




SASRI FAS DATA CURRENT SOIL NUTRIENT STATUS


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Contents

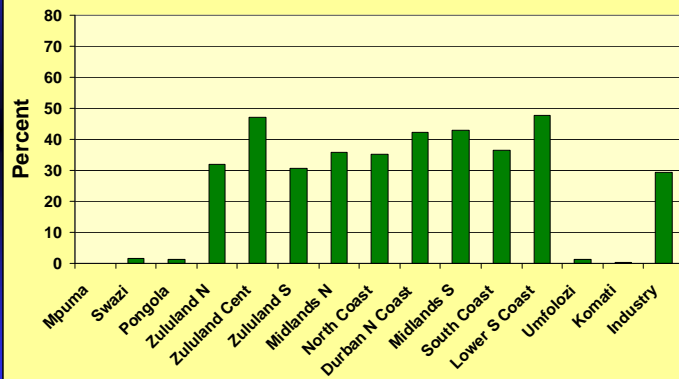
- Acidity: < pH 5 & < pH 4.7
- Aluminium Saturation Index (ASI%): > 20% & > 40%
- Calcium and Magnesium: Ca < 200 ppm + Mg < 75 ppm
- Phosphorus (Plant and ratoon samples)
- Potassium: < 30% clay; > 30% clay; > 40% clay
- Conclusions

- Note: FAS database 2005 –2007
- Graphs show percentages of total samples for the period for different extension regions
- Nutrient thresholds expressed in ppm



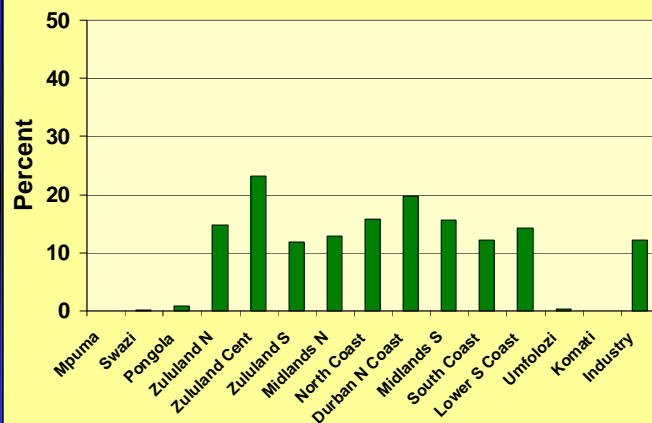
Acidity

Percentages of soil samples with pH < 5.0
2005 - 2007

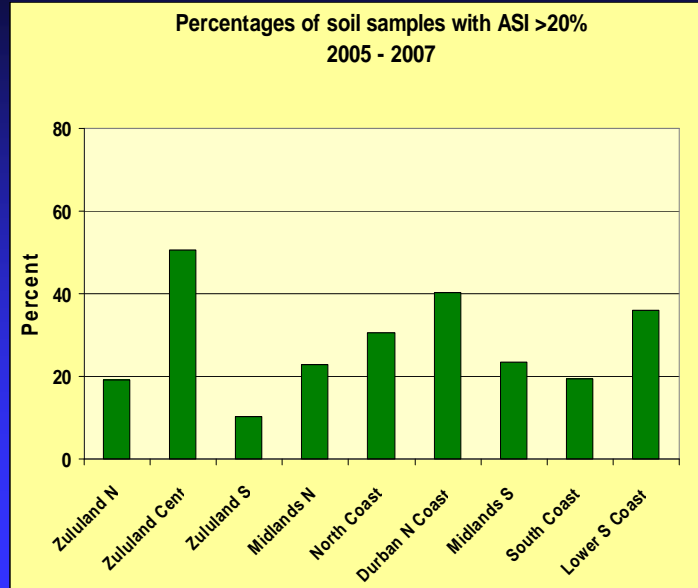


Acidity

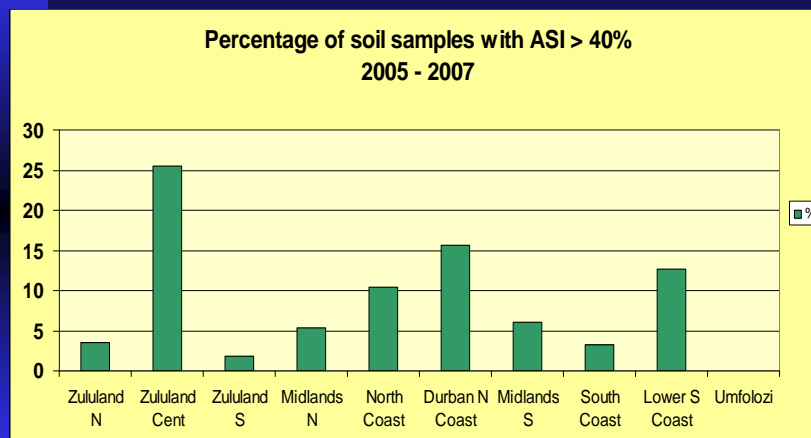
Percentages of soil samples with pH < 4.7
2005 - 2007



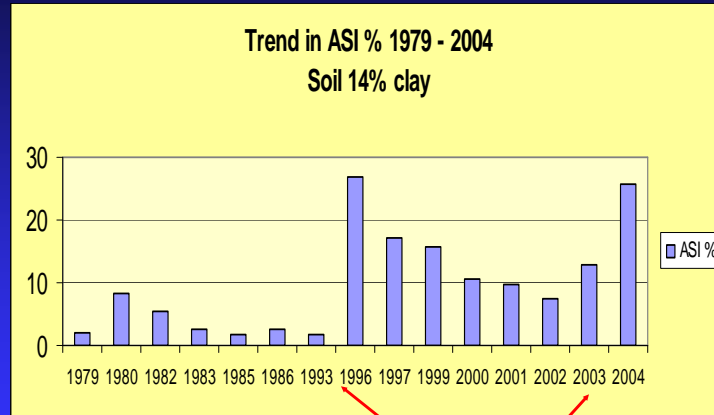
Aluminium Saturation Index (ASI %)



Aluminium Saturation Index (ASI %)

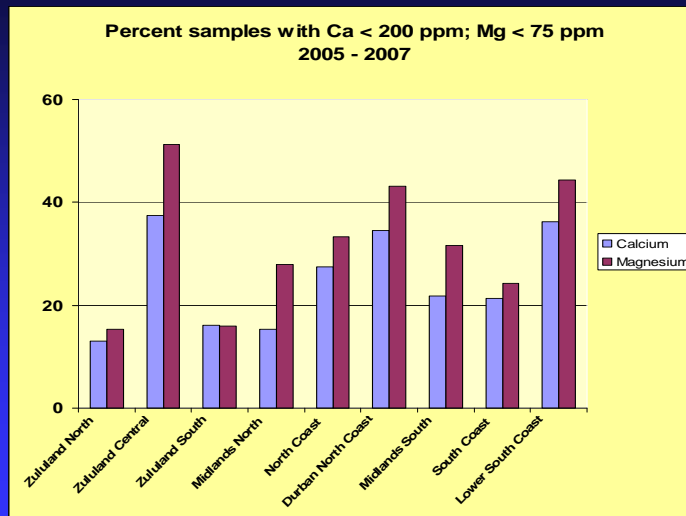


Aluminium Saturation Index (ASI %)

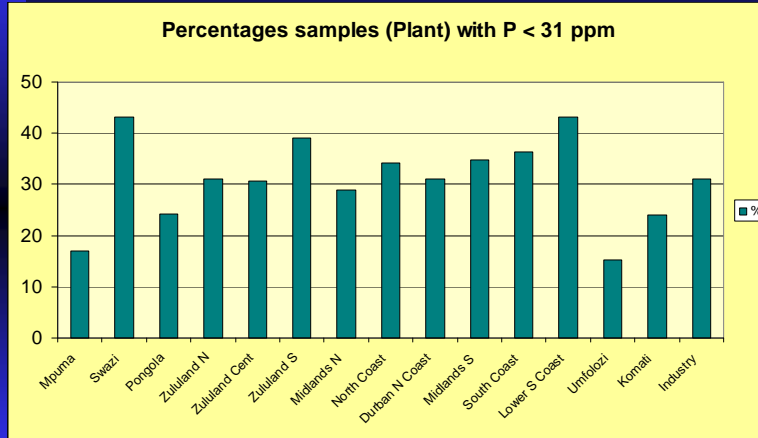


Rainfall < 700 mm pa

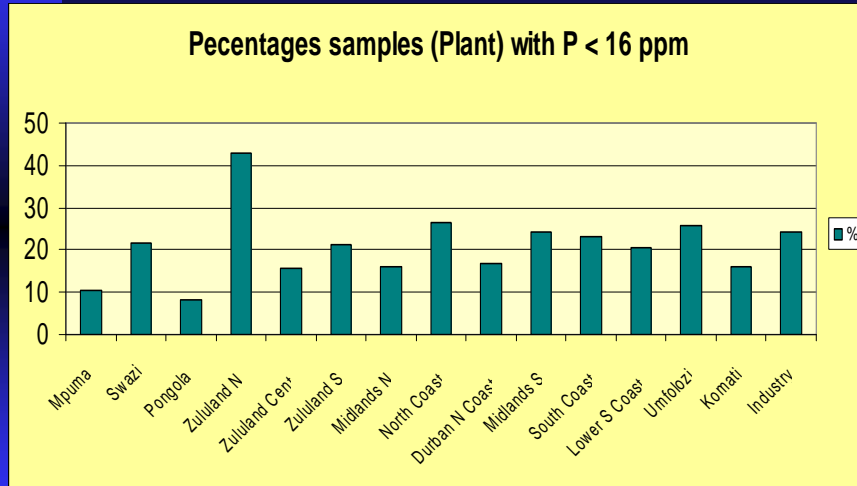
Calcium & Magnesium



Phosphorus

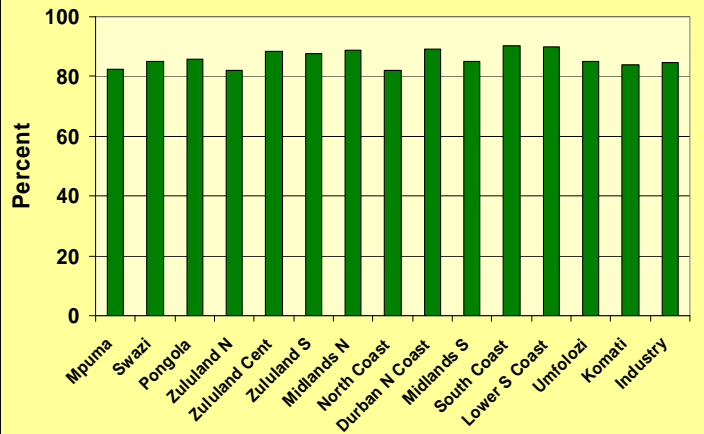


Phosphorus



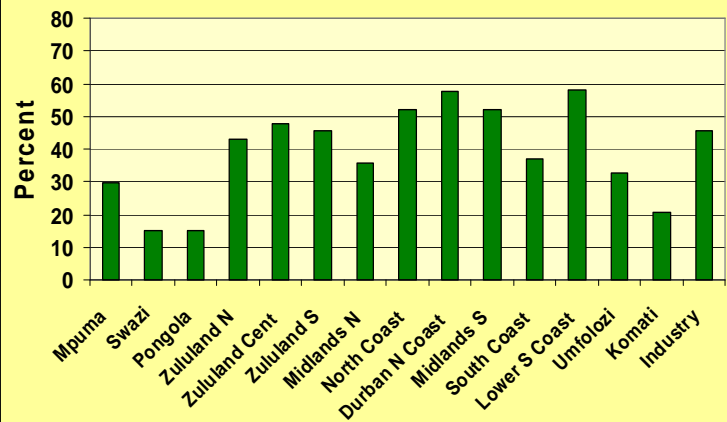
Phosphorus

Percentages of soil samples with P>13 ppm
(Ratoons) 2005 - 2007

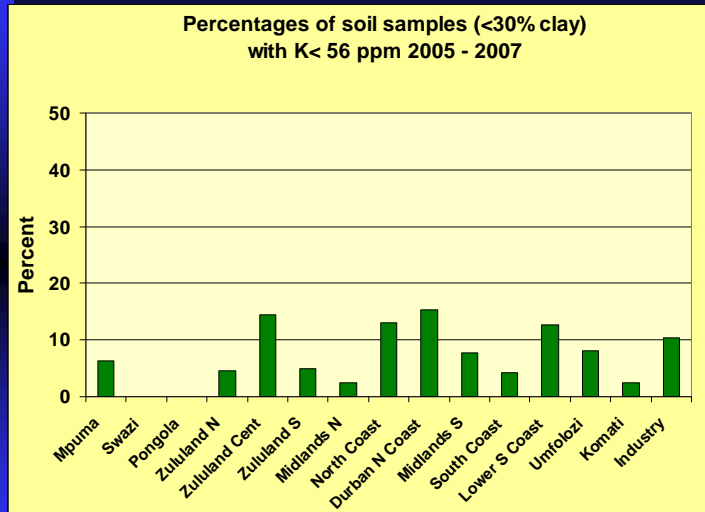


Potassium

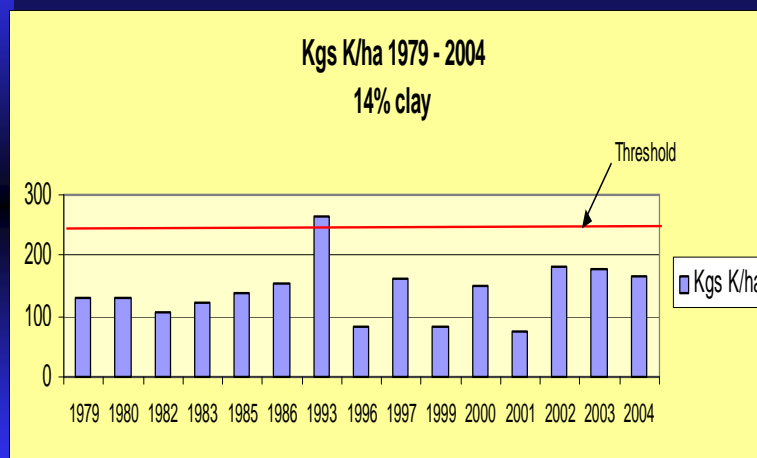
Percentages of soil samples (<30% clay) with
K < 112 ppm 2005 - 2007



Potassium

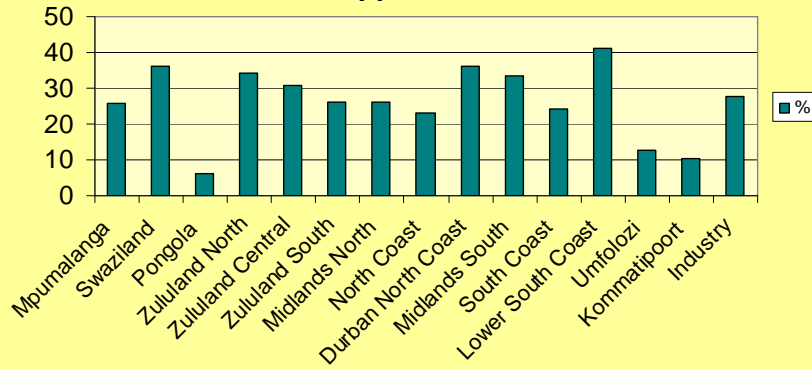


Potassium



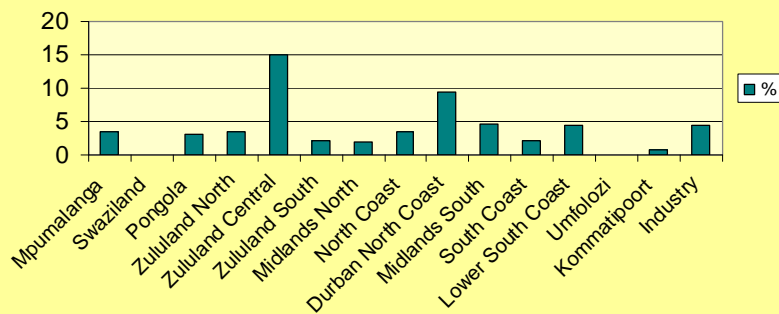
Potassium

Percentages samples (clay > 30 %) with K < 150 ppm 2005 - 2007

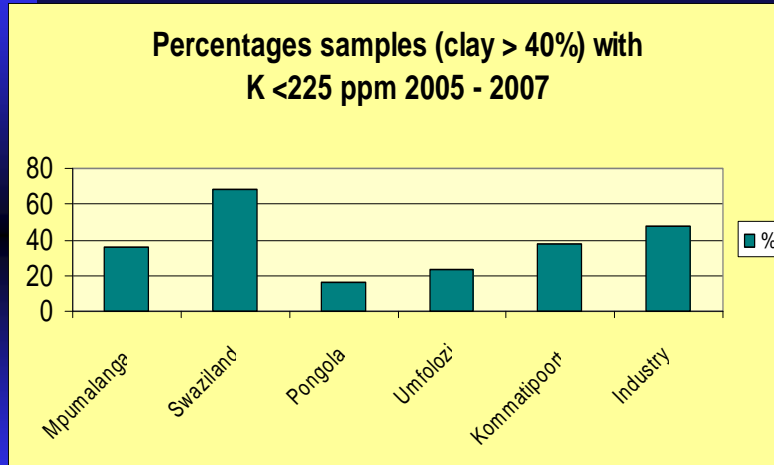


Potassium

Percentages samples (clay > 30 %) with K < 75 ppm 2005 - 2007



Potassium



Conclusions

- *Acidity. Are we really winning ? Despite additional lime recommendations for soil health some regions have serious problems (ZC, DNC, NC & LSC).*
- *ASI%. Effects of season (low rainfall) needs further investigation*
- *Large numbers of samples in some areas are deficient in Ca & Mg (ZC, NC, DNC, MS, SC & LSC). Effect on yield ?*
- *Opportunities for savings in the application of P to ratoon cane – but P deficiencies must be corrected at planting*
- *Note the extent of deficiency in soil K on a range of soils but particularly on soils < 30% clay. Cause for concern, and..*
- *There is a need to confirm these deficiencies as well as those in Ca & Mg with leaf data. Also..*
- *There is a need to investigate levels of acidity/nutrients in the subsoil. Possibility of nutrient mining ?*
- *FAS has an excellent but under-utilised database of sample results*
- *Need for a regular co-ordinated analysis of FAS data by region and updates of recommendations leading from the outcomes.*

Acknowledgements

- Neil Miles
- Rod Harding

Thank you

SOIL THRESHOLD VALUES

The following threshold values apply for sugarcane production in South Africa.

Phosphorus (P) 31 ppm (70 kg/ha) for plant cane
11 ppm (30 kg/ha) for ratoons

Potassium (K) 112 ppm (250 kg/ha) – clay content 30% or less
150 ppm (340 kg/ha) – clay content 30%
225 ppm (500 kg/ha) – > 40% clay in northern irrigated areas (NIA)
325 ppm (750 kg/ha) – > 40% clay, NIA, > 4000 ppm Ca+ Mg, Winter cut

Calcium (Ca) 200 ppm (450 kg/ha)

Magnesium (Mg) 25 ppm (60 kg/ha)
or 75 ppm if calcium is also deficient

Zinc (Zn) 1.5 ppm – only those soils from the Midlands area where lime in excess of 3 tons/ha is recommended
1.0 ppm – clay content > 15%
0.5 ppm – clay content 15% or less

Sulphur (S) 15 ppm