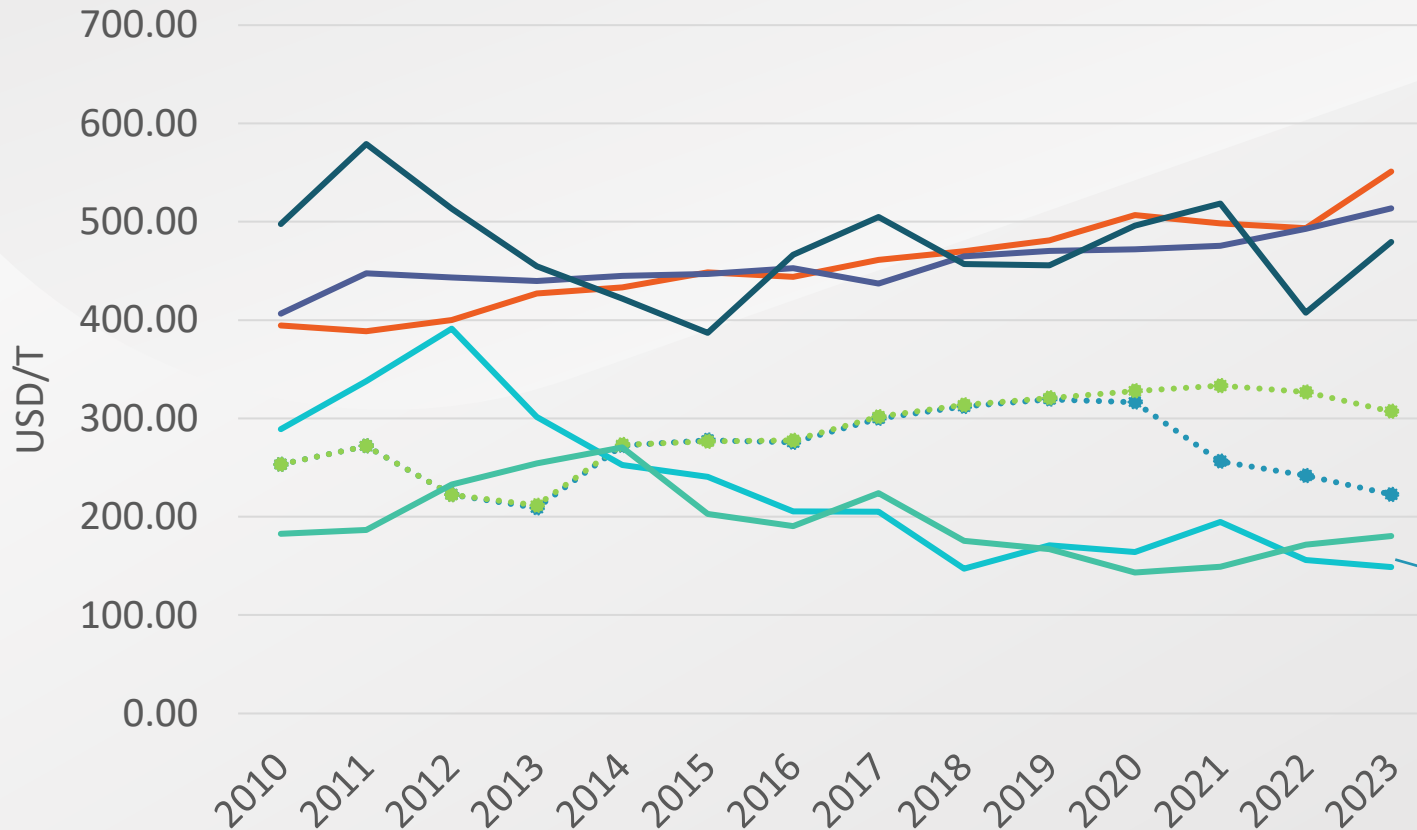
International price comparison



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Distinctly different VC's trade at different prices



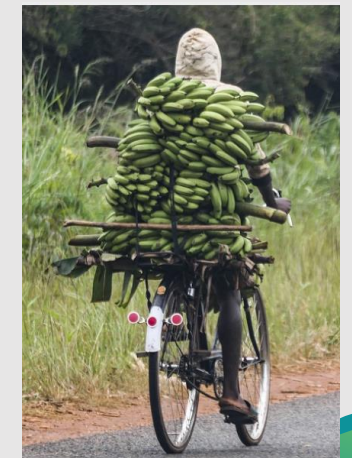
Product Differential:



Price Ceiling
+ transport
cost inland

Malawi Lilongwe price is
trading at around 50%
higher than price floor

Price Floor as
one moves to
export



- Malawi - black market Rate
- Malawi - Official Rate
- Mozambique - Farmgate Mulanje
- Tanzania - Farmgate Mbeya
- Equador Export
- US Import Fresh
- RSA Fresh Produce Market

Value Chain Dynamics



International realities of banana trade

- The global banana sector trades mostly in fresh produce with limited processing opportunities, the main processing involves ripening
- The market has been heavily affected by climate variability in key export markets, Covid-induced supply chain disruptions and trade restrictions (Russia and Ecuador)
- Banana producers are generally disadvantaged in bargaining for higher prices due to perishability, local capacity to process or store bananas (Gebre & Rik, 2016).
- Often large difference between the formal and informal value chains making price comparisons difficult
- Formal marketing has large additional costs on the farm and throughout the value chain (compliance, certification, cooling etc)
- In large importing markets there is generally a 40% margin between the final retail sale price and the purchase/import price
- Only 10% of global production trades under certification (GlobalGap etc)



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Malawi Banana VC in 2023

Introduction

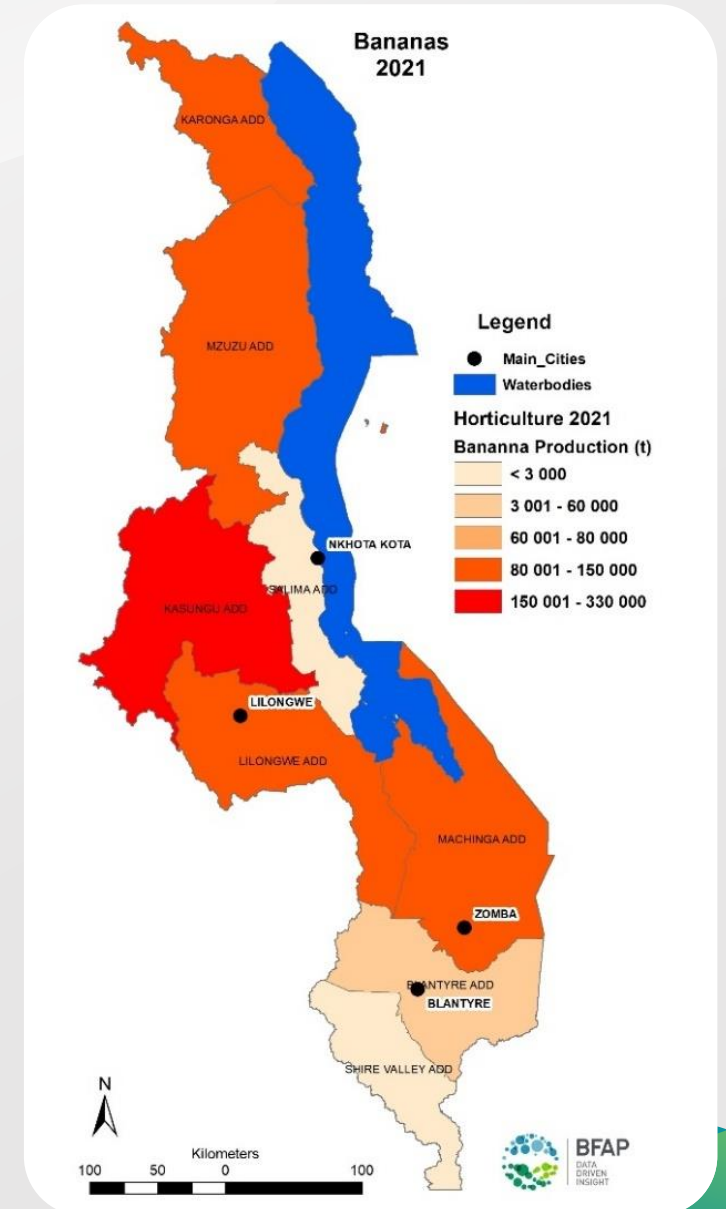


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Overview of the Banana value chain in Malawi

- Out of 2 million households that farm fruit tree, around 350 000 produce bananas at any scale
- Malawi's climate is highly suitable for banana production and is an important source of income for smallholder farmers (44% sell their produce)
- The VC is characterised by its informal nature since only 5% of all production takes place in orchards, the rest in scattered field
- Major challenges relates to high pre- and post-harvest losses and plant diseases, especially the Banana Bunchy Top Virus (BBTV).
- Asides from farmers, other actors in the value chain includes input suppliers and traders, with very limited processing activities taking place



Overview of the Supply-side



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Current state of the banana production in Malawi

The Banana Deep-dive team's analytics is informed by the following research activities

- Progressive farmer interviews (7-South; 10-Central; 7-North)
- Commercial farmer key informant sessions (3-farmers)
- Trader interviews (17 across the country, including visits to key wholesale markets at the Northern and Southern borders)
- Use of APES data, Retail Horticulture prices, Detailed EPA-figures (Appreciate the support from the NSO!)
- Discussions and additional data support from Osborne Tsoka (Appreciate the support from the Ministry!)
- Own ground-truthing activities and discussions with various VC participants
- Integrated Household Survey (2010; 2013; 2016 and 2020) – cross checks on production and consumption
- Literature review on all banana related reports and papers available online
- Assessed existing donor programmes in the banana value chain
- Made international comparisons between price setting, production costs and trade flows in the region

All of these are used to produce our best estimate of the value chain and its economic contribution, main issues affecting the value chain and potential solutions

Disentangling production numbers



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Why do we use different production numbers in our modelling?

APES uses a well-defined methodology to capture production for various crops and livestock types

The framework for data collection and the system used can result in differences due to the following

- Recalibrating back to hectares (mats versus orchards based on planting densities)
- Consistently reporting and keeping track of changes over time
- Pre-harvest or post-harvest or marketed values
- Use of conversions such as bunch size, hand and finger weights etc (use of actual scales)
- Ultimately triangulating back to what is consumed and using different datasets helps to get to the best figures possible

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Hectares	District	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
	KRADD	951	993	1026	1187	1741	2006	2270	2326	2627	2928	3423	3758	4268	4602	4862
	MZADD	3344	3425	3413	3332	3272	3211	3149	3184	3297	3410	3505	4092	4208	4541	4719
	KADD	12798	13524	14158	14791	14896	15216	15535	15434	15246	15057	15401	16338	18425	19855	21692
	LADD	224	242	222	182	190	169	147	284	181	78	67	79	99	138	172
	SLADD	1666	1794	2037	2165	2361	2454	2546	2589	2645	2701	2888	2955	3101	3569	43247
	MADD	6106	6630	6763	6857	6808	7015	6921	6625	6525	6458	6516	6305	6289	6314	6494
	BLADD	27383	28930	28157	27383	23921	20897	18256	12307	9659	7010	6091	6296	5862	7353	8413
	SVADD	644	696	665	633	591	538	482	398	322	245	233	222	240	211	256
	Total	53116	56234	56440	56530	53780	51503	49306	43147	40501	37887	38124	40045	42492	46583	50933
Tons	District	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
	KRADD	29159	32128	34050	38768	57789	73794	75744	85713	73794	99594	112689	120118	149934	156093	161982
	MZADD	123878	120825	115520	110215	108620	92518	98867	96008	98999	101989	101347	111929	131847	144619	149897
	KADD	197381	209341	227980	246618	240017	247338	236407	228416	235751	243086	248609	276809	323751	355455	377615
	LADD	4578	4760	3809	3023	5314	4339	3364	2210	1055	879	845	992	1255	1979	2545
	SLADD	42186	44522	53017	56515	51702	69667	66232	67089	69667	69375	73960	74902	80382	78546	101524
	MADD	156873	150648	151227	137383	142786	146328	141164	123765	114878	110936	114688	108799	114795	116944	114796
	BLADD	1266962	1371879	1230484	1089088	813243	607265	453536	220341	156896	53507	46896	44814	59961	79142	112472
	SVADD	11739	10908	10319	9729	8622	7934	5600	4191	1403	1369	2139	1981	2924	2651	3228
	Total	1832756	1945011	1826405	1691339	1428093	1249183	1080914	827733	732471	684034	701173	740344	864849	935429	1024059

APES 2023
 Production = 1 million tons
 Assume 10% losses (FAO)
 900 000 tons consumed

This implies per Capita consumption of 40.5 kg/person/annum

Every single Malawian (including infants and elderly) must eat a finger (100g) every day of the year to get to 830 000 tons produced (excluding imports)

Disentangling production numbers



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Our PPVC Approach

We recognise the importance of data gathering of official data but re-calibrate numbers with other data sources to compile a new balance sheet based on evidence:

IHS 2020 data suggests

- 350 000 farming families produce bananas
- 38% of households producing bananas report pre-harvest losses (but does not state the actual amount)
- A further 6.2% of total harvested banana are lost due to waste (this excludes post-farm losses)
- Our trader surveys suggested losses in the trading process at around 7.5%
- The consumption of fresh bananas based on the IHS with the highest possible limit of 12.6kg /p/annum (286 000 tons in 2023)
- The IHS also did a market survey in which they conducted surveys on the average price and standard weights for banana bunches at wholesale markets across the country

1 071 markets visited

REG_CODE	Freq.	Percent	Cum.
North	174	16.25	16.25
Central	394	36.79	53.03
South	503	46.97	100.00
Total	1,071	100.00	

52 markets sold banana

Bunch size	Bunch weight in Kg		
	Measure1	Measure2	Measure3
Large	17.00	17.09	16.86
Medium	12.34	12.48	12.67
Small	8.23	8.59	8.57
Average	12.33	12.58	12.60

Assumption using different bunch weights

50 000 ha x 1 111 plants =
56 million bunches

12.5 kg Bunch
707 000 Tons

20 kg Bunch
1.1 million tons




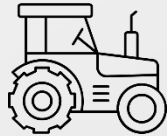
Farmer Groups in Malawi

Typical Farmer categories & conversion factors explained - 2023



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Indicator	 Subsistence Producers	 Smallholders Selling	 Progressive Farmers	 Commercial Farmers	Total
Number of Farmers	200 000	149 000	400-500	10-30	350 000
Ave size (ha)	25 mats	42 mats	1 ha	8 ha	0.04 ha
Yield (T/ha)	11 t/ha	19 t/ha	24 t/ha	56 t/ha	15.5 t/ha
Production (Tons)	64 000 t	101 000 t	14 000 t	11 000 t	190 500 t
Ave bunch weight (kg)	13 kg	16.5 kg	20 kg	25 kg	16 kg
Sales (%)	0%	44%	95%	100%	36%
Observations	Generally deep rural farmers spending only HH labour and consume own produce. Poor quality and low yield	Farmers selling produce can produce surplus and market produce. Poor quality and low yields, also affected by low prices	Emerging banana growers using good genetics, higher input use and farms in orchards, some irrigate but all grow mainly to sell produce	Commercial farmers irrigate, use fertiliser & chemicals and produce only for the market. Only a small number able to scale to this size	

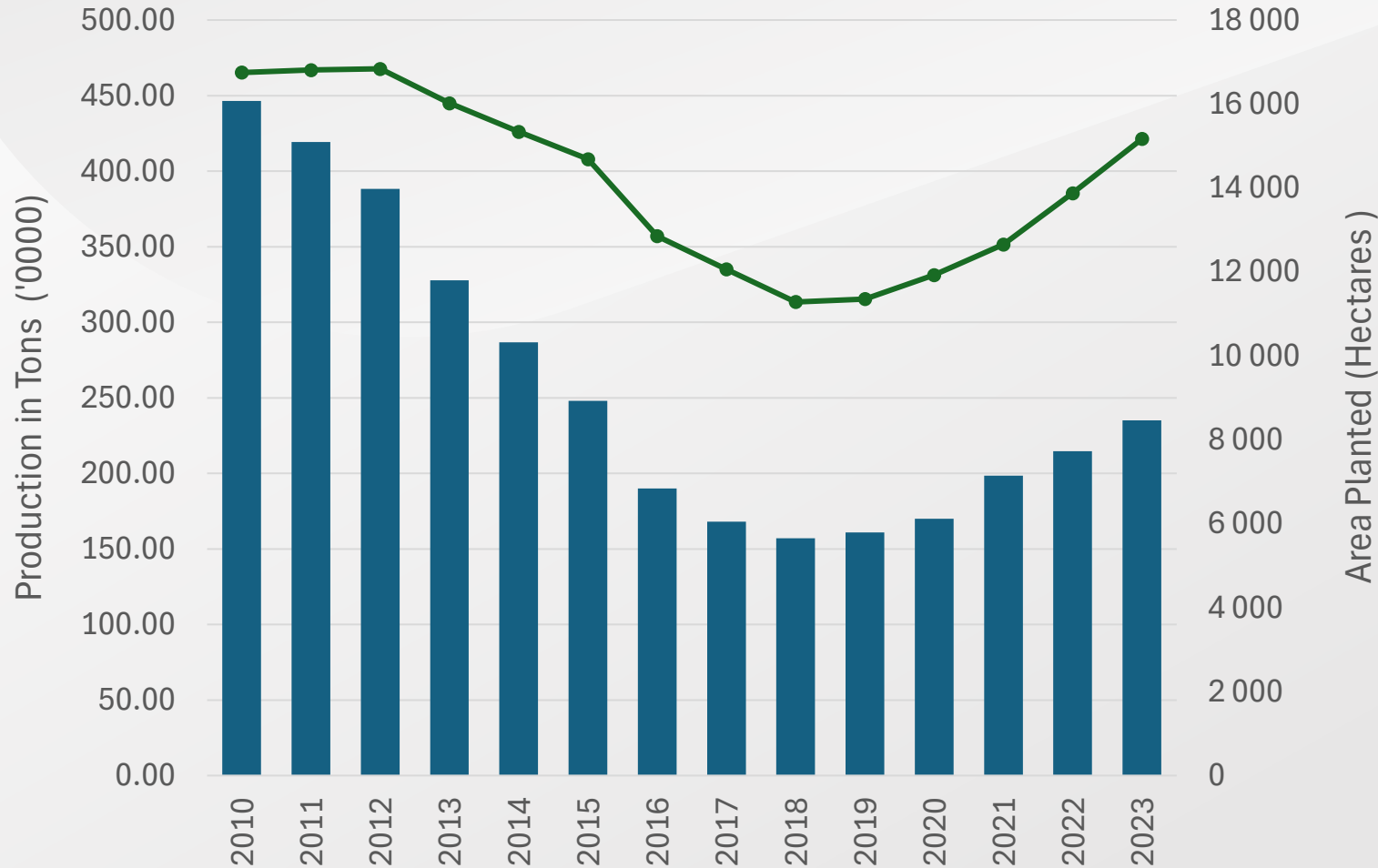
Historic Performance



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Large decline in production due to Bunchy Top, with some recovery taking place. Yet, Malawi can consume much more if product is available at affordable prices



- Various efforts by government and donors to resuscitate the industry is bearing fruit
- Yet, per capita consumption is still at a fraction of its peak.
- Local prices have increase significantly in recent years
- Yields are still low compared to international standard due to low use of inputs and the persistent presence of plant diseases

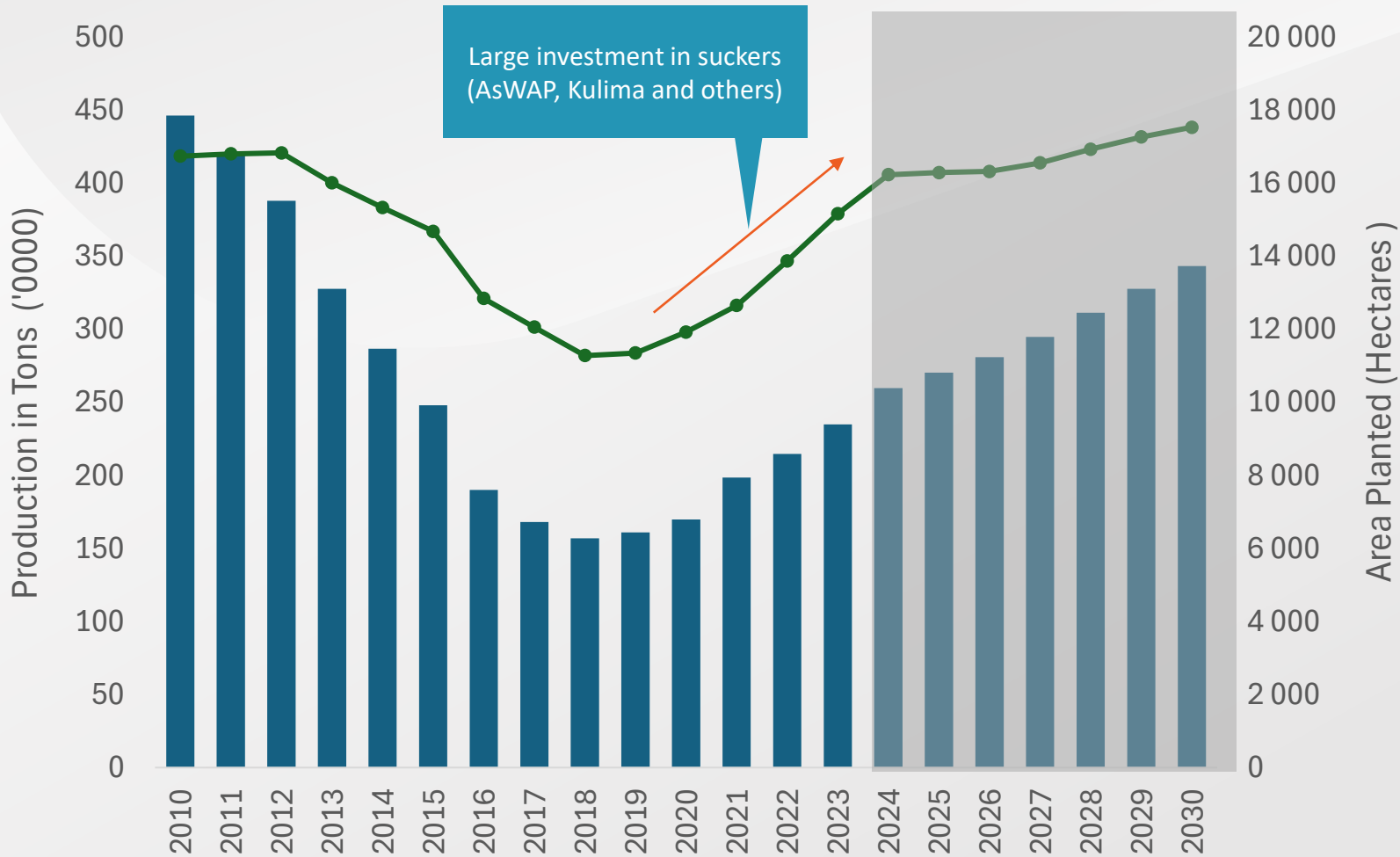
Baseline Outlook



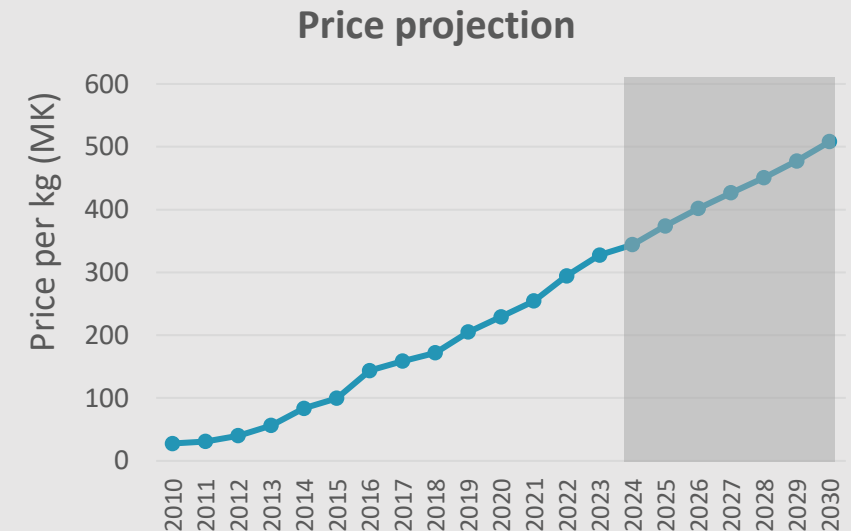
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Projection towards 2030 is driven by continued growth primarily based on yield increases. Area planted slows down as donor/government support in sucker market slows and main challenges persist (access to finance, disease management, low productivity & high levels of pre-and post-farm losses)



Indicator	2023	Baseline 2030	% Change per annum
Production (t)	235 074	343 484	5.57
Yield (t/ha)	15.17	17.54	2.09
Area (ha)	15.49	19.58	3.40
Consumption (t)	205 795	291 987	5.12
Prices (MK/kg)	328	508	6.47
Imports (t)	15 385	13 765	-1.58



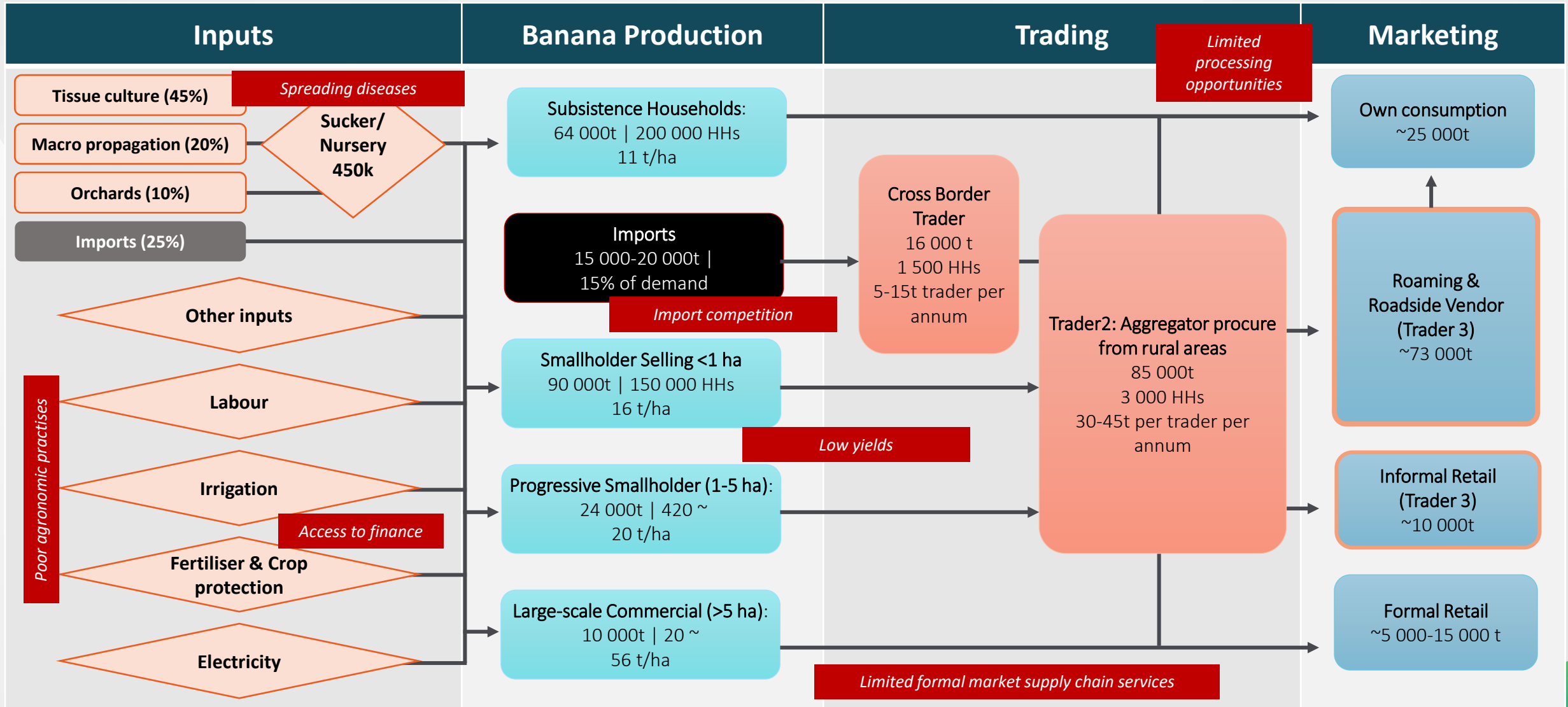
Value Chain Map



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Banana Current State – Identifying major policy & investment priorities



Crop suitability and spatial price differences



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Large parts of Malawi is highly suitable for banana production

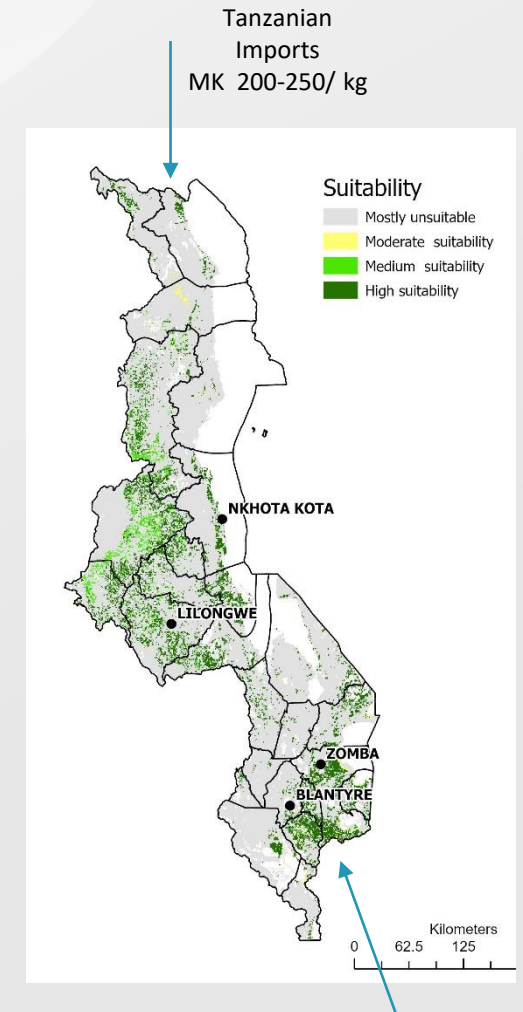
Import	= 200-250 Mk/kg
Delivered-Lilongwe	= 300-350 Mk/kg
Trader1 Sells	= 400-450 Mk/kg (20% Margin)
Trader2 Sells	= 550-600 Mk/kg (32% Margin)
Trader3 Sells	= 800-1 000 Mk/kg (39% Margin)
Formal Retail	= 900-1 100 Mk/kg (45% Margin)

Malawi farmgate is between this range depending on location

Price relationship

Mbeya (Tan) & Milange (Moz) are close to the border but suffer from the same fate as Malawi being far from major consumer centres/deepsea. There is a trade-off to selling to Malawi in terms of the volume and opportunity costs involved versus local market. Price points in these exporters markets have also recently increased

*Rural and under-serviced areas with banana farmers can get much lower prices due to higher transportation costs



Mozambican Imports
MK 190-240 / kg

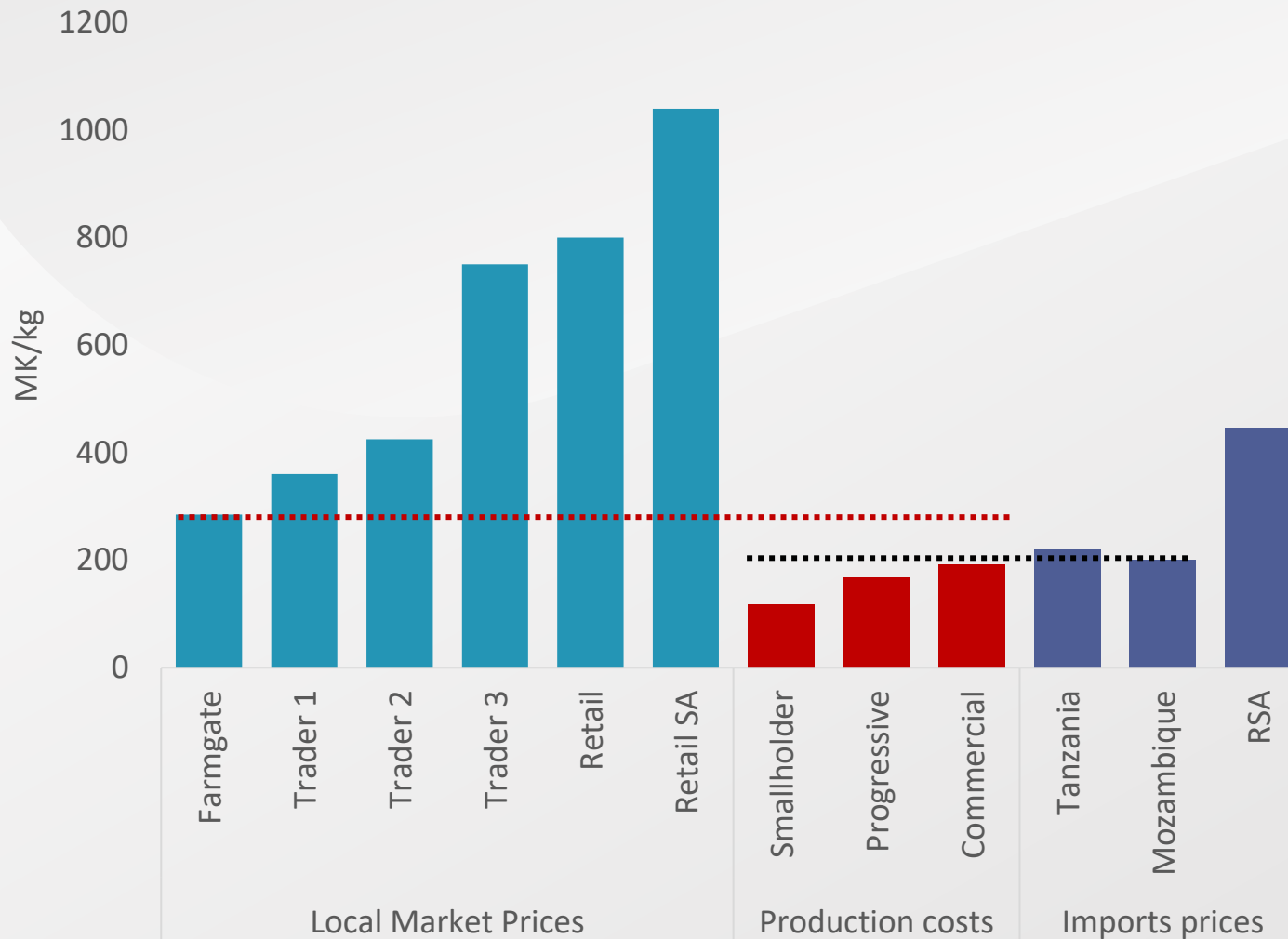
Benchmarking prices and cost to produce



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Malawi competitive at farm-level but VC cannot produce enough to off-set imports



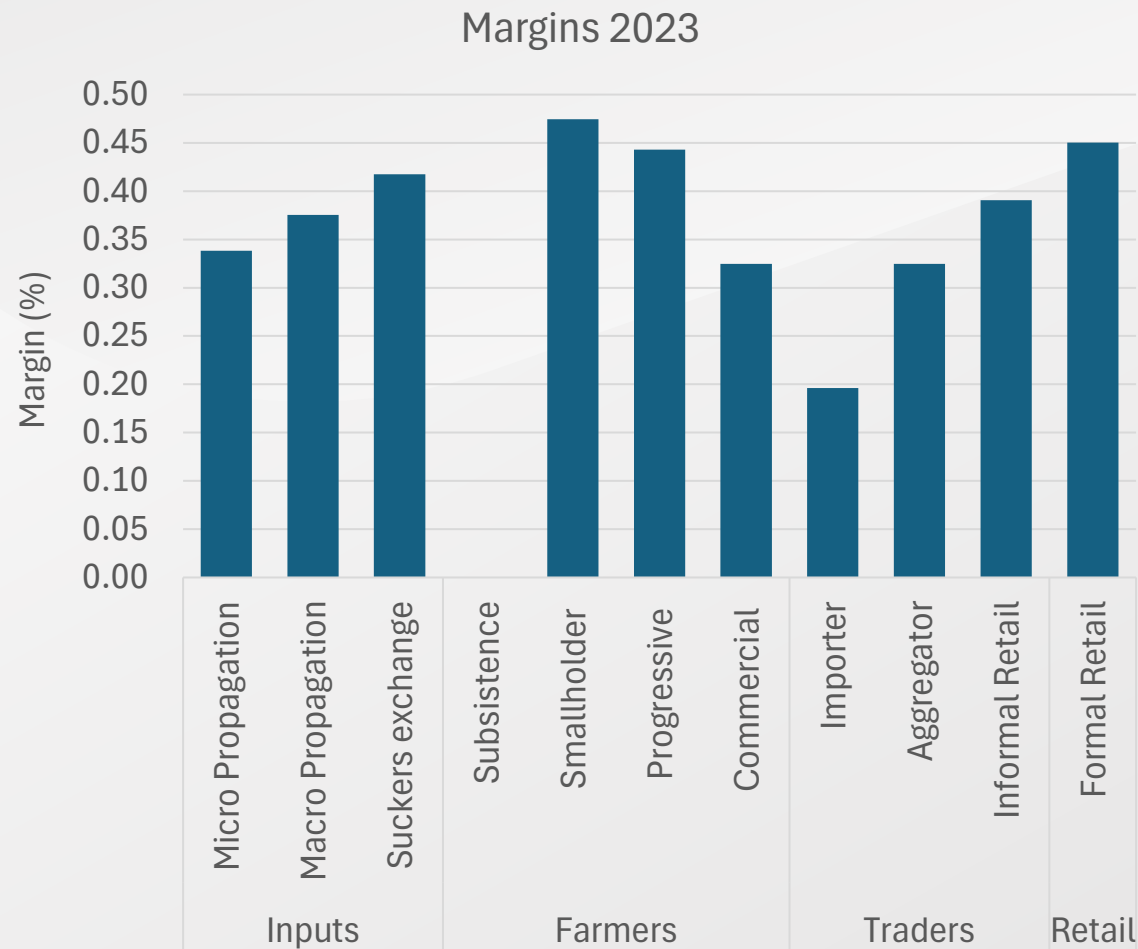
- In 2023, the average farm-gate price was still significantly above production costs.
- Trader margins seems in line with international ranges for a perishable product
- Clear and expected spatial differential of product movements according to transport costs
- Formal retail price compared to SA suggest Malawi's price at consumer level is competitive, on average
- If high margins are not stimulating a supply response to replace imports, other challenges should be addressed

Value Chain Margins

Banana Current State



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- Farmers across the spectrum are making decent margins, despite competition from imports
- Large portion of subsistence farmers does not produce for market sales
- Input suppliers have made
- Formal retail price compared to SA suggest Malawi's price at consumer level is competitive, on average
- If high margins are not stimulating a supply response to replace imports, other challenges should be addressed

Consumption dynamics



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Understanding demand-side consideration

Integrated Household Survey (IHS 2020) – Household consumption module

Question: Over the past one week (7 days), did you or others in the HH consume any:

One of the options:

207 = Plantain

602 = Banana fruit

If yes, they how much have you consumer of each?

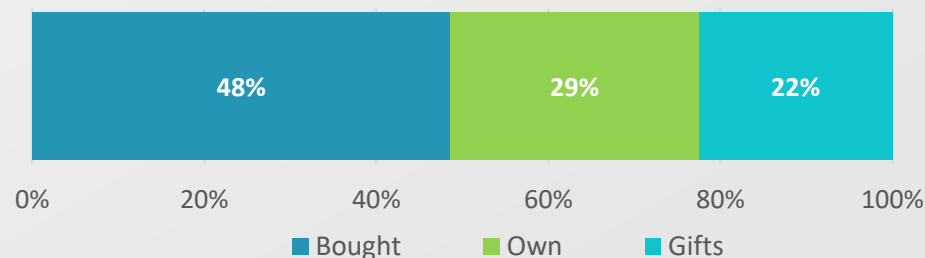
What was the unit?

Use the photo aid

Total Malawi	Households	HH size	Total consumers	Per Capita	Total Tons
North	526 612	4.45	2 344 617	30.09	70 545
Central	1 727 902	4.50	7 772 634	7.86	61 112
Southern	1 862 501	4.29	7 991 898	8.33	66 606
Total	4 117 015	4.40	18 109 143	10.92	197 729

Source of consumption

Half of total consumption is bought at the market



HOUSEHOLD FOOD CONSUMPTION PHOTO AID

FIFTH INTEGRATED HOUSEHOLD SURVEY, 2019/20



MALAWI FIFTH INTEGRATED HOUSEHOLD SURVEY PHOTO AID FOR COLLECTING FOOD CONSUMPTION INFORMATION



Food affordability in Malawi

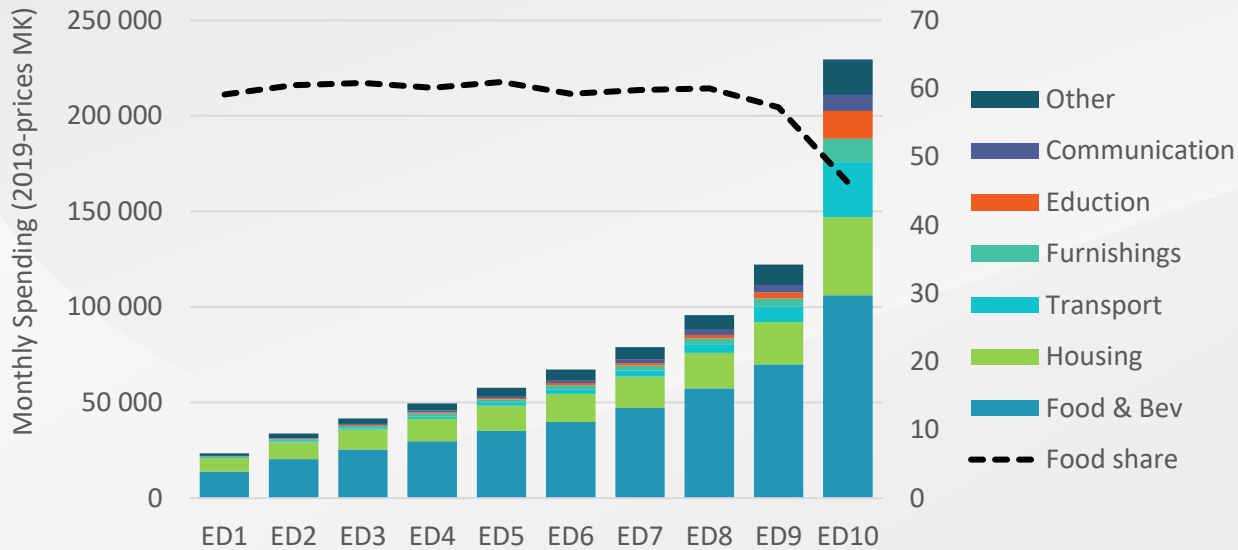
Linking consumption with the ability to buy products



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Expenditure Groups – IHS 2020 (Apr – 2019 prices)

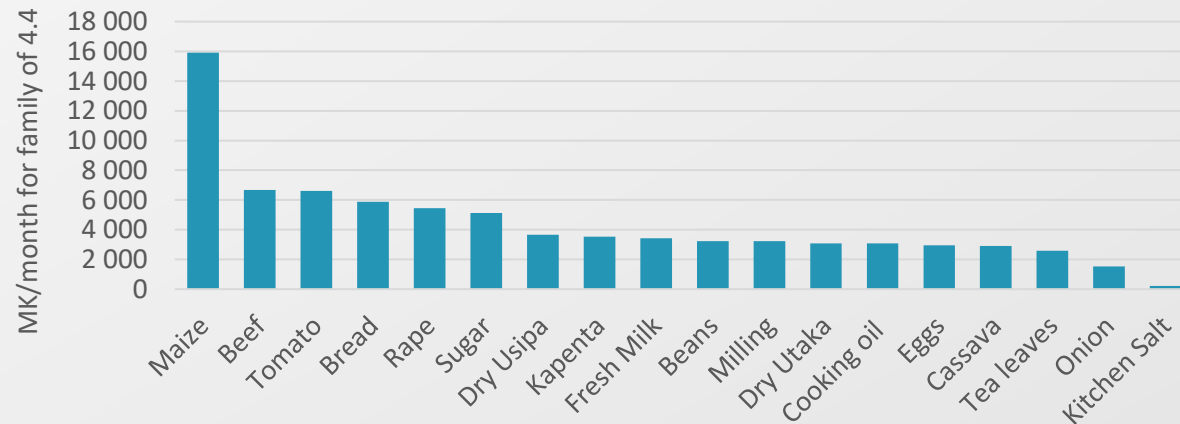


Malawians use 56% of total expenditure to buy food (include own and bought product)

Since only 350 000 households produce bananas, the rest of the 3.8 million households need to buy bananas or receive as gifts to be able to consume

- Yet only around 930 000 non-banana producing households consume bananas (Thus, only 30% of Malawians consume bananas at current market prices)
- Bottom left graph shows the affordability of a basic food basket in Lilongwe to feed an average family of 4.4 people
- It does not even list banana as a category, but already shows that a family needs around 80 000 MK per month to buy these items.
- Only income groups 7-10 have total expenditure that is above this spend for food only

Centre of social concern's basic food basket (Apr-2019 prices)





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Upgraded State 2030

Some consideration before discussion reforms



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Reforms are targeted to meet current needs of the industry

The banana value chain is in a very specific growth season, recovering from disease and climate impacts

Reforms are mostly aimed at getting production at higher level to meet local demand

Because margins are fairly high, there is a careful balancing needed to not boost production beyond the capacity of what the market can absorb (link to consumers buying power and economic conditions in the country)

Our Baseline projections have a short time-line toward 2030 and some economy-wide impacts take longer to initiate

In the future, incorporating reforms and investments in the processing sector or promoting exports could support local prices, but the value chain must first move to a stronger competitiveness position:

- Stronger yield gains (utilise irrigation, climate suitability and use of inputs)
- Make decent margins at price levels that products are imported
- Quality considerations are important

Potential policy & investment options



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Interventions proposed to upgrade VC to an upgraded state

1

Seed Systems Reform:

Ensure clean planting materials distribution through improved virus indexing & nursery certification and support of clean sucker distribution

This reform builds on existing efforts to mitigate the impacts of plant disease (BBTV). It involves formalising existing seed systems through implementing certification of approved sucker nurseries through virus indexing. Strengthening of public capacity to implement seed systems for bananas with strong collaboration with private and public sector to deal with registration, testing and approval of nurseries.

2

Irrigation investment

towards commercialisation through a blended finance model

Blended finance model to initiate capital expenditure on intensification through irrigation development and commercial production of fruit. This will not necessarily result in large area expansion, but rather improve existing land use under banana cultivation. This ties into the Irrigation Master Plan and drive by government to increase irrigation.

3

Mat-to-Orchard programme

is a focussed training and extension programme to encourage smallholder commercialisation

Building on the success of donor-funded projects and partnership with government, this programme aims to develop around 5 000 smallholders that are already selling their produces but are farming banana in scattered fields with limited in-field management. Through sucker exchange farmers are trained in producing banana

The updated results will be shared in due course

Concluding Remarks



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Prioritising policies in the banana value chain

- The banana VC is currently in a re-building phase, which results in fairly large margins
- Over the Baseline we project strong growth, but challenges in the value chain needs to be addressed to transition to a compete with imported products and reach new phase of maturing
- In the Malawian context of low growth and high levels of poverty, the consumption growth needed to sustain higher prices for farmers means scaling production will lead to lower prices
- Our Reforms does well to unlock growth at various nodes in the value chain that impact poverty and farmer development, but other reforms are needed to sustain floor prices for bananas
- The reforms also unlocks additional economic activity for input suppliers, financiers, and replaces imports
- Once seed systems are established, interventions that target specific farmer categories will provide production responses that would scale production to levels last seen in 2010
- To transition Malawi from annual to perennial crops will require concerted efforts to transition farmers to a higher input systems, orchard production and focus on yield responses.

Thank you



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