Investigating the Sufficiency of Geographic Diversification in Limiting Contract Grower Risk

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Nedbank Chair: Commodity Finance & Risk
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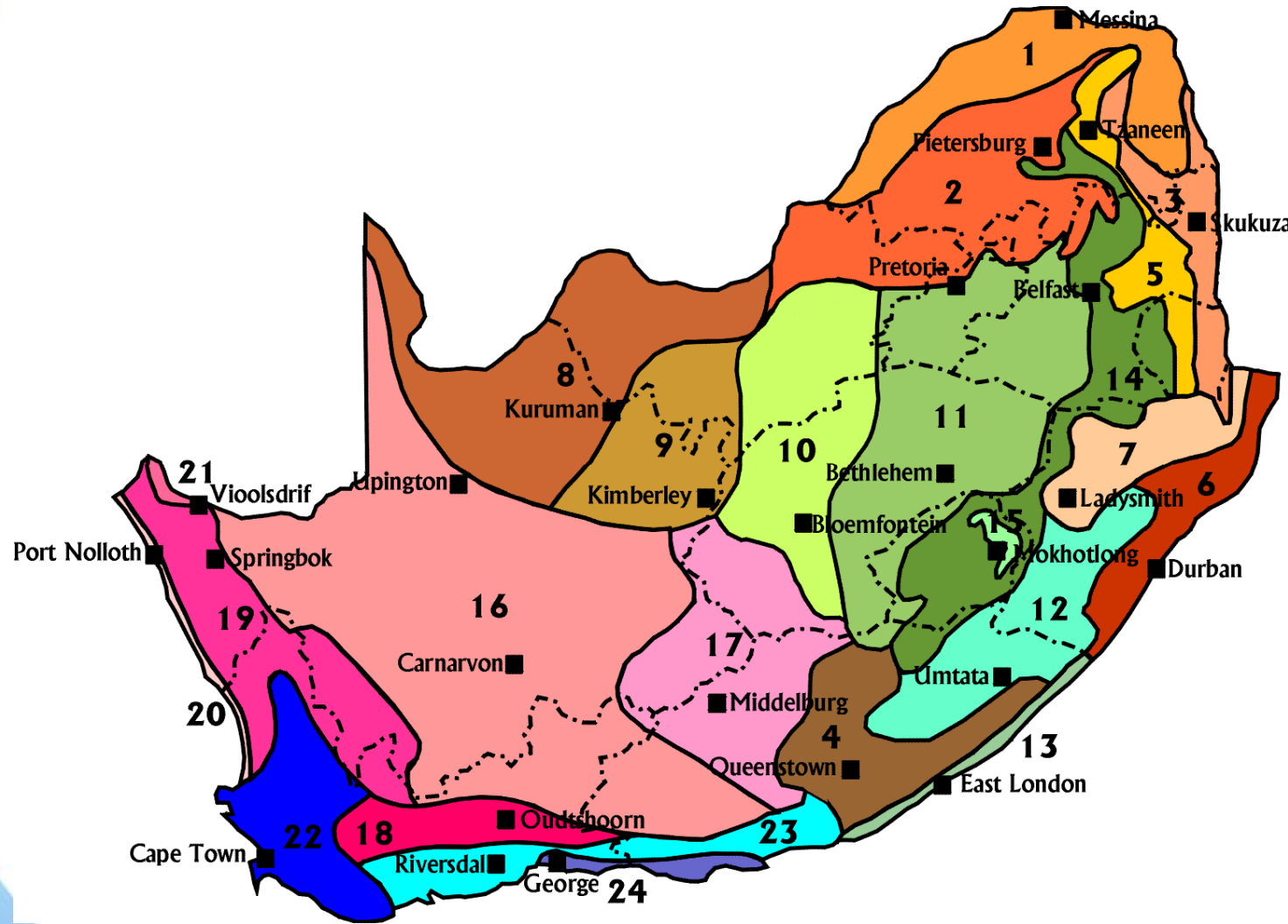ABSA Chair: Agribusiness Management
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Aim of presentation

- Background

- Rainfall analysis

- Rainfall distribution

- Research method

- Empirical results

- Conclusion and recommendations

Climatic regions

Rainfall distribution

- **Analyse rainfall distribution in Lichtenburg & Heidelberg**

- **Rainfall variability – agric production**

- **Necessary for ag risk management**

Rainfall distribution

- **2 phases:**

  – **Descriptive**

    - **Reveal anomalies & variations in stations >30yrs**

  – **Predictive**

    - **Describing rain ito probabilities**
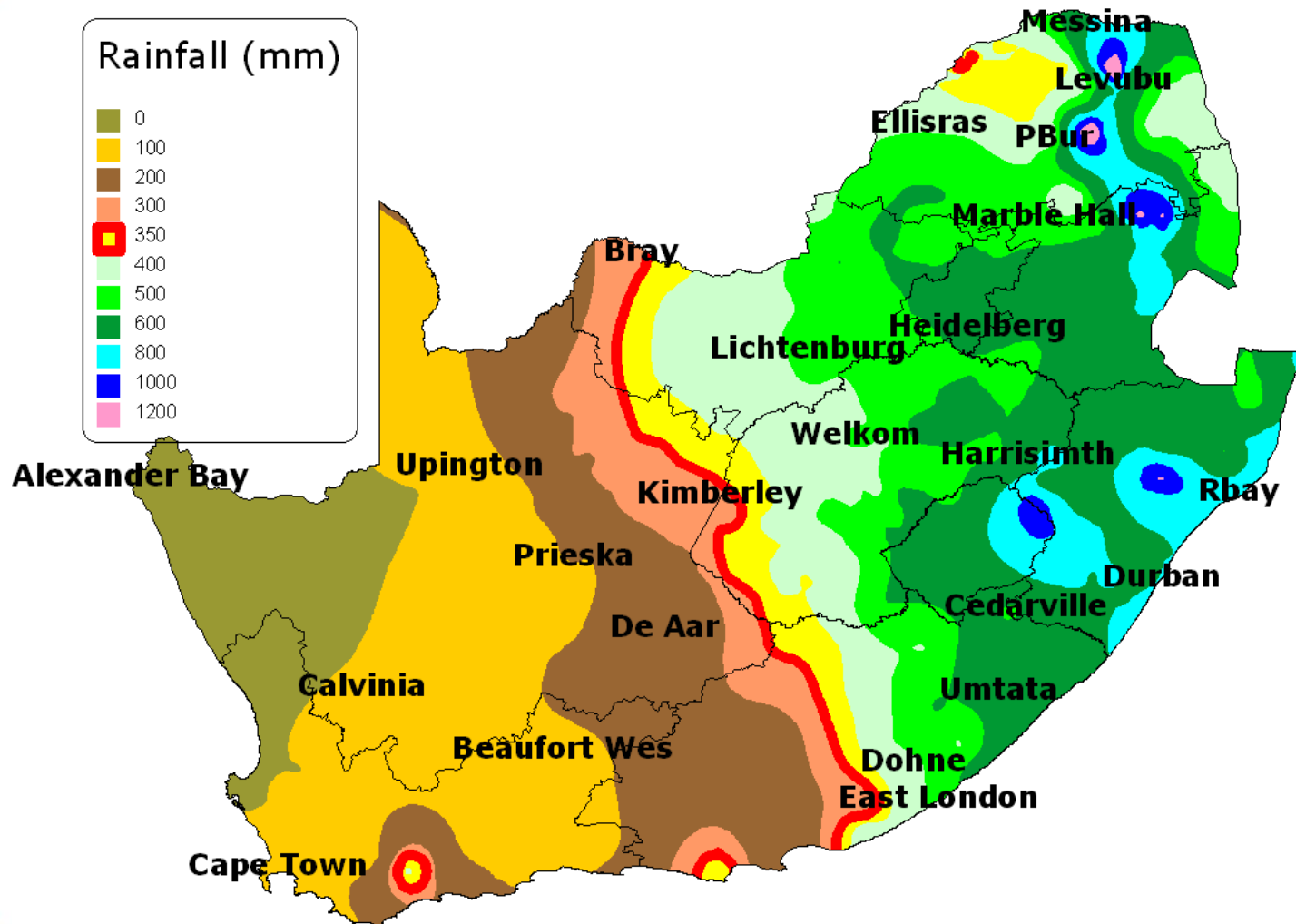
Data & Methods

- **How is rain measured in SA?**

- **Seasonal decadal rainfall totals calculated from Sept – Apr for stations with 35+ yrs data**

- **Decadal defined as 1st -10th , 11th – 20th 21st – 30th**
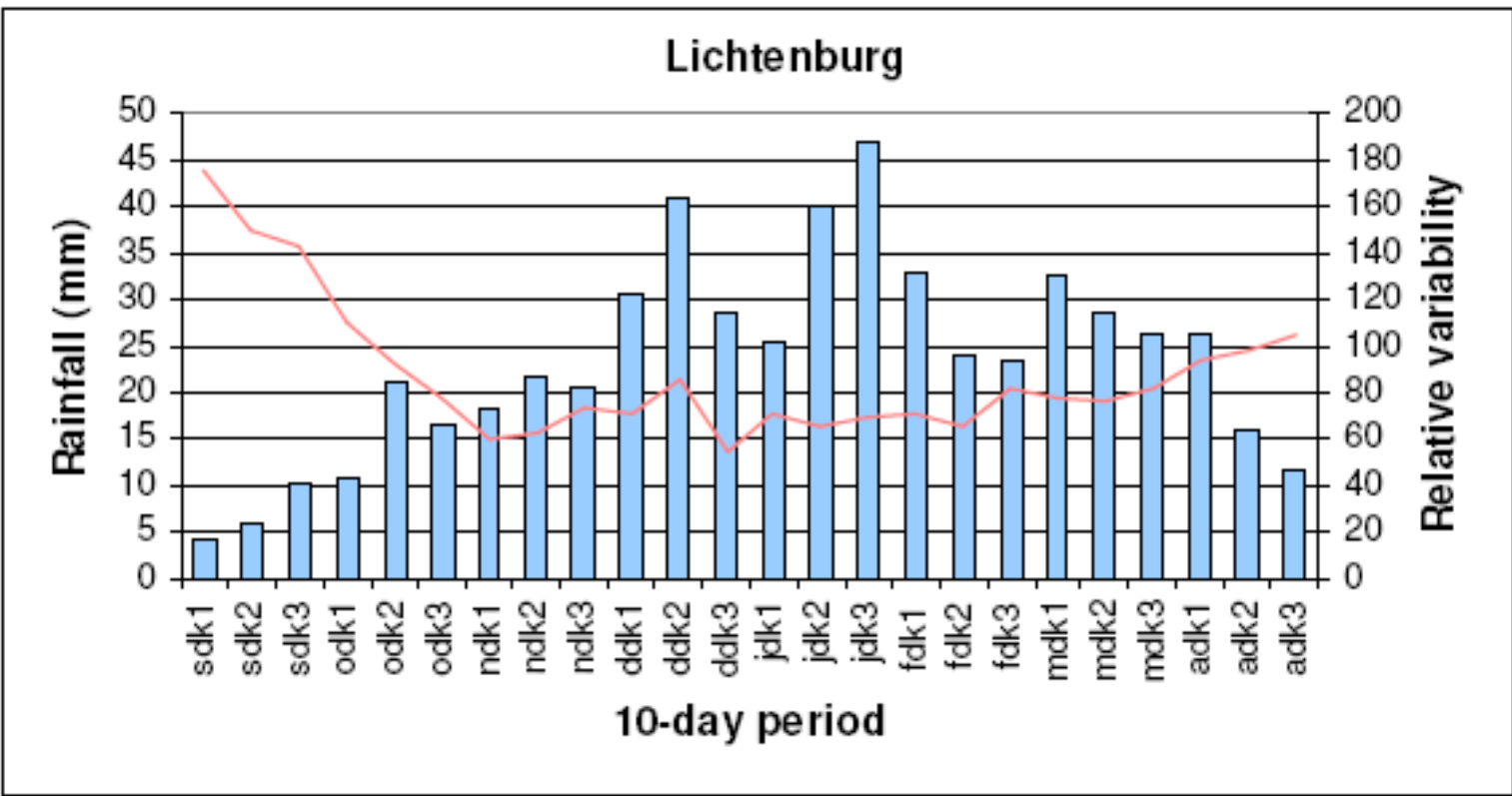
Statistical parameters

- **Standard statistical parameters used**

- **Calculate rainfall probability in form of cumulative frequency**

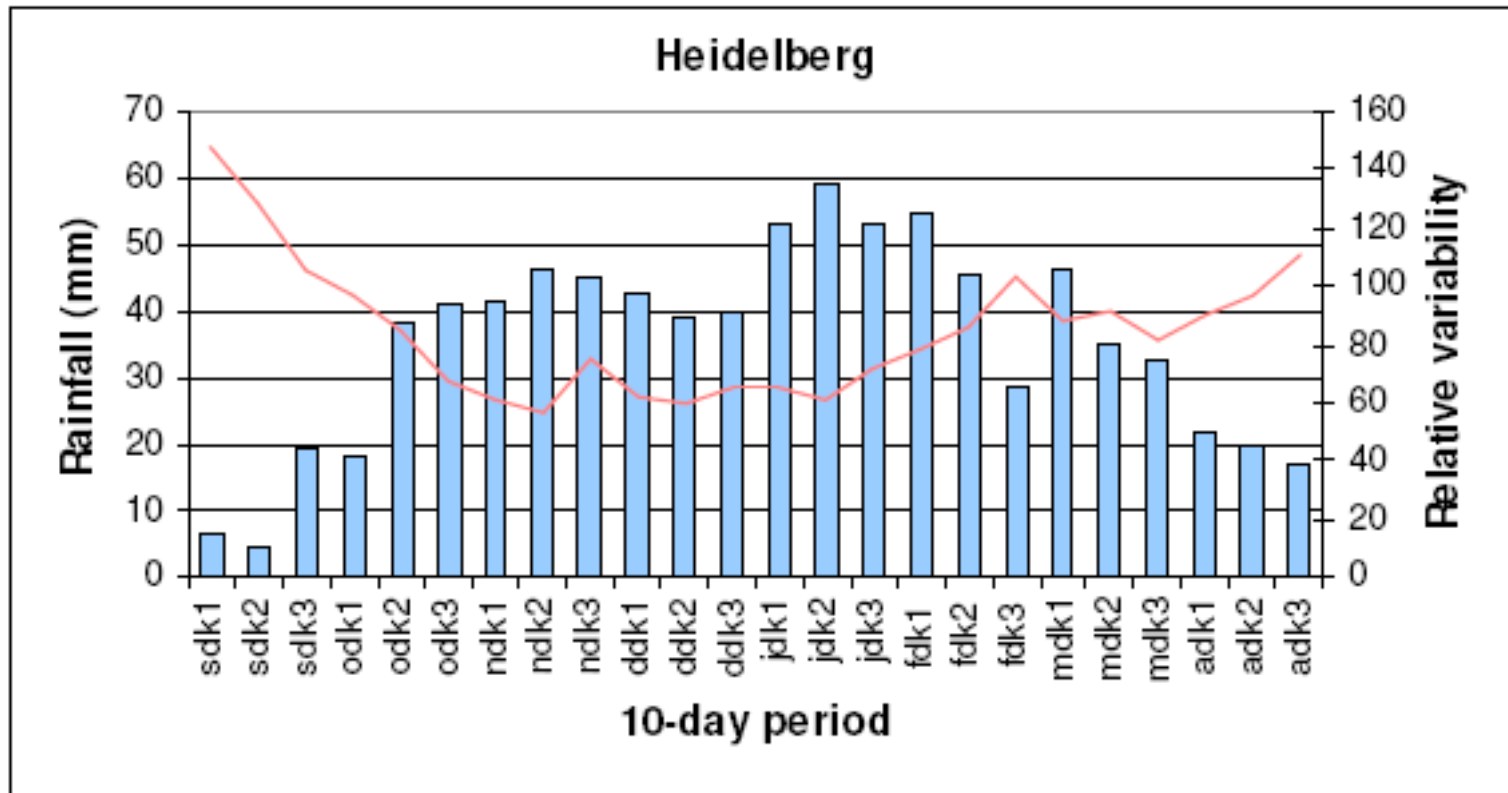- **Median used & not mean**

Mean seasonal rainfall

Results - Lichtenburg

Results - Heidelberg

Ave maize yields

	1980/81-2005/06	1980/81-1998/99	1999/00-2005/06
Heidelberg	3.3	2.9	4.3
Lichtenburg	2.4	2.1	3.0

Yield correlation between Lichtenburg & Heidelberg

- **Period 1980/81 – 2005/06: 0.863**

- **Period 1980/81 – 1998/99: 0.858**

- **Period 1999/00 – 2005/06: 0.737**

- **Strong positive correlation**

- **Monitoring of growing season & cultivar choice NB**

Conclusion & Recommendations

- **Reconstructed missing data**

- **Statistical analysis of 10-day data**

- **Rainfall distribution highly variable**

- **Can be used to determine first & last planting date**

- **Limited risk exist for total crop failure**