

International Macadamia Symposium 2023



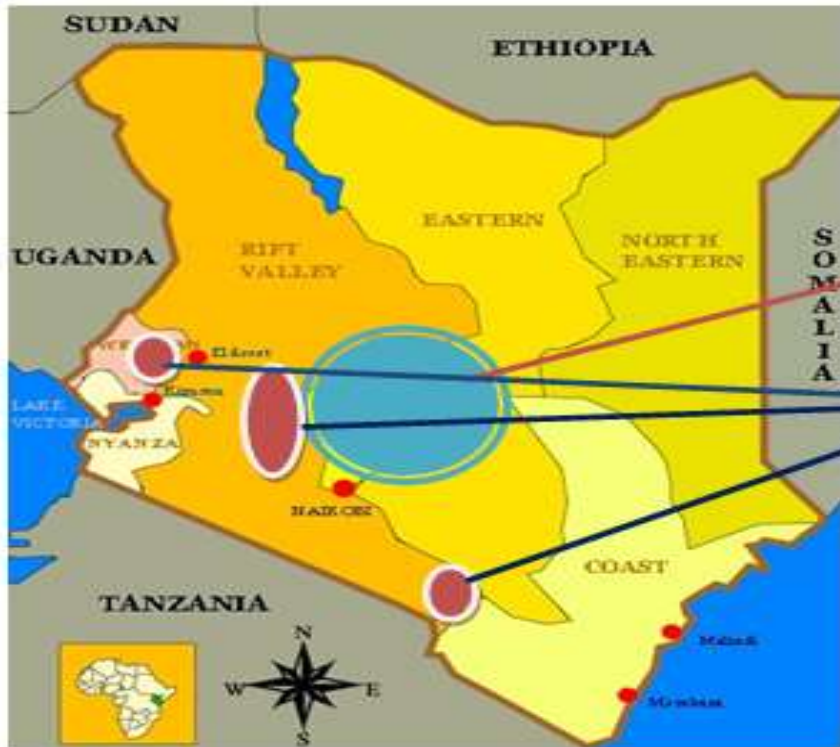
MOVING FORWARD TOGETHER

Macadamias South Africa (NPC)
(SAMAC)



Kenyan Macadamia
Industry Numbers and
Outlook

Geographical Distribution



Traditional growing region of Central and Mt. Kenya.

Emerging growing areas of Taita Hills, Mid-rift and Western Kenya.



Macadamia nuts have been grown commercially in Kenya for 50 years

Agriculture and the Economy



According to the Kenya National Bureau of Statistics (KNBS Economic Survey 2022), agriculture sector accounted for **22.4% of the gross domestic product (GDP) in 2021**



According to the Food and Agriculture Organization agriculture **comprises 65% of export earnings** and is the largest employer in the country, with **more than 40% of the total population and more than 70% of Kenya's rural population earning** at least part of their income from the sector.



Macadamia is one of the thriving commercial crops and a major foreign exchange earner. The number of macadamia trees planted has increased rapidly over the past 10 years.



Currently, Kenya has approximately **4,500,000 macadamia nut trees on 31,000 hectares**. About **65 percent of these trees are bearing trees**.

Macadamia Numbers in a Nutshell

Total NIS to processors (Mt)	41,650
Average yield per tree (kgs)	18
No. of bearing trees	2,925,000
National Total trees	4,500,000
Average trees per hectare	145
Total Hectares	31,000
% of bearing trees	65%
Non-bearing trees	35%
On farm crop loss (Mt) (10%)	4,865
Total NIS production(Mt) 2022 including crop losses	46,515

Hectares and yields

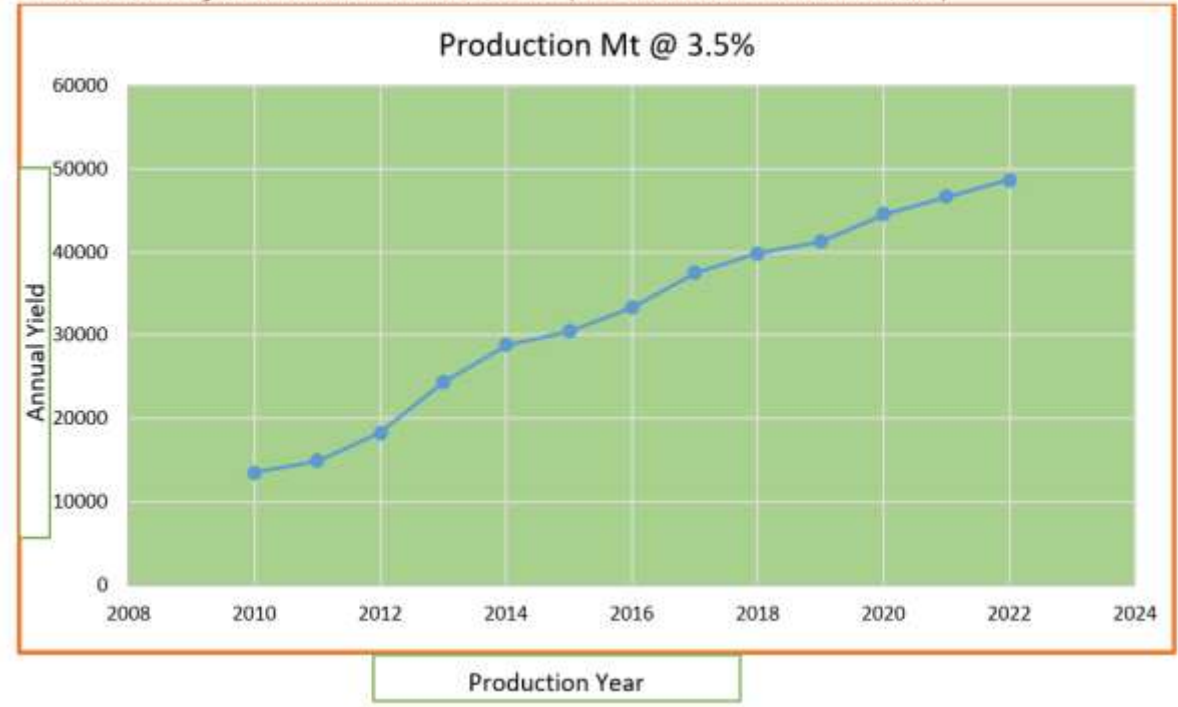
The average productivity (yield per tree) in Kenya is high relative to other origins that practice plantation agriculture with reported yields of about 30-70 kg/tree per year.

The industry has been on an upward trajectory, with substantial new plantings underway in new and existing regions and many processing companies entering the industry.

However, Covid 19 and post-covid disruptions has slowed down the tempo with farmers slowing down on new plantings and investors slowing on processing plants investments. The Kenyan macadamia crop grew 36% between 2012 and 2022, from 17,306 tonnes to 49,800 tonnes (at 3.5% moisture), driven largely by sustained investment in productivity improvements.



Historical Kenyan Macadamia Production (In-shell Basis in Metric Tons)



Varieties and Clones



The Kenyan macadamia industry **has over 200,000 growers across the country**, ranging from a few trees to large commercial orchards. The most popular varieties grown in Kenya are *Macadamia integrifolia* and *Macadamia tetraphylla*.



The *Macadamia tetraphylla* is more adaptive to cooler climate and has rough-shelled nut while the *Macadamia integrifolia* has smooth nut surface and is adaptive to diverse agro-climatic conditions. *M. integrifolia* is the highly dominant in the commercial clonal production areas.



Hybridization occurs freely between *Macadamia integrifolia* and *Macadamia tetraphylla*. In Kenya the bulk of cultivar selections is from such **hybrids such as KIAMBU 3, MURANGA 20, KIRINYAGA 15 and EMBU 1.**



Amongst the *M. integrifolia* clones, MRG-20, KRG-15 and EMB-1 have **acceptable yields (55 to 80 kg) and kernel recovery (21.3 to 26%) in all agro-ecological zones** (marginal coffee [1400 – 1550m], main coffee [1550 – 1750m], and coffee - tea zones [> 1750m]).



MRG-20 is considered the clone with a wide adaptability (**yield – 55 kg; 95.7% grade 1; 22-28% kernel recovery**).

Pests and Diseases and of Economic Importance

Macadamia stink bug (MSB)
(*Bathycorisia bequarti* Schoutedn)



Macadamia nut borers
(False codling moth *Cryptophlebia leucotreta* [Myrick] and Warehouse moth *Ephestia* spp.)



Thrips Flower thrips
(*Scirtothrips* sp.)



Mites



Mealybugs
(*Maconellicoccus hirsutus*)



Husk spot
(*Pseudocercospora macadamiae*)



Phytophthora Trunk Canker and Root Rot
(*Phytophthora cinnamomi*)



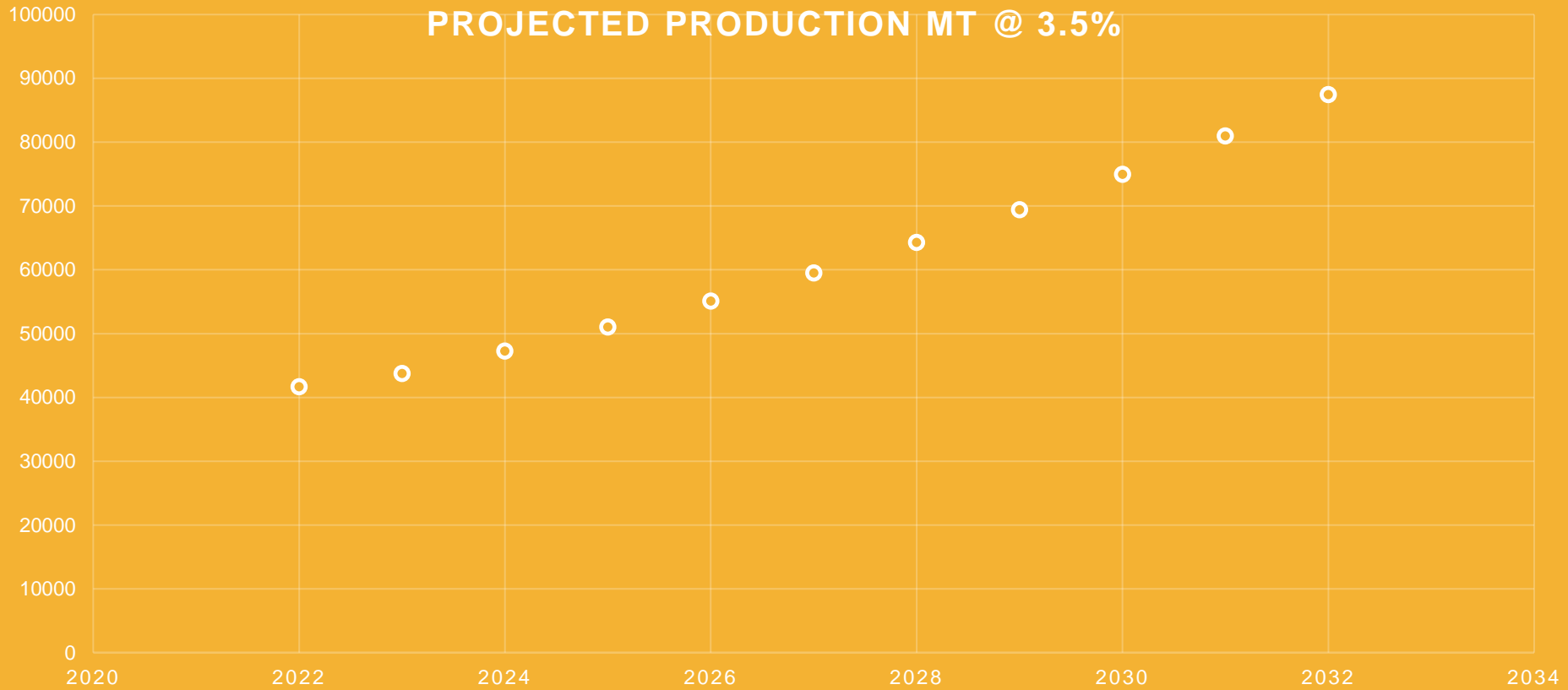
Ground and tree squirrels



Processors and Processing Capacity



Industry Growth path and forecast to 2032



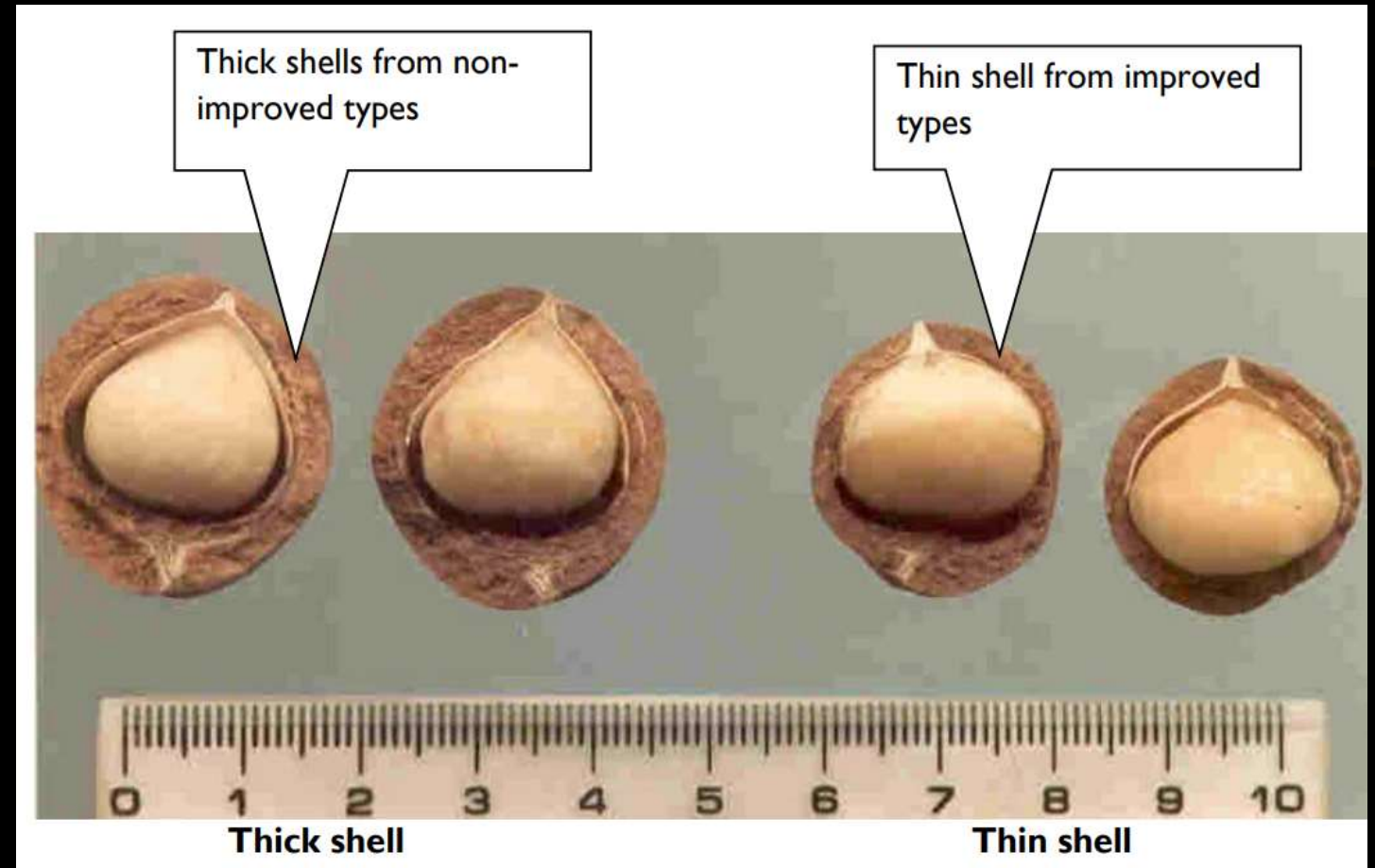
**CAGR (Compound Annual Growth Rate) of 5%



Kernel Recovery

Sound kernel recovery (i.e. the recovery of useful kernel from in-shell nuts) in Kenya averages 16% however well managed farms like estate orchards have 21-28%. Other processing factors may change these numbers.

Kernel Recovery Percentage on improved varieties have thin shells compared to non-improved leading to higher Kernel recovery percentage (proportion of kernel to total weight of the nut).





Challenges and Opportunities



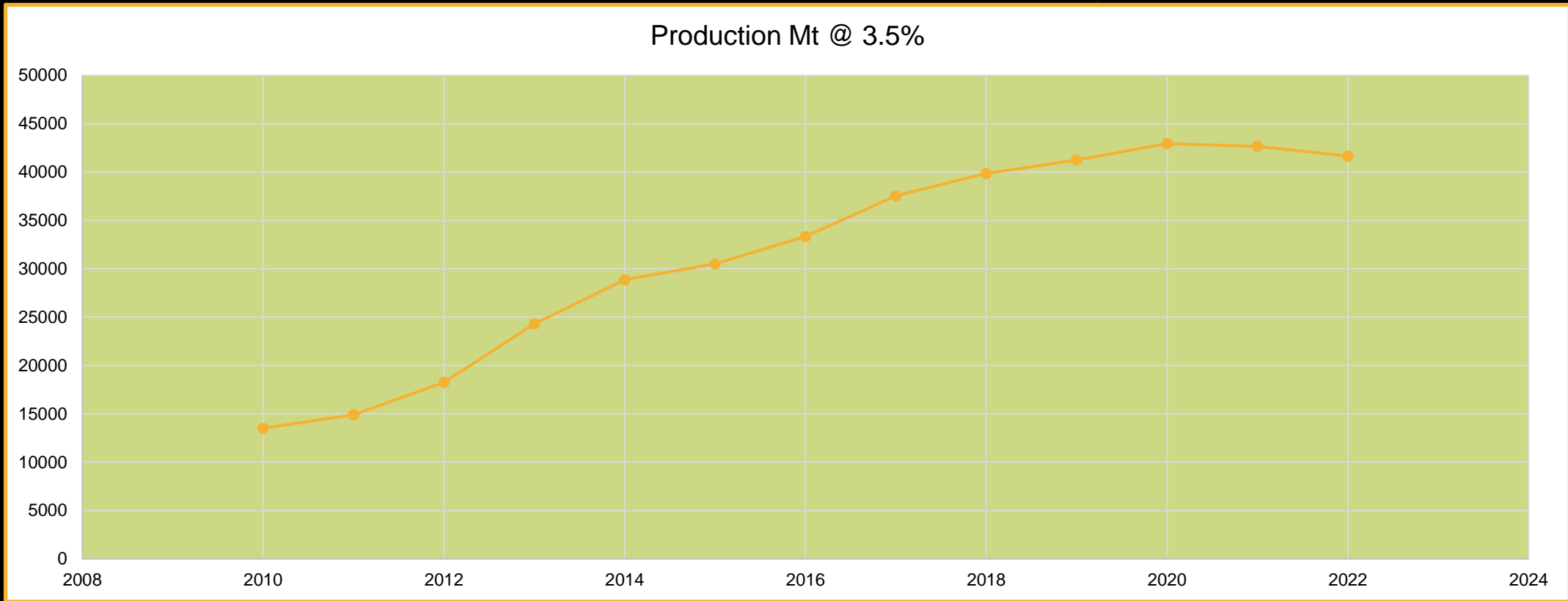
Challenges

- ❖ **Low productivity:** due to pests and diseases, poor Agricultural Practices (GAP), lack of access to inputs, use of unsuitable or old macadamia varieties and immature harvesting.
- ❖ **Low-quality nuts:** insect damaged and immature harvesting are the main drivers of low-quality nuts. Also, an uneven supply of hard and soft-shell macadamia nuts together with inadequate processing machinery reduces sound kernel recovery and wholes ratio.
- ❖ **Insufficient stakeholder collaboration:** Coordination, communication and dialogue among macadamia stakeholders is inadequate.
- ❖ **Poor EU market access and quality perceptions:** Although some processors have links to European markets, the notion prevails among EU buyers that Kenyan macadamia is of inferior quality.

Opportunities

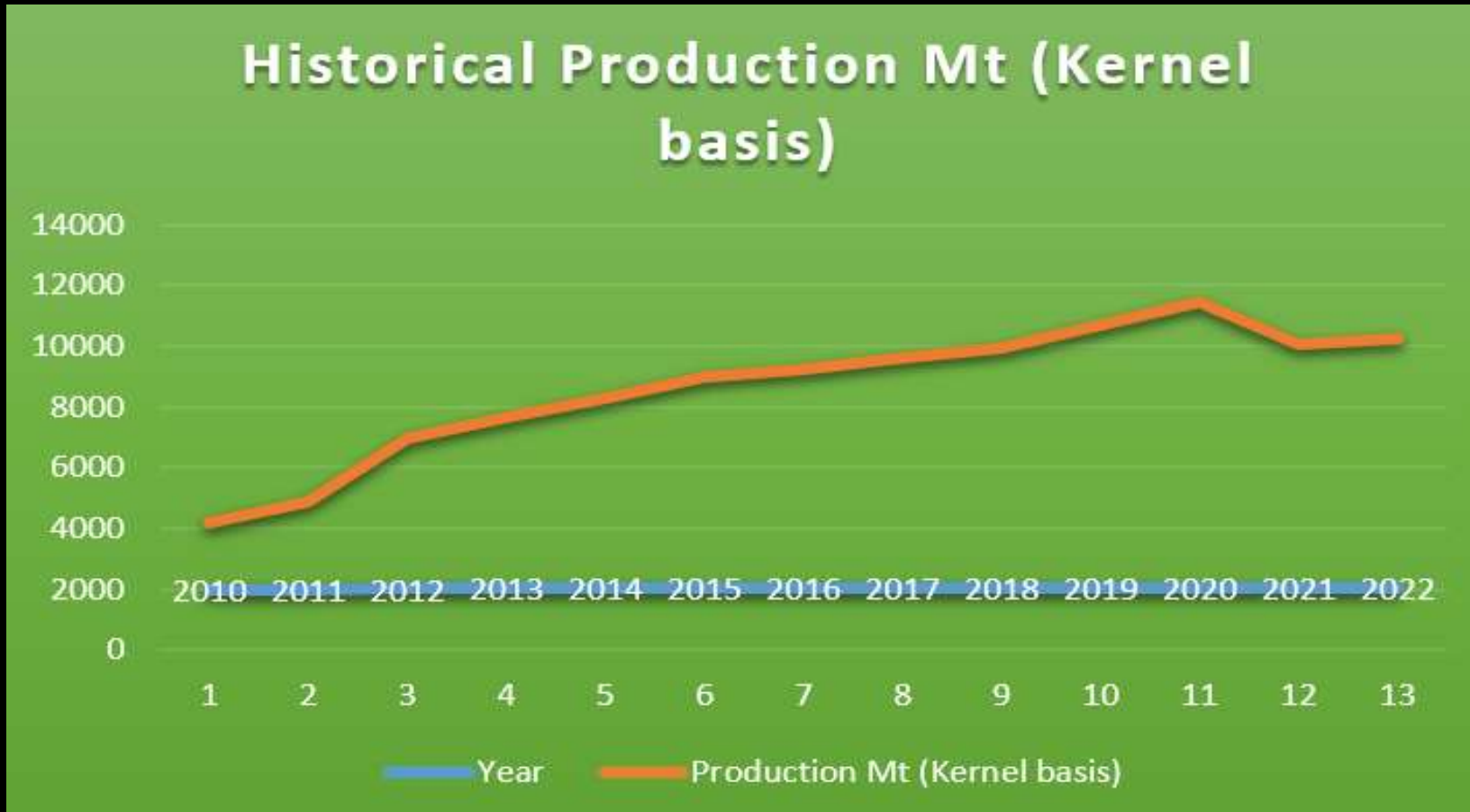
- ✓ **Consumption and production** of macadamia globally is projected to increase.
 - ✓ **New Markets:** North America remains the most important market for Kenyan macadamia nuts, however Asia-pacific region has promising growth with demand in Asia (Japan and China).
 - ✓ **China Kernel Market:** China 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.
 - ✓ **Land and Climate:** There are large tracts of land suitable for macadamia production particularly in the Western regions of the country.
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In-shell Production past 10 years



Today, Kenya has an estimated 4.5 million trees varying in age from newly planted to over 40 years old, covering an area of 31,000 hectares. The total annual production of raw nuts in shell of macadamia increased by 9.7% from 39,133 tons recorded in 2019 to 42,950 tons recorded in the year 2020 and declined by 3.1% to 41,650 mt reported in 2022.

Kernel Exports past 10 years



- The industry has seen a marginal decrease of -3.1% from year 2022.
- The main reason being farmers employed minimal crop management due to depressed farm-gate prices and market uncertainty.

Kenyan Macadamias in Numbers



USD \$35 Million
Farm-gate value



Approx. 200,000
Number of growers/ farmers



Approx. 4.5M mature (65%)
1.5M non-bearing trees 35%
Number of trees



28 processors
Number of active processing companies



9,850MT
Processed and export
kernels 2020

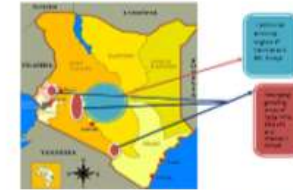


48,500 Mt
41,650 -shell (@ 3.5%
moisture content) yr. 2021

1-2%
Local Retail/consumption share



85% Smallholder /15% Estate plantations
Crop production system



Western Kenya
Fastest growing region



Approx. 31,000 Hectares
Area under planting



16-18%
Average industry SKR



USD \$90 Million
Kernel exports value 2020

Welcome to Kenya the Home of **Big Six...**



QUESTIONS ?

