



Spatial Intelligence

CELC Symposium

# Cutting Edge Technology in Crop Estimates

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Date: 21 April 2016

# Business Intelligence Enhanced by Spatial Information



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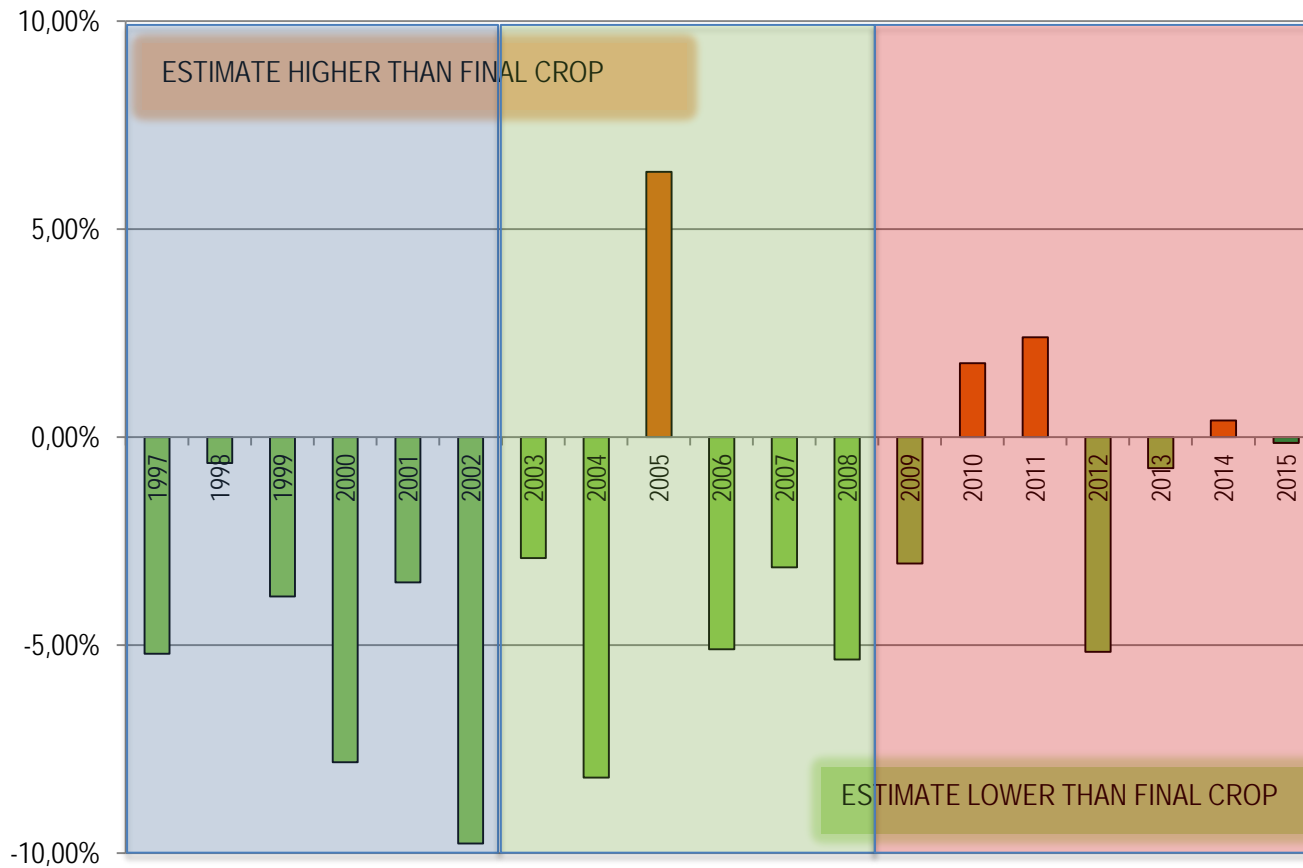
# Key points

- Operational – National Scale
- Track Record of Success
- Platform independent

# EVALUATE RESULTS ...

## HOW ACCURATE DOES THE CEC ESTIMATE?

TOTAL MAIZE

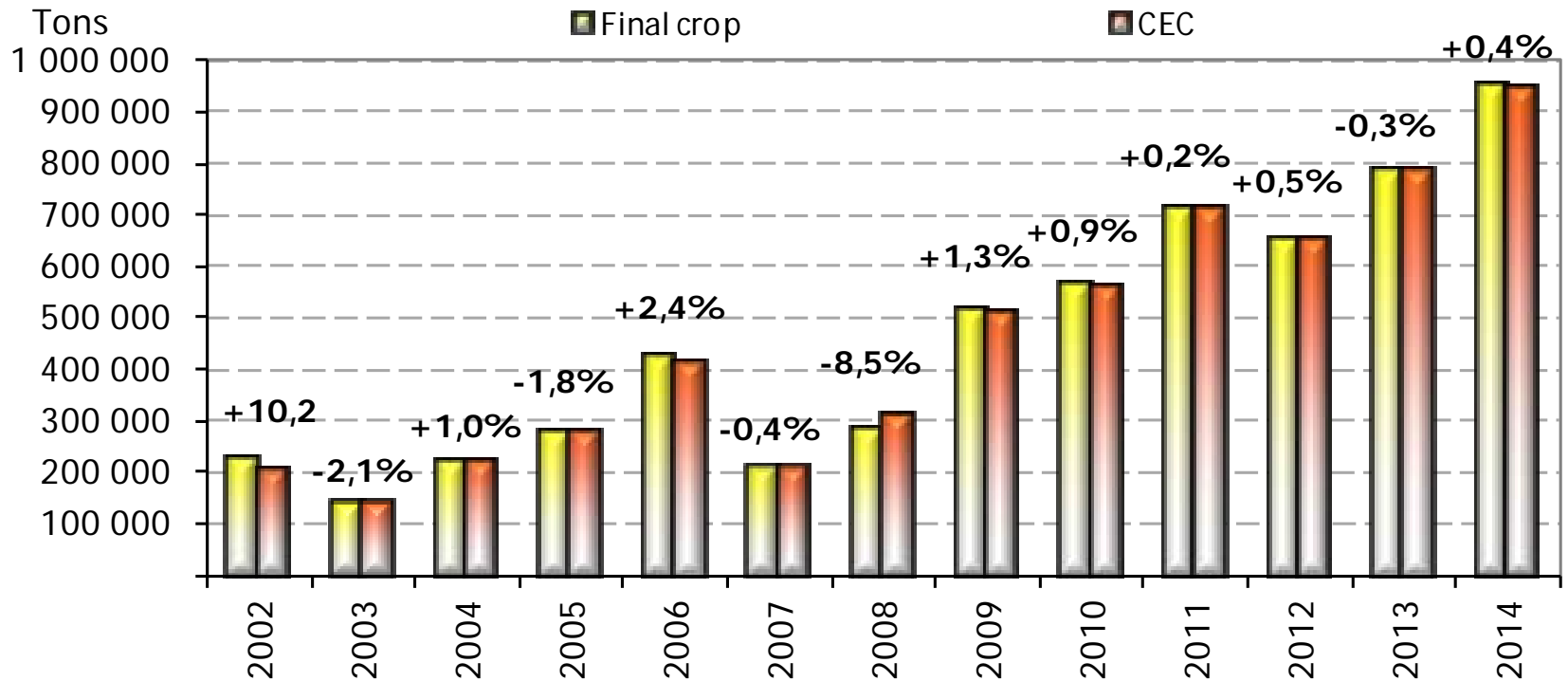


- 4 out 19 year higher
- 15 out 19 year lower

# Small Crop Focus

**Soya-beans: RECALCULATED CROP vs CEC**  
2002 - 2014

(+)=8 of 13



# Solution

Aircraft

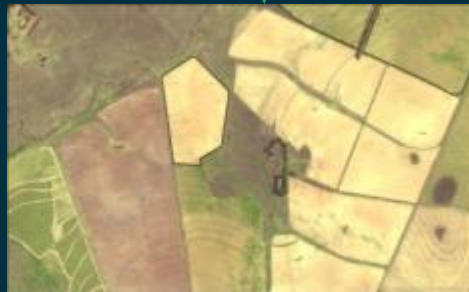


Technology



Statistical Geographic  
Sampling Frame 

Satellite imagery



GIS



PICES Team





# Biggest Differentiator



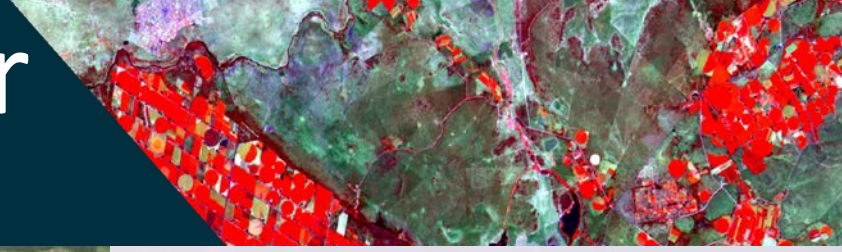
“Remote sensing has evolved into much more than looking at objects with our eyes. It now includes using instruments, which can measure attributes about objects which unaided human eyes can't see or sense”

**Human RS Tools VS Machine RS Tools**





# Biggest Differentiator Context

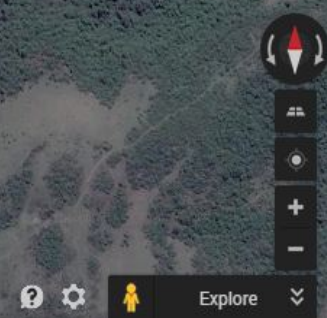
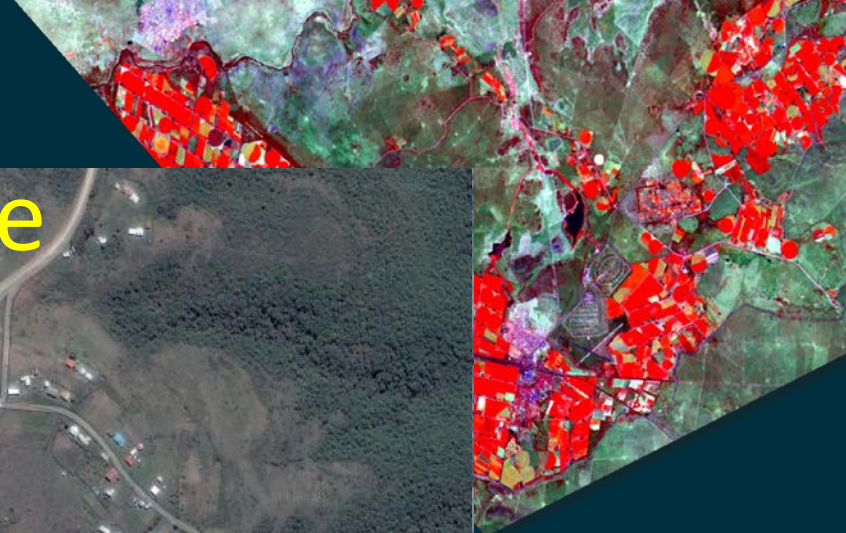


# SA Kwazulu Natal



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# SA Eastern Cape



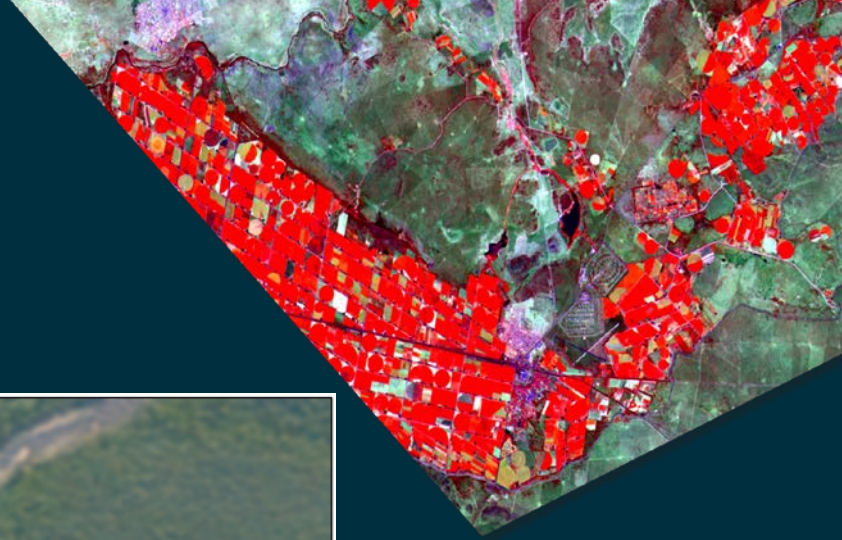


# Crop Expansion - Potential



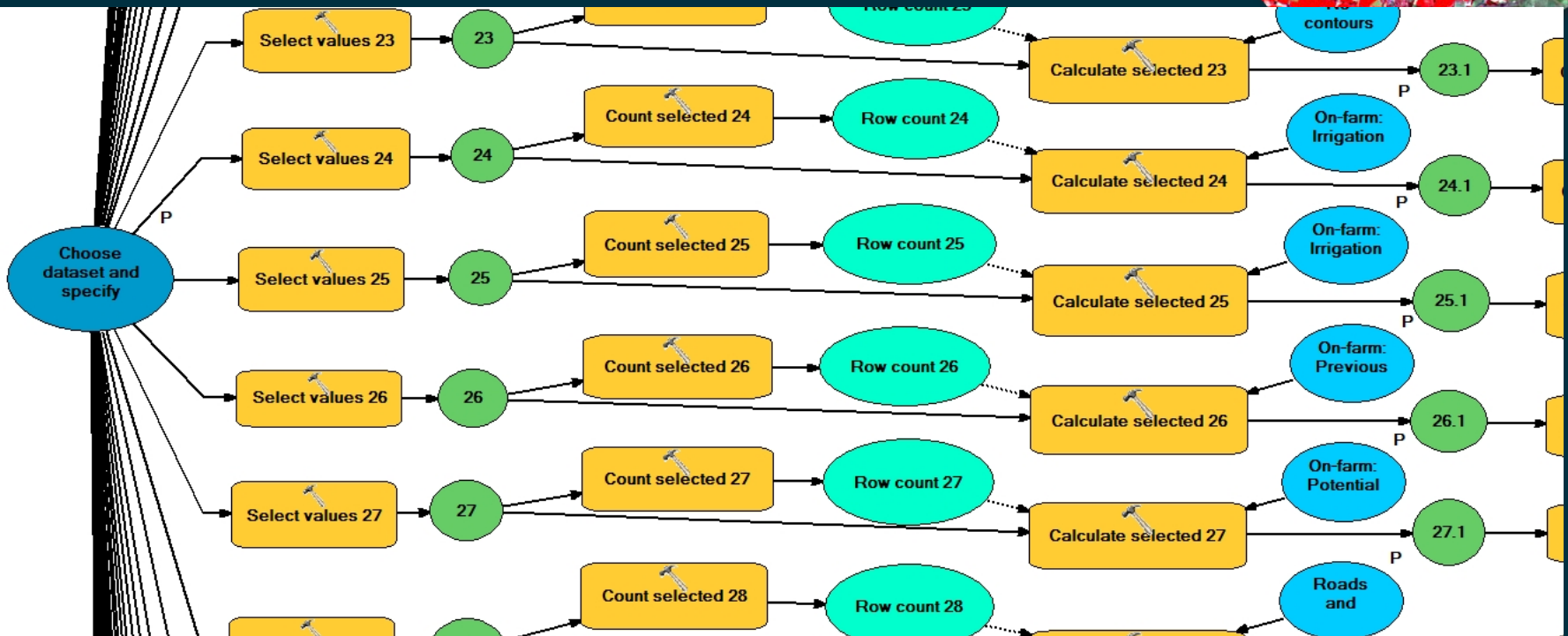
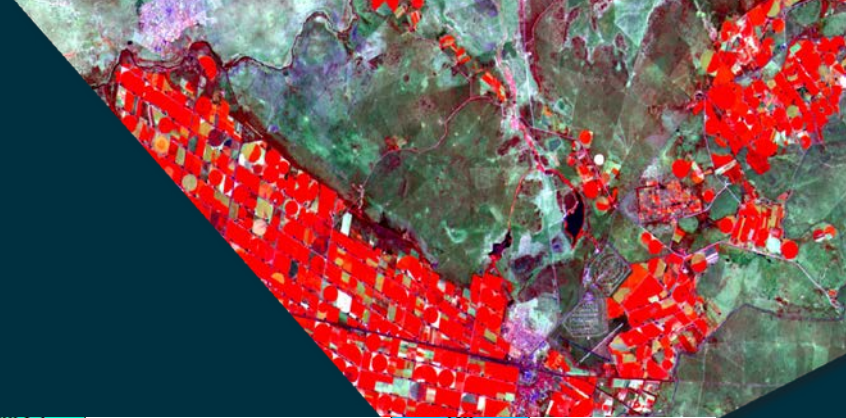
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# Crop Expansion



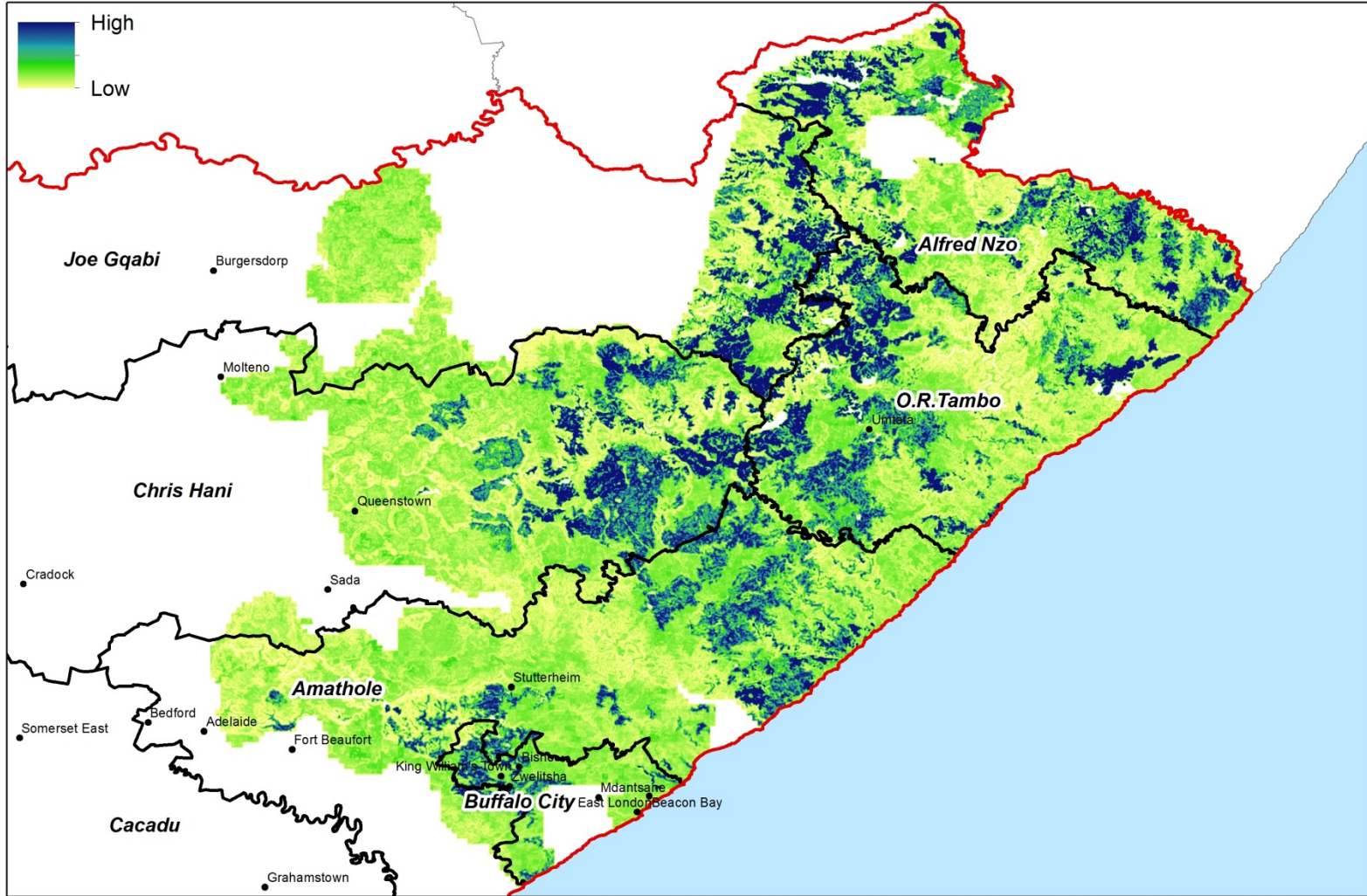
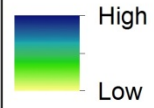
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# Crop Expansion

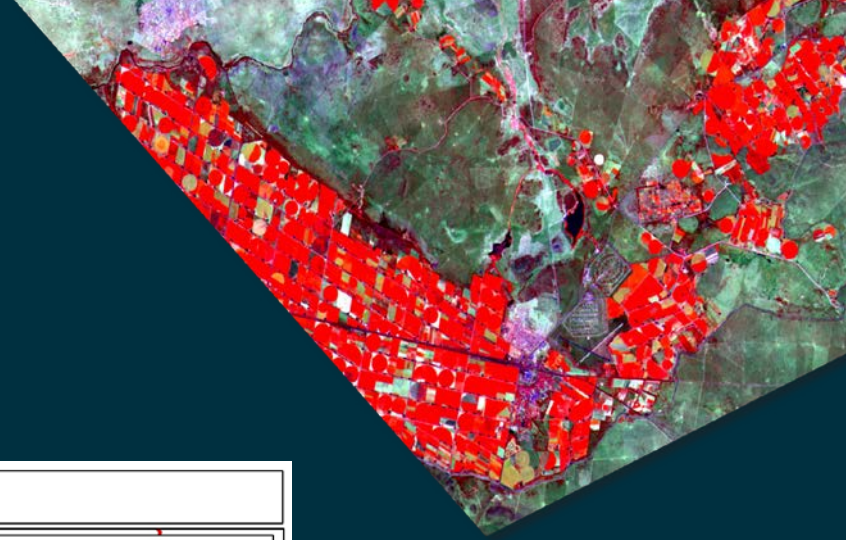


# Crop Expansion

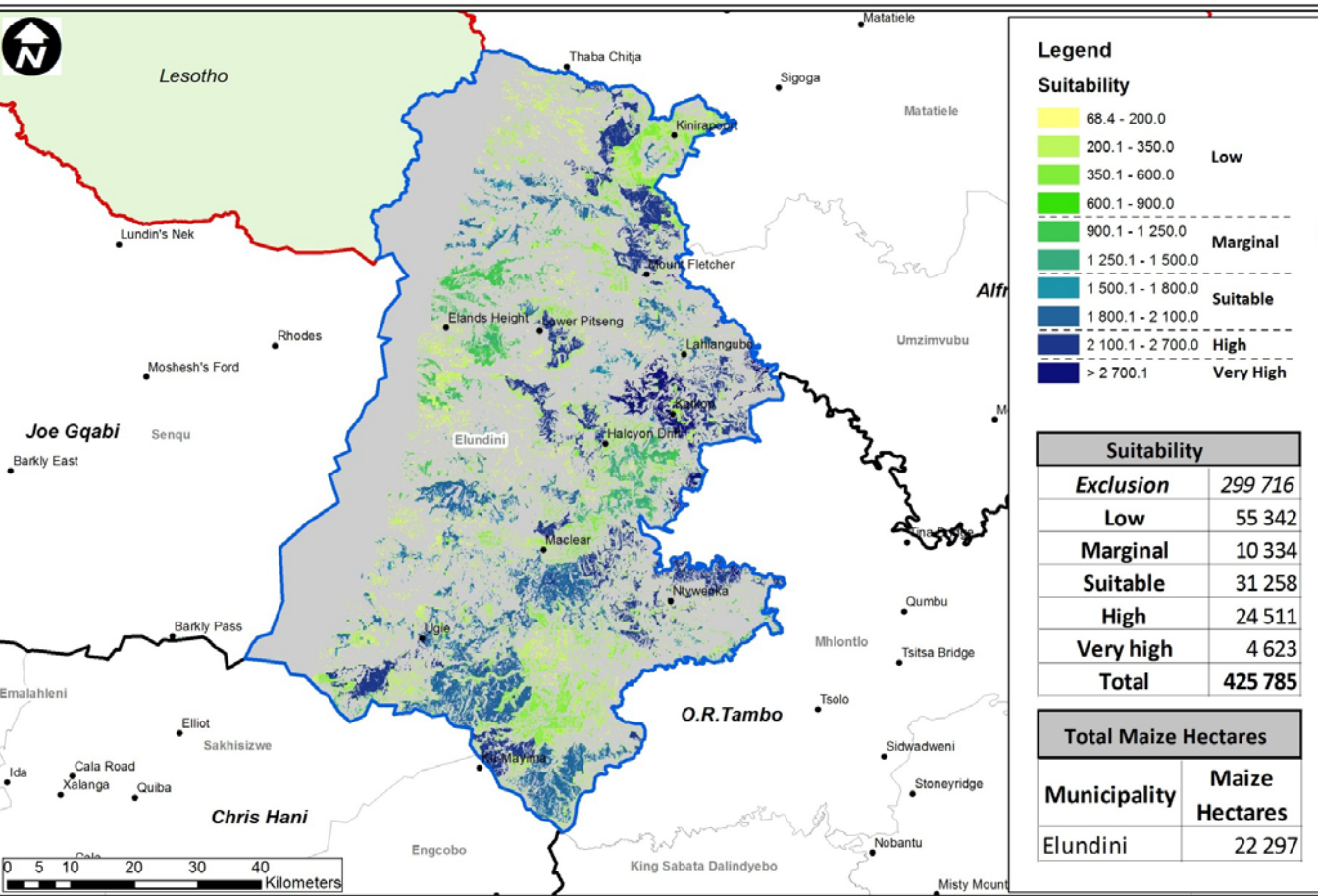
Final Score: Focal Statistics



# Crop Expansion



Maize Suitability: Elundini Local Municipality



**Legend**

**Suitability**

68.4 - 200.0	Low
200.1 - 350.0	
350.1 - 600.0	Marginal
600.1 - 900.0	
900.1 - 1 250.0	Suitable
1 250.1 - 1 500.0	
1 500.1 - 1 800.0	High
1 800.1 - 2 100.0	
2 100.1 - 2 700.0	Very High
> 2 700.1	

Suitability	
<b>Exclusion</b>	299 716
<b>Low</b>	55 342
<b>Marginal</b>	10 334
<b>Suitable</b>	31 258
<b>High</b>	24 511
<b>Very high</b>	4 623
<b>Total</b>	<b>425 785</b>

Total Maize Hectares	
Municipality	Maize Hectares
Elundini	22 297

Suitability	Ha
Very high	9 029
High	80 785
Suitable	181 066
Marginal	386 988
Low	1 513 429
Unsuitable	3 921 341





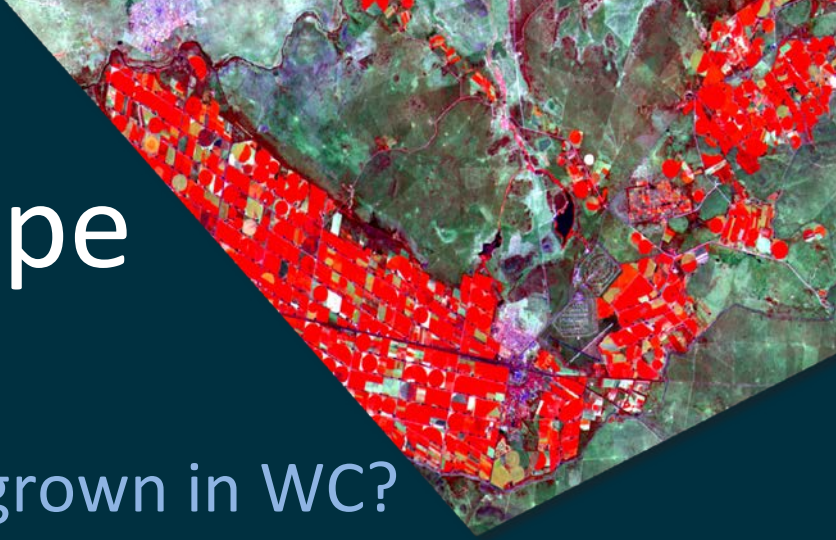


# Baseline Mapping - Census



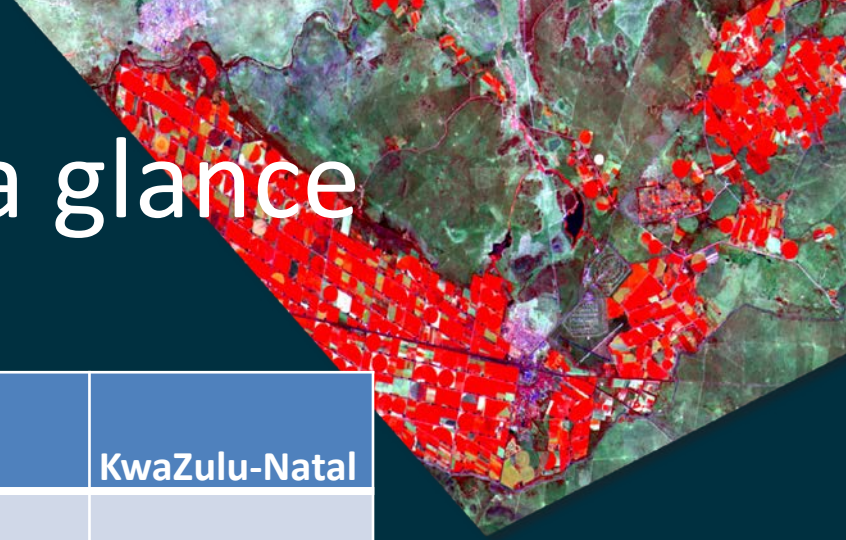
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# Agricultural Spatial Census – Western Cape



- Crops
  - How many crop types are grown in WC?
  - How much pear orchards and Ha?
  - What is the value of crops per Municipality?
- Livestock and Game
  - How many farms in WC with game/livestock?
  - How many farms with dairy cattle?
- Agri-Infrastructure
  - Location, number and throughput of abattoirs?
- Agri-Tourism
  - What is the extent of Agri-Tourism in WC?

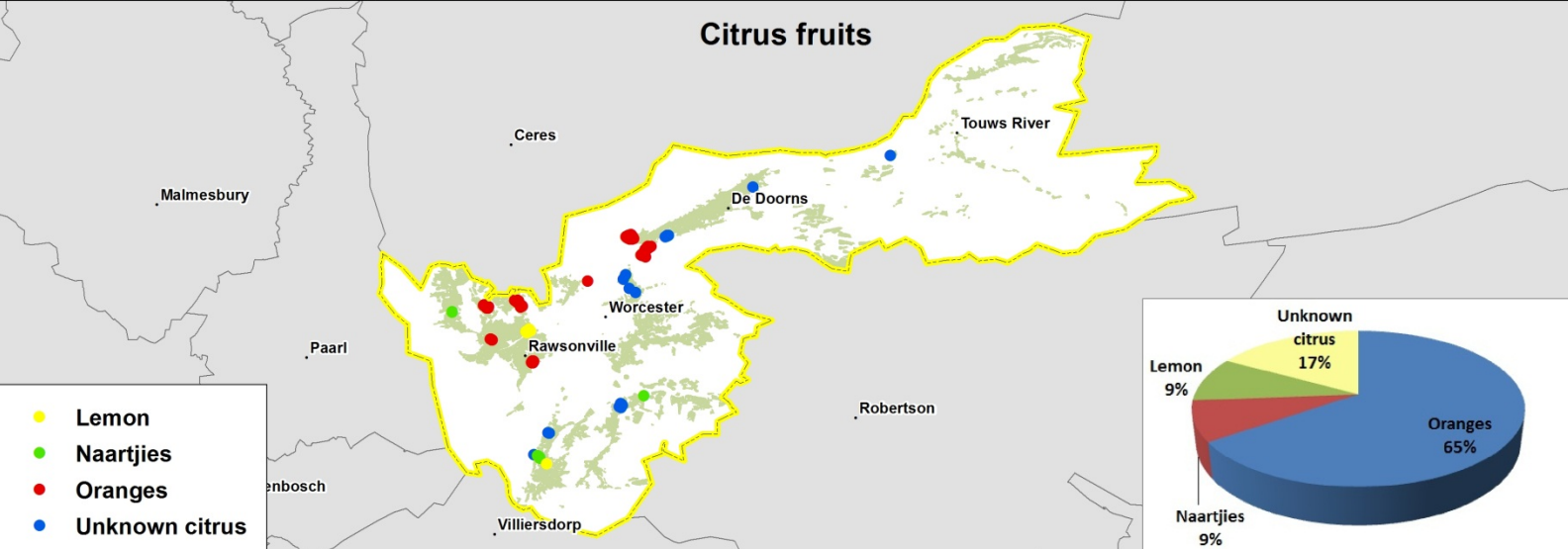
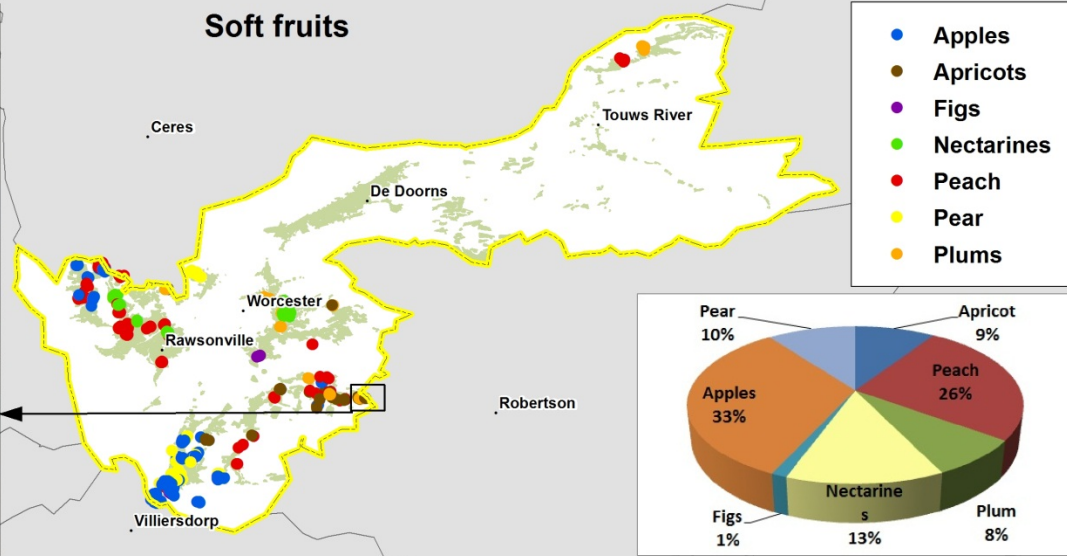
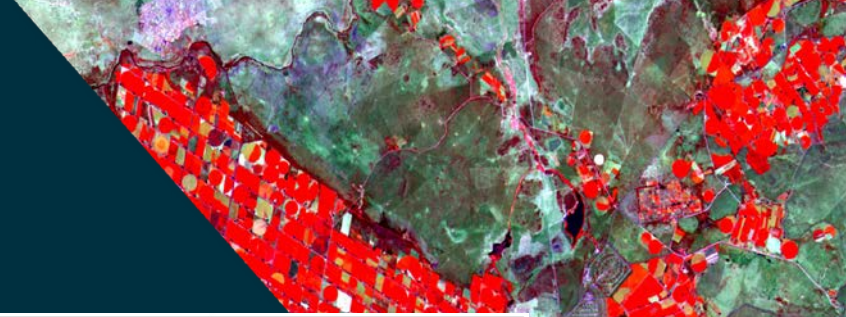
# Province at a glance



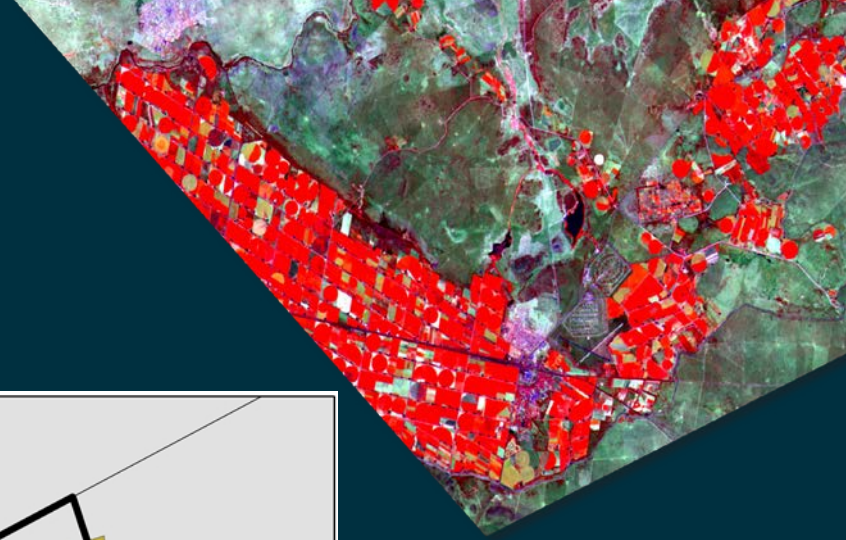
	Limpopo	Western Cape	KwaZulu-Natal
<b>Total Area (Ha)</b>	12.58 million	12.95 million	9.44 million
<b>Potential Crop Fields (Ha)</b>	1.46 million	1.88 million	0.91 million
<b>Potential Crop Fields (Polygons=Fields)</b>	123 000	158 000	94 900
<b>Farm Portions</b>	27 800	58 000	67 720*
<b>Crop Types Found</b>	42	97	
<b>Agri-Infrastructure</b>	7 900	12 000	
<b>Agri-Tourism</b>	0	3 500	



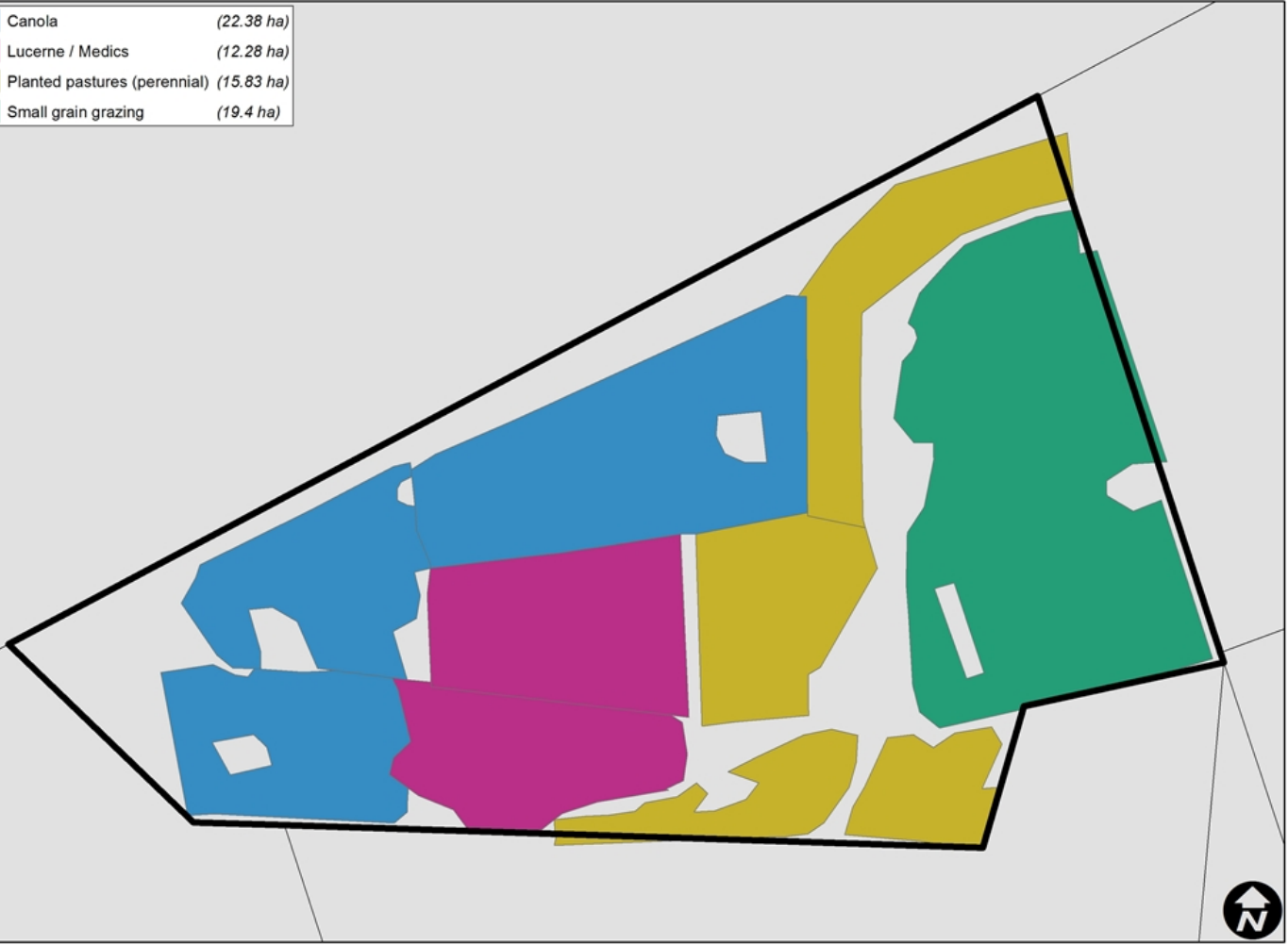
# Agricultural Spatial Census



# Crops

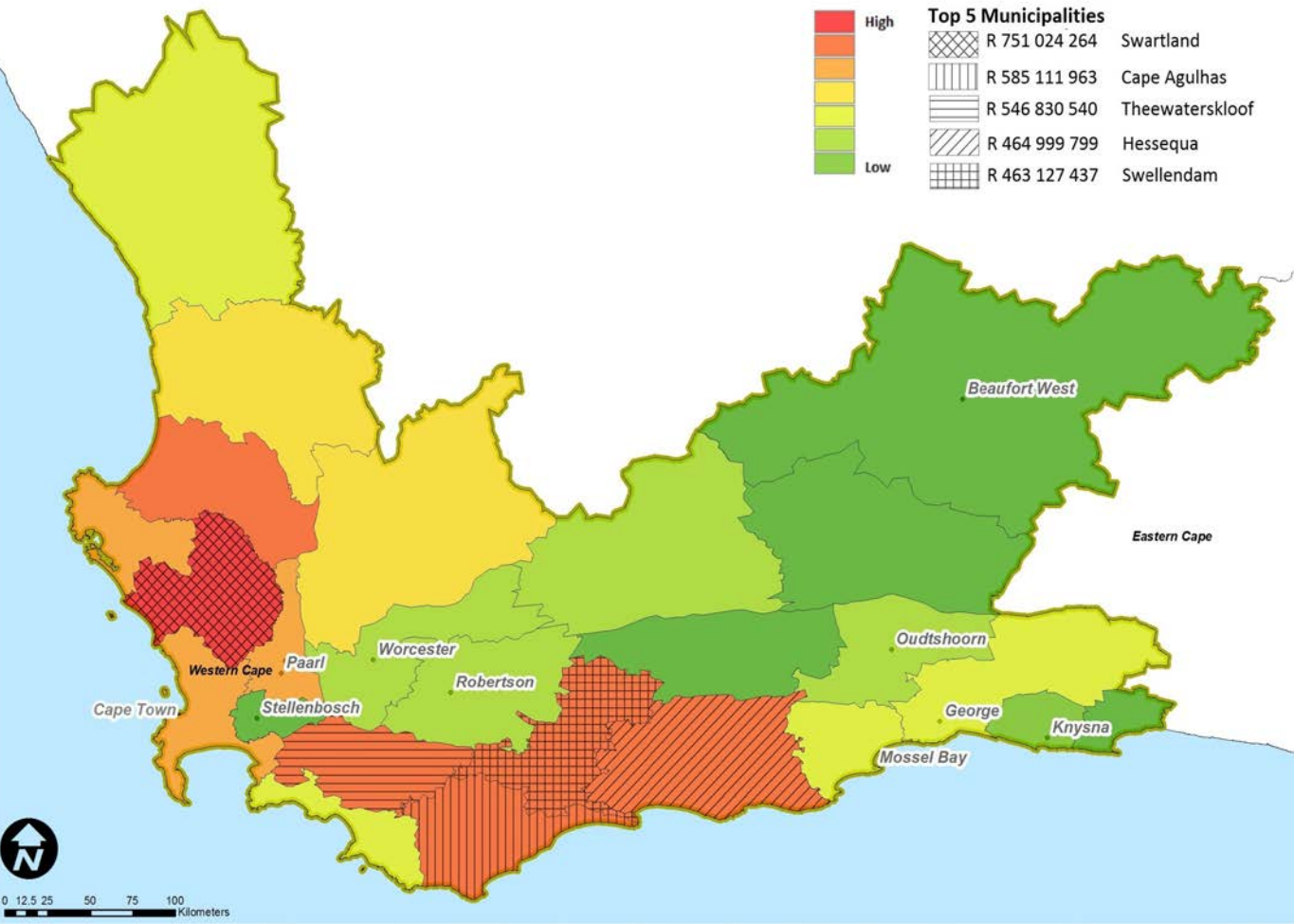


Canola	(22.38 ha)
Lucerne / Medics	(12.28 ha)
Planted pastures (perennial)	(15.83 ha)
Small grain grazing	(19.4 ha)

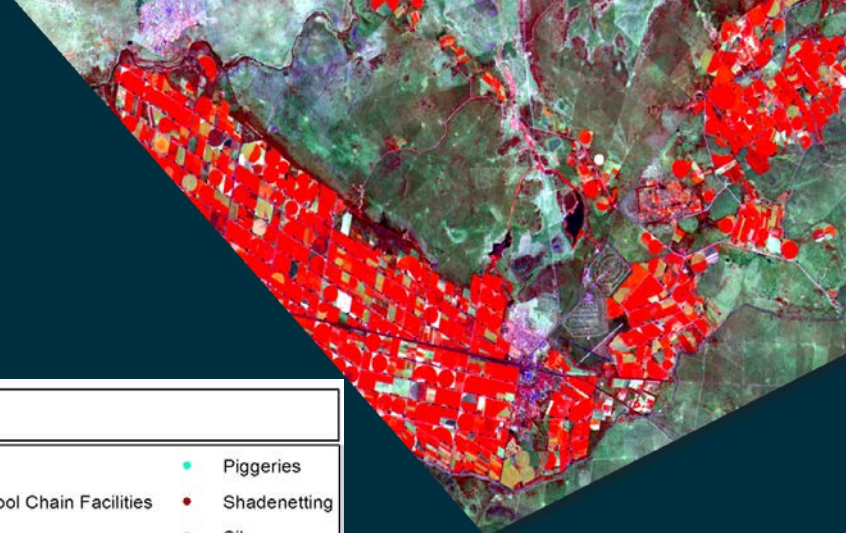


# Production Value

Total Potential Production Value (Rands) For Grain and Oil Seeds

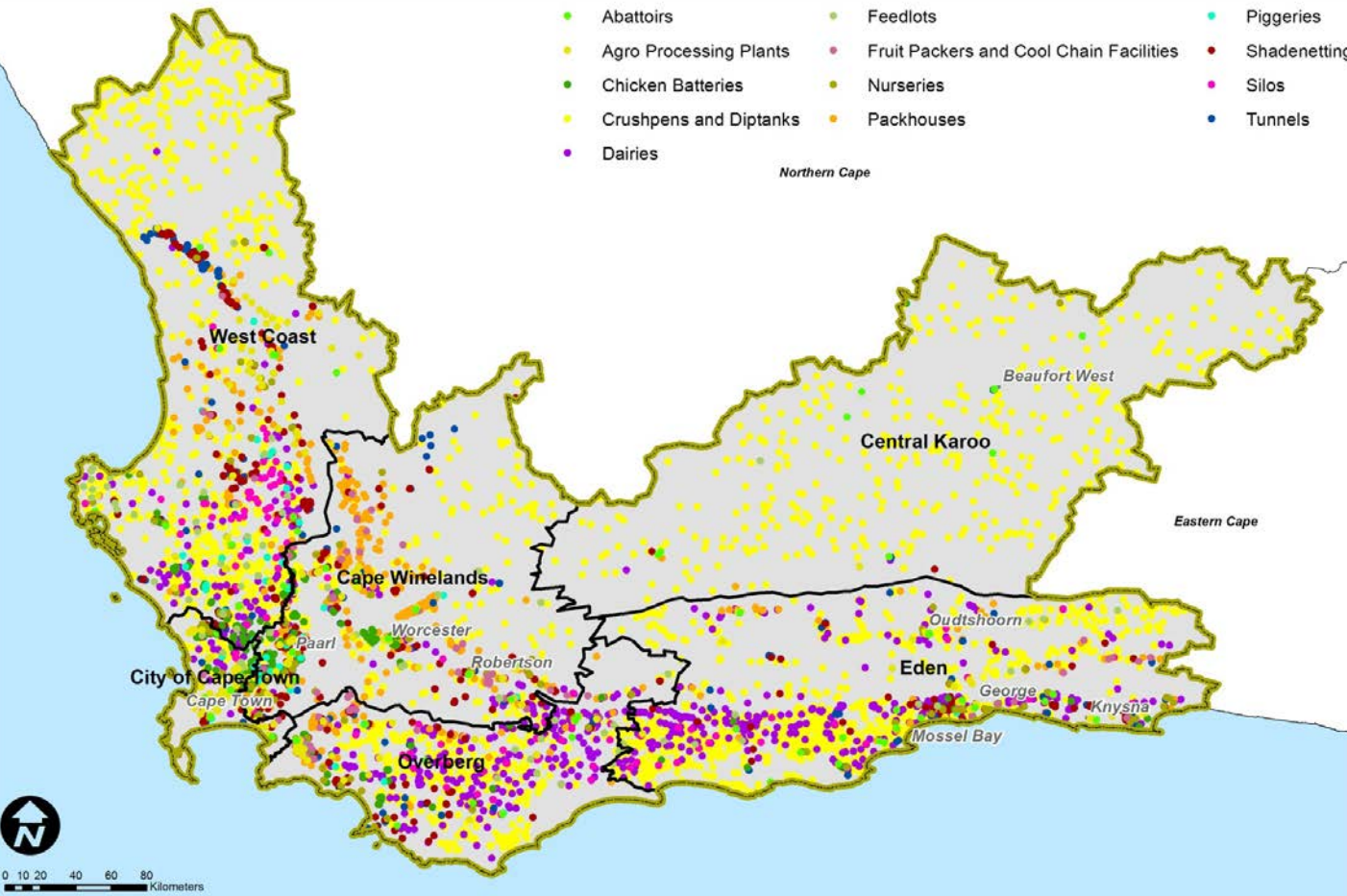


# Census



## Agri Infrastructure

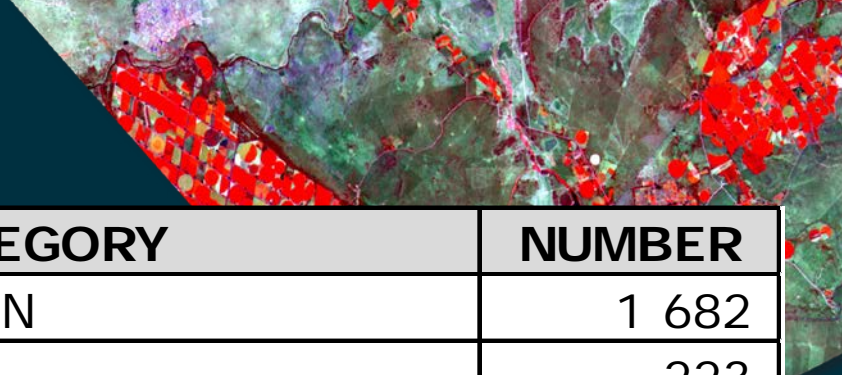
- Abattoirs
- Agro Processing Plants
- Chicken Batteries
- Crushpens and Diptanks
- Dairies
- Feedlots
- Fruit Packers and Cool Chain Facilities
- Nurseries
- Packhouses
- Piggeries
- Shadenetting
- Silos
- Tunnels



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# Agri-Tourism

CATEGORY	NUMBER
ACCOMMODATION	1 682
CAMPING	223
RESTAURANT	700
CONFERENCE / FUNCTION VENUE	386
CELLARS	798
FARMSTALL	196
FARM MARKET	29
FOUR x 4	204
MOUNTAIN BIKING	260
HIKING	393
HORSERIDNG	146
QUADS	38
FISHING	168
PICNICS	107
BIRDING	215
ECOTOURISM	268
OSTRICH	12







*thank you*

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