

# Maluma: Establishing a new generation AVOCADO CULTIVAR COMMERCIALY

AA Ernst, ZR Ernst & ED Ernst



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CONGRESS 2015  
13-18 September, Lima, Peru

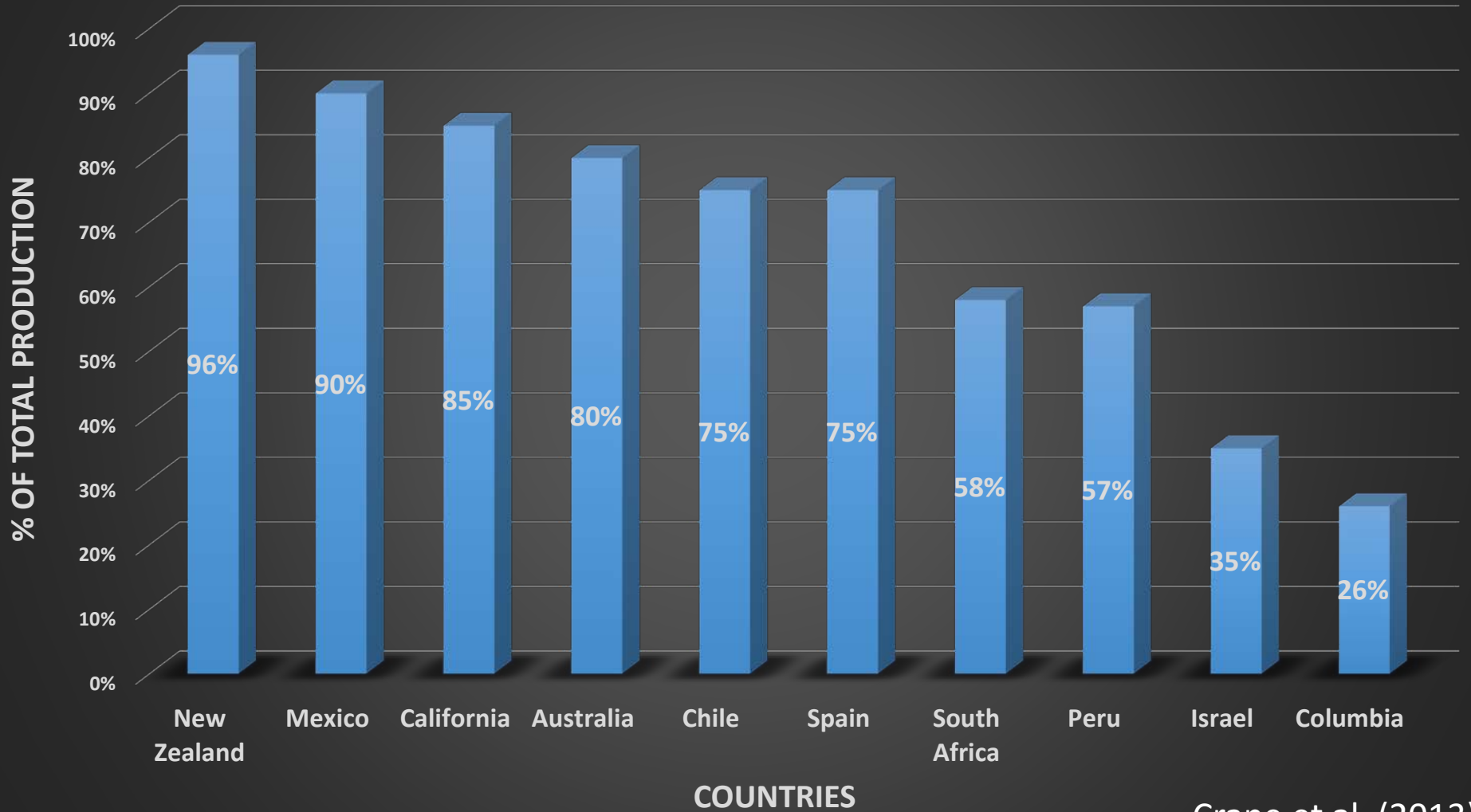




Presently 'Hass' is the **world's dominant avocado cultivar**, which originated as a **chance seedling** planted in **1925** by Rudolph Hass in La Habra Heights, California. A **plant patent** was granted in **1935** in California, which expired in **1952**. 'Hass' **only established** itself during the **late 1970's** (40 years later), as the **initial acceptance** of 'Hass' by **packers, distributors, retailers and end users**, as a superior commercial cultivar was **slow**. 'Hass' received resistance because of its fruit being **black-skinned, rough and small**



# WORLD HASS PRODUCTION PER COUNTRY - 2010



Crane et al. (2013)



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An industry dominated by a single cultivar, or that produces too few new cultivars, is vulnerable (Brokaw, 1989)

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Ironically no less than 13 fruiting cultivars presently receives intellectual property protection in various countries, of which less than half has established themselves commercially



Table 1: Avocado cultivars which presently have intellectual property protection in different parts of the world. (modified from Tucker<sup>1</sup>, Pers. Comm., 2007). This is not a complete list and protection is pending for other cultivars in many other countries.

Tabla 1. Variedades de aguacate que presentemente tienen protección intelectual en diferentes partes del mundo. Esta lista es incompleta y la protección es pendiente para otros cultivars en muchos otros países.

Cultivar	Owner	Where protected	Type of cultivar
Barr Duke	University of California	USA	Rootstock
'Merensky 1' (Latas™)	Westfalia, South Africa	South Africa, USA, Australia, New Zealand, Israel, Spain, Chile, Brazil, Peru (pending)	Rootstock
'Merensky 2' (Dusa™)	Westfalia, South Africa	South Africa, USA, Australia, New Zealand, Israel, Mexico, Spain, Chile, Brazil, Peru	Rootstock
'Pvt'	Peet van Tonder, South Africa	South Africa, Australia, New Zealand	Rootstock
Thomas	University of California	USA	Rootstock
'3-29-5' (Gem)	University of California	USA, South Africa, Kenya.	Fruiting
#86 (Berwil, Bundaberg Gold)	University of California	Australia	Fruiting
'AO.06'	Westfalia, South Africa	South Africa, USA, Kenya	Fruiting
'Alpha Krome'	Krome family, Brooks, Neal Palmer	USA	Fruiting
'Carla'		USA	Fruiting
'Don Gillogly'	Don Gillogly	USA	Fruiting
'Fruta De Oro Seedless'	Juan Salas, Costa Rica	USA	Fruiting Seedless
'Harvest'	University of California	USA, South Africa, Kenya, Israel	Fruiting
'Lamb Hass'	University of California	USA, South Africa, Spain, Australia, Chile, Israel	Fruiting
'Llanos Hass'	Llanos family, Western Australia	Australia, South Africa, USA, New Zealand	Fruiting
Maluma Hass	A. Ernst	South Africa, Australia, New Zealand	Fruiting
'Mendez No. 1' (Carmen@Hass)	Carlos Mendez Vega	USA, South Africa, Kenya, Spain, Israel, Australia	Fruiting
'Sir-Prize'	University of California	USA, South Africa	Fruiting

<sup>1</sup> Dr William T. Tucker, Executive Director, Research Administration and Technology Transfer, University of California, 1111 Franklin Street, 5th Floor, Oakland, CA 94607, Tel: (510) 587-6037, Fax:(510) 587-6090



**‘Maluma’, a new generation cultivar, was discovered, during the early 1990’s, by Andries Joubert on his farm Maluma in Levubu, South Africa. Plant Breeder’s Rights were granted to Allesbeste Nursery on 7 November 2004. Maluma was commercially released during November 2007 at the VI World Avocado Congress, Chile, after 8 years of intensive semi-commercial research. Successful commercial establishment in the European Union and United Kingdom occurred within another 8 years – less than 16 years after Maluma was entrusted to Allesbeste**



# Commercial establishment of 'MALUMA'

Through active vertical integration of the following:

- Horticultural attributes
- Marketing attributes
- Competent, loyal participants and service providers
- Vibrant trade relationships
- Additional economic value for all participants
- Technical support, able to deal with the critics
- Branding and promotion
- Significant marketable volumes
- Strategic establishment to ensure future 12 months' market presence

# Horticultural attributes

Perfect basis for its successful commercialising

- Precocity
- Production



Year 2: 5000 – 10000 kg/ha

# Horticultural attributes

- Production
- Central leader
- High density

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# Horticultural attributes

- Central leader
- High and ultrahigh density

5 X 2,5 (800 / Ha)

2,5 X 2,5 (1600 / Ha)



# Horticultural attributes

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- Orchard frost damage - Maluma tolerates up to -6°C



Hass



Orchard

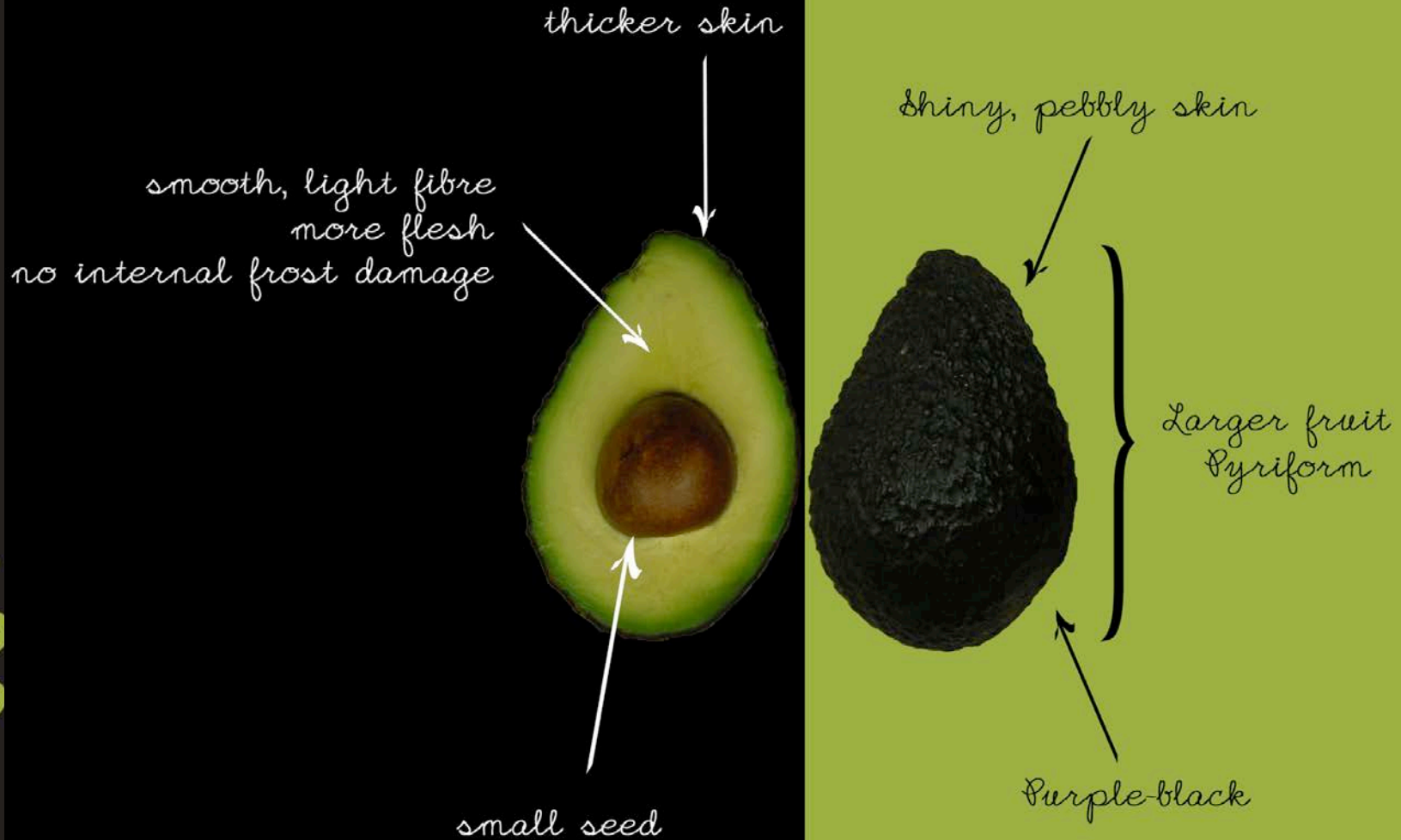


Storage induced  
(in transit)



# Marketing attributes

- Fruit shape – pyriform
- Fruit size – between 350 and 170g
- Seed size – 10-15% of the total fruit volume



**'Maluma' - superior shelf life and less oxidation of the flesh after ripening**

# Marketing attributes

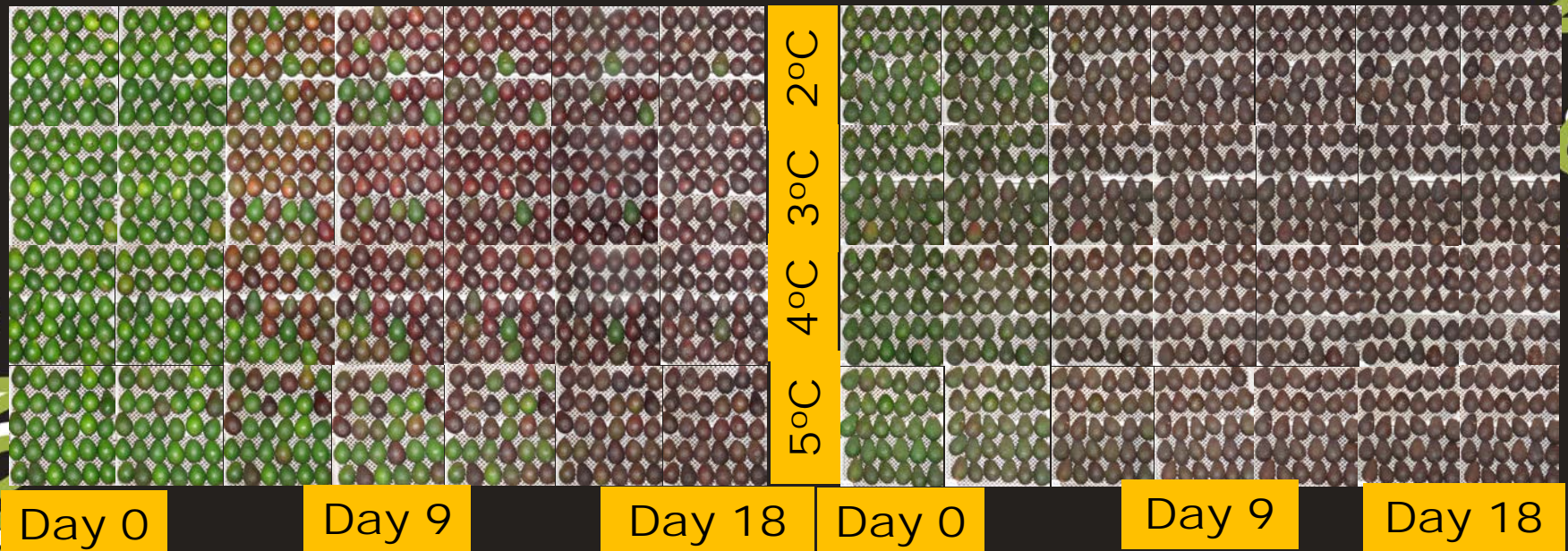
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Lower waste levels and more even in ripening and sorting of 'Maluma'

## Colouring during ripening:

Hass 30,1% MC

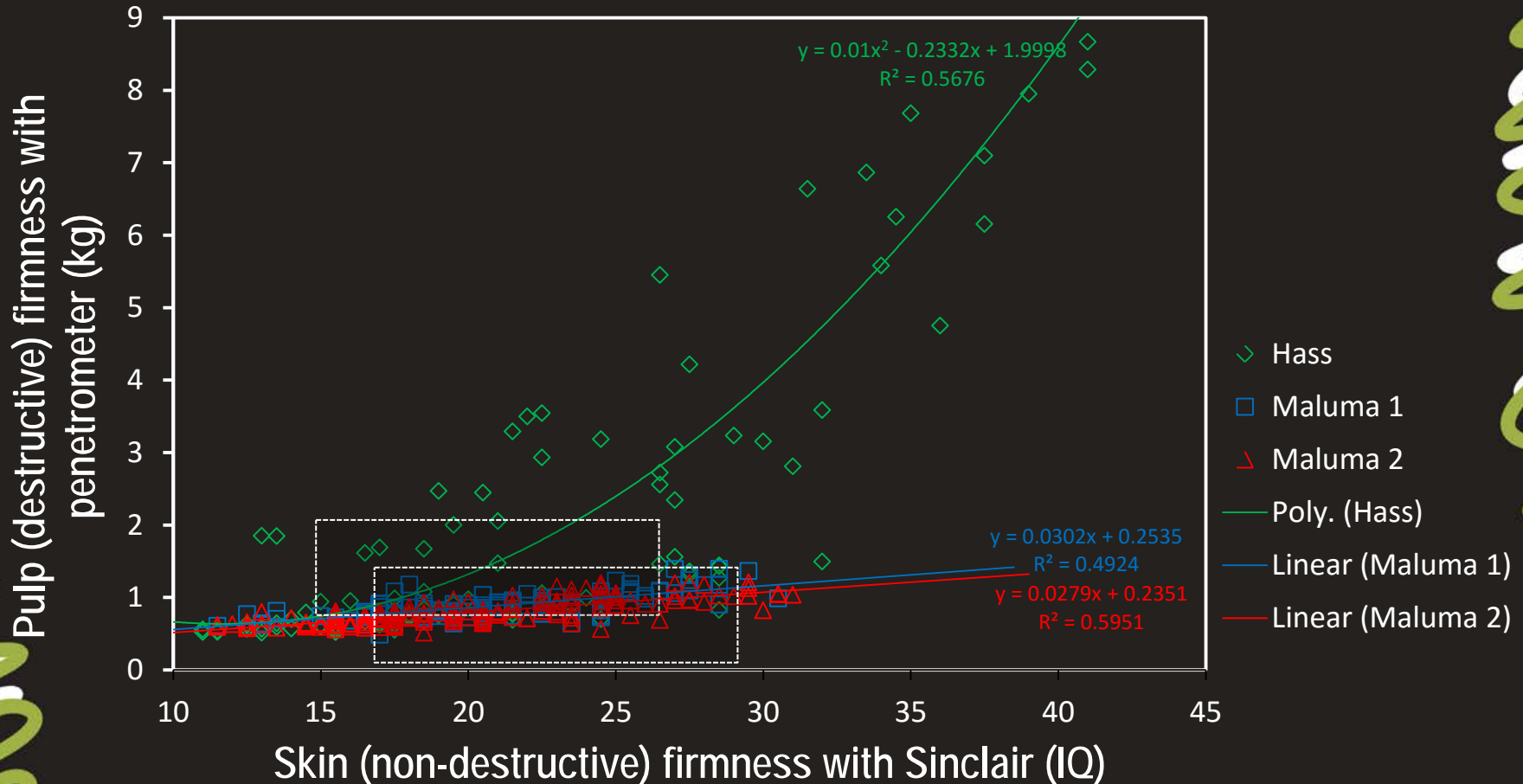
Maluma 25,7% MC



(Lemmer and Kruger, 2015)

# Ripening measurements:

## Non destructive (Sinclair meter) VS Destructive (Guss penetrometer)



(Lemmer and Kruger, 2015)

# Marketing attributes

Cold storage after ripening: 3 days at 2°C followed by 4 days at 7°C

	Firmness catagories		% Fruit		
			Day 0	3 days @ 2°C	4 days @ 7°C
Stage 1	Hard	>10kg	1,67	0,00	0,00
Stage 2	Early breaker	>5kg - 10kg	0,00	1,67	0,00
Stage 3	Late breaker	>1,5 - <5kg	10,00	15,00	0,00
Stage 4	Ready to eat	0,5-1,5kg	86,67	83,33	100,00
Stage 5	Too soft	<0,5kg	1,67	0,00	0,00
			100%	100%	100%

Lemmer *et al.* (2015)

More than 80% of fruit achieve 0,5 – 1,5kg of firmness (ready-to-eat stage) within 4 days in the ripener

At  $\leq 7^{\circ}\text{C}$  storage ready-to-eat fruit retains firmness.

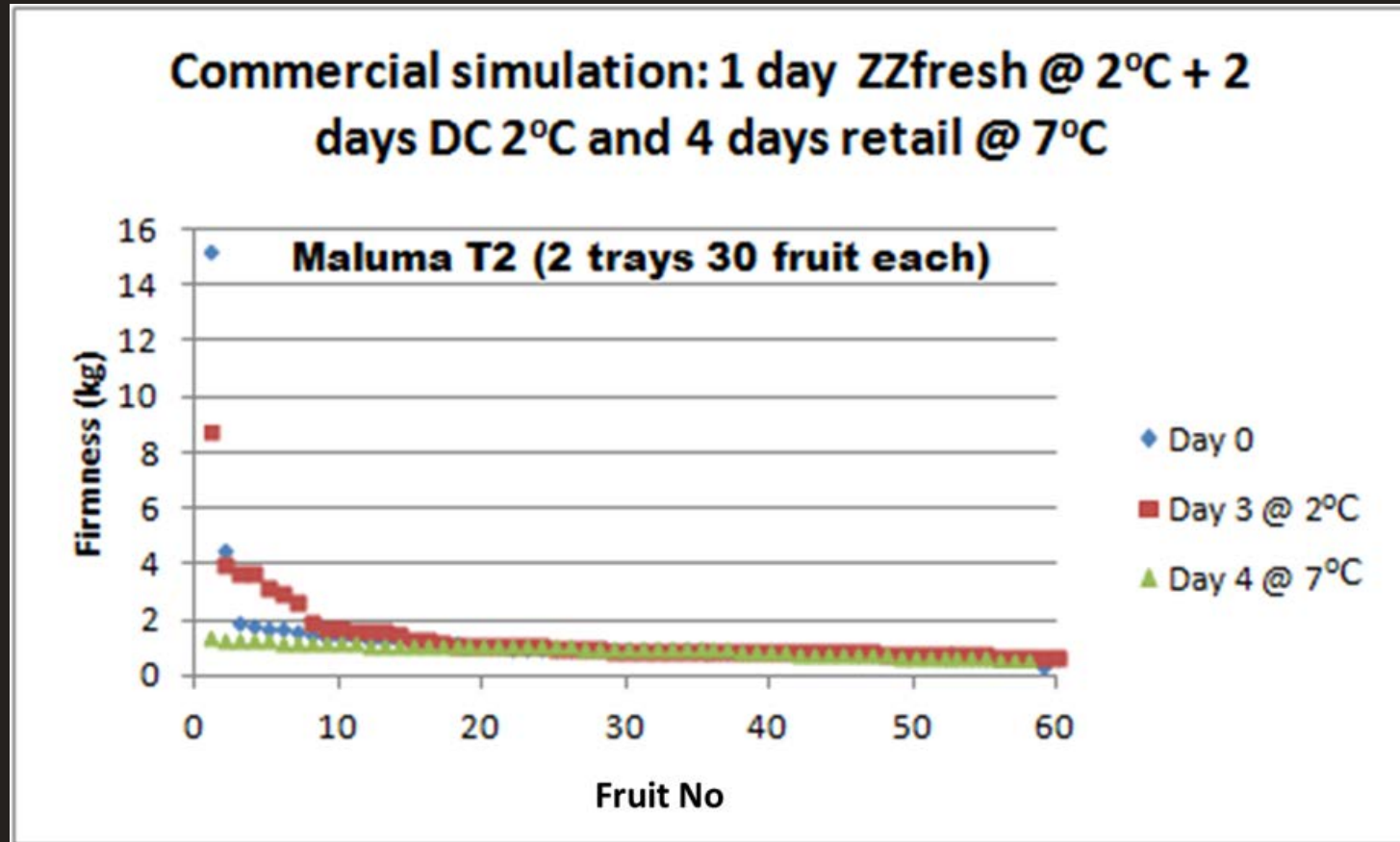
Firmer fruit (same ripening batch) keep on ripening, reaching the same firmness during a commercially required 7 day storage period, with almost a 0% waste level

# Marketing attributes

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Cold storage after ripening: 3 days at 2°C followed by 4 days at 7°C

Lemmer *et al.* (2015)



# Marketing attributes

- Well suited for and well accepted in ripe and ready programs



**QC CHECK SUMMARY REPORT**

FILTER: 3 Suppliers

BETWEEN: 19/05/2014 AND 23/05/2014

ASSESSMENT TYPE: INTAKE CHECK

Assessment	Check	Target	Comments	Date checked	Score	QA Status	Mobile user
Avocado Intake x12	61855	140563, 39812707, 43363, AFRUPRO EXP (TESCO), SGR3016, Avocado (AVOC), 4kg x 12, D9653, HSS, Eurofresh Peru, ZA, Conventional, 12, 264, 2005/2014, VOR1405610, 8, 20, N/A	Good looking fruit. Only minor defects.	20/05/2014 16:27:19	97	Green	Anca Petchell
Avocado Intake x12	61860	140561, 39812706, 43363, AFRUPRO EXP (TESCO), SGR3016, Avocado (AVOC), 4kg x 12, D9653, HSS, Eurofresh Peru, ZA, Conventional, 12, 264, 2005/2014, VOR1405610, 8, 20, N/A	Ref. Insect Damage Good looking fruit. Only minor defects.	20/05/2014 16:29:30	92	Green	Anca Petchell
Avocado Intake x18	61834	140562, 39812708, 43363, AFRUPRO EXP (TESCO), SGR3016, Avocado (AVOC), 4kg x 18, D7024, HSS, Eurofresh Peru, ZA, Conventional, 18, 264, 2005/2014, BIC-VOR1402468, 7, 80, N/A	Nice fresh looking fruit. No many defects noted.	20/05/2014 16:08:28	99	Green	Anca Petchell
Avocado Intake x18	61835	140562, 39812706, 43363, AFRUPRO EXP (TESCO), SGR3016, Avocado (AVOC), 4kg x 18, D9653, HSS, Eurofresh Peru, ZA, Conventional, 18, 264, 2005/2014, VOR1405610, 8, 20, N/A	Nice fresh looking fruit. No many defects noted.	20/05/2014 16:12:39	96	Green	Anca Petchell
Avocado Intake x20	61841	140563, 39812702, 43363, AFRUPRO EXP (TESCO), SGR3016, Avocado (AVOC), 4kg x 20, D9653, HSS, Eurofresh Peru, ZA, Conventional, 20, 264, 2005/2014, VOR1405610, 8, 20, N/A	Good quality fruit. No issues.	20/05/2014 16:19:29	98	Green	Anca Petchell
Avocado Intake x20	61845	140563, 39812705, 43363, AFRUPRO EXP (TESCO), SGR3016, Avocado (AVOC), 4kg x 20, D9653, HSS, Eurofresh Peru, ZA, Conventional, 20, 264, 2005/2014, VOR1405610, 8, 20, N/A	Good quality fruit. No issues.	20/05/2014 16:21:25	97	Green	Anca Petchell



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# Competent, loyal participants and service providers

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Licenced nurseries



Farming enterprises (Non Propagation and Testing agreement )



Pack houses



Export companies



Statutory perishable fruit export control boards (PPECB)



Haulage companies and shipping lines



Forwarding agents



Competent receiving agents



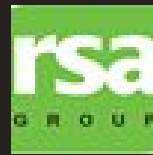
“Ripe-and-Ready”

Committed to strictly follow the ‘Maluma’ handling and ripening protocols



# Vibrant trade relationships

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# Additional economic value for all participants

- Increased tree sales at **nurseries** for high density planting
- Higher throughput at **pack houses and export companies** followed by the increasing number of production units planted to 'Maluma' by growers, producing more fruit per unit (hectare planted)
- Significantly **reduced waste** levels at the **ripening agents** and higher profit margins with less customer complains
- **Increased returns for grower** due to higher production, better count distribution and lower waste levels during ripening

# Technical support, able to deal with the critics

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# Branding and promotion

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@maluma\_avo 
 @maluma\_avo 
 maluma avocado #maluma\_avo



**Bekendstelling**

29 April 2014  
 Highgrove Lodge 19:00

Ons leeds die  
 Maluma avocado handelsmerk.

**Tzaneen** en ons wil u graag  
 uitnodig om daartoe te deel.

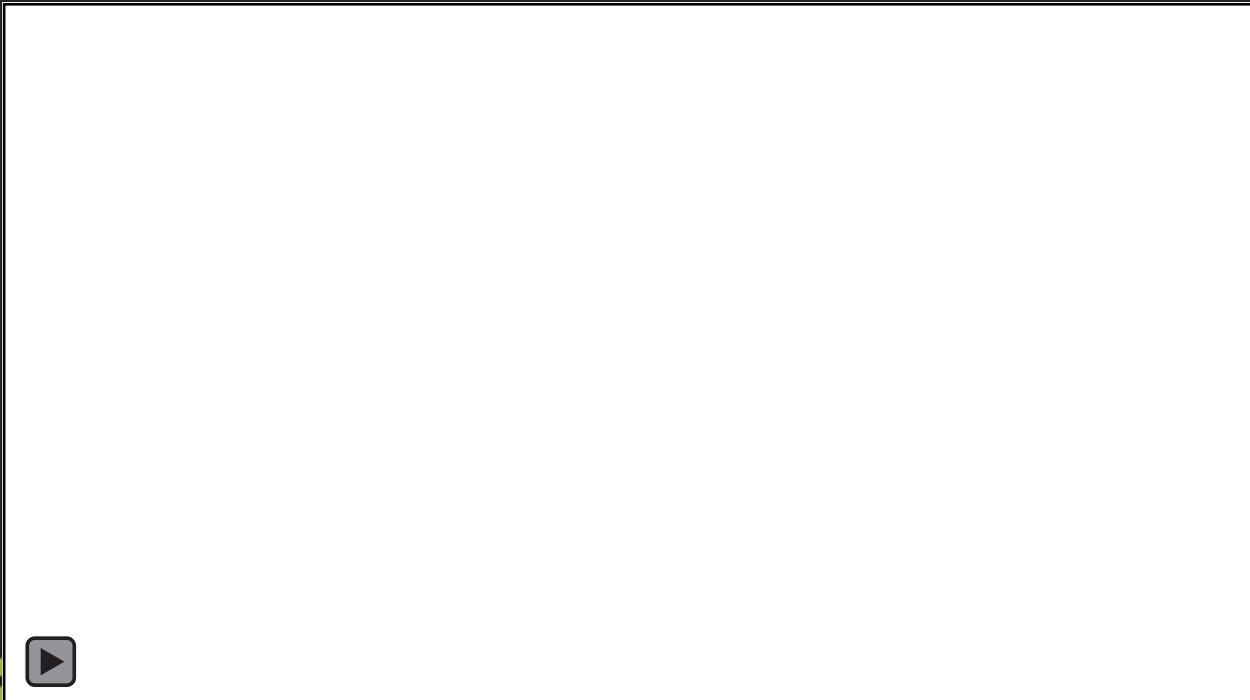
RSVP **onmiddellik** via sms na  
 0828896749

Tag ons #maluma\_avo  
  
 www.maluma.co.za



# Branding and promotion

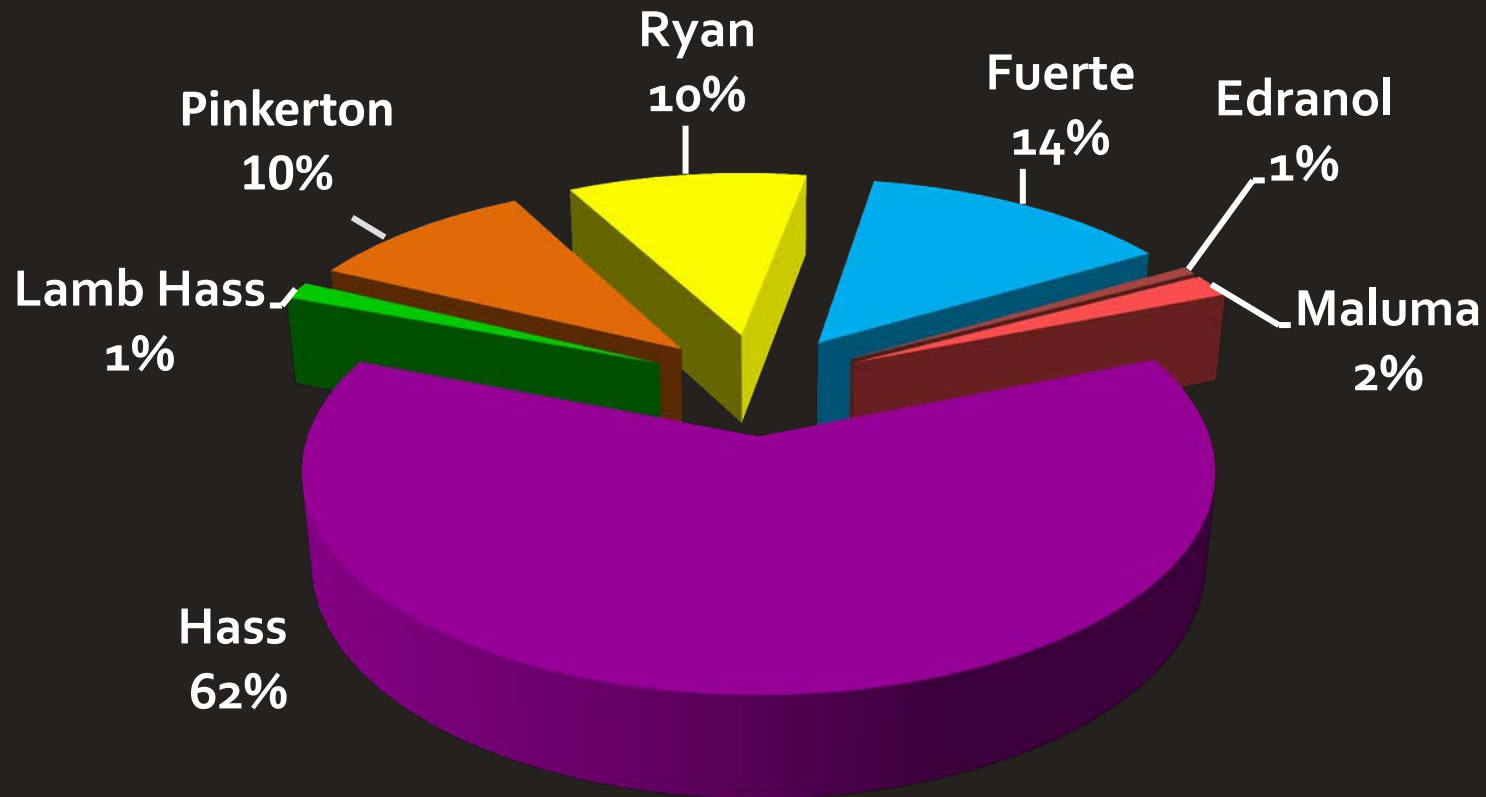
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# Significant marketable volumes

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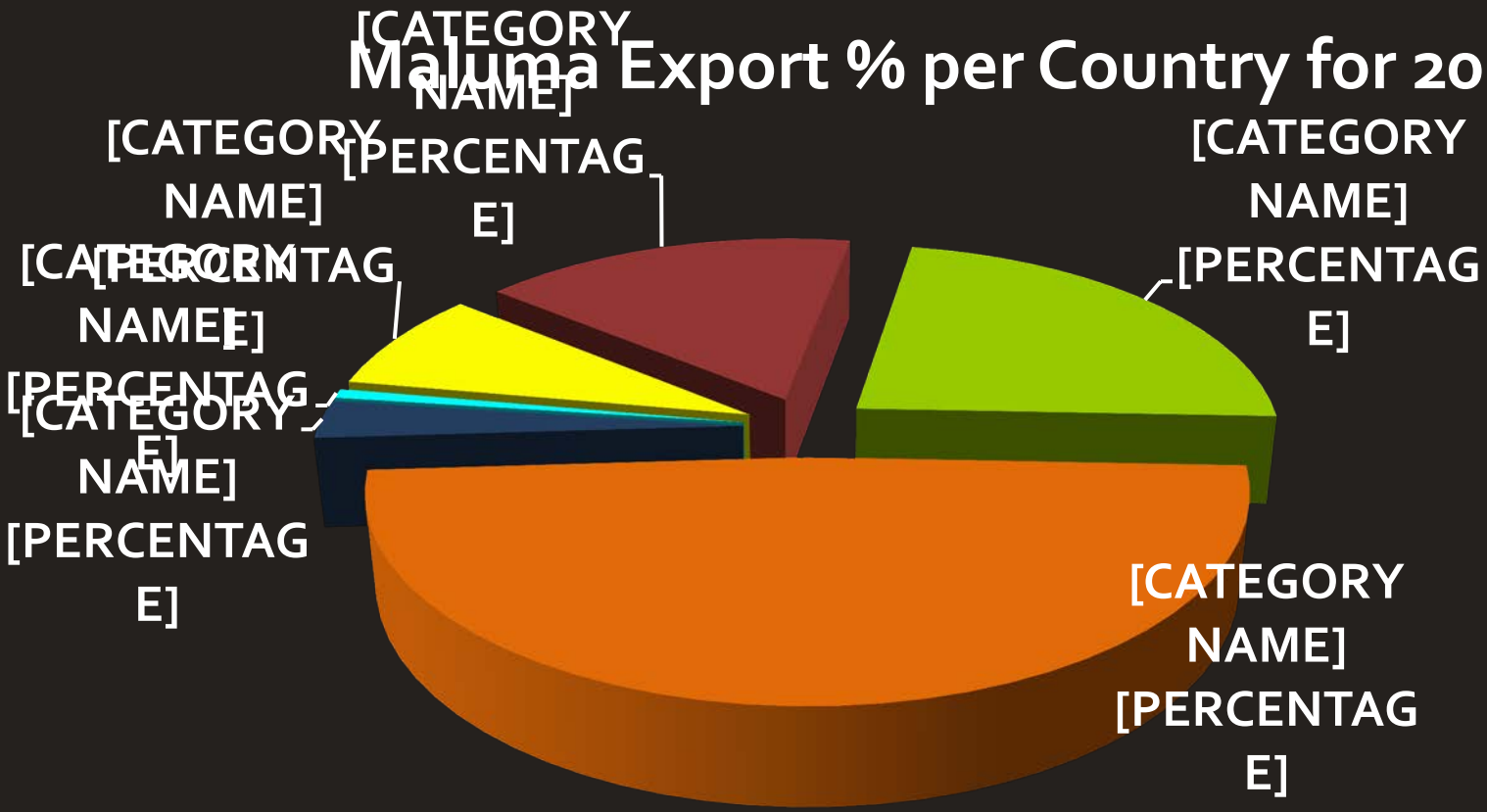
## Export % Breakdown per Cultivar for 2013



# Significant marketable volumes

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## Maluma Export % per Country for 2013



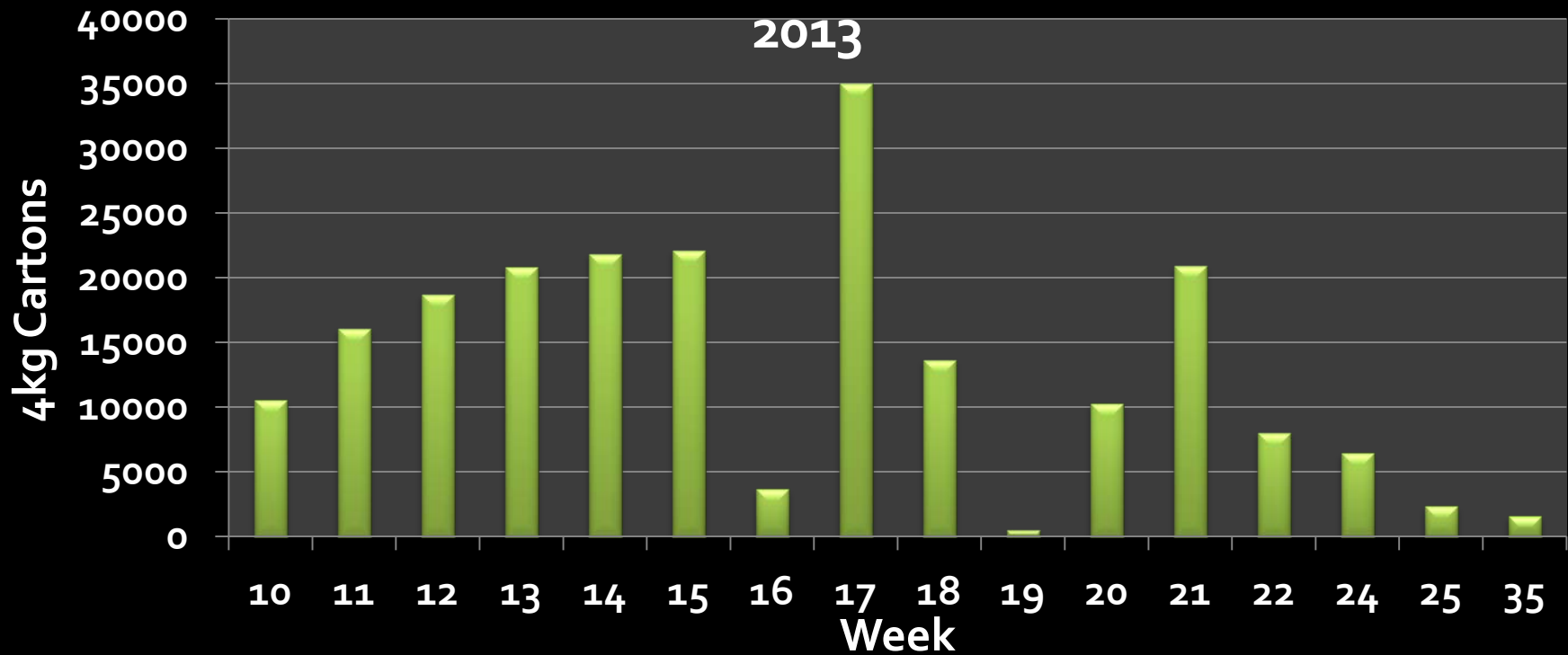
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# Significant marketable volumes

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## Total Maluma Cartons Exported per Week during



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# Strategic establishment to ensure future 12 months' market presence

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Enjoys full plant protection:

- South Africa (ZA 20043215)
- USA (US PP21,099 P3)
- Morocco (239/09 05/11/2009)
- Egypt (127 – 12/12/2013)
- Australia (07/07/2014 4840)
- Filed / pending: New Zealand, Israel, EU, Peru, Chile, Brazil, Argentina, Mexico and Columbia.



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# Strategic establishment to ensure future 12 months' market presence initially in the UK and EU

## Countries of importance:

- Spain
- Peru
- Mozambique
- Israel
- Egypt
- Chile

# 'Maluma' - Spain

Viveros Blanco  
Sub Licenced



Included in cultivar trial at:  
IHSM La Mayora CSIC

# 'Maluma' - Peru

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First Harvest April 2013

More than 21000 trees  
planted since 2011



Planted: May 2011

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# 'Maluma' - Mozambique

## Moz Avos Limitada



24 June 2013:  
Sub Licenced to Propagate Maluma

# 'Maluma' - Israel

Oren Nursery  
Agent & Sub Licenced

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# 'Maluma' - Egypt

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Planted October 2012



November 2014





The successes achieved in commercialising 'Maluma' internationally were accomplished by a team effort, initiated and driven by Allesbeste and applying its inherent skills and relationships vertically in all relevant fields

*If you change the way you look at things, the things you look at will change*

*Wayne W Dyer*

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*Enjoy the Maluma  
journey!*



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