

# The potential of cactus pear (*Opuntia ficus-indica*) as animal feed

Herman Fouché<sup>1</sup> & G M Engelbrecht<sup>2</sup>

<sup>1</sup>Agricultural Research Council. P/a University of the Free State,  
PO Box 339, Bloemfontein 9300. South Africa.  
email: [fouchehj@ufs.ac.za](mailto:fouchehj@ufs.ac.za)

<sup>2</sup>Dep. Soil, Crop and Climate Sciences, University of the Free State.  
PO Box 339, Bloemfontein 9300. South Africa.

17 – 22 October 2010

# Introduction

- Immigrants brought it to SA in the early 1650's.
- Burbank collection (spineless) - imported in 1914 – used as drought fodder.
- During the last 15 years – the focus was on fruit production – Johan Potgieter.
- Last decade – Cladode production evaluation under semi-intensive conditions.
- *Opuntia* can be used as an alternative feed source for inclusion in sheep diets for maintenance or production without detrimental effect on animal performance or carcass characteristics (weight, fat thickness and surface area of musculus longissimus dorsi) of Dorper wethers (Desirée Zeeman, 2005; Ockert Einkamerer, 2008; Carla Menezes, 2009; Katrina Shiningavamwe 2010).
- Objective is to evaluate 42 cactus pear cultivars in terms of their adaptability, fodder and fruit potential as a sustainable fodder source for stock farmers in the Central parts of South Africa.



**Cactus pear as drought fodder**  
**(*Opuntia robusta*)**





# Semi intensive orchard cultivation







Cactus Pear as fodder ?



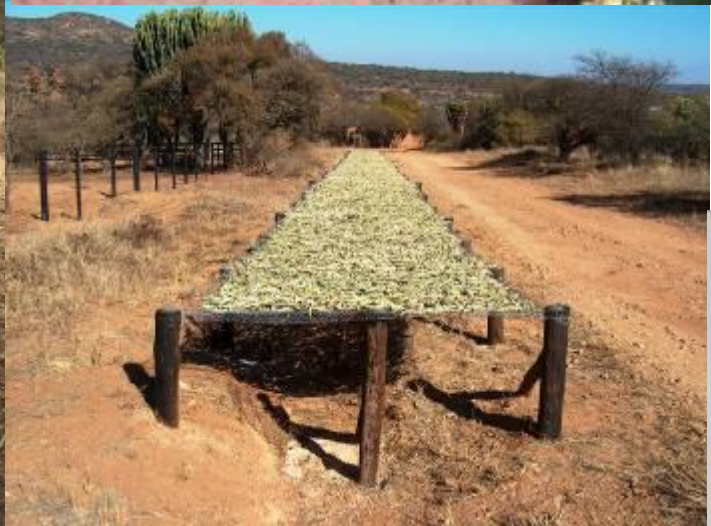




**ALGERIAN**



**GYMNO CARPO**



**VRYHEID**



**NODOSA**

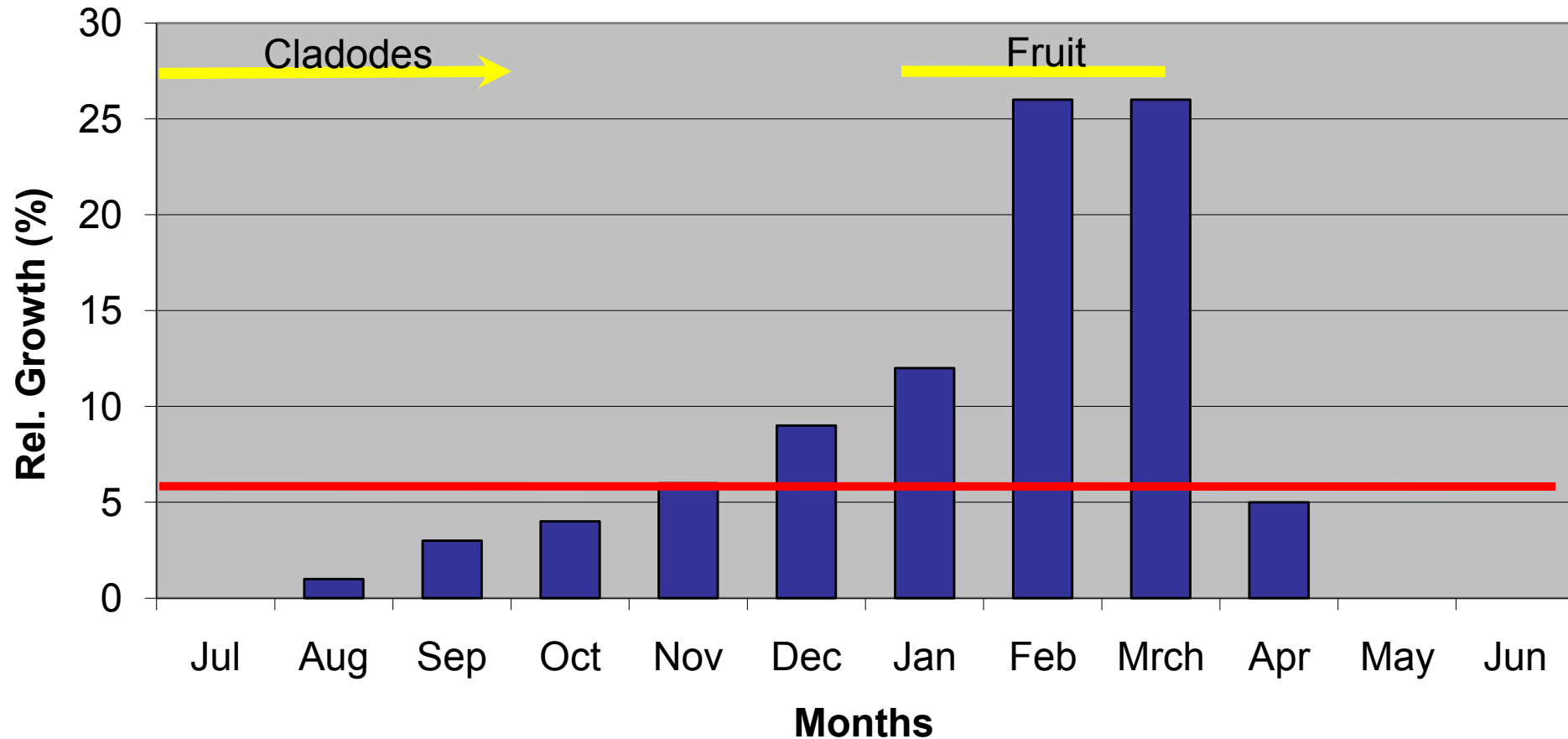


**ROEDTAN**



**ROSSA**

# The role of cactus pear in the fodder flow planning of rangeland management





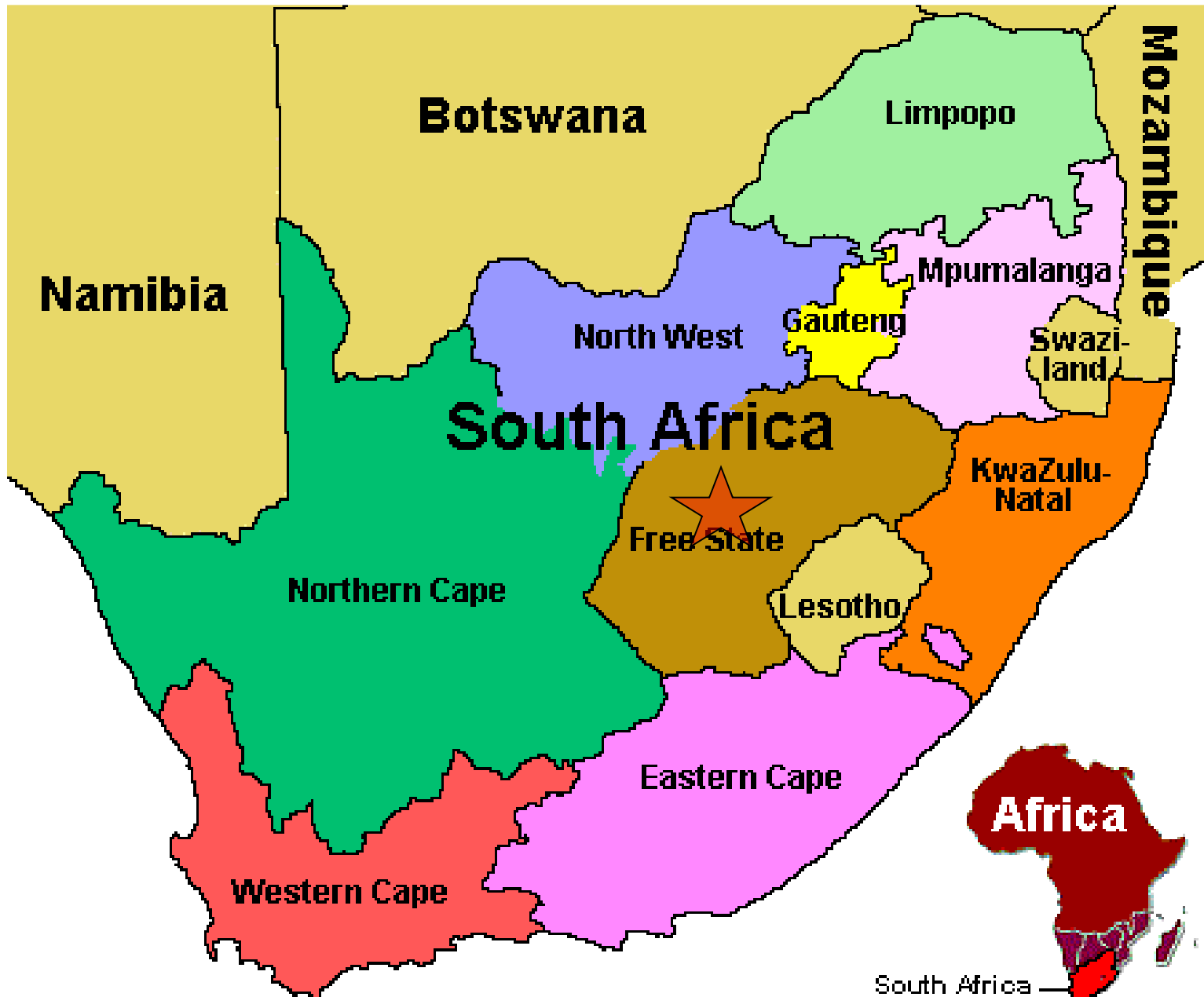








# Location







8 November 2003

40 Cultivars of *Opuntia ficus-indica*  
2 Cultivars of *Opuntia robusta*

5 Plants per cultivar x 2 replications

5 Meter row spacing

3 Meter plant spacing

660 Plants per hectare

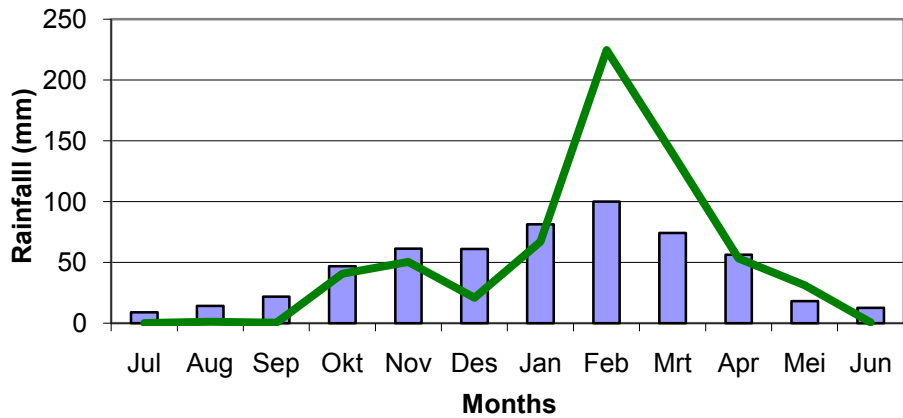
No Irrigation

Maintenance fertilisation

**Waterkloof**

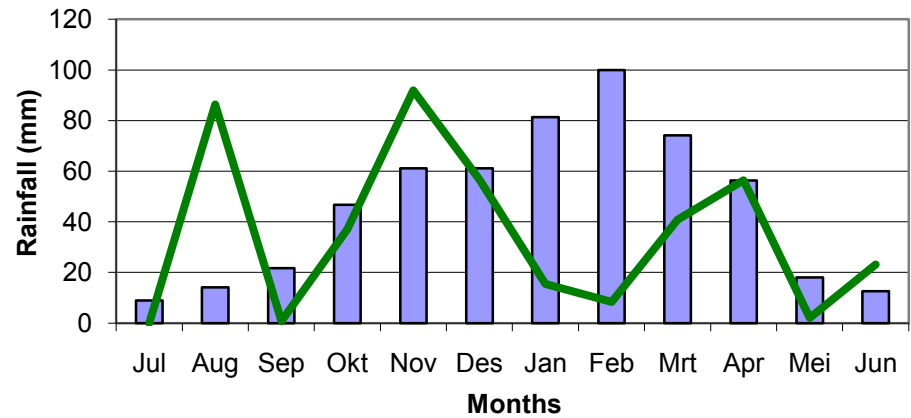


### Total monthly rainfall 2005/2006



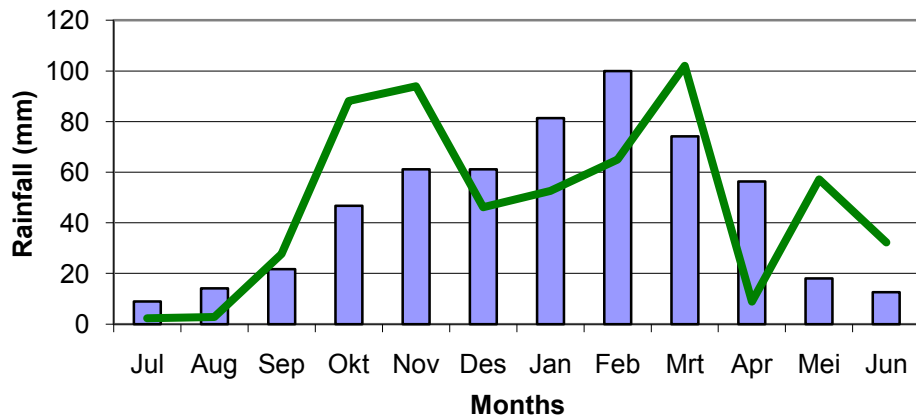
Average rainfall Monthly total rainfall

### Total monthly rainfall 2006/2007



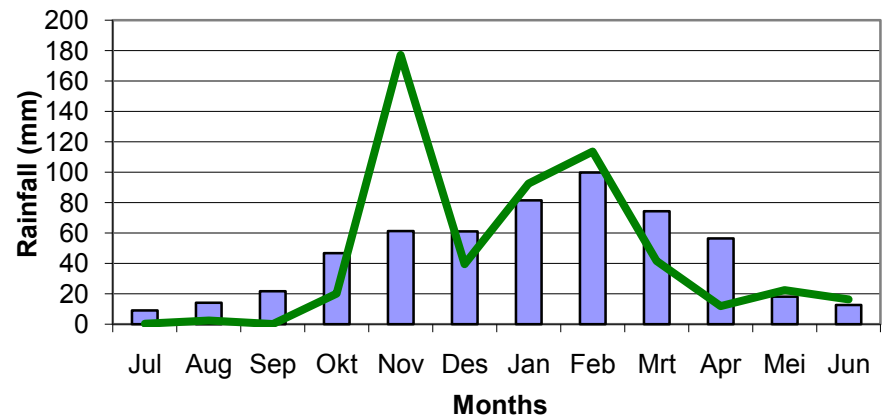
Average rainfall Monthly total rainfall

### Total monthly rainfall 2007/2008



Average rainfall Monthly total rainfall

### Total monthly rainfall 2008/2009



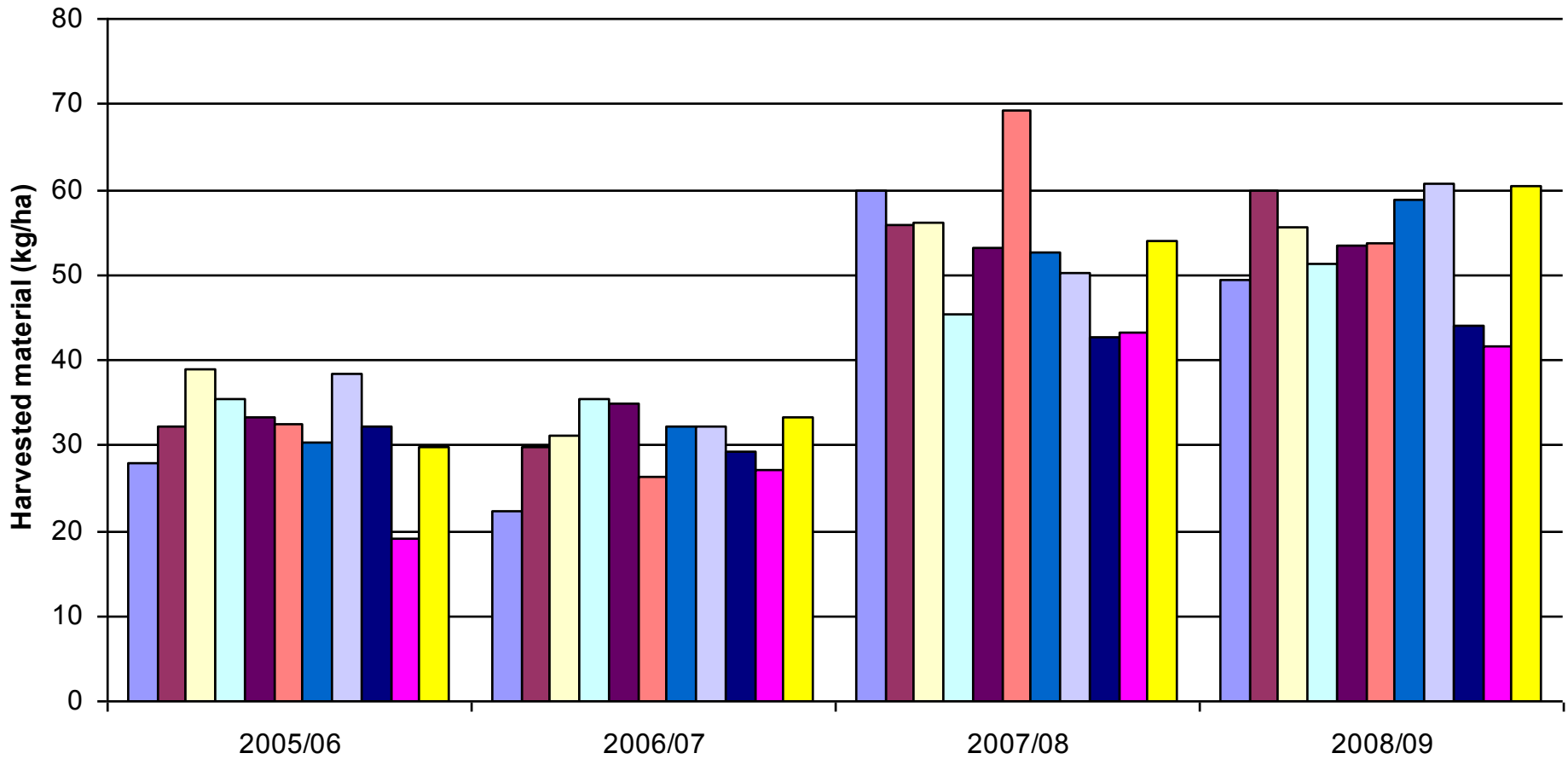
Average rainfall Monthly total rainfall

# Results





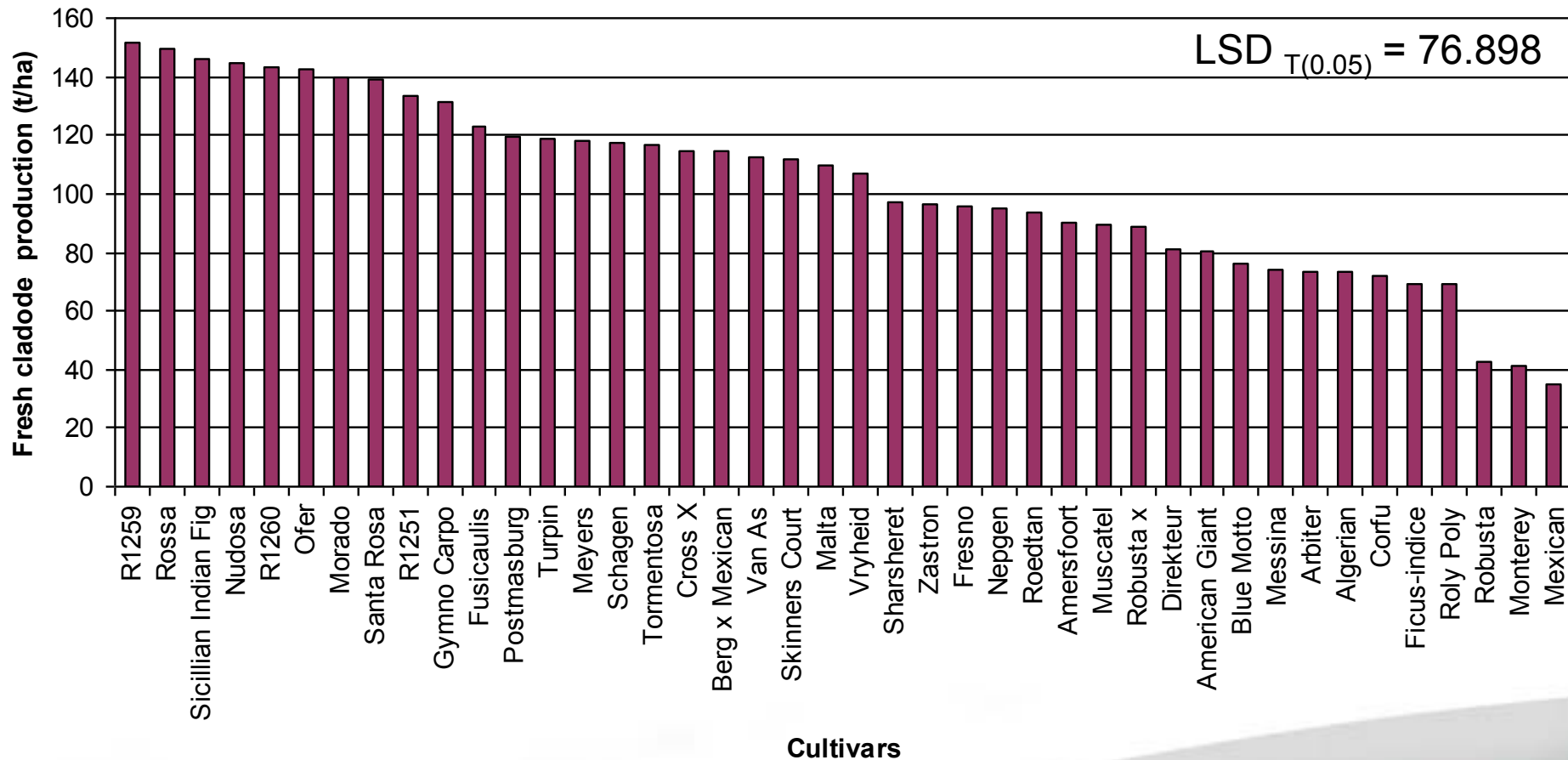
# Yield as influenced by season



■ Meyers 
 ■ Morado 
 ■ Ofer 
 ■ R1251 
 ■ R1260 
 ■ Rossa 
 ■ Santa Rosa 
 ■ Sicillian Indian Fig 
 ■ Van As 
 ■ Vryheid 
 ■ Nudosa

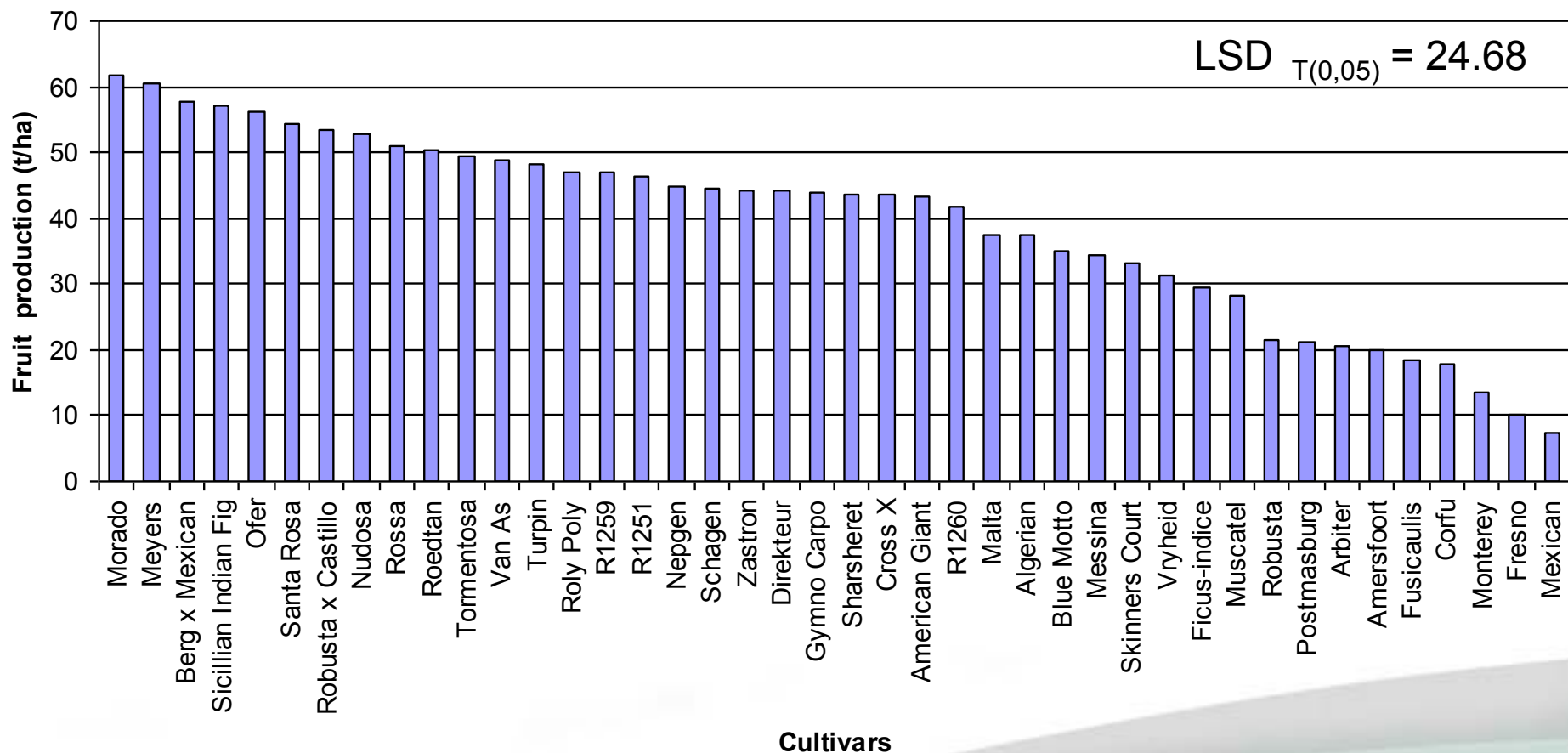


# Cumulative Fresh cladode production ranking 2005/06 to 2007/08.

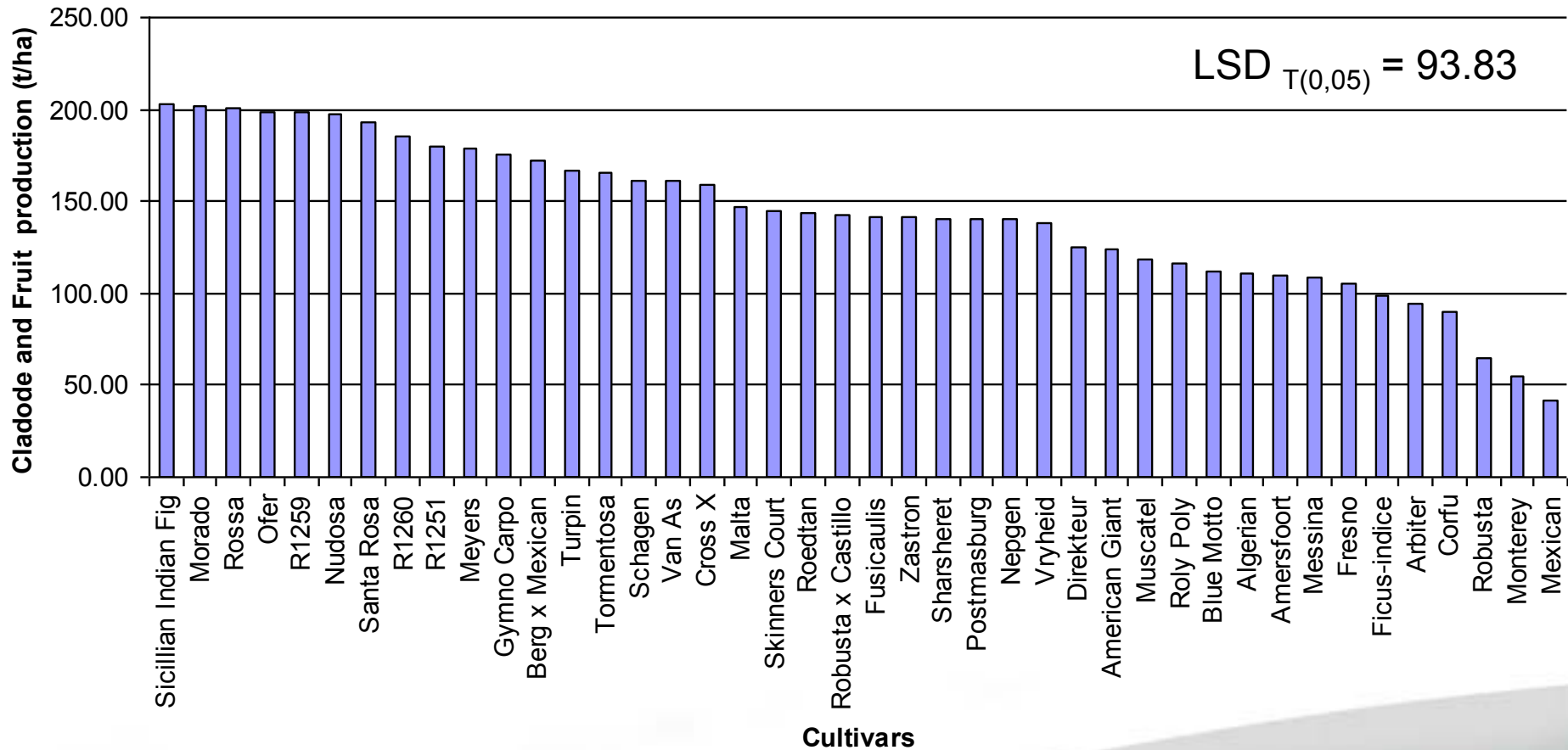




# Cumulative fruit production ranking 2005/06 to 2007/08.



# Cumulative fresh cladode and fruit production ranking 2005/06 to 2007/08.







GYMNO CARPO



MORADO



ZASTRON

# RECOMMENDED CULTIVARS



# The cumulative cladode and fruit production for the period 2005/2006 to 2008/2009

<b>Cultivar</b>	<b>Yield (t/ha)</b>
<b>Sicilian indian fig</b>	<b>203.17</b>
<b>Morado</b>	<b>201.54</b>
<b>Rossa</b>	<b>200.80</b>
<b>Ofer</b>	<b>198.99</b>
<b>R1259</b>	<b>198.62</b>
<b>Nudosa</b>	<b>197.49</b>
<b>Santa Rossa</b>	<b>193.21</b>
<b>R1260</b>	<b>185.05</b>
<b>R1251</b>	<b>179.57</b>
<b>Meyers</b>	<b>178.75</b>
<b>LSD<sub>T90.05</sub>)</b>	<b>175.10</b>



# Need to investigate

- Harvesting of cladodes
  - Frequency
  - Intensity
  - Time of the year
  - Meganisation
- Irrigation requirements



# SUMMARY AND CONCLUSIONS

- The traditional animal fodder cultivars (Robusta and Monterey) are the poorest performers.
- The use of cultivated cactus pear orchards as a feed source is a new concept to farmers.
- The crop has a potential of switching between feed and fruit production depending on the need and circumstances.
- Cactus pears are an ideal crop for communal and developing farmers to stabilise food security.
- One of the most versatile crops.



# Thank you



## **Acknowledgements:**

Dr Gesine Engelbreght.

Prof HO de Waal.

Mr Danie van Tonder – providing facilities and maintenance.

University of the Free State for funding.