

# *Eragrostis curvula* establishment using coated vs. non-coated seeds and *Eragrostis tef* as a nurse crop

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## Introduction

- Good establishment = successful pastures
- Most vulnerable at germination and seedling establishment stages (Hadas, 2004).



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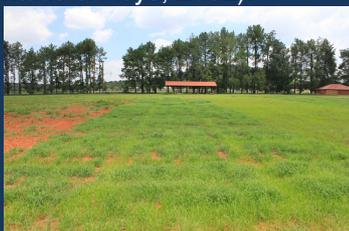


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## Introduction

- Perennial species require special attention (McDonalds & Keys, 2002).



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## Problem Statement

There are various PRECEDING procedures required to ESTABLISH successful pastures such as

- seedbed preparation
- seed treatments
- planting nurse crops



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## Problem Statement

- Farmers do not always see the value of these pre-establishment techniques.
- *Eragrostis curvula* = most common planted pasture under dry-land conditions.



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## Hypotheses

- Coated seed will perform better than non-coated seed
- Nurse crops will eliminate competition from weeds.
- Light compaction of soil after planting will improve emergence.



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## Aim & Objectives

- Determine whether seed coating have an effect on establishment.
- Establish whether a nurse crop will reduce weed competition.
- Determine the effect of seedbed quality on the germination of seeds and establishment.

## Methodology

- Field trial conducted on Hatfield Experimental farm at the University of Pretoria.
- Started in November 2011



## Methodology

- Seedbed preparation: Fine seedbed recommended (Macdonald, 2005).



## Methodology

- Seedbed preparation: Light compaction (rolling) recommended (Couture *et al.*, 2004).



## Methodology

- Seed coating: applying essential substances to seed (Copeland & McDonald, 2001).



## Methodology

- Selected seeding rate: 7kg.ha<sup>-1</sup>
- -20% (5.6kg.ha<sup>-1</sup>) and +20% (8.4kg.ha<sup>-1</sup>)

	1000 Non-coated seeds	1000 Coated seeds
Weight of seed	X kg	2.2X kg

## Methodology

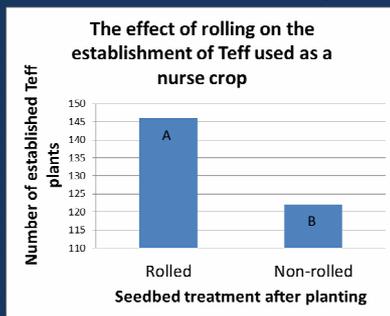
- Nurse crop: Can compete with weeds after planting
- *Eragrostis tef* sown at 5kg.ha
- Grass weed count was conducted



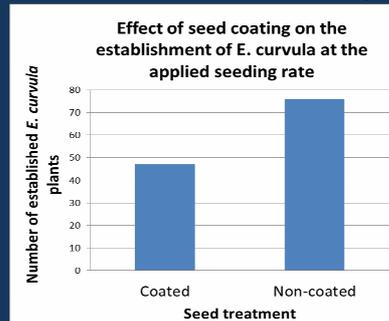
## Grass weeds identified

- *Chloris pycnothrix*
- *Chloris virgata*
- *Cynodon dactylon*
- *Digitaria sanguinalis*
- *Eleusine coracana subsp. africana*
- *Urochloa trichopus*

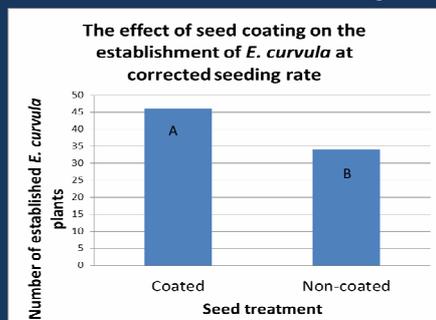
## Results : Seedbed compaction



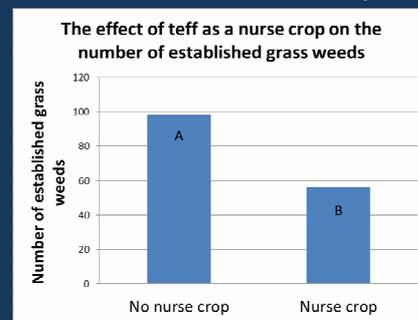
## Results : Seed coating



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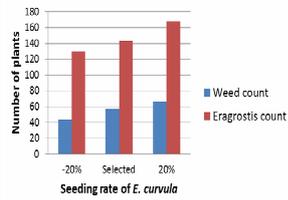


## Results : Nurse crop

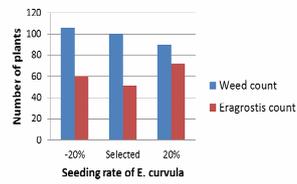


## Results : Nurse crop

Established grass weeds and *Eragrostis* plants when using a nurse crop



Established grass weeds and *Eragrostis* plants when using no nurse crop



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## Conclusion

- Lightly compacting soil after sowing ensures a better emergence of the nurse crop.
- When comparing coated and non-coated *Eragrostis curvula* establishment, coated seed had a higher success rate.
- The same establishment success can be achieved using less coated seeds than non-coated seeds.
- Nurse crop competes successfully with weeds.



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## Acknowledgements

Thank you



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