



# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

# Is the Future of Malawi's Pigeon Pea Industry at the Mercy of India? An Analysis of Malawi's Pigeon Pea Value Chain

Flora Nankhuni (MSU), Nathalie Me-Nsope (MSU),  
Joseph Kanyamuka & Christone Nyondo (NAPAS: Malawi)



**USAID**  
FROM THE AMERICAN PEOPLE

**MICHIGAN STATE**  
UNIVERSITY



INTERNATIONAL  
FOOD POLICY  
RESEARCH  
INSTITUTE



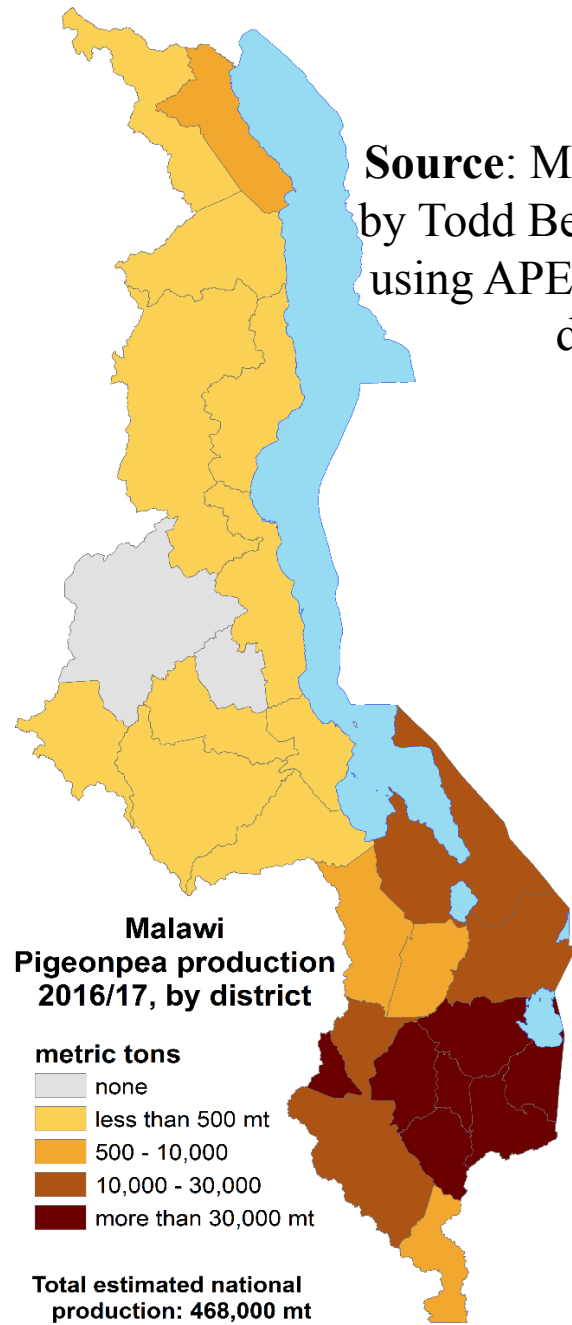
UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



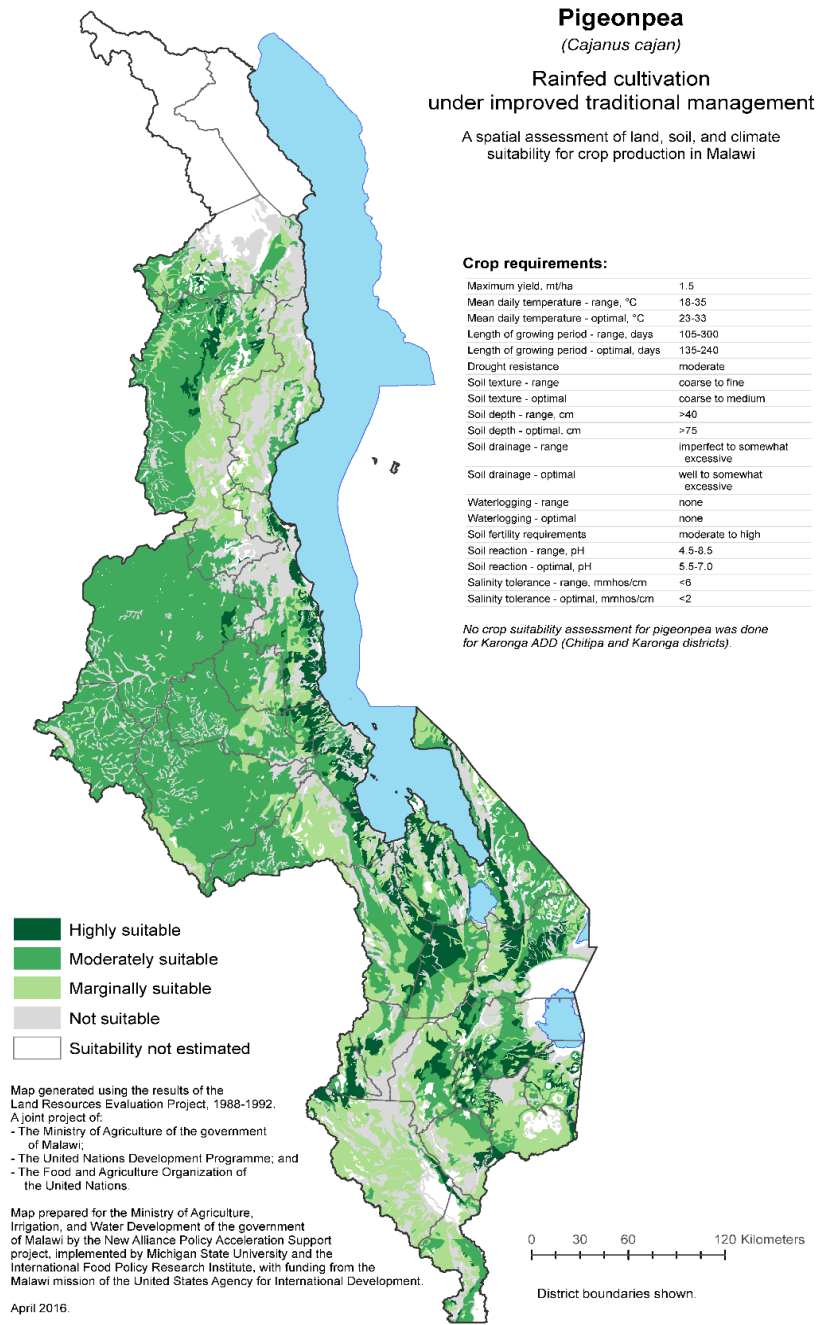
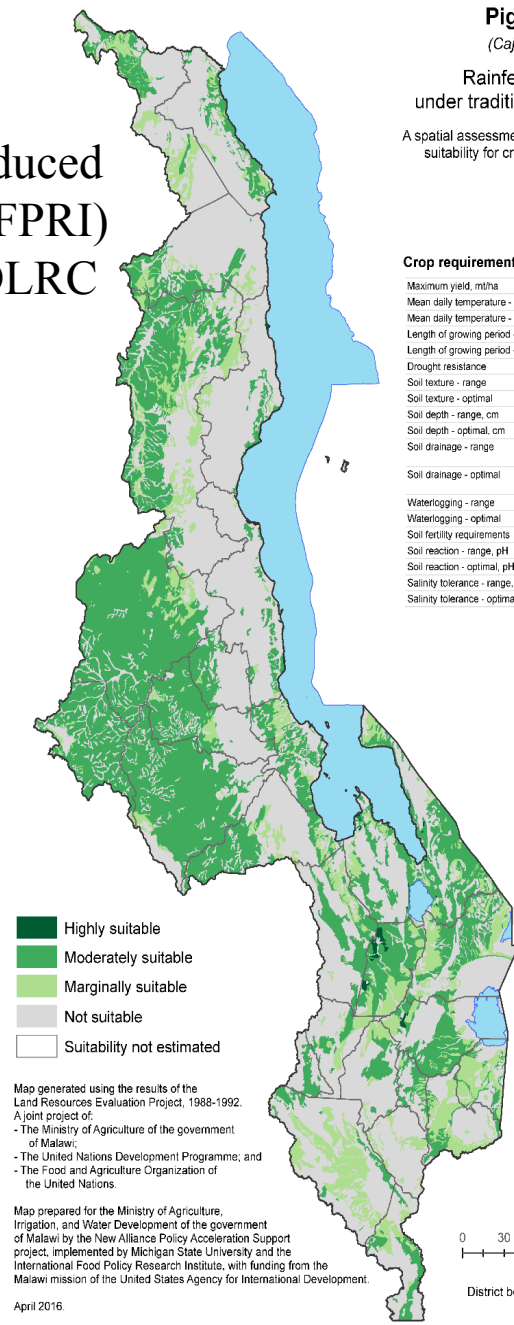
# PIGEON PEA VALUE CHAIN STUDY

- Positive attributes of the crop
  - Currently accounting for 35% of total legume production in Malawi (2016/17 APES data)
  - Well adapted in the semi-arid tropics (Jones et al. 2002)
  - Highly drought tolerant (compared to maize, tobacco and cotton)
  - Can contribute to improved soil fertility (Mhango et al. 2012; Snapp et al. 2002 & 2003)
  - Its production is relatively less resource intensive (Kadale 2013)
  - Its grain has a high protein content compared to maize (Simtowe et al. 2010)
  - Accounts for approximately 20% of household income among farmers in the Southern region of Malawi (Orr et al. 2000)

# Figures 1-3: Pigeon Pea Production & Crop Suitability Maps



**Source:** Maps produced by Todd Benson (IFPRI) using APES and DLRC data

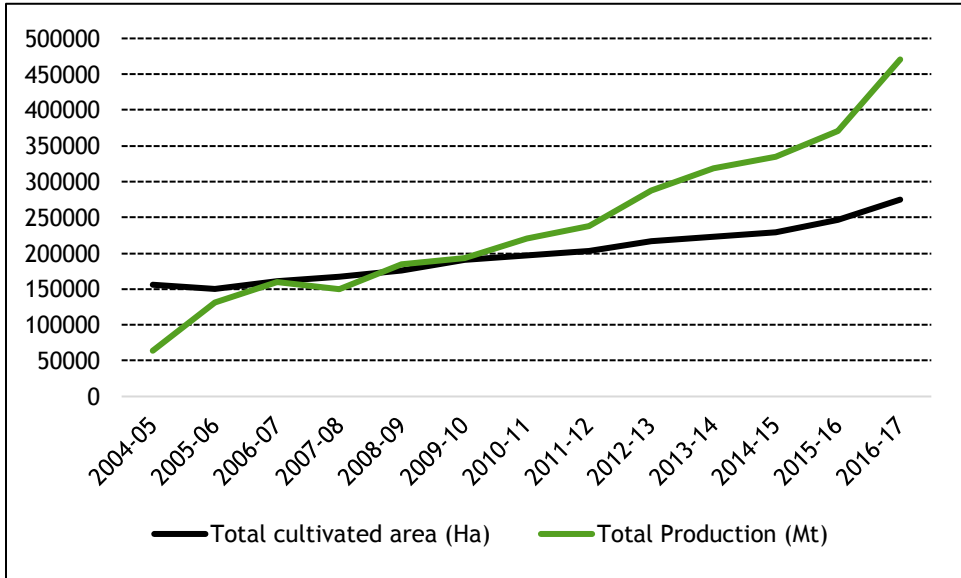


No crop suitability assessment for pigeonpea was done for Karonga ADD (Chitipa and Karonga districts).

# SOME FINDINGS ON THE PIGEON PEA VALUE CHAIN STUDY

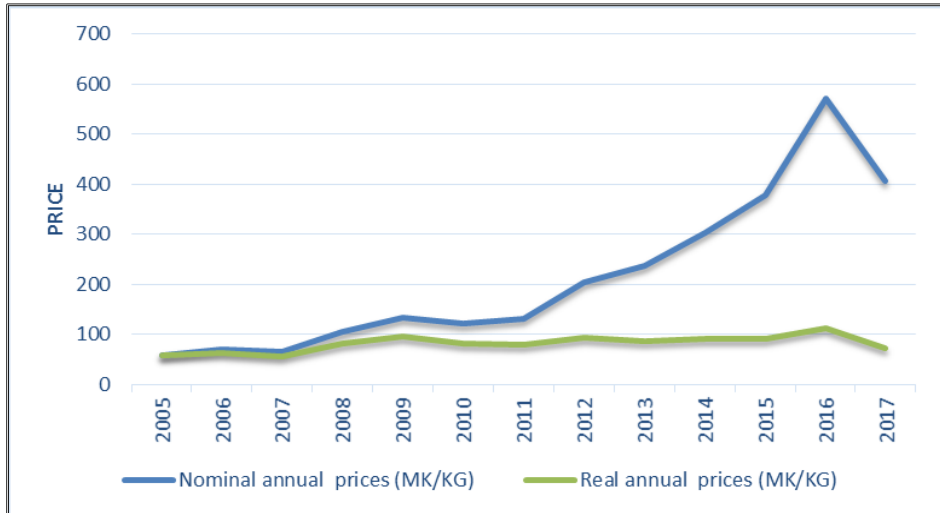
- ▶ Malawi is the leading producer of pigeon pea in Africa, produced over 450,000 tons in 2016/17
- ▶ However, Malawi's world production share decreased from 3.3% in the 1961-1989 period to 2.6% in the period 1990-2007 (mainly due to increased production by Myanmar, Mozambique, Kenya, and Tanzania)
- ▶ Smallholder farmers (mostly women) grow the crop
  - ▶ Majority of the 230 farmers (81%) - that were interviewed for the study cultivate on pieces of land that are 2 acres or less. IHS 4 data shows that average size of land allocated to pigeon pea production is 0.5 ha
  - ▶ Most of the production is for subsistence purposes (65% going to home consumption, 10 % to local markets and 25% to the export market (Lo Monaco, 2003; Mula and Saxena, 2010))
- ▶ India is the biggest importer of pigeon peas in the world
  - ▶ Share of global pigeon pea imports to India increased in the period 1990-2005, to about 87% (Simtowe et al., 2010).
  - ▶ In 2014-2016, Malawi exported about 12% of the pigeon pea she produced, to India (computations using data from <https://www.zauba.com/user> and MoAIWD APES data).
- ▶ There have been increasing trends in:
  - ▶ Production and productivity of pigeon peas in Malawi
  - ▶ Domestic and export prices fetched (until recently when domestic prices have crashed)
  - ▶ The export price for Malawi pigeon peas rose from 0.30 USD per kilogram in 1990 to 0.60 USD per kilogram in 2006 (Simtowe et. al. (2010)). Currently Malawi's pigeon pea fetched an average price of 0.91 USD per kilogram between 2014 and 2016 (computations using data from <https://www.zauba.com/user>)

**Figure 4: Pigeon pea production (metric tons) and area cultivated (ha) in Malawi: 2004/05-2016/17**



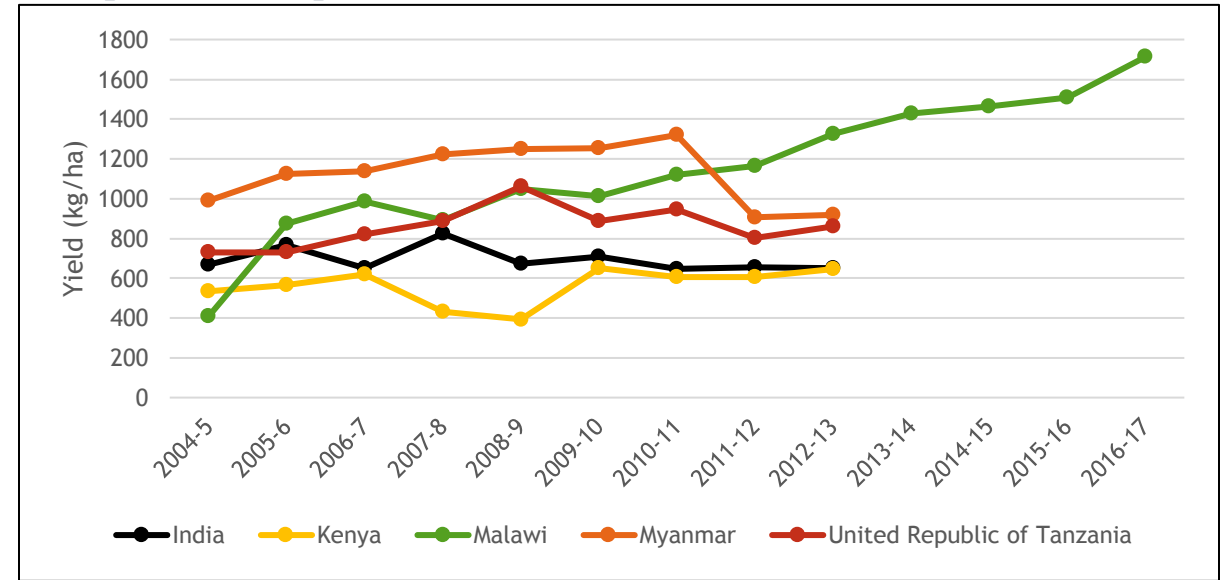
Source: MoAIWD - APES

**Figure 6: Malawi's pigeon pea annual average nominal and real retail prices in local markets (MK/kg) – 2005 to 2017**



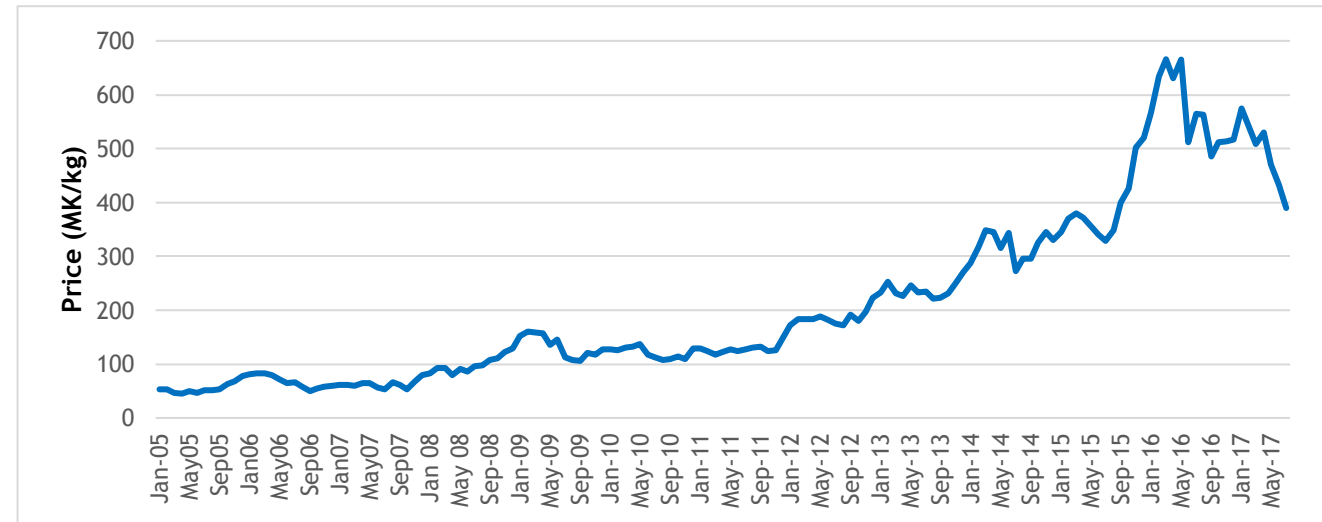
Source: MoAIWD - AMIS

**Figure 5: Trend in pigeon pea yield in Malawi compared to competitors: 2004/05-2016/17**



Source: FAOSTAT, 2017 data for 2004-5 to 2012-3 and MoAIWD-APES 2013-17

**Figure 7: Malawi's pigeon pea average nominal prices (MK/Kg) - January 2005 to July 2017**

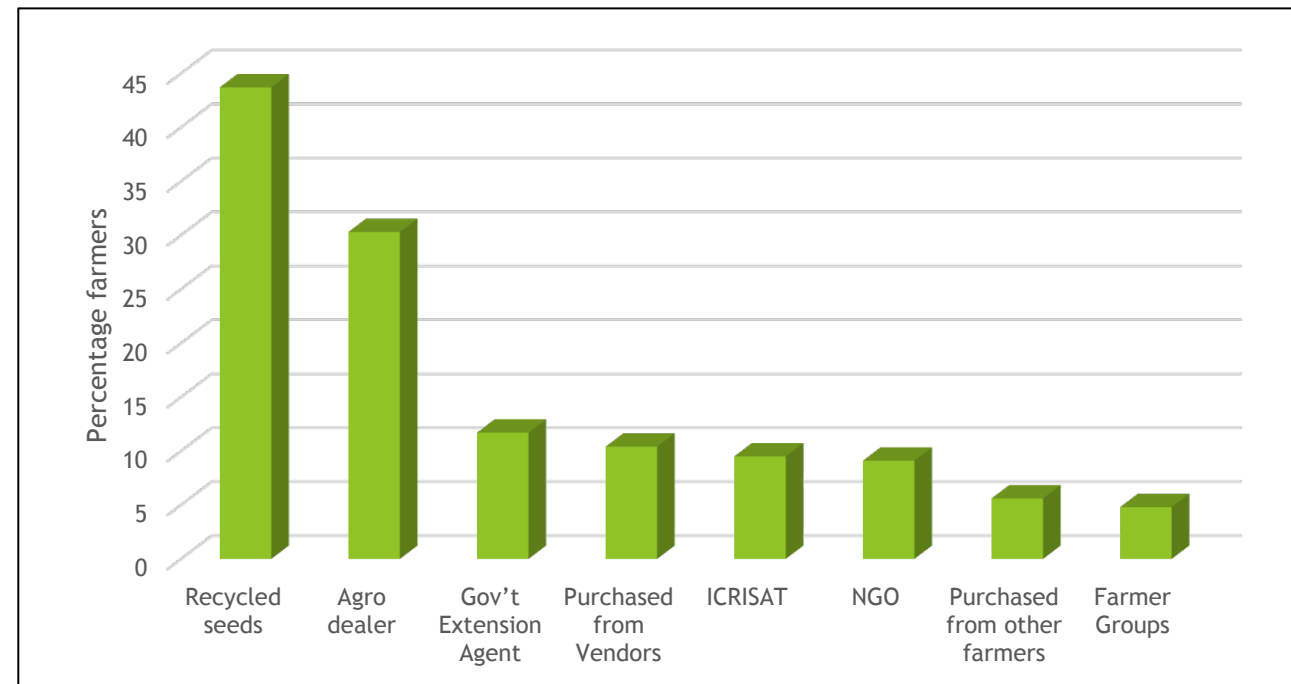


Source: MoAIWD - AMIS

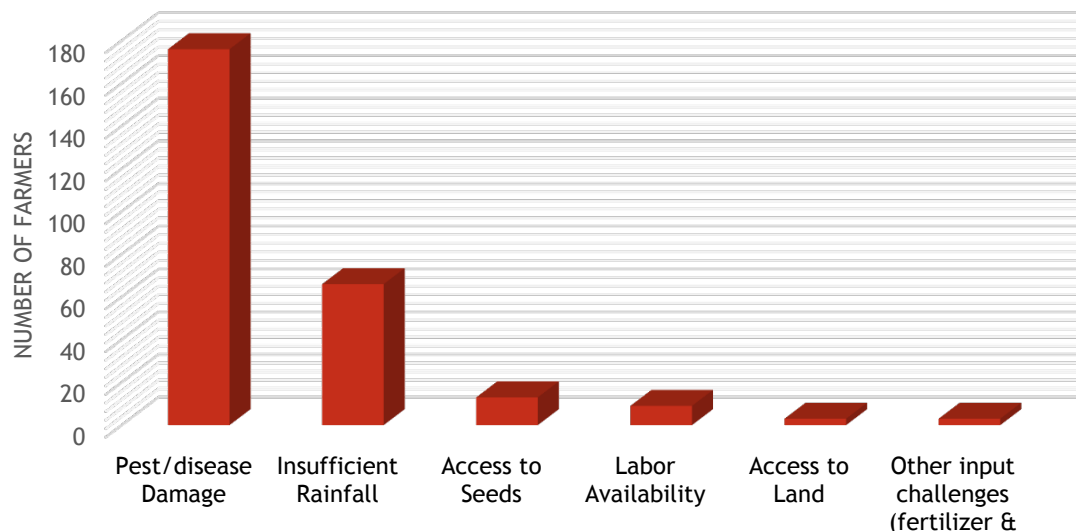
**Table 1: Common Pigeon pea varieties cultivated by smallholder farmers**

Variety Name	Frequency	Percent
Namanjo	77	33.3
<b>Mwayiwathu alimi</b>	<b>76</b>	<b>32.9</b>
Mthawajuni	38	16.4
Local	26	11.3
Loti	17	7.3
Mthawamanja	11	4.8
Makolo	9	3.9
Other	73	39.6

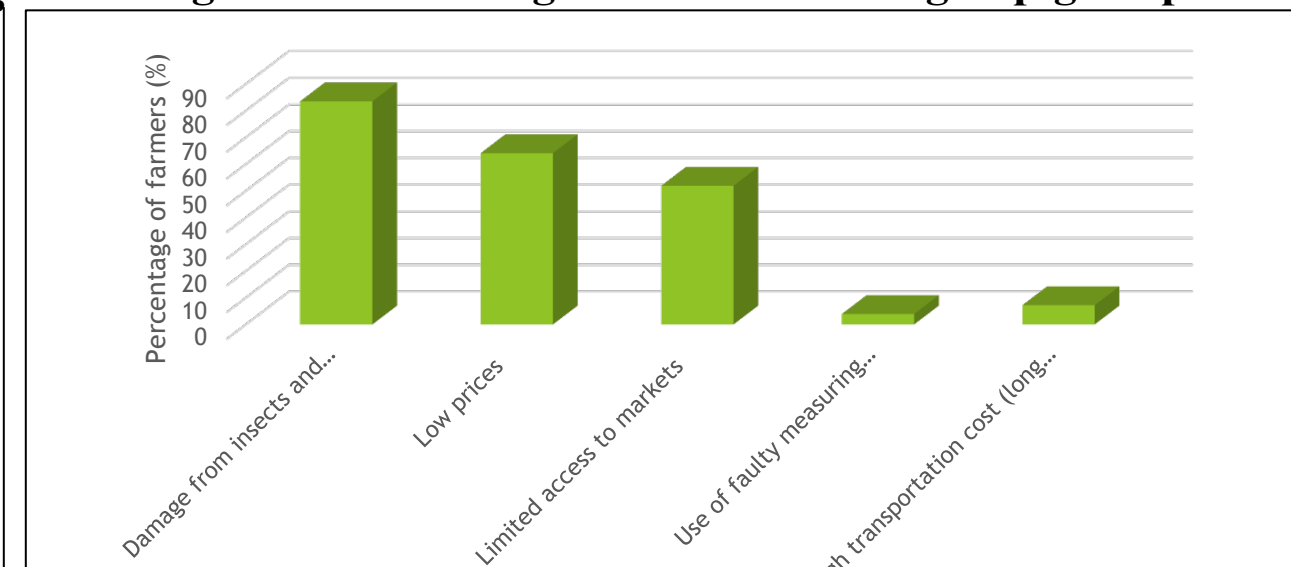
**Figure 8: Percentage of farmers accessing seeds or planting material from different sources**



**Figure 9: Cultivation challenges farmers are experiencing**



**Figure 10: Challenges in the marketing of pigeon pea**




# PROFITABILITY ANALYSIS AND VALUE CHANGES ALONG SOME NODES OF THE VALUE CHAIN

## Pigeon Pea Farmer Profitability Analysis per Acre

Yield per acre (Kg/acre)	222.02
Selling price per kg	MWK 323.76
Reported Revenue per acre	MWK 66,513.18
Production cost per acre	MWK 38,727.10
Gross Margin	MWK 27,786.08
Profit Margin	42%

## Price changes along the value chain

	Farmer	Retailer	
		Normal Season	Lean Season
Prices (MK/kg)	323.76	452.56	647.32
Price value change	Base	40%	100%
Farmer-to-Retailer			

**Source:** Authors' computations from NAPAS: Malawi Value Chain Survey Data, 2017



# CONSTRAINTS, STRENGTHS AND OPPORTUNITIES

Value chain stage	Constraints/issues	Strengths and Opportunities
Input Supply and Production	<ul style="list-style-type: none"><li>• Limited availability, access and utilization of improved pigeon pea seed varieties - resulting in heavy use of recycled seeds</li><li>• Weak extension services resulting in poor farm management practices</li><li>• Production concentrated in a region that is mostly not suitable or marginally suitable for pigeon pea production - under traditional management (dictated by consumption patterns)</li><li>• Intense competition from Myanmar, Tanzania and Mozambique</li></ul>	<ul style="list-style-type: none"><li>• Collapse of tobacco industry and associated declining tobacco prices</li><li>• Increased attention to nutrition, climate change, agricultural diversification and soil fertility decline</li><li>• Increased availability of improved seeds over time and increased pigeon pea productivity in Malawi (relative to competitors).</li></ul>
Marketing and Processing	<ul style="list-style-type: none"><li>• Low farm gate prices</li><li>• Poor storage infrastructure, resulting in post-harvest losses</li><li>• Poor farmer organization/collective marketing behavior and lack of enforcement of contracts</li></ul>	<ul style="list-style-type: none"><li>• Malawian pigeon pea facing relatively higher export prices in the Indian market (\$0.91/kg relative to \$0.88/kg for Tanzania and Mozambique (between 2014 and 2016)).</li></ul>



# CONSTRAINTS, STRENGTHS AND OPPORTUNITIES CONT.

Value chain stage	Constraints/issues	Strengths and Opportunities
Marketing and Processing	<ul style="list-style-type: none"><li>• Lack of reliable markets and over-reliance on a single export market (India).</li><li>• Increased availability of pigeon pea substitutes such as yellow pea from Canada (and France)</li><li>• Lack of quality differentiation</li><li>• Poor quality grain being offered for sale (e.g. due to deliberate adulteration)</li><li>• Processors unable to get sufficient quantities on the market, hence operating below capacity</li><li>• Poor business enabling environment (e.g. high transportation costs, the 3% withholding tax on agricultural sales, harassment from police (for traders and exporters), and high cost of finance).</li></ul>	<ul style="list-style-type: none"><li>• Available excess capacity to process pigeon peas (for the local and export market)</li><li>• Increased opportunity for pigeon peas to be used as feed ingredient</li></ul>
Consumption	<ul style="list-style-type: none"><li>• Localized consumption of pigeon peas (to Southern region of Malawi)</li></ul>	<ul style="list-style-type: none"><li>• Increased attention to pigeon pea for improved nutrition &amp; soil fertility management can spur consumption in the Central and Northern regions of Malawi</li></ul>

# IMPACT OF LOW PRICES ON PRODUCTION

- ▶ The low prices for pigeon peas in 2017-18 and current period do not seem to have significantly affected number of hectares devoted to the crop, which has declined by 9.2%
- ▶ The corresponding decrease in volume of pigeon pea expected to be produced in 2017/18 is 10.8%, which is mostly being attributed to dry spells that were observed in the Southern region rather than the price drop. This could be due to:
  - ▶ A small proportion of pigeon peas that are produced get sold to India (~12%)
  - ▶ Since pigeon pea is a relatively low resource intensive crop, the reduction in incomes did not translate in reduced input usage hence yields did not necessarily decrease.
  - ▶ The price decreases were also experienced by other crops such as maize (due to an export ban being imposed when the country had experienced bumper yields in 2016/17 season).
- ▶ In conclusion, Malawi is not necessarily at the mercy of India when it comes to pigeon pea production. However, India's support to Malawi say through the quota will go a long way in supporting pigeon pea farmers to get a relatively more decent income when they produce a surplus for sale.

# STRATEGIC RECOMMENDATIONS

- ▶ A memorandum of understanding should be signed between Malawi and India to ensure access to this important market. New markets also need to be identified.
- ▶ Malawi should invest in strengthening the seed system in Malawi to increase availability of certified and quality declared pigeon pea seeds in Malawi.
- ▶ The varieties being developed should consider varieties that are demanded by India, other export markets (to be identified), and local markets.
- ▶ ACE and ACHX need to increase their share of pigeon pea marketing and improve their reach to farmers, including provision of price risk management tools.
- ▶ Pigeon pea farmers need to develop strong associations/cooperatives to improve their access to inputs, markets and marketing information.
- ▶ Local demand for consumption and other uses of pigeon pea should be explored (e.g. animal feed, firewood, fertilizer trees).