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Introduction

Horti-sempre WARESTA Horticulture Index 2014

The Horti-sempre WARESTA Horticulture Index 2014 is the most complete survey of the horticultural market in Northern Mozambique. The data has been collected by the Horti-sempre project, funded by the Swiss Agency for Development and Cooperation (SDC), in collaboration with the association of Horticultural Wholesalers of Nampula (AGROWAM) throughout the years of 2013 and 2014 at the WARESTA wholesale market in the city of Nampula.

This sample covers an estimated 25%-30% of the total volumes traded in Northern Mozambique and is a reliable indicator of the trends taking place for the major crops with the exception of lettuce and kale. These two crops are heavily traded outside the WARESTA market being therefore underestimated by WARESTA statistics. Also the production in the district of Nacala is not covered by the WARESTA statistics as it is mainly traded locally supplying the institutional market (HORECA channel: Hotels, Restaurants and Catering) in the port town of Nacala and in the surrounding areas.

The WARESTA Horticulture Index 2014 is consists of three main parts:

- 1. **General Overview**: The first part outlines main trends on the horticultural volumes traded as well as origin and seasonality of the produce.
- 2. **Analysis by Crop**: The second part analyses in detail the volumes and origins of the main horticultural crops traded in Northern Mozambique namely tomato, pepper, onion, garlic, cabbage, lettuce, kale, potato, carrots and green beans.
- 3. **Analysis by Cluster**: The last part explains the concept of regional production clusters and outlines the main crops and volumes traded by the clusters in Northern Mozambique.

The Nacala Corridor

Horti-sempre project aims at increasing competitiveness of horticultural producers within the so called Nacala Corridor in the Nampula Province of Northern Mozambique. The Nacala Corridor links the landlocked countries Malawi and Zambia to the Mozambican port town of Nacala. In Nampula Province, the Nacala Corridor encompasses the districts along the main railway connection between Nacala and Cuamba in Niassa Province. Main horticulture production takes place in the hilly districts of **Malema** and **Ribaue** as well as in the so called **Green Belts around the cities of Nampula and Nacala**.

The WARESTA Horticulture Index 2014 analyses the origin of the traded horticultural crops and if they are produced inside or outside the Nacala Corridor outlining the respective ratios. This allows an assessment of local competitiveness against horticultural products from abroad or other provinces in the country such as Zambezia or Maputo.

General Overwiev



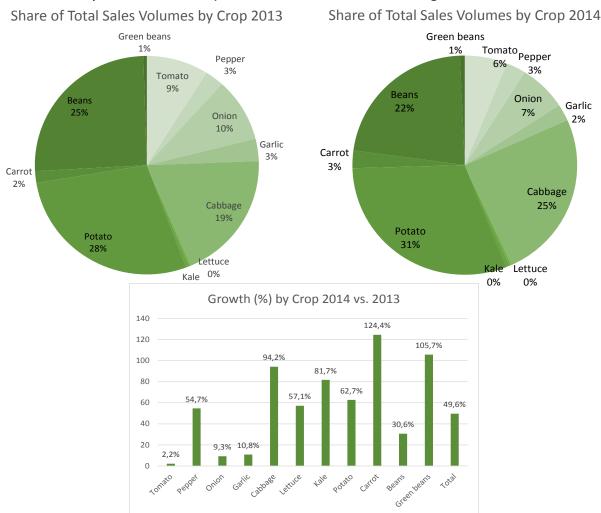
Main Trends

Total Volumes Traded in 2013 and 2014

In 2014, the volume of horticultural products traded at the WARESTA wholesale market in the city of Nampula has reached 23,017 MT (metric tons), rising by +49.6% in comparison to 2013. This strong increase is mainly driven by three crops: cabbage, potatoes and beans. They account together for almost 90% of the increased volumes. The local production of these three crops within the Nacala Corridor is negligible and they are almost exclusively imported from outside the Corridor.

By crop carrots (+124.4%), green beans (+105.7%), cabbage (+94.2%), and kale (+81.7%) are those with the highest increases in traded volumes, while tomato (+2.2%), onion (+9.3%) and garlic (+10.8%) have registered the lowest increase between 2013 and 2014. There is clear evidence of diversification with traded volumes of crops such as carrots, kale, lettuce and pepper growing at a very robust rate from 2013 to 2014, thus moving from niche crops to mid-volumes size crops.

Potato with a share of 31% of the total volumes of traded horticultural products in 2014 (28% in 2013), cabbage with a share of 25% (22% in 2013) and beans with a share of 22% (25% in 2013) remain the biggest crops traded in the Corridor followed by Onion with 7% (10% in 2013) and Tomato with 6% (9% in 2013). It is important to highlight that the crops with the biggest share and growth rate, namely cabbage, potato, and beans, are mostly consumed as staple food rather than side-dish vegetables.

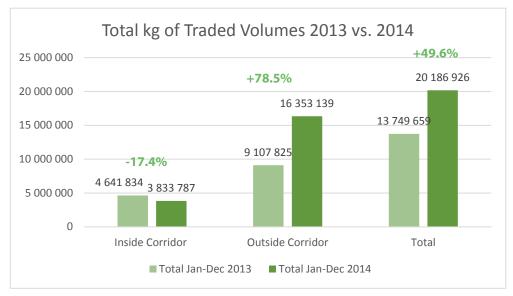


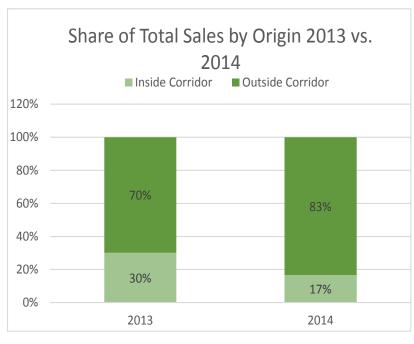
Origin of the Production

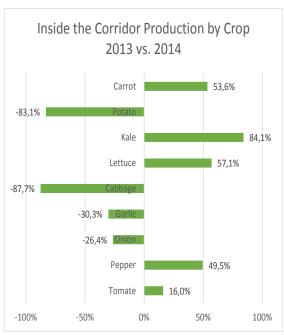
Origin of volumes traded at WARESTA market

The volumes produced within the Nacala Corridor have shrunk by 17.4 % in 2014 compared to 2013, while those produced outside the Corridor have grown by 78.5%. As a result the share of locally produced crops, i.e. vegetables produced inside the Corridor, has shrunk from 30% in 2013 to 17% in 2014.

The contraction of vegetables production from inside the Corridor - resulting in a declining market share - is due to a poor performance of cabbage (-87.7% traded volumes), potato (-83.1%) and garlic (-30.3%). However it is important to highlight the volumes produced inside the Corridor of kale (+84.1% traded volumes), carrots (+53.6%), lettuce (+57.1%), pepper (+49.5%) and tomato (+16.0%) have all experienced significant increase in 2014 compared to 2013.







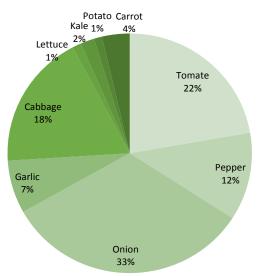
Origin of the Production

Production patterns within the Nacala Corridor

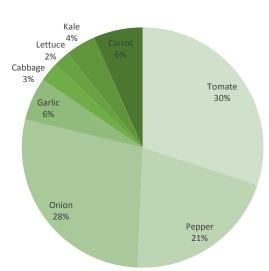
Based on the traded volumes at WARESTA market, the pattern of production within the Nacala Corridor has changed significantly in 2014 as compared to 2013. In the year 2013 onion was by far the most important crop with a share of 33% of the local horticulture production, followed by tomato (22% share), cabbage (18% share), and pepper (12% share). In 2014 cabbage has almost disappeared (only 3% share) and three crops dominate local production in the Nacala Corridor: tomato (30% share), onion (28% share) and pepper (21% share), followed by kale and lettuce whose sales are underestimated by the statistic used in this survey, being crops largely traded outside the WARESTA market.

The Nacala Corridor vegetables production remains highly competitive for lettuce and kale (100% share) as well as pepper (95% share) where almost the totality of the volumes traded at WARESTA market are produced locally.



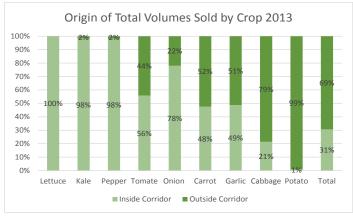


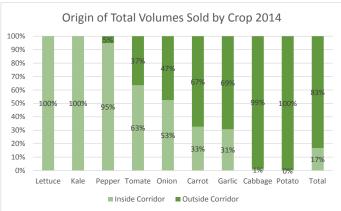
Production Inside Nacala Corridor 2014



Tomato has become more competitive in the year 2014 with local production accounting now for 63% of the total volume traded at WARESTA market as opposed to only 56% in 2013.

On the other hand the local competitiveness of onion has worsened during 2014 with the Nacala Corridor now only accounting for the production of 53% of the traded volumes, down from a share of 78% in 2013.

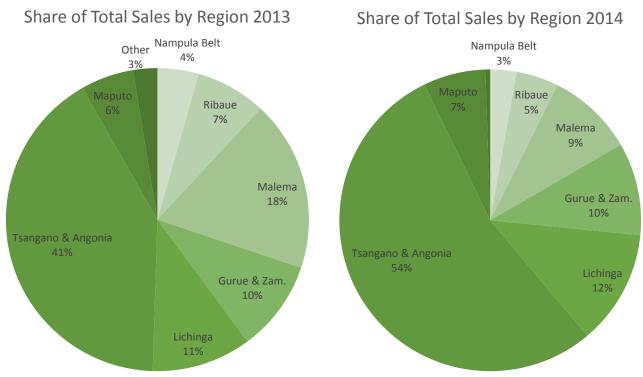


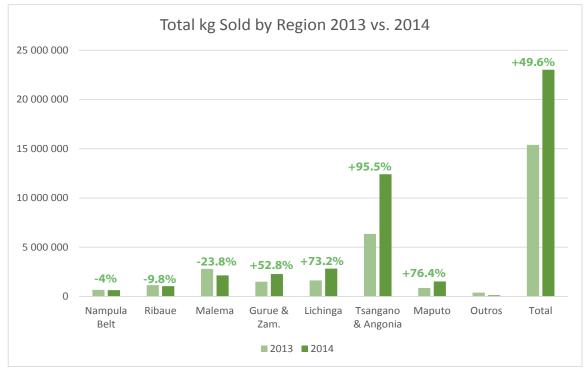


Origin of the Production

Production patterns within the Nacala Corridor

The area of Tsangano & Angonia in Zambezia Province is turning into the undiscussed leading clusters of vegetables production in Northern Mozambique with an increase in production of 95.5% between 2013 and 2014. Tsangano & Angonia hold almost a monopolistic position for crops such as potatoes and cabbage with a market share of respectively 99% and 85% of the volumes traded at the WARESTA market, up from 75% for cabbage and 85% for potatoes in 2013.





Analysis of Seasonality

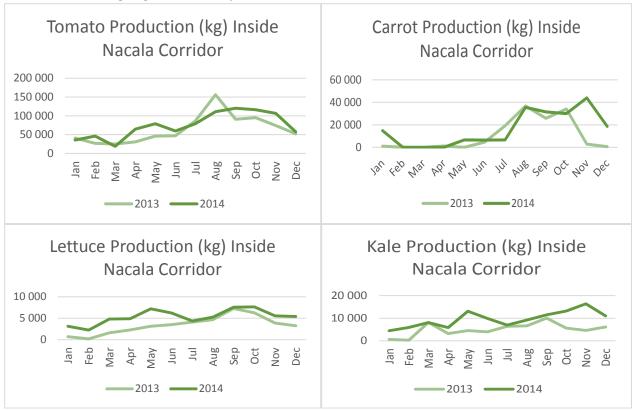
Seasonality of Consumption and Production

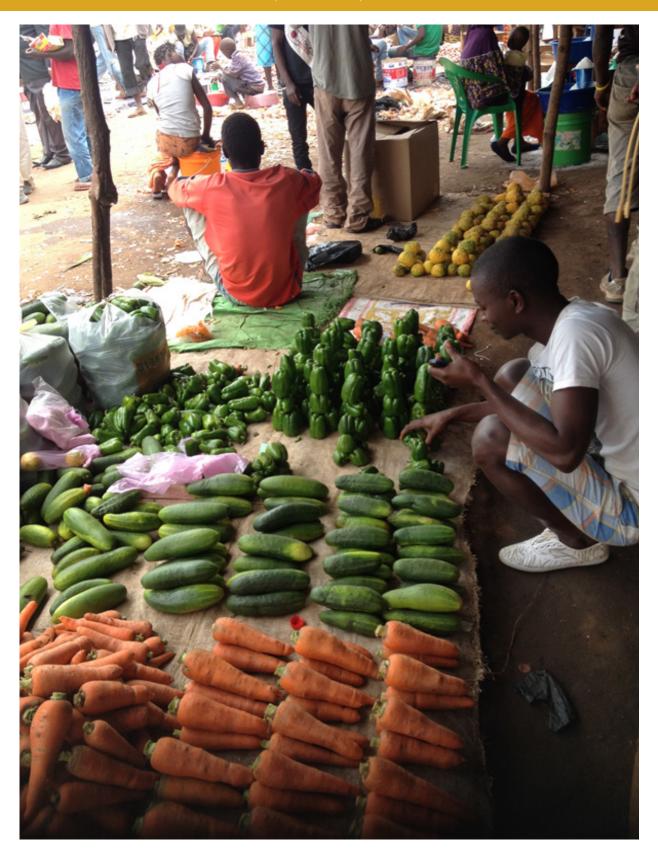
The consumption of vegetables in the Nacala Corridor has considerably de-seasonalized in 2014 and traded volumes in the traditional low consumption season from January to April have considerably increased in 2014 compared to 2013 and reached almost the level of the peak season of consumption from May to September.

On the other hand the production of vegetables within the Nacala Corridor remains rather seasonal with low output in the rainy months from January to April but with a significant increase in the months of November and December in 2014 in comparison to the same period in 2013.



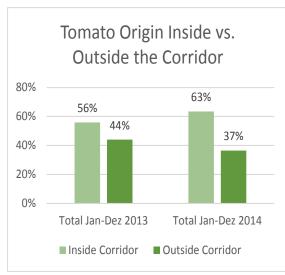
In particular the production of tomato and carrot has increased during hot season (October to December), whereas lettuce and kale production increase in both, the hot season as well as the rainy season (January to April), thus softening high seasonality of 2013.

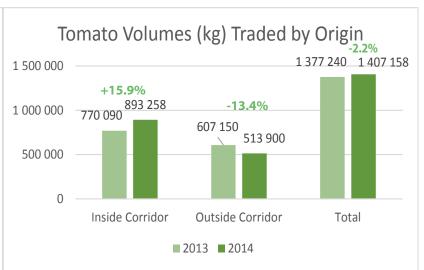




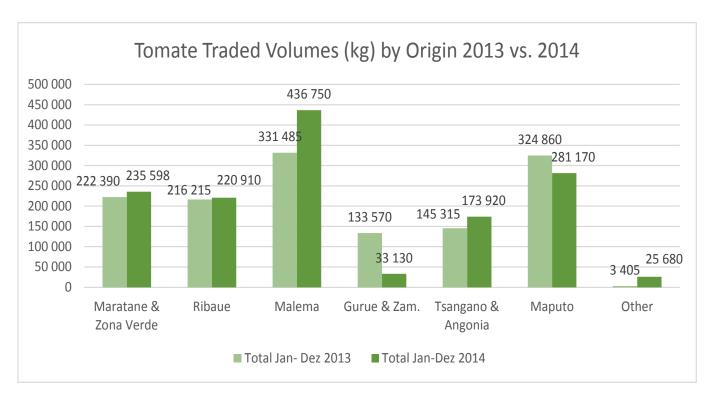
Tomato

The overall competitiveness of the Nacala Corridor in tomato production has improved with local production growing by 15.9% in 2014 compared to 2013 with a contraction of the imports from outside the Corridor (-13.4%). As a result the share of local production from the total volumes of traded tomatoes has jumped from 56% in 2013 to 63% in 2014.

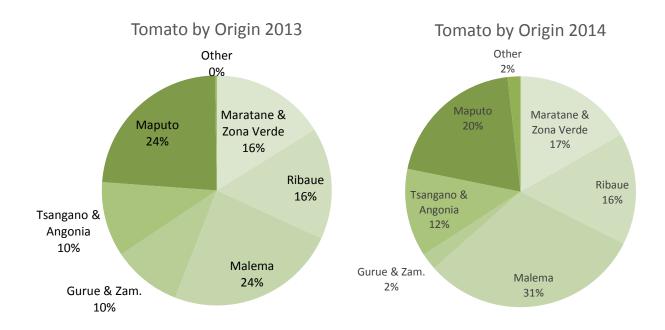




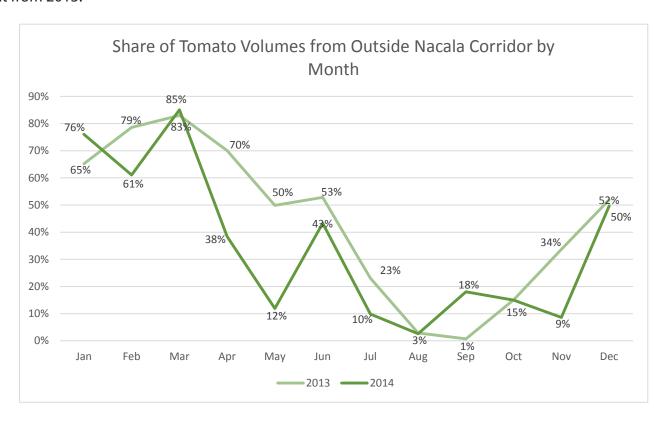
The positive performance of the Nacala Corridor in tomato production is mainly due to a strong rise in Malema (+31.8%) and to a lesser extent to an increase in production in the Green Belts around Nampula including Marratane (+5.9%) and in Ribaue (+2.2%). In particular Malema's production in the months from January to April has increased by +70.4% between 2013 and 2014 showing the potential of the district for tomato production in the out-of-season.



Tomato

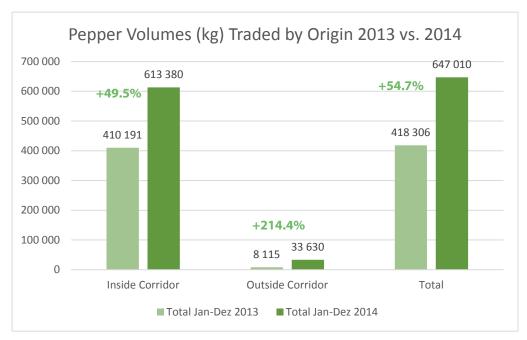


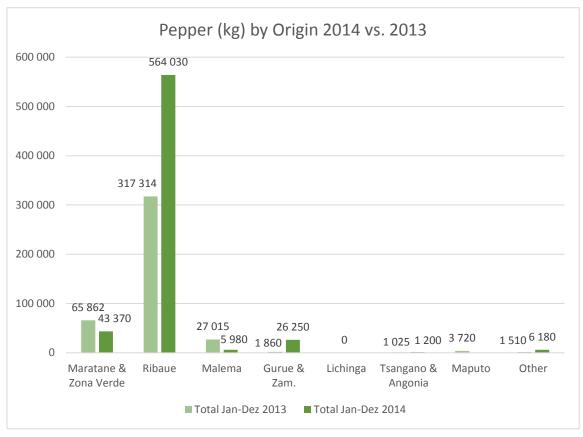
The supply of tomatoes from inside the Corridor continues to be quite seasonal and highly dependent on imports from other regions in the months from January to March when imports from outside the Nacala Corridor still accounts for almost two thirds of the traded volumes of tomates in 2014 with little improvement from 2013.



Pepper

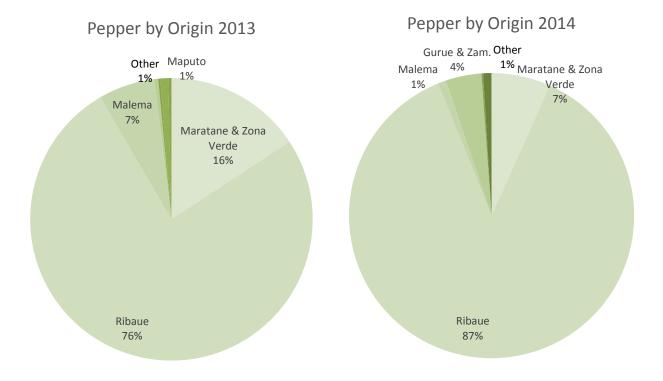
The overall competitiveness of the Nacala Corridor in pepper production continues strong with local production growing by a robust 49.5% between 2013 and 2014 and imports from outside the Corridor being quite insignificant and only accounting for 5% of the total traded volumes at the WARESTA market.





Pepper

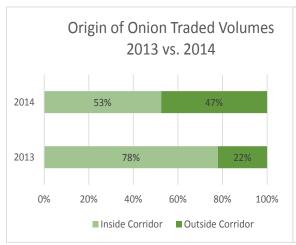
Ribáuè with a strong increase in production of +77.8% from 2013 to 2014 has risen its share of the total traded volumes to the high level of 87% (76% in 2013). Thus consolidating its strong position as leading cluster of pepper production in the Nacala Corridor holding almost a monopolistic position.

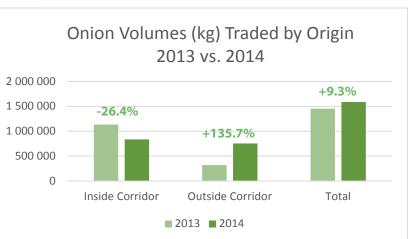


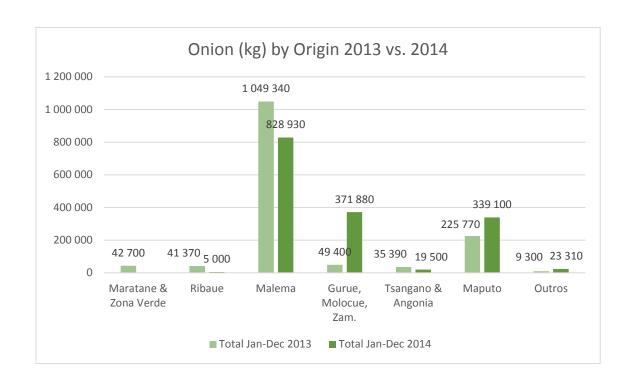
Onion

The overall competitiveness of the Nacala Corridor in onion production has deteriorated during 2014 with local production shrinking by -26.5% compared to 2013 in a market that grew by +9.3% in the same period. Imports from outside the Corridor have more than doubled (+135.7%) since 2013 and account in 2014 for 47% of the total traded volumes in the Nacala Corridor as compared to 22% in the year 2013.

The drop of onion production in Malema (-21%), resulting in a contraction of its market share from 72% in 2013 down to 52% in 2014, may reflect punctual problems such as lower than needed stocks during the last quarter of 2013 resulting in low sales in the first quarter 2014. Another possible explanation are structural problems such as low productivity, deterioration of the local seeds after decades of in-breeding, low production in the summer and a production skewed on red onion with low supply of yellow onion despite growing demand in the market.

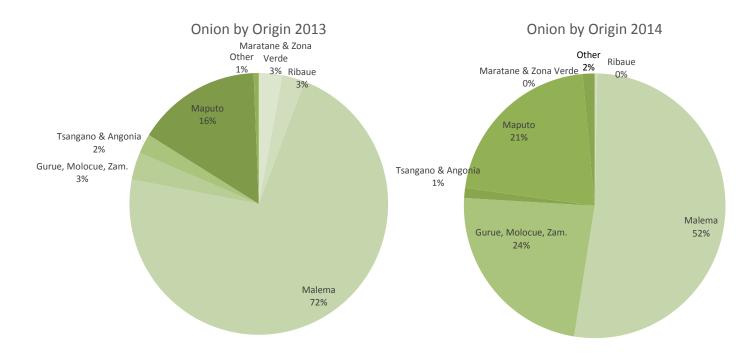






Onion

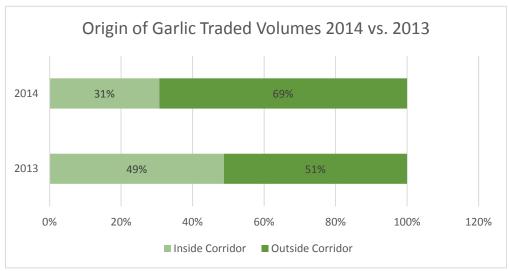
The competiveness of Malema is expected to receive a boost once the on-going Horti-sempre supported introduction of new varieties from Brazil will reach scale: IPA 10 (red onion with high yields and rusticity), IPA 11 (yellow onion with hard skin, and excellent post-harvest conservation) and Alfa Sao Francisco (for summer production).



Garlic

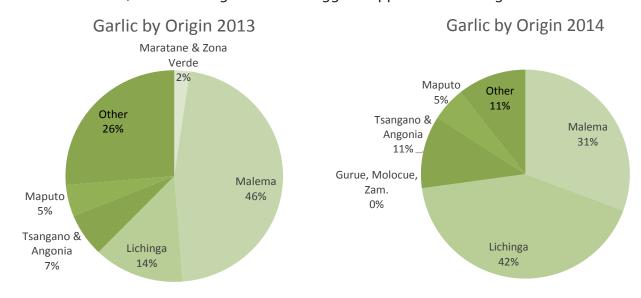
The overall competitiveness of the Nacala Corridor in garlic production, that has historically never been very strong, has worsened during 2014 with local production shrinking by -29.3% compared to 2013, in a market that grew by +10.8% (2014 vs. 2013). Imports from outside the Corridor have grown by +49.9% since 2013 and account in 2014 for 69% of the total traded volumes as compared to 51% in the year 2013.

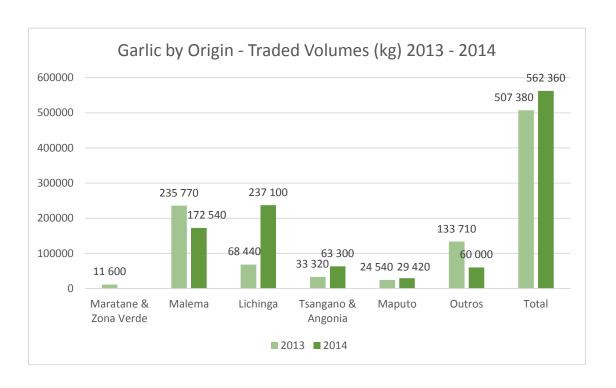




Garlic

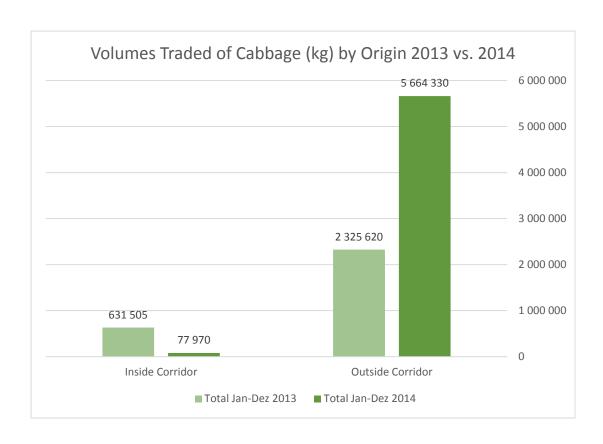
Lichinga is emerging as possible new cluster-reference for garlic in Northern Mozambique with a production increased by 3.5 fold in 2014 compared to 2013 from 68.4 MT to 237.1MT. Lichinga has reached a share of 42% of the total traded volumes in 2014 compared to one of only 14% in 2013, replacing Malema as the biggest garlic producer in Northern Mozambique. On the other hand, Malema's garlic production has decreased by -27.0% in 2014 compared to 2013 and its share of the total traded volumes shrunk from 46% in 2013 to 31% in 2014, still remaining the second biggest supplier after Lichinga.





Cabbage

In absolute values, Cabbage has been the product with the highest increase in traded volumes in the Nacala Corridor with an increase of almost 3,000 MT between 2013 and 2014. The traded volumes of cabbage have almost doubled (+94%) in 2014, passing from 2,957 MT in 2013 to the current 5,742 MT.

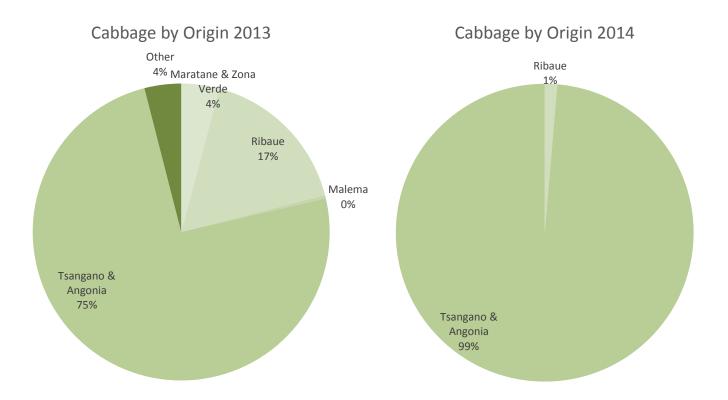


Cabbage

The region of Tsangano & Angonia consolidates a clear undisputed leadership as leading production cluster for Northern Mozambique controlling almost 99% of the total volumes traded in the Corridor in 2014, as compared to 75% in 2013.

The cabbage production within the Nacala Corridor looks poorly competitive. It fell from a share of 21% of the total volumes traded in 2013 to almost nothing in 2014 and/or oriented to self-consumption rather than trade.

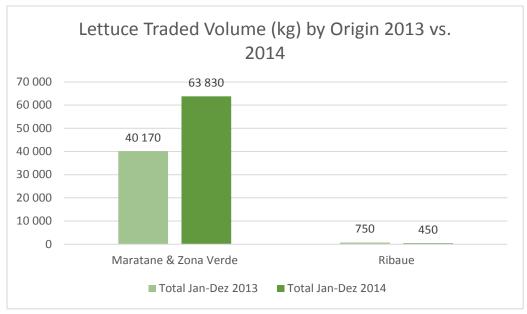
In particular it appears that Ribaue has failed to emerge as a competitive cabbage producing cluster inside the Nacala Corridor, as shown by its shrinking share from 17% of the total volumes traded in 2013 to only 1% in 2014.

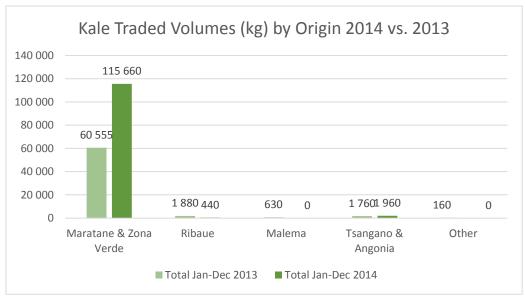


Lettuce & Kale

Lettuce and kale are strategic crops for the Nacala Corridor and in particular for the Green Belts around Nampula. Due to its very perishable nature the procurement is only viable in the proximity of urban centers where its consumption is concentrated. The WARESTA Horticulture Index 2014, built on data collected at the WARESTA wholesale market, poorly captures the importance of these crops that are largely traded outside this wholesale market. Estimated volumes are possibly as 10-20 times higher than those recorded by the Index.

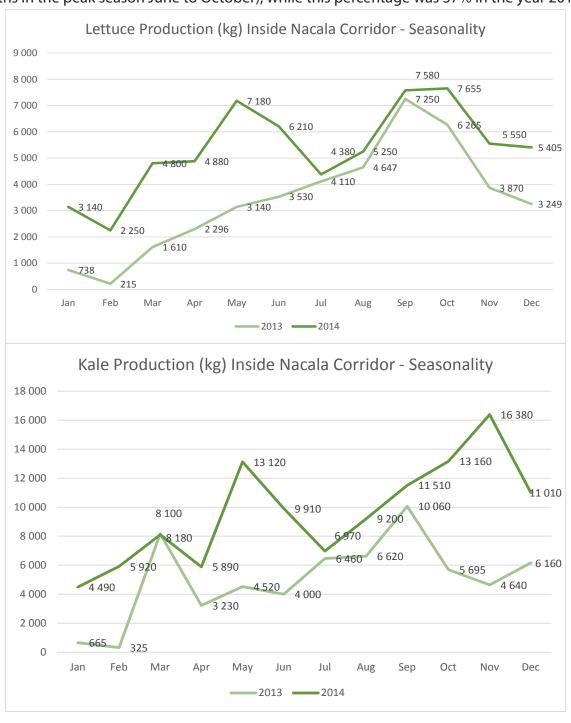
Both lettuce and kale have experienced high growth rates of respectively +57% and +82% between 2013 and 2014. This is reflecting growing acceptance among consumers and a growing trend of horticulture consumption that seems to follow with delay the pattern of Southern Mozambique, especially Maputo, where lettuce and kale consumption is second only to tomatoes.





Lettuce & Kale

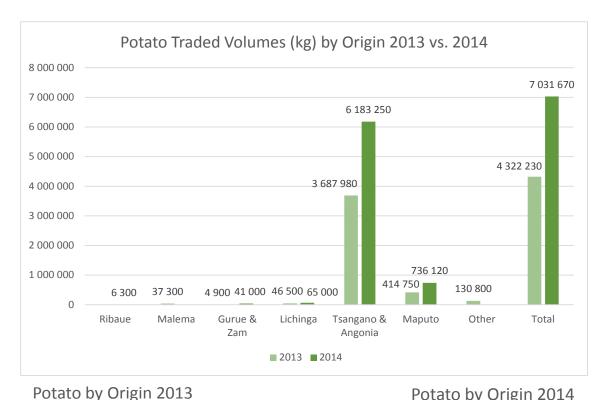
The Green Belts around the city of Nampula account for almost the totality of kale and lettuce traded in the Corridor with a 100% share for salad and 98% share for kale. Furthermore the production of lettuce and kale in the Nacala Corridor is becoming less seasonal. In 2014 the lettuce production in out-of-season months (November to March) equalled 68% of the total production obtained in the months in the peak season (June to October), while this percentage was 38% in the year 2013. Similarly In 2014 the kale production in out-of-season months (November to March) equalled 91% of the total production obtained in the months in the peak season June to October), while this percentage was 57% in the year 2013.

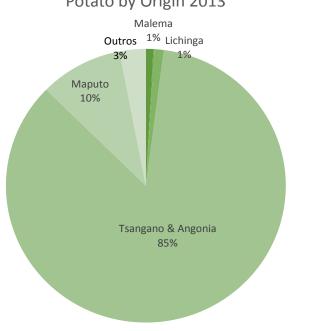


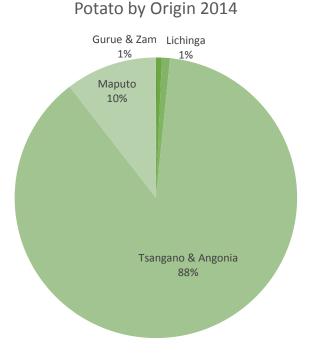
Potato

Potato is the biggest traded crop in the Nacala Corridor with a share of 31% of the total vegetables traded in 2014 (28% in 2013) and with increased traded volumes up by 62.7% in 2014 compared to 2013, in absolute values from 4,322 MT in 2013 up to 7,031 MT in 2014.

The potato market is dominated by the Tsangano & Angonia region in Zambezia Province that alone accounts for 88% of the traded volumes in 2014 (85% in 2013).



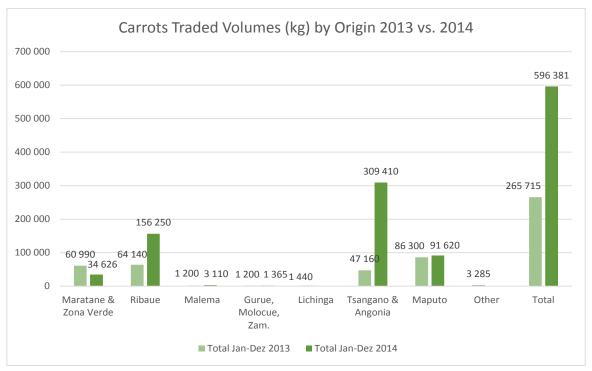


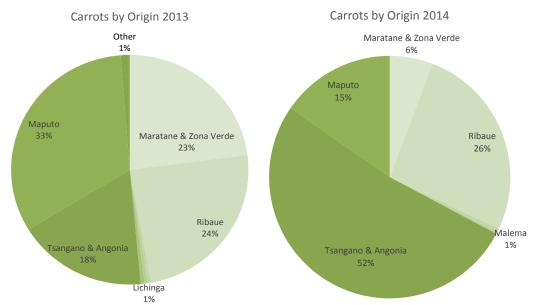


Carrot

Carrot has been the fastest growing crop in 2014 with traded volumes up to 124.4% at the WARESTA market. The fast growth of carrots from 265.7 MT in 2013 to 596.4 MT in 2014 mirrors a growing differentiated consumption pattern in Northern Mozambique traditionally concentrated on a few vegetables such as potato, tomato, onion, and cabbage.

The crop undoubtedly represents a good opportunity for diversification for farmers in the Nampula Green Belt and in Ribaue during the cool season, but it is increasingly dominated by Tsangano & Angonia in the out-of-season months December to July.

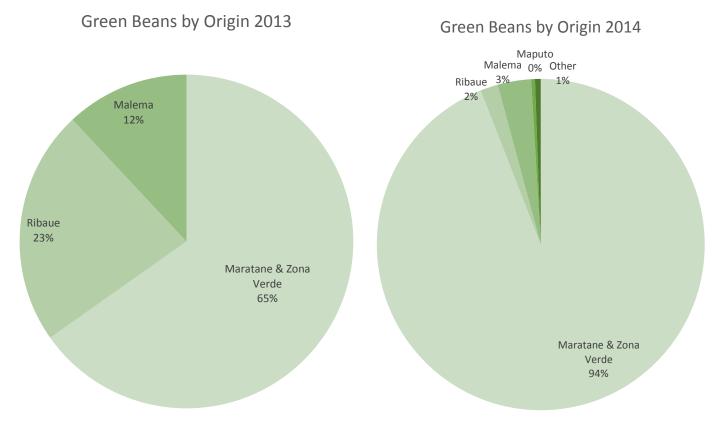




Green Beans

With an increase of +105.7% in traded volumes passing from 77,7MT in 2013 to 159,9MT in 2014, green beans have been the second fastest growing traded crop in the Nacala Corridor after carrots.

Green beans represent a diversification opportunity for the farmers of the Nampula Green Belt that accounted in 2014 for 94% of the traded volumes as compared to 65% in 2013, more than tripling their production from 50,4MT to 150.4MT.





Emerging Clusters in Northern Mozambique



Main Cluster Production and relative Market Share at WARESTA Traded Volumes

Regional Cluster Strategies

What is a Cluster?

The term cluster, also known as an industry cluster or competitive cluster, was introduced and popularized by Michael Porter in The Competitive Advantage of Nations (1990).

A horticultural cluster is defined as geographic concentration of inter-connected farmers and companies working in a common industry. In addition, clusters encompass an array of collaborating and competing services and providers that create a specialized infrastructure, which supports the cluster's industry. Finally, clusters draw upon a shared talent pool of specialized skilled labor.

The economic cluster model, represents a synergy, a dynamic relationship and a network between not only the companies that comprise a cluster but also the successful partnering of the stakeholders. Government, education, and other supporting organizations vital to a regions economic success represent these stakeholders. Many successful clusters have established a greater competitive advantage and wealth creation for their regions when compared to companies not in a cluster. Given this success more policy makers and regions are considering fostering cluster development as building blocks of regional economies.

Benefits of Clusters

Michael Porter claims that clusters have the potential to affect competition in three ways: by increasing the productivity of the companies in the cluster, by driving innovation in the field, and by stimulating new businesses in the field.

Each region has its own cluster strength. A region that is able to successfully identify and work with its clusters will reap many strategic benefits. When examined from a global perspective Porter explains that regions offer significant competitive advantages.

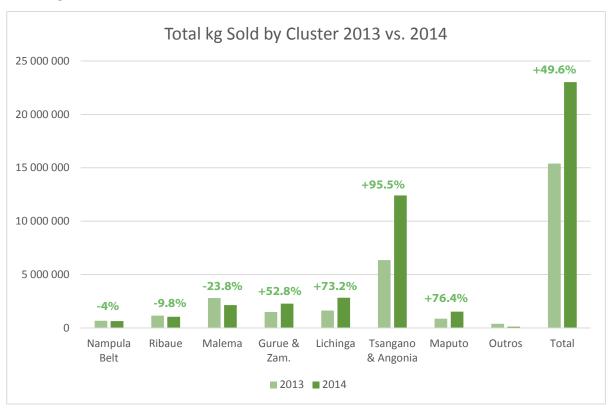
"Regional clusters have the ability to offer local things such as knowledge, relationship, and motivation which cannot be matched by distant rivals."

Therefore, regions that foster their local cluster based strengths can reap tangible returns. Job creation and new entrepreneurial innovations are able to flourish in such a collaborative environment. New leaders can develop within this context and continue to drive the networks and alliances of industry that will serve as power brokers within government and the community to continue to evolve a demand-driven framework.

By working with clusters, community organizations and other support services may be able to increase their efficiency and effectiveness by directing services toward larger groups of firms.

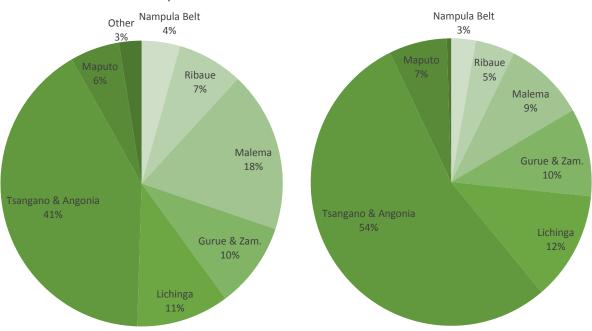
The main Clusters of the Nacala Corridor

With an increase of +95.5% of traded volumes in 2014 compared to 2013 the cluster of the high lands of Tsangano & Angonia has consolidated its position as top supplier of vegetables in Northern Mozambique, reaching a share of 54% of total volumes traded at WARESTA market in 2014 (41% in 2013). This means that more than one out of two kilos of vegetables traded in Northern Mozambique basically originate from Tsangano & Angonia.





Share of Total Sales by Cluster 2014

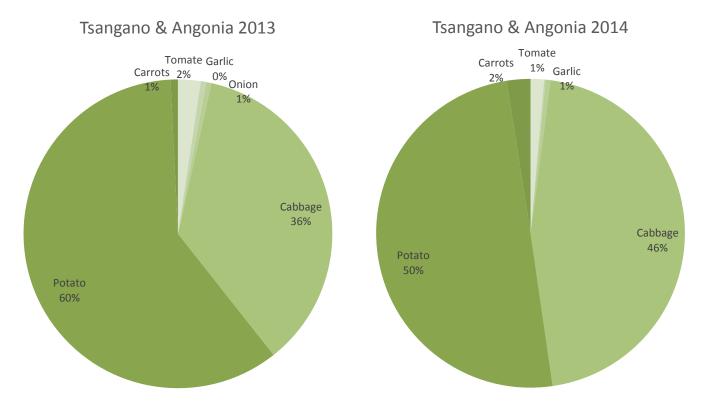


Tsangano & Angonia

As mentioned above, the cluster of Tsangano & Angonia has consolidated its position as top supplier of vegetables in Northern Mozambique. The cluster has heavily specialized on the production of two crops: potato and cabbage where it holds respectively a dominant share of 88% (85% in 2013) and 99% (75% in 2013) of the total volumes traded at the WARESTA market. In 2014 the cluster has consolidated its leadership in potatoes and built a monopolistic position on cabbage where it is also absolute leader in cost-production due to favourable weather conditions. The importance of cabbage production in the cluster has increased significantly: cabbage holds a share of 46% in 2014 as compared to a share of 36% in 2013.

Interestingly Tsangano & Angonia has become also in 2014 the leading supplier in the Nacala Corridor of carrots, increasing production from 47.1 MT in 2013 to 309.4 MT in 2014. Thus overcoming Maputo and Ribaue thanks mainly to a strong production in the out-of-season months of December to May.

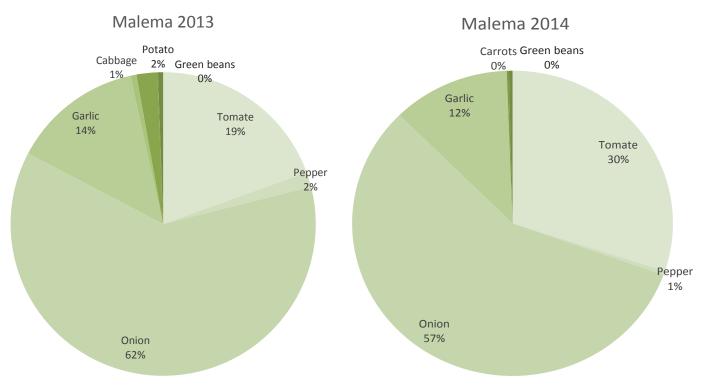
Produce Shares of Tsangano & Angonia 2013 vs. 2014



Malema

The cluster of Malema is still characterized by the importance of onion that with a share of 57% of the traded volumes is still the most important crops produced in the district. It is followed by tomato with a 30% share in 2014 (up from the 19% of 2013) and garlic with 12% share in 2014 (down from the 14% of 2013).

Produce Shares of Malema 2013 vs. 2014



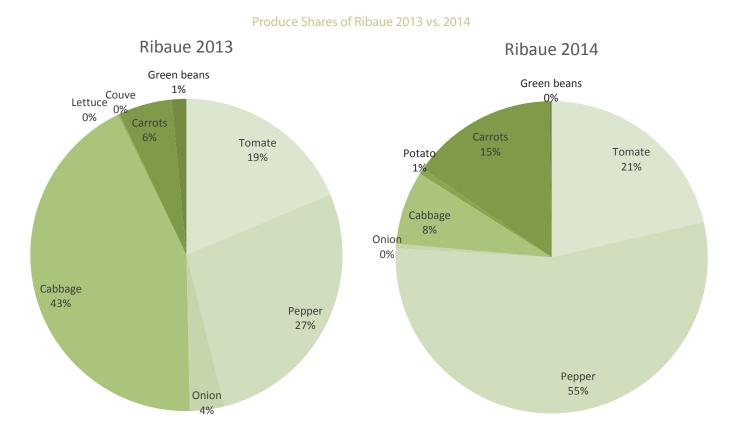
The significant drop in volumes of onion production experienced in 2014 with -21% compared to 2013 would suggest Malema needs an overall rethinking of its onion industry. The cluster needs to adapt its production to a new market demand that asks for more yellow onion, more volumes in the summer, better quality and better packaging.

On the other hand the steep increase in tomato production with an increase of 32% in 2014 compared to 2013 would suggest Malema can turn into a leading tomato cluster in the Nacala Corridor, increasing production also in the out-of-season where it seems more competitive than Ribaue and the Green Belts around the city of Nampula.

Finally Malema has lost its position as leading supplier of garlic on behalf of Lichinga after experiencing a drop in production of -27% from 2013 to 2014.

Ribaue

The production pattern of Ribaue has changed quite significantly from 2013 to 2014. The district seems to specialize now in pepper with a share of 55% of the total volumes traded in 2014, carrots with a share of 15% and tomatoes with share of 21%, rather than cabbage that was the leading crop produced in 2013 with a share of 43% and is now down to only 8% share.



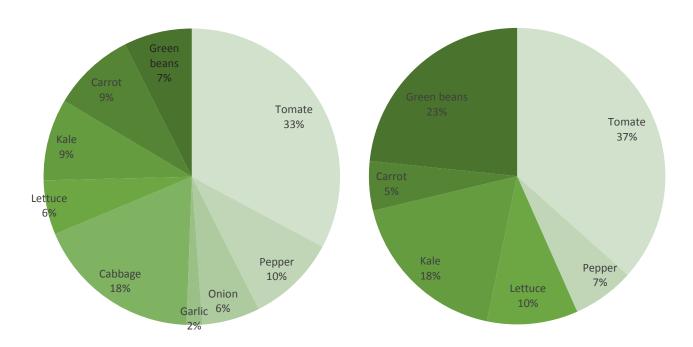
Nampula Green Belt

The production pattern of the Green Belt around the city of Nampula remains heavily sked on highly perishable crops such as tomatoes, lettuce, kale and green beans. Similar to Ribaue, the Nampula Green Belt seems to have almost but abandoned the production of cabbage on a commercial scale.

Produce Shares of Nampula Green Belt 2013 vs. 2014

Nampula Green Belt 2013

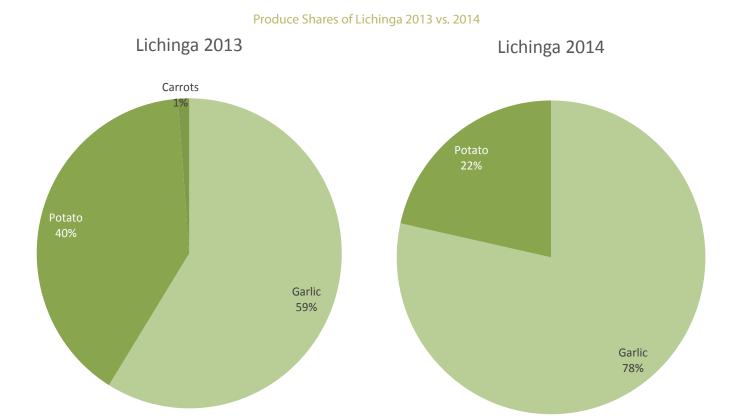
Nampula Green Belt 2014



Lichinga

The production of the Lichinga cluster basically concentrates on only two crops: garlic and potatoes. In 2014 Lichinga has become the leading supplier of garlic in Northern Mozambique with a share of 78% of its traded volumes, surpassing Malema that held the leadership in 2013.

On the other hand there is clear evidence that Lichinga cannot compete with Tsangano & Angonia in potato production also because penalized by high transportation costs.



Gurué & Zambezia

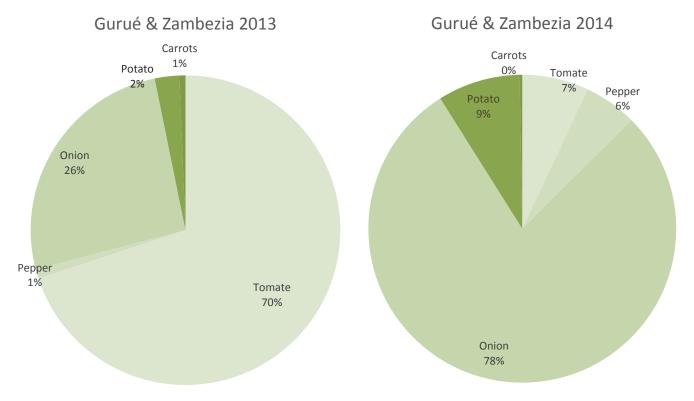
Gurue & Zambezia has successfully filled the gap of onion supply from Malema gaining market share in the Nacala Corridor with a sevenfold increase in 2014 compared to 2013 with traded produce increasing from 49.4MT to 371.9MT.

Onion has temporarily replaced tomato has the most important crop in the cluster passing from a share of 26% of traded volumes in 2013 to a share of 78% in 2014.

The dwindling production of tomato with a decrease of -75.2% from 2013 to 2014 is probably due to the low profitability of the crop in 2013 that motivated farmers to look for alternative crops. Further the adverse weather conditions experienced in 2013 probably caused significant losses to top tomato producers in the region leaving them decapitalized for the season 2014.

There is growing evidence that tomato production in Zambezia may become a quite risky activity with recurrent surpluses in the market due to a decreased demand from Nacala Corridor that is increasing production to satisfy its demand for tomatoes with product from inside the Corridor.

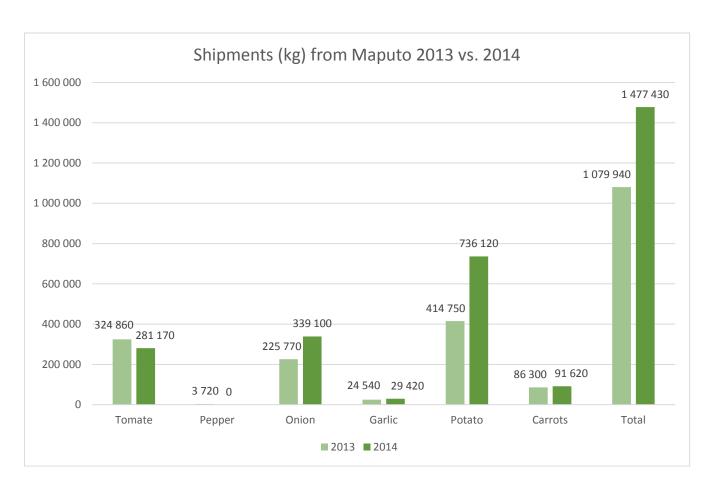
Produce Shares of Gurué & Zambezia 2013 vs. 2014



Maputo

Shipments of horticultural products traded in the WARESTA market that have been procured in Maputo have increased by +36.8% in 2014 compared to 2013 mainly due to a strong increase in potato (+77.5%) and onions (+50.2%) and despite a decrease in tomato (-13.4%).

The strong increase in onions (+50.2%) reflects also the growing demand for yellow onions in the Nacala Corridor, currently not well addressed by producers that still concentrate their production on red onions. They are frequently ignoring or underestimating the potential demand for yellow onion that is particularly high in the institutional market (HORECA channel) and with the younger consumers.



Nacala

As highlighted in the introduction of this document, the WARESTA Horticulture Index has almost no coverage of the volumes produced in the Nacala district. Nacala is a net importer of horticultural products and does consume internally all its local production.

The Nacala cluster is extremely diversified with a production designed to satisfy mainly the demand of the sophisticated institutional market (HORECA channel) that has higher standards of quality and range and demand just in time supply all around the year.

There is anecdotal evidence that the production within the Nacala cluster has dramatically increased in 2014 compared to 2013, possibly at a rate higher than 50%. The Horti-sempre Project will work with its partner ADPP in order to produce statistic data that measure more accurately the growth of horticultural production during the last year in the Nacala cluster.





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