



# PERFORMANCE OF AVOCADO CLONAL ROOTSTOCKS IN SOUTH AFRICA

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Avocado production areas in SA



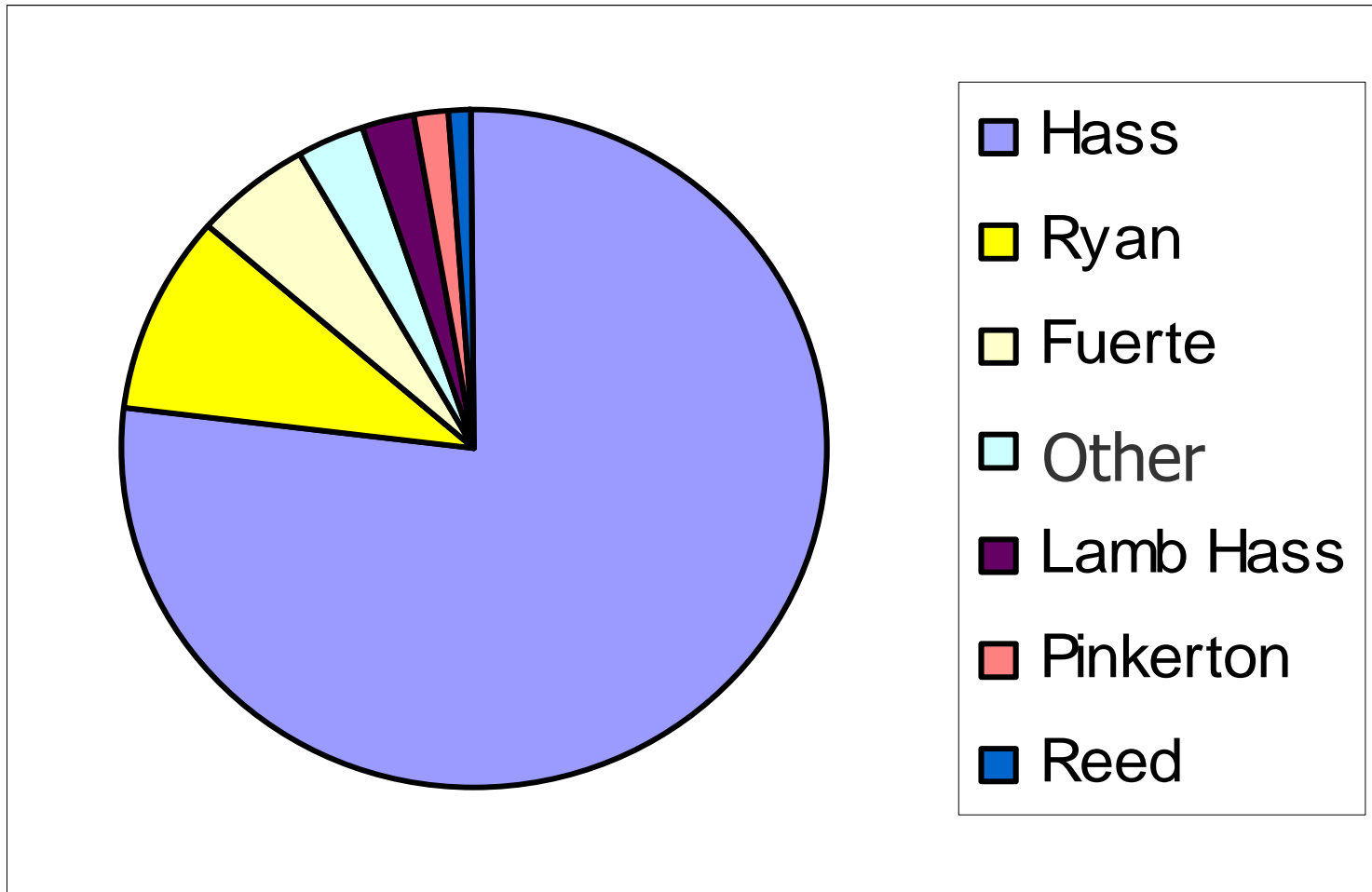


# *South African Avocado Industry*

- ✿ 12 400 ha of avocado orchards
- ✿ Production:
  - Total 70 000-100 000 t
  - Export: 35 000-50 000 t (50-60%)
  - Local market: 20 000-30 000 t
  - Processed 13 000t



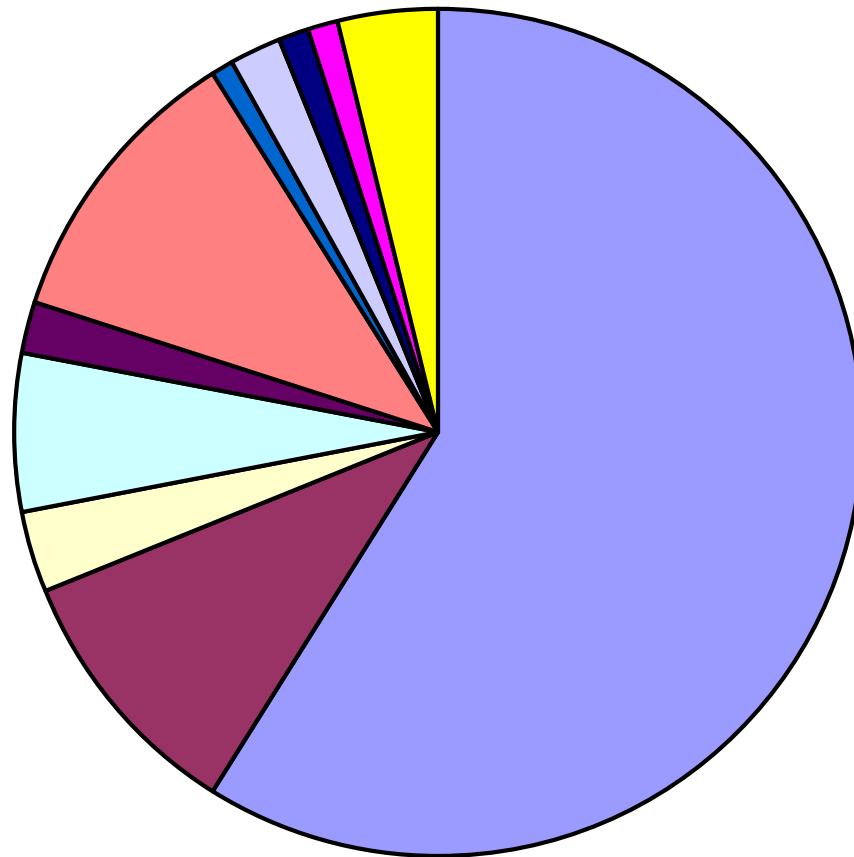
## 🌳 Nursery tree sales 2003-4: Scion Cultivars



🌳 Source: SA Avocado Growers Association



## 🌳 Nursery tree sales 2007-8: Scion Cultivars



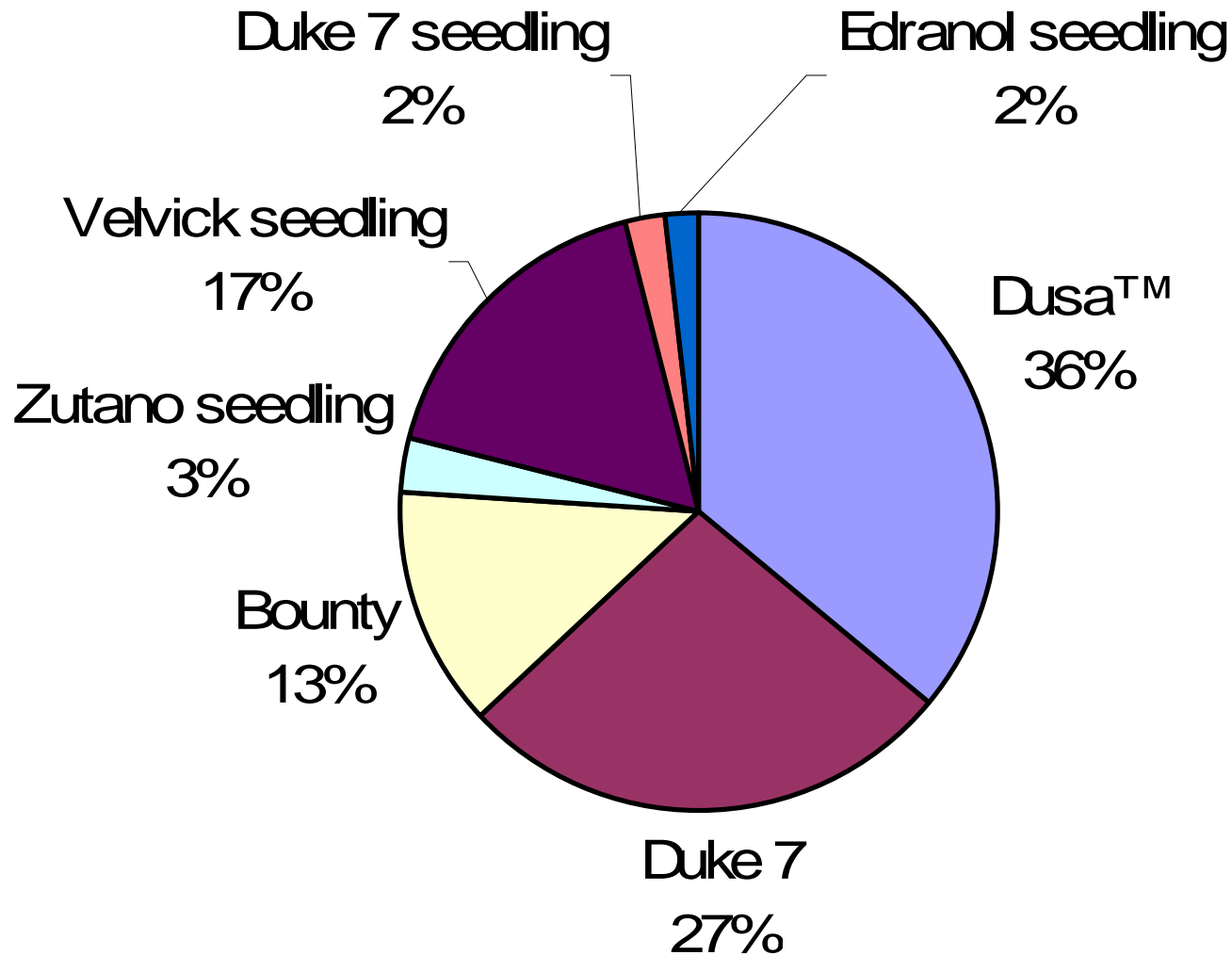
- Hass
- Fuerte
- Ryan
- Maluma Hass
- Rinton
- Pinkerton
- Lamb Hass
- Reed
- Zutano
- Gem
- Other

🌳 Source: SA Avocado Growers Association





- Nursery tree sales 2007-8: Avocado rootstocks, approx 350 000 Dusa™ planted to date. (SA Avocado Growers Association)





## *Westfalia:*

- SA's largest avocado grower
  - 1312 ha Avocado orchards
    - 887 ha conventional
    - 425 ha certified organic
  
- SA's largest exporter of avocado (together with outgrowers)
  - ±50% of SA crop
  
- EU 2<sup>nd</sup> largest importer of avocado (40-50 kt)



- Vertically integrated company with own:
  - R&D company
  - nursery,
  - orchards,
  - packing houses,
  - marketing companies in SA and EU,
  - Ripe-&-Ready-To-Eat pre-packing units (SA and EU)
  - Processing units
    - Avocado oil (culinary and cosmetic)
    - Avocado pulp and Guacamole







## *Westfalia Technological Services (WTS)*

- Research into avocado and mango
  - Horticulture
  - Pathology
  - Entomology
- Well known internationally for avocado rootstock breeding, screening, selection and evaluation.



## *Avocado rootstock breeding & screening at WTS*



Breeding Block



Screening of seedlings in  
P.c. infested substrate



*Results after 6 weeks of P.c. exposure*



Healthy seedling selections cloned

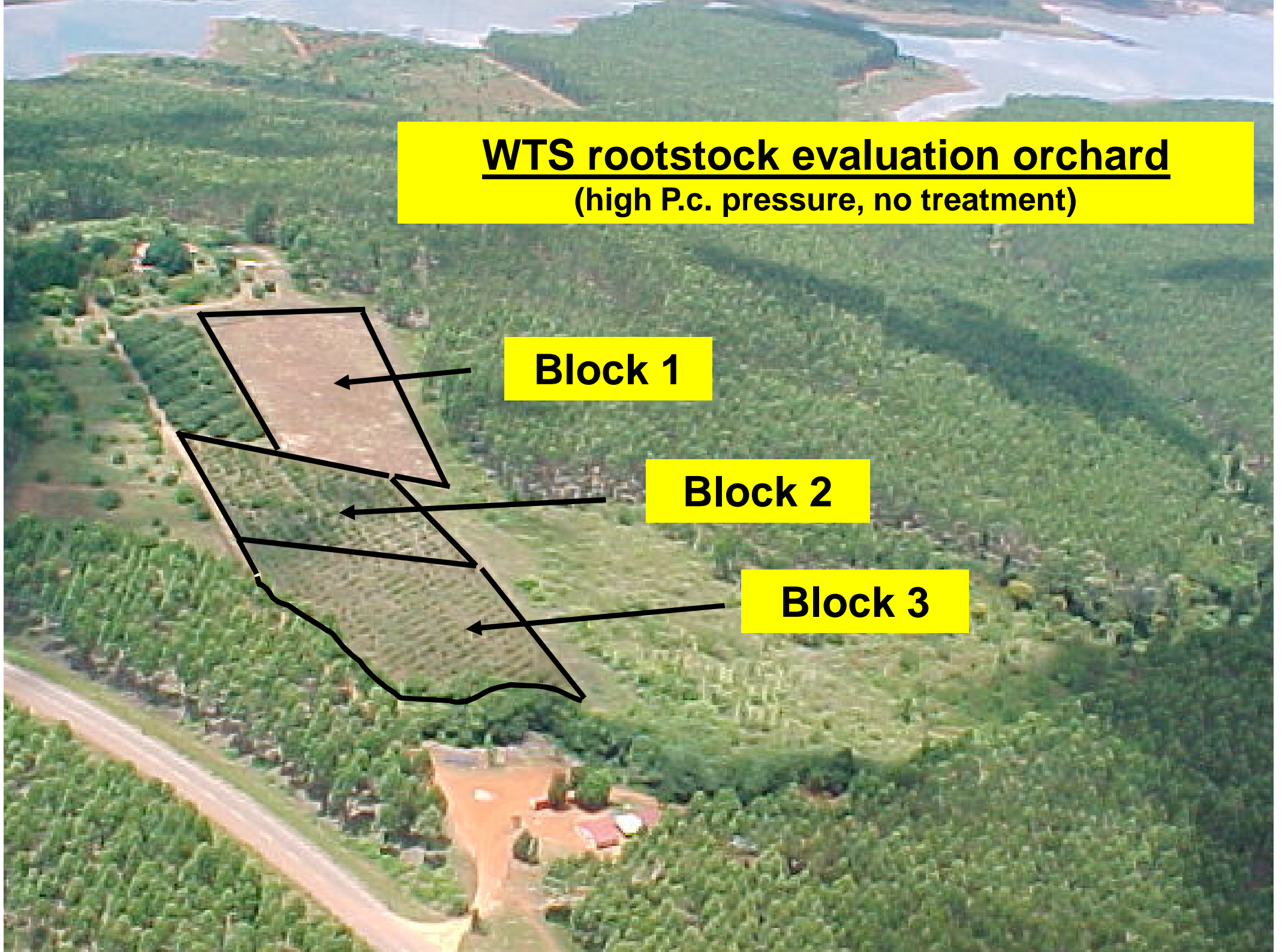


**WTS rootstock evaluation orchard**  
(high P.c. pressure, no treatment)

**Block 1**

**Block 2**

**Block 3**

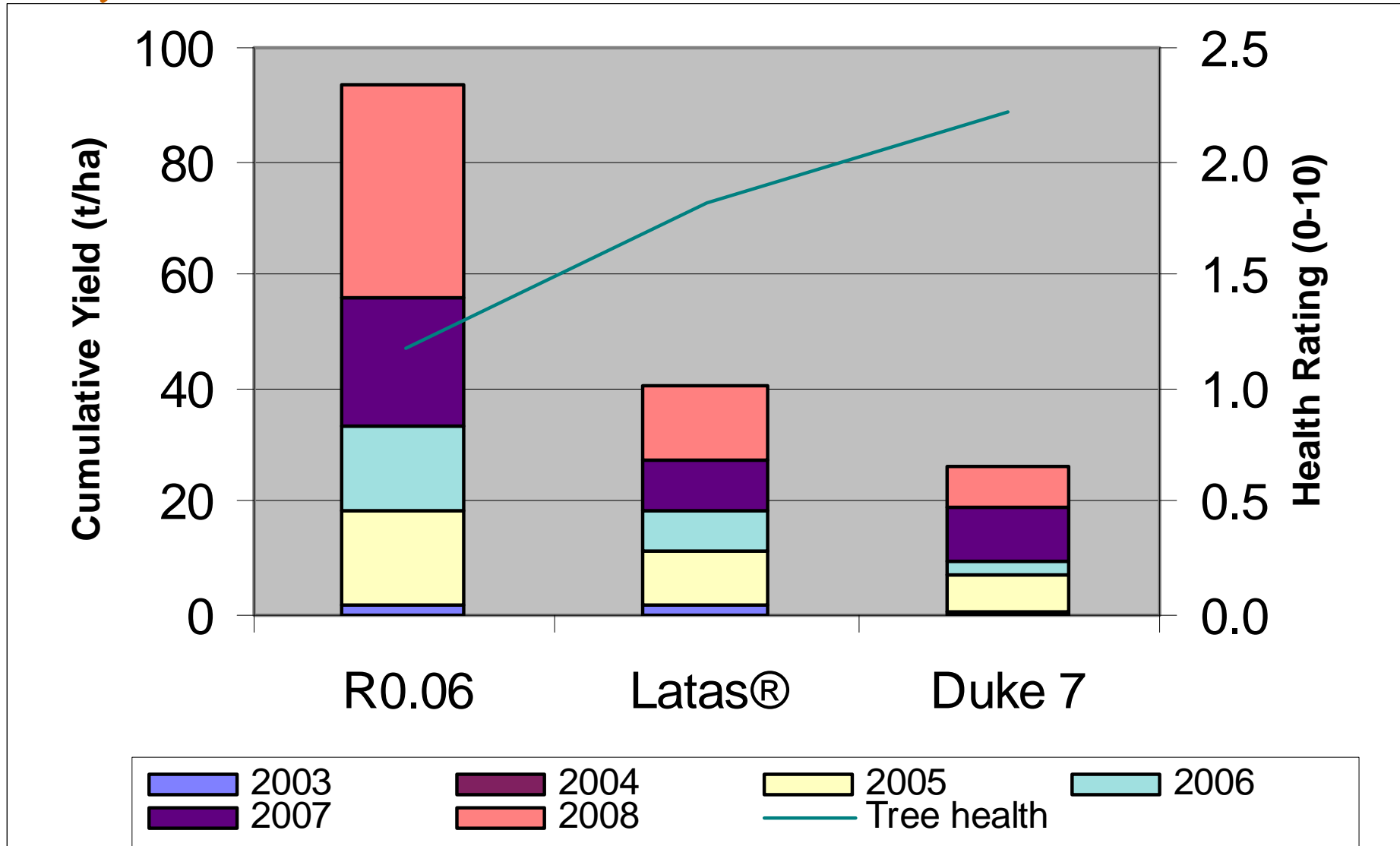






# Rootstock Evaluation Block

## 8-year old Hass trees on various rootstocks



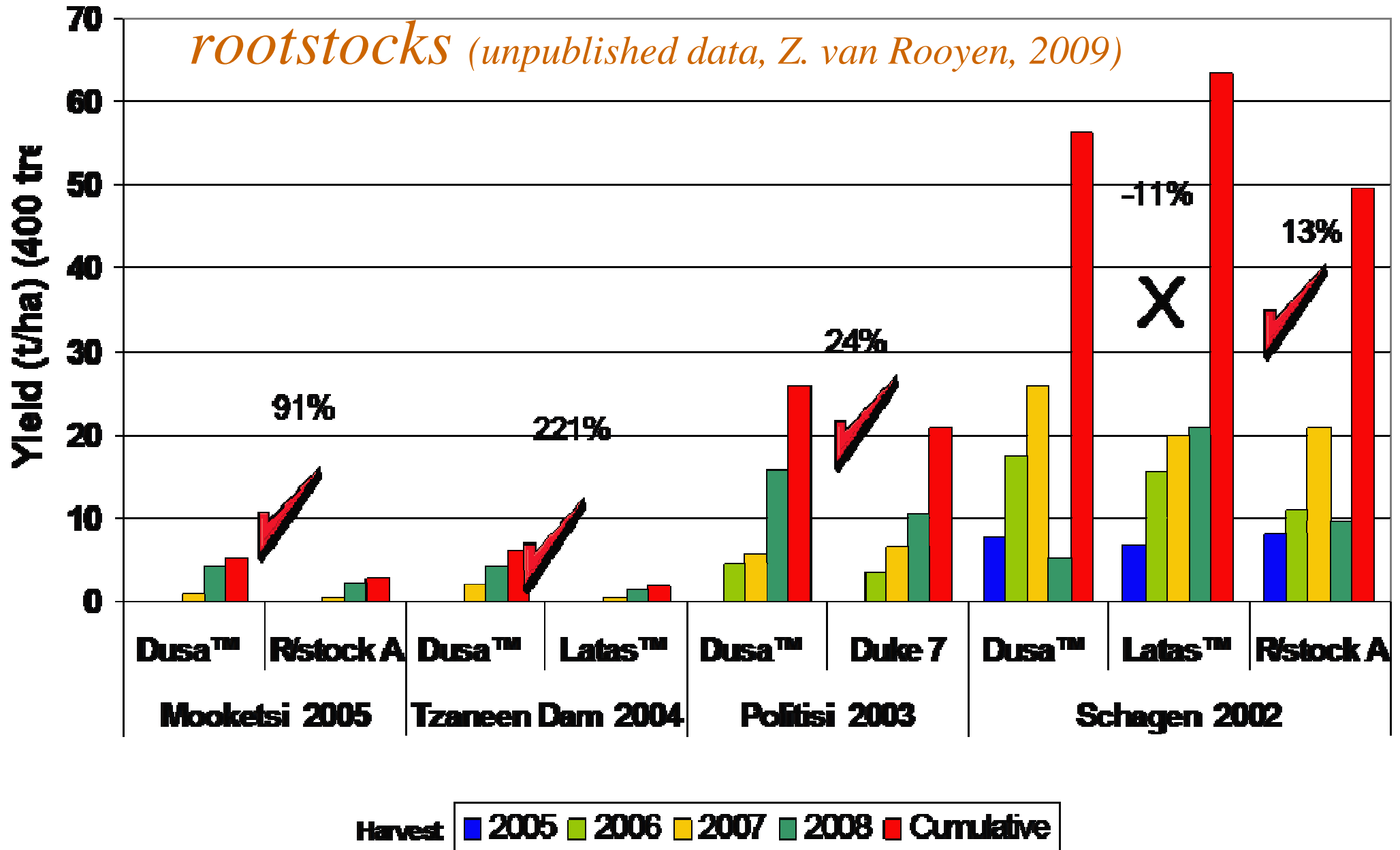


# Commercial evaluation

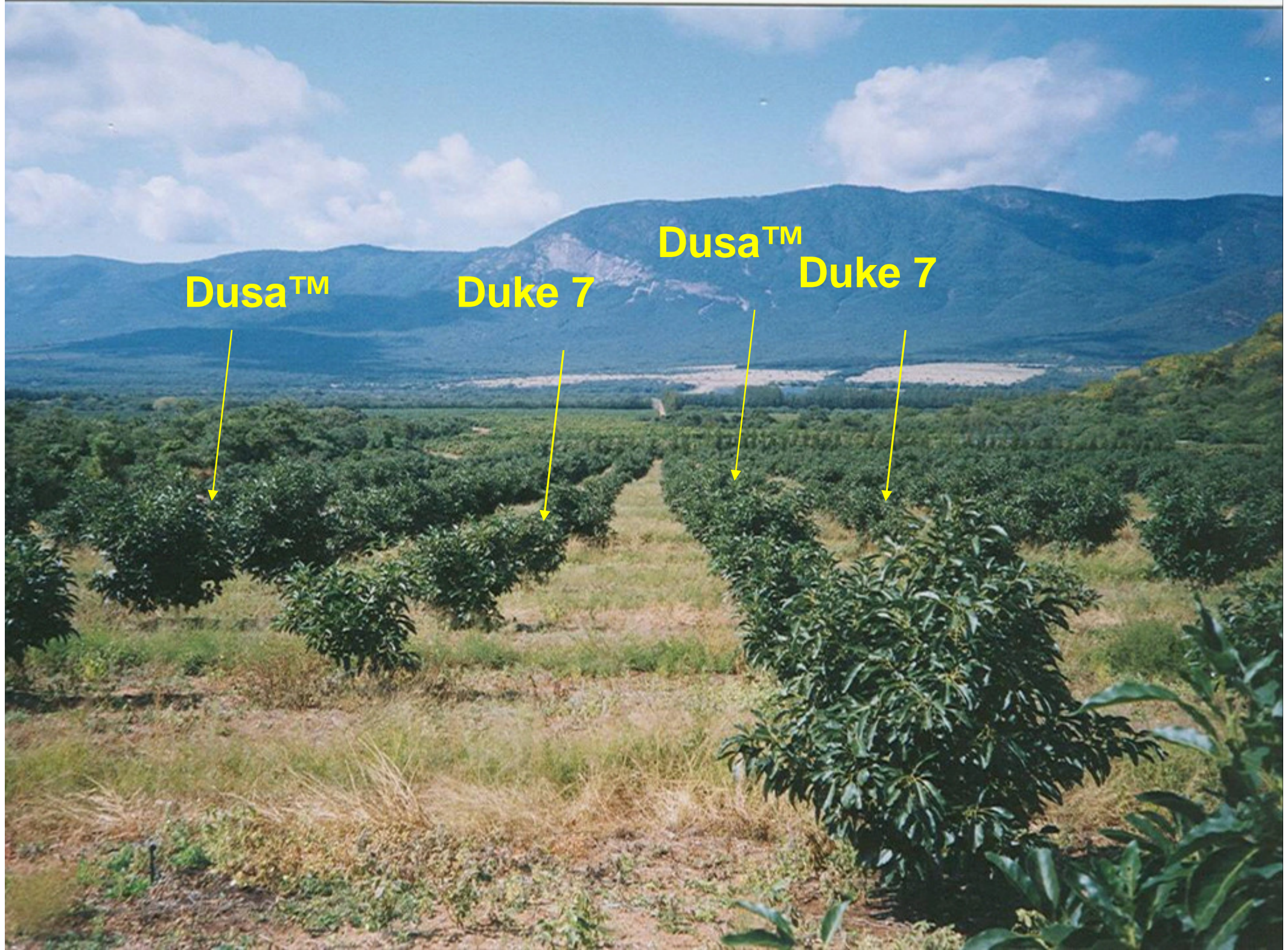
Farm	Climate, soil, altitude	Rootstocks compared		
Tzaneen	Warm moist, clay soils, Alt. 800m.	Dusa <sup>®</sup>	Latas <sup>™</sup>	
Mooketsi	Hot dry, sandy loam soil, Alt. 500m.	Dusa <sup>®</sup>	(Root-stock A)	
Soekmekaar	Cool moist, Clay loam soil, Alt. 1200m.	Dusa <sup>®</sup>	Duke 7	
Politsi Valley	Cool wet, Clay oxisols, Alt. 1000m.	Dusa <sup>®</sup>	Duke 7	
Schagen	Cool climate, sandy-clay loam Alt. 800m.	Dusa <sup>®</sup>	Latas <sup>™</sup>	(Root-stock A)



# Yield of commercial orchards with different rootstocks (unpublished data, Z. van Rooyen, 2009)







**Dusa™**

**Duke 7**

**Dusa™**

**Duke 7**



Hass/Dusa™



Hass/Dusa™



Hass/Duke 7



Mooketsi, South Africa, 2009







## *California*

- Merensky 2 (Dusa); Merensky 1 (Latas)
  - Excellent results obtained by Menge (UC) led to commercial release in California 2002.
  - Now the leading clonal rootstock in Ca. (Brokaw)
  - Dusa is currently the standard Pc-tolerant rootstock in UC rootstock evaluations.

An aerial photograph of Taylor Ranch in California. The image shows a large, rectangular pond in the upper left quadrant. A dirt road winds through the center of the image, curving to the right. The landscape is dominated by a vast field of young, planted trees, likely eucalyptus, arranged in a grid pattern. In the background, there are green agricultural fields and a white building. The foreground shows some green and brown vegetation.

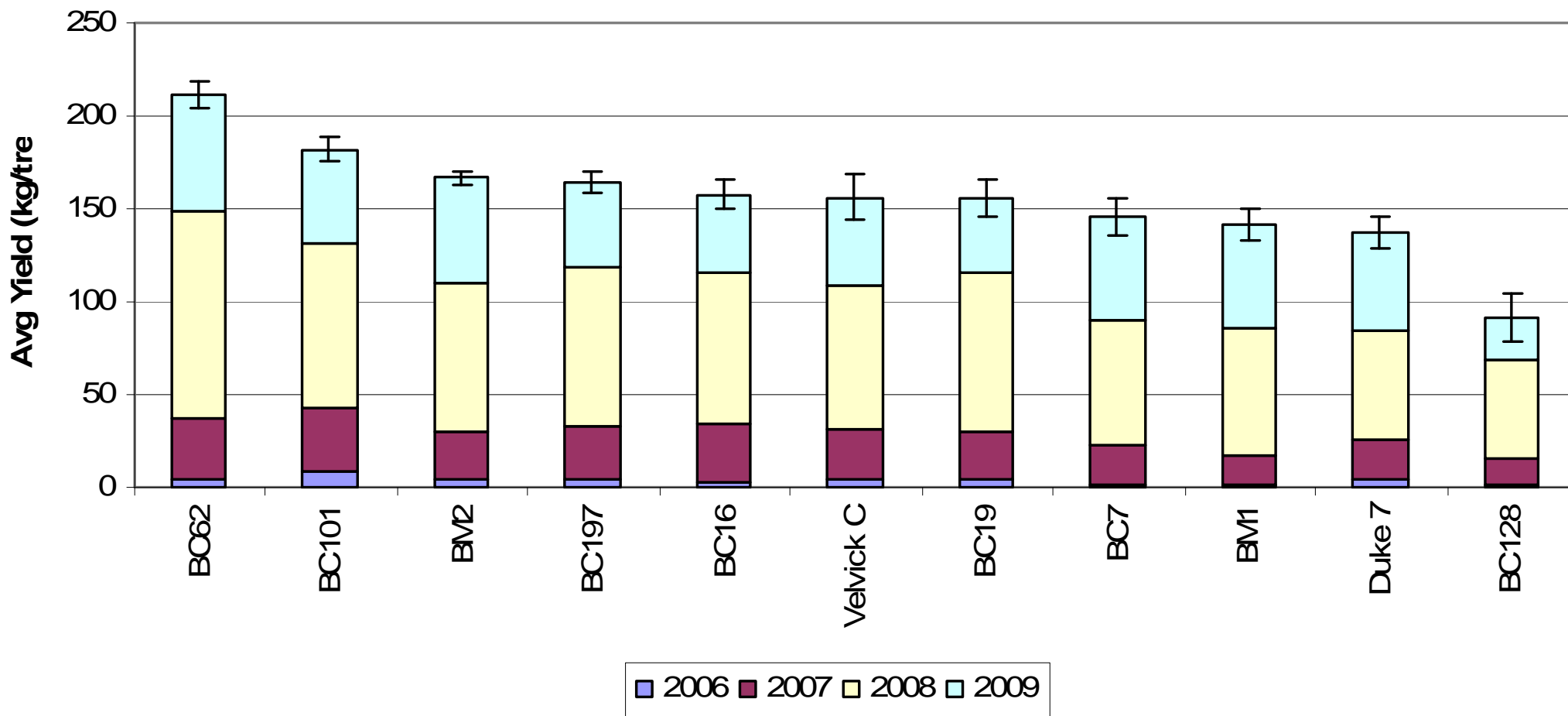
# Taylor Ranch, California

2008 5 12



# Australia (D. Le Lagadec, 2009)

Avg cumulative yields - Hass on clonal rootstocks







Dusa

Dusa

Latas





## *Conclusions*

- Clonal rootstocks continue to dominate SA rootstock sales and plantings.
- Merensky2 (Dusa™) continues to dominate SA and Californian clonal rootstock plantings.
- No one rootstock is optimal for all conditions
- The use of superior genetics remains the most sustainable way to increase yields and live with *Phytophthora cinnamomi* and other diseases.
- Westfalia to continue its breeding programme so that improved rootstocks become available for future use.



SA RUGBY



RUGBY WORLD CUP  
**CHAMPIONS!**

MAKE IT YOUR GAME™

THE END

