Adaptability and agronomic performance of *Stylosanthes scabra* accessions grown in subtropical region of South Africa

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Introduction

- Livestock contribution substantially to the livelihood of communal famers.
- Production is very low.
- Farming in communal areas depends on natural pastures.
- Inadequate to meet nutritional demand of animal.

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Introduction continue…

- There is a need to improve the utilization of feed resource.
- *Stylosanthes scabra* was identified and tested as an alternative source of forage.

Objective

- To evaluate the adaptability, growth performance and biomass yield of *Stylosanthes scabra* accessions under subtropical condition of Pretoria

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Materials and methods

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Forage identification

- *Stylosanthes scabra* was identified as forage for the study
- Seeds of 15 accessions were obtained from ILRI, Ethiopia.

Plots layout

- Land was prepared into fine tilth.
- Plots were 3 m x 2 m each.
- Treatments was planed in RCBD.

Transplantation

- Vigorous seedlings were transplanted.

Assessment and data collection

- Rain precipitation
- Plant were observed for pests and disease susceptibility.
- Growth performance.
- Biomass yield potential

Results

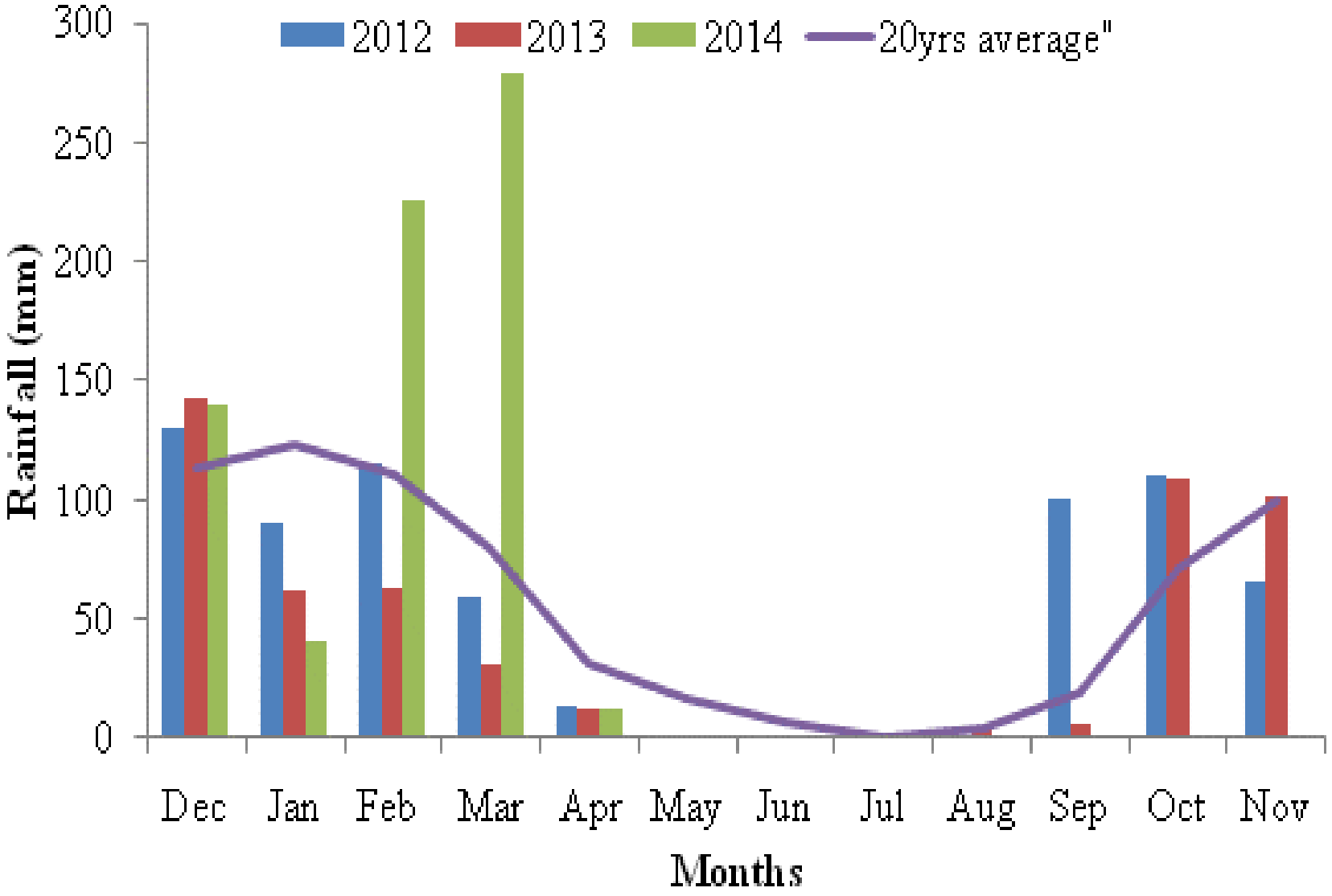

Figure: Monthly rainfall during experimental period and average of last 20 years

Incidence of pests attack

Growth parameters of *Stylosanthes scabra* accessions

Accession (ILRI no.)	Plant height(cm)	Canopy spread(cm)	Tillering capacity	Days to 100% flowering	%Survival after 3yrs
140	34.8^{bc}	34.1^{bcd}	14.1^{bcd}	56.0^{cd}	94.8 ^{a}
170	43.9^{a}	39.7^{ab}	12.3^{bcd}	63.7^{abc}	94.5 ^{a}
441	40.2^{ab}	32.9^{bcd}	13.3^{bcd}	61.0^{cd}	86.4 ^{a}
9268	39.2^{abc}	43.6^{a}	12.3^{bcd}	53.0^{d}	85.4 ^{a}
9281	35.8^{bc}	31.6^{d}	14.9^{b}	56.3^{cd}	95.1 ^{a}
11252	33.3^{c}	39.4^{abc}	13.5^{bcd}	61.5^{cd}	98.1^{a}
11255	32.8^{c}	39.5^{abc}	14.7^{bc}	58.5^{cd}	89.0 ^{a}
11591	41.5^{ab}	39.9^{ab}	13.9^{bcd}	70.7^{ab}	-
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15784	34.3^{c}	38.3^{abc}	11.7^{cd}	63.0^{bc}	93.0 ^{a}
15795	22.0^{d}	35.3^{bcd}	19.9^{a}	56.7^{cd}	88.3 ^{a}
SEM	2.34	2.57	1.05	3.03	5.11

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Biomass yield of *Stylosanthes scabra* accessions

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11252	5.4^{abc}	5.4^{ab}	4.5^{abc}
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15784	3.9^{c}	5.6^{ab}	4.7^{ab}
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Yield performance per accessions over three years

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11252	5.4_{A}	5.4_{A}	4.5_{A}
11255	5.8_{A}	5.4_{A}	3.3_{B}
11591	6.7	-	-
11592	5.2_{A}	5.6_{A}	3.3_{B}
11595	5.0_{A}	5.3_{A}	6.6_{A}
11604	4.8_{A}	5.2_{A}	5.4_{A}
11625	4.8_{A}	5.3_{A}	4.5_{A}
12555	4.4_{A}	5.1_{A}	2.9_{B}
15784	3.9_{B}	5.6_{A}	4.7_{A}
15795	4.6_{A}	5.3_{A}	3.3_{B}

Yield performance per accessions over three years

Accessions	Dry matter yield (t ha^{-1})		
(ILRI no.)	2012	2013	2014
140	4.2_{A}	5.3_{A}	5.3_{A}
170	4.9_{AB}	5.6_{A}	3.6_{B}
441	5.3_{A}	5.0_{AB}	3.8_{B}
9268	4.4_{B}	6.3_{A}	1.8_{C}
9281	4.6_{A}	5.0_{A}	5.4_{A}
11252	5.4_{A}	5.4_{A}	4.5_{A}
11255	5.8_{A}	5.4_{A}	3.3_{B}
11591	6.7	-	-
11592	5.2_{A}	5.6_{A}	3.3_{B}
11595	5.0_{A}	5.3_{A}	6.6_{A}
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11625	4.8_{A}	5.3_{A}	4.5_{A}
12555	4.4_{A}	5.1_{A}	2.9_{B}
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Conclusion

- Most of *Stylosanthes scabra* accessions were persistent.
- Dry matter yield ranged from 3.5 to 5.6 t ha^{-1}.
- Accessions 9281, 11595 and 11604 were consistence over three years.

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Recommendations

- The results of this study need to be extrapolated with caution.
- There is a need of the following studies:
  - Mutli-locational evaluation of the promising accessions.
  - Nitrogen fixing ability in grass-legume intercropping.
  - Suitable method of integration into farming systems.

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