

Can Malawi Increase its Share of the Global Macadamia Market? Opportunities and Threats to The Expansion of Malawi's Macadamia Industry

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INTRODUCTION

The macadamia nut, considered to be the world's finest desert nut, is native to the coastal rainforest areas of southern Queensland and northern New South Wales in Australia. The two species of macadamia that produce edible kernels are *Macadamia integrifolia* and *Macadamia tetraphylla* which grow as medium-sized, evergreen trees. In 2016, Malawi accounted for 3% of total global macadamia production and accounted for 5% of total exports in 2015 (International Nut and Dried Fruit Council, 2017). The Government of Malawi has produced a National Agricultural Investment Plan which relies on an evidence-based approach to prioritise investment opportunities within the sector. Value chain analysis in this instance is, therefore, critical to unpacking the relationships, opportunities and constraints to address two key questions for Malawi's macadamia industry:

1. Can Malawi increase its share of the global macadamia market?
2. What are the opportunities for and threats to the expansion of Malawi's macadamia industry?

This value chain analysis attempts to address these questions by achieving the following objectives:

- To accurately describe the macadamia value chain in Malawi and identify the key actors within the value chain.
- To produce a value chain map.
- To evaluate the performance of the value chain at each level by detailing the opportunities and constraints faced.
- To trace movements in post farm gate margins over time.

METHODOLOGY AND DATA COLLECTION

The ValueLinks 2.0 approach to value chain analysis was used to guide the research. ValueLinks 2.0 comprises several modules, of which four were used; module 1 (value chains and development), module 2 (analysing a value chain), module 3 (determining a value chain upgrading strategy) and module 4 (facilitating the value chain development process). Economic metrics, measures and parameters for the value chain analysis were prioritised.

Functional (identifying and listing relevant business operations performed to create and sell products) and structural (value chain mapping) analyses of the commodity value chain were conducted. To gather the required data from actors within Malawi's macadamia value chain, the authors utilised the following methods: Desktop review, key informant interviews with actors across the value chain and focus group discussions. Research was conducted across 3 regions and five districts within Malawi. Figure 1 shows images from two separate data collection field visits conducted by the authors.



Figure 1. A. Interview with smallholder macadamia growers, Mzuzu area. B. Smallholder macadamia plantation, Mzuzu area. C. Manual de-husking. D. Commercial macadamia plantation, Thyolo. E. Locally produced macadamia nuts stocked by a local retail chain store.

VALUE CHAIN MAPPING AND ANALYSIS

The value chain mapping and analysis process revealed that the macadamia value chain is partitioned into three main nodes: production, processing and marketing. The structure, activities and actors within each node is depicted in Figure 2.

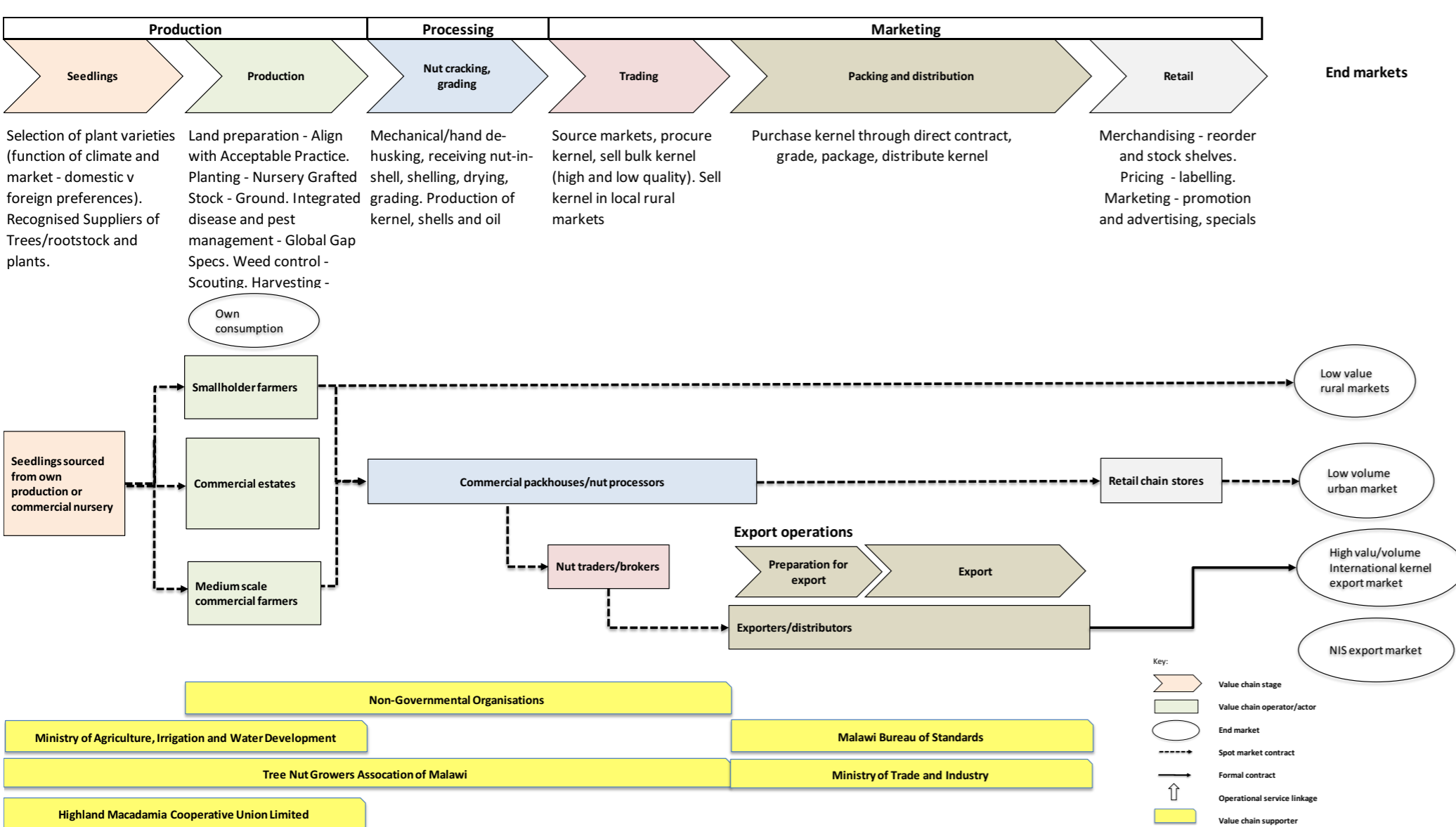


Figure 2. Macadamia value chain map, Malawi

- Macadamia is grown under rainfed conditions by commercial estates and smallholder growers. The commercial sector produces macadamia on an area of 7,529 ha while approximately 1,000 ha is under smallholder management. Figures 3 and 4 show planting and production trends from 1998 - 2016.
- Due to land scarcity, production is shifting from the Southern (production-processing hub) to Central and Northern regions of the country.
- Commercial estates are vertically integrated into the macadamia value chain and all estates have processing facilities where 'wet nut-in-shell' is delivered, dried to produce dry 'nut-in-shell' (NIS), cracked and packaged during processing activities.
- Exports are facilitated by nut traders/brokers and distributors.
- The end market segments for macadamia are rural and urban local kernel markets through which predominantly low-quality kernel is traded, and high value export kernel markets through which high value kernel is traded. Approximately 99% of kernel produced in Malawi is exported.

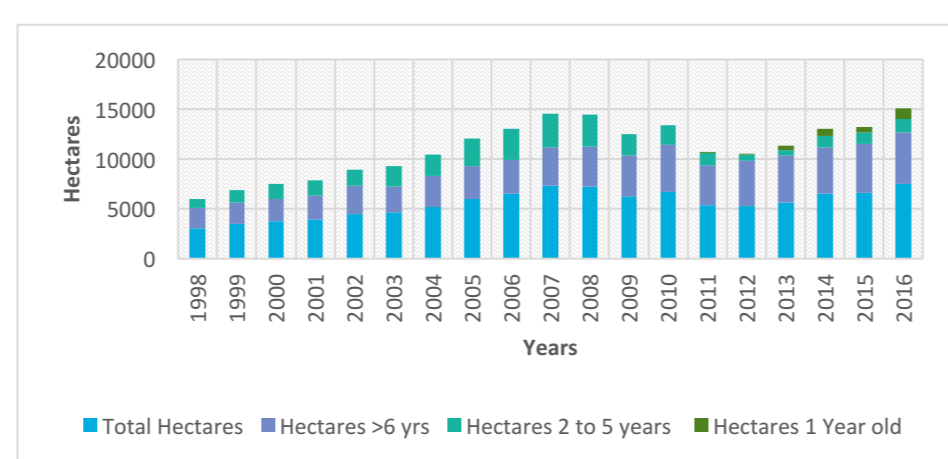


Figure 3. Hectareage of the Malawian Macadamia Industry 1998-2016 Source: Payne (2017)

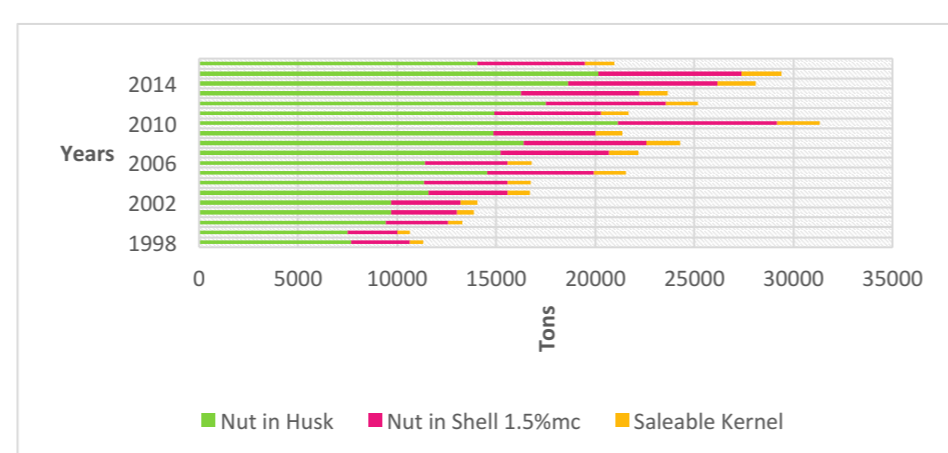


Figure 4. Breakdown of commercial macadamia production in Malawi - 1998 - 2016 Source: Payne (2017)

ANALYSIS OF MARKETING MARGINS

Estates currently act as 'single channel markets' for smallholder growers who neither individually nor collectively own processing facilities and as such have no means of processing their macadamia further than manual de-husking.

Commercial estates, therefore, make the bulk of the returns in the value chain (see Table 1).

Margins at the production node of the value chain appear to be disproportionately high and in favour of commercial production. This is due to a commercial or estate sector characterised by high-input application at production stage, relatively high yields, high prices at factory door and modern processing facilities which increase 'crack-out' percentage and saleable kernel yield. The concentration of production and processing activities in the Thyolo district also assists in reducing farm-factory transport and logistics costs.

There is an opportunity for smallholders to improve their margins on a per kg kernel equivalent basis by improving production methods, reducing production costs through aggregation/bulk-buying, and through improving 'crack-out' percentage by means of improved post-harvest handling and transport.

Table 1. Summary of margins at various levels across the macadamia industry value chain for exported macadamia kernel, 2016/17

	Malawi Kwacha/kg kernel equivalent	US \$/kg kernel equivalent
Production costs (smallholder growers)		
Pre-harvest costs		
Weeding (labour)	48	0.07
Fertiliser	15	0.02
Fertiliser application (labour)	30	0.04
Pests & disease	24	0.03
Pruning	30	0.04
Harvest costs		
Picking (labour)	1,261	1.74
Packaging material	40	0.06
Transport	18	0.03
Total costs	1,467	2.02
Factory price (assuming 25% final crack out)	5,075	7.00
Smallholder margin	3,608	4.98
Production costs (Estates)		
Pre-harvest costs		
Pre-harvest costs	1137	1.57
Harvest costs	198	0.27
Total field costs	1335	1.84
Factory price (assuming 30% final crack out)	7,250	10.00
Commercial producer margin	5,915	8.16
Processing		
Processing costs (including packaging)		
Processing costs (including packaging)	1,450	2.00
Estate indirect costs	282	0.39
Total production and processing costs	8,983	12.39
Transport and logistics costs	906	1.25
Market agents fee	58	0.08
Total costs (FOB)	9,947	13.72
Average export market price (all grades)	11,963	16.50
Commercial factory margin	2,015	2.78
<small>Source: Author's analysis. Note: \$1 = 775 Malawi Kwacha</small>		
Estate margin (production and processing)	7,932	10.94

VALUE CHAIN OPPORTUNITIES AND 'BOTTLENECKS'

Opportunities

- Consumption and production of macadamia globally is projected to increase.
- North America remains the most important market for macadamia nuts, even though total consumption in this region declined from around 12,000 tonnes kernel in 2004 to below 10,000 tonnes by 2011. See Figure 5.
- Demand in Asia (Japan and China) both for NIS and kernel has strengthened significantly since 2015.
- China is equal to North America in total annual kernel consumption and likely to become the largest and most important market for macadamia nuts moving forward.
- The European Union market is now showing steady growth again since 2015 and was estimated to exceed 6,000 tonnes of kernel in 2016/17.
- There are large tracts of land suitable for macadamia production particularly in the Central and Northern regions of the country. With the expansion of the estate sector restricted, expansion will need to come from the non-estate sector. See Figure 6.
- Demand for seedlings, particularly from smallholders exceeds supply. There is need to develop the seed and processing industries, particularly in the Central and Northern regions of Malawi.

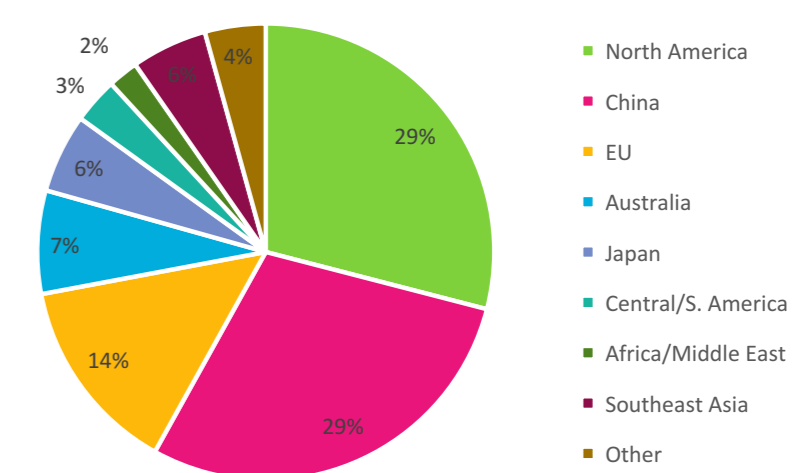


Figure 5. Breakdown of global macadamia consumption, 2016 Source: Lee (2017)

Bottlenecks/constraints

- Smallholder macadamia growers lack access to quality seedlings, experience challenges in managing pests and disease, and are often victims of nut theft.
- Currently seedlings are priced at \$3.30/seedling which is a prohibitive cost for many smallholders.
- There is a lack of quality extension services.
- There appears to be limited research into macadamia; dissemination of information and training to farmers at ground-level, is problematic.
- Reported reductions in annual rainfall have negatively impacted on production and kernel recovery.
- No up-to-date strategic plan to guide investment is in place.
- Lack of data to show the suitability of macadamia to different agro-ecological zones in Malawi, prohibits expansion.
- Lack of reliable power and poor road infrastructure increase the costs of processing and marketing.

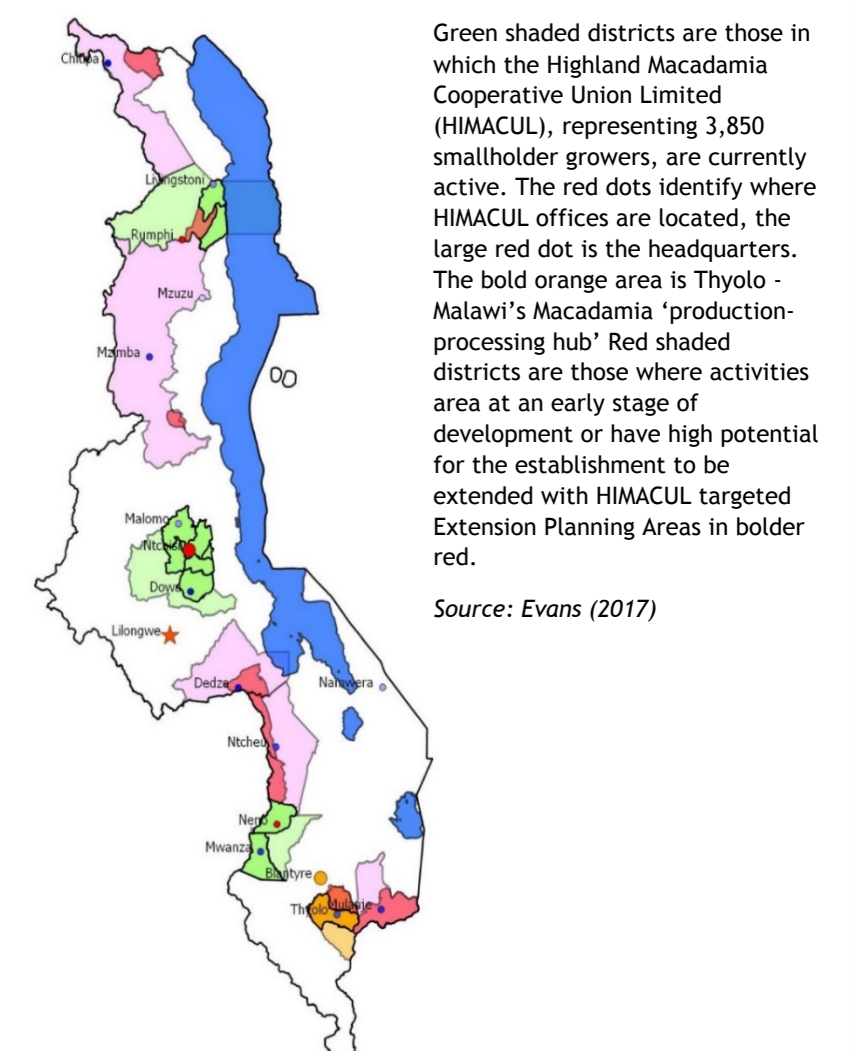


Figure 6. Overview of macadamia production and processing areas Source: Evans (2017)

STUDY CONCLUSIONS AND RECOMMENDATIONS

The macadamia industry in Malawi is well positioned to increase its global market share. To achieve this the following interventions should be considered priority for both public and private investment:

- 1) Development of an updated Strategic Plan for the macadamia industry.
- 2) New ways for smallholder farmers to access financial resources need to be investigated, and tested - for example the formation and training of self-governing savings and credit groups.
- 3) Developing and integrating smallholders into the macadamia value chain through Public-Private Partnerships and bulk buying initiatives.
- 4) New rain-fed production-processing areas in the Central and Northern Regions of Malawi need to be identified.
- 5) Increased investments in research and development, focusing on developing improved, adapted macadamia varieties and increasing availability of quality planting material need to be made.
- 6) An improved transport network, a reliable and secure electricity supply, and improved communication are all critical requirements for lowering the costs of production and improving Malawi's competitiveness in the global macadamia market.

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