

Modern Farming and Maluma

ZR Ernst - Allesbeste



Allesbeste



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“Quality through passion”

Trends in Modern Fruit production

- High Density
- Intensive Pruning Programs
- Lower Pesticide Usage
- Spraying Efficiency
- Cost Efficiency
 - Less Labour Intensive
 - Mechanisation



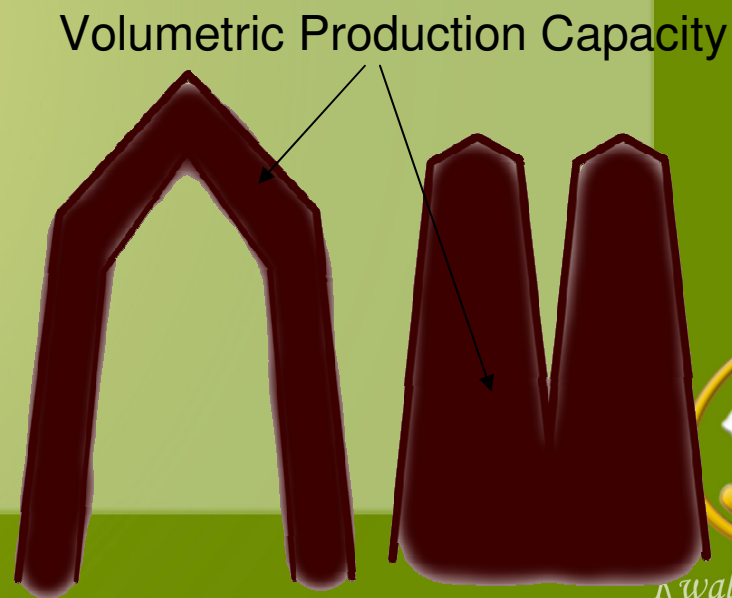
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Why high density?

- Rate of Return on Investment (ROI)
- Higher yields per hectares
- Space utilisation
- Efficiency



Conventional orchards



High density CL orchards



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Space Utilisation

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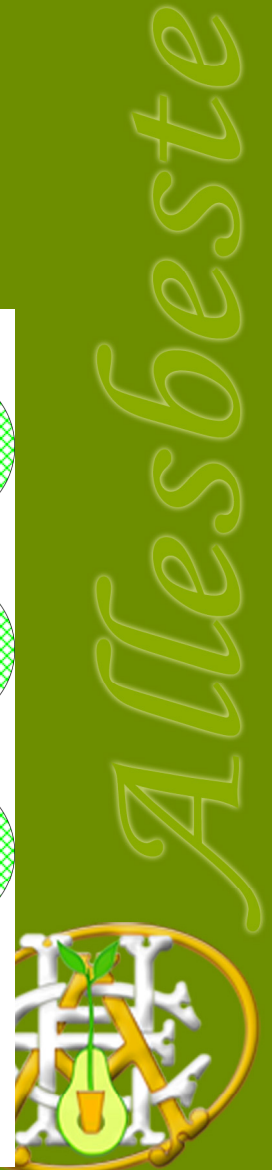
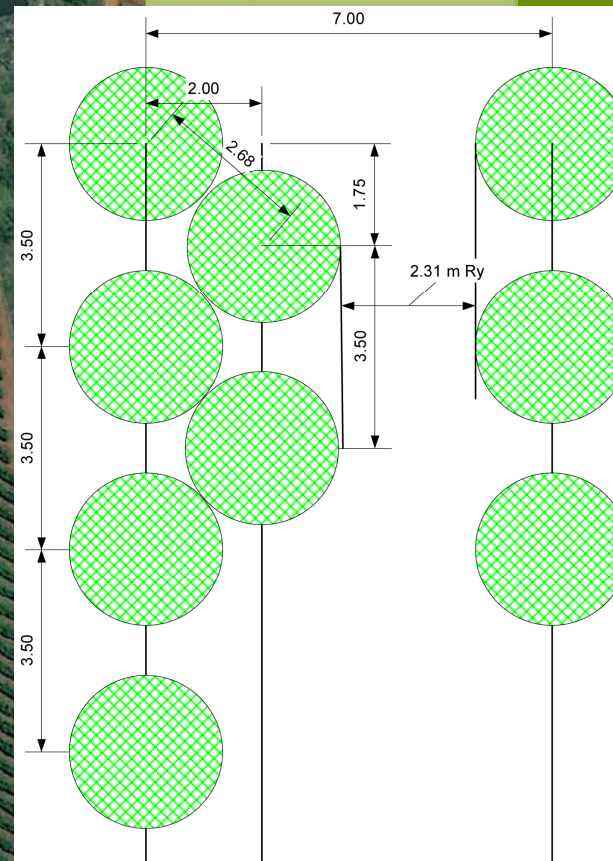


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Space Utilisation



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Pruning Intensity

- Fixed pruning programs
- Unique pruning methods
- Pruning for consistent yields
- Pruning to maintain high density



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Lower Pesticide Usage

- Better results on smaller more manageable trees
- Target clarity
- Tolerant cultivars

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Efficiency of Spraying

- Smaller trees
- Lower concentrations
- Target clarity

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Cost Efficiency

- Mechanisation
- Less labour intensive
- Efficient use of chemicals

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Citrus

- 60 tons /ha from 2500 – 5000 trees per hectare (Victoria Australia)
- South Africa
 - 3x6m Hedgerows (660 trees /ha)
 - 20 – 60 t/ha depending on cultivar
- Longevity
 - 18 to 32 years depending on cultivar



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Apples

- Production per ha
 - 15 – 45 t/ha
- Up to 2400 trees/ha
- 1.5 – 2.7m apart
- More or less 2.5m high
- Dwarfing rootstocks
- Pruning techniques
 - Central leader (1970's) / spindle
 - Perpendicular V
 - Weights, toothpicks, wires
- Longevity 10 – 15 years



Apple

Pears

- Production per ha
 - 15 – 38 t/ha
- Plant density
- Dwarfing rootstocks
- Pruning techniques
 - Central leader
 - Spindle
 - Much same as apples



Peaches

- Production per ha
 - 16 – 34 t/ha
- Plant density
 - 370 - 1946 trees / ha
 - 4.2m x 6m to 1.21m x 4.26m
- Dwarfing rootstocks
- 12 – 18 year lifespan



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Peaches

- Pruning techniques
 - Vase / open cut system
 - Steep ladder system
 - Upright renewal system – Perpendicular V
 - Single leader



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Avocados

- Only few cultivars could work on high density in South Africa
 - Lamb Hass
 - Reed
 - Pinkerton
 - Maluma
- Only these cultivars are precocious and have relative dwarfing characteristics



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Maluma Characteristics

- Precocious



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Maluma Characteristics

- Naturally Triangular



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Maluma Characteristics

- The Difference – Less Vigor

Hass



Maluma



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MALUMA

HASS

Maluma Characteristics

- Good Light Penetration



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Maluma Characteristics

- The Difference – Lateral Branching



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Maluma Characteristics

- The Difference – Willowy Branches



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Maluma Characteristics

- Natural Central Leader tendency



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Maluma

- Central Leader Pruning - Method



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- Central Leader Pruning - Method



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- Central Leader Pruning - Method



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- Central Leader Pruning – Result



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- Central Leader Pruning – Result



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- Central Leader Pruning - Result



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- Central Leader Pruning – Result



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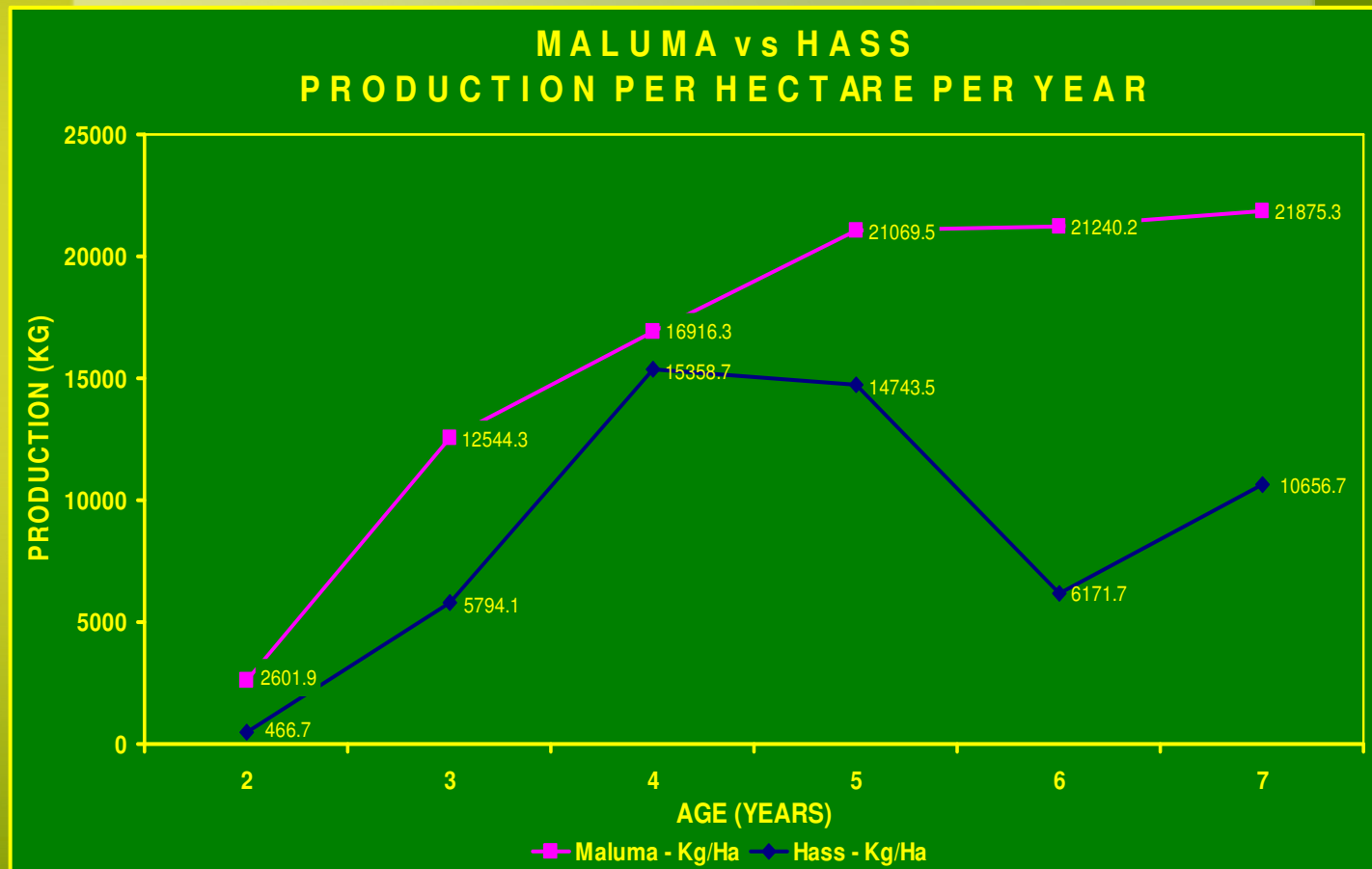
- Central Leader Pruning – Result



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- Production Comparison



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Maluma

- Orchard Frost Resistant

MALUMA AT -6 °C : NONE



HASS : SEVERE TO MODERATE



Avocado este

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Maluma

- 800 trees per Ha
- 15 – 33 t/ha
- Lower disease pressure
- Plants are 4m high
- Lower tree complexity
- Relatively dwarfing
- Less labour intensive
- No orchard cold damage



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Maluma

- 1 600 trees/ha – How?
 - 60 fruit per tree (count 16) (3/4 Lug)
 - 24 t/ha
 - 100 fruit per tree (count 16) (1,5 Lug)
 - 40 t/ha
- 2.1m high trees
- 2.5m x 2.5m



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Maluma Marketing

- Challenges
 - Fruit size
 - Quality assurance
- Opportunities
 - Ripe & Ready
 - Big sizes for local market
 - Appearance
 - Colouring of fruit
 - Production

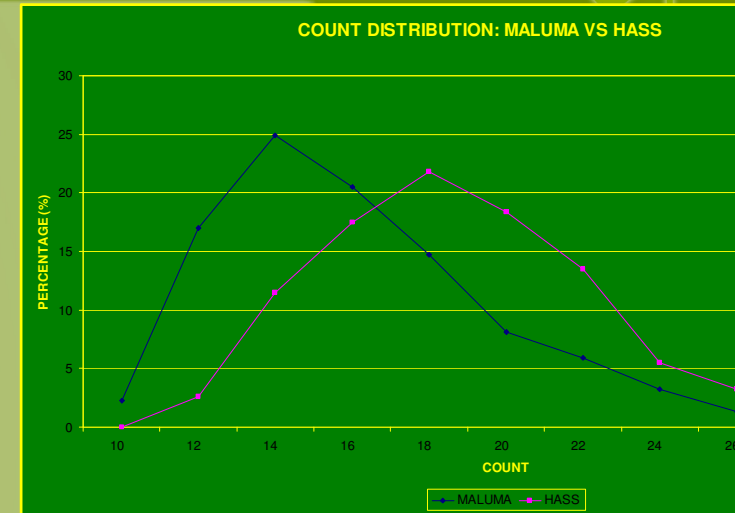


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Challenges – Fruit Sizes

- Current situation
- Economic influence on consumer behaviour (recession)
- Factors that influence fruit size
 - Yields
 - Fertigation?
- Peru
 - What does the future hold?
 - Export to USA & Mexico
 - Maturing industry



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Challenges – Quality Assurance

- Red vascular staining - resolved
- Soft landings - resolved
- Less significant
 - Stem-end rot
 - Anthracnose
 - Lenticel
 - Grey Pulp



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Opportunities – Ripe & Ready

- Novasun program (local)
- UK Ripe & Ready program
- EU Ripe & Ready program
- Days to ripening
- Ease of ripening
- Internal fruit quality
- Fruit-flesh ratio
- External appearance

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Opportunities – Local Market

- Fruit size suits SA consumer
- Fruit size suits intermediaries
- Development of local Hass (dark skin) market

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Oppertunities – External Appearance

- Colouring superior to RSA Hass
- Pebbly & glossy skin
- Shape
- Less lenticel damage

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Maluma Marketing

• United Kingdom - all leading supermarkets through:

- MMW
- WWF
- Univeg
- Kasfoods

• Spain : CMR & Montosa

• France : Comexa

• Scandanavia : Total Exotics

• Belgium : Starfruit & Special Fruit



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Maluma in a Nutshell

- First commercial SA cultivar
- Precocious
- Less vigour
- Lateral branching
- Triangular tree shape
- Central leader tendency
- High & constant bearing
- Good light penetration = Yields
- No Growth Retardant
- High density plantings
 - 2.5m x 2,5m > 7m x 3.5m
- High orchard cold tolerance



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Maluma in a Nutshell

- Suited for hot production areas
- Only Hass-like with:
 - Pinkerton production
 - Current and commercial proof of significantly better production, and income than Hass
 - With no orchard frost damage
 - Long term sustainability in terms of farming and farming practices



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Maluma Key Success Factors

- Consistent high Yields
- Space utilisation through HDP
- Insignificant lenticel damage
- External & Internal Appearance
 - Coloring of fruit & Fruit Flesh Ratio
- Taste & Flavour
- Accepted by Supermarket chains & Ripe & Ready Programs
- Hass-type / darkskin
- Ultimately: Higher income per Ha



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Conclusion

- Challenges are insignificant when protocols are followed
- Opportunities are tremendous
- We can learn tremendously from other industries
- Is the Avocado industry lagging behind?
- With Maluma it is within our reach
- True possibility to replace Hass in RSA



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