

**Effect of planting dates on growth and yield of  
*Chenopodium album* L. under semi-arid environment of North West Province, South  
Africa**

**Research proposal**

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# Presentation outlines

- Introduction
- Objectives
- Problem statement
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- Action plan
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# Introduction

- *Chenopodium album* L. is an erect and branched annual herb of the *Amaranthaceae* family.
- Common names are
  - Lambsquater, Goosefoot, Fat-hen, Wild spinach .
  - Setwana common name is Senkgane or Sekgapapane.
- Average plant height -150 cm .
- Part of African cultural heritage and plays an important role in providing nutritious food for poor rural communities.
- Adapted to drought, frost and soil salinity.
- Resistant to a wide range of pests and diseases.
- Young plants can serve as green manure..



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# Objectives

- The main objective of the study is to determine the influence of different monthly planting dates (from Oct. to Feb.) on growth and yield of *C. album* under the field conditions..
- Specific objectives: Plant height, number of leaves, stem diameter, fresh and dry biomass.



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# Problem statement

- Planting date is critical to growth, development and yield of many crops including *C. album*.
- Information on appropriate planting date of *C. album* in North West Province is lacking.
- Preservation and promotion of *C. album* is important for sustainable supply of nutritious food for the growing population within poor rural communities.
- Domestication and use of appropriate agronomic practices like planting dates can improve its productivity.



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# Materials and methods

## Sites

- Taung Exp. Farm, Potchefstroom and Lehurutshe.
- All sites are under semi -arid climatic zone.
- Average annual rainfall - 300 mm to 620mm.
- Trial commencement – 2022 and completed in 2026.

## Design and treatments

- RCBD with 5 treatments and 4 replications.
- 5 planting dates as treatments (15 Oct, 15 Nov, 15 Dec, 15 Jan and 15 Feb)



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# Materials and methods cont'd

## Agricultural Practices

- *C.album* seeds acquisition and planting.
  - Seed will be sourced from wild and cultivated areas.
  - Seed will be cleaned and soaked in water for 24 hours..
  - Thereafter planted in seed trays under shade house environment.
  - Land preparation will be done using a plough and harrower
  - Seedlings transplanted after 4 weeks on well prepared seedbed
  - Inter-row spacing of 90 cm and intra-row spacing of 10 cm will be used.
  - Experimental plot size -16 m<sup>2</sup>.
  - Weeding, pest control and irrigation will be done if necessary.



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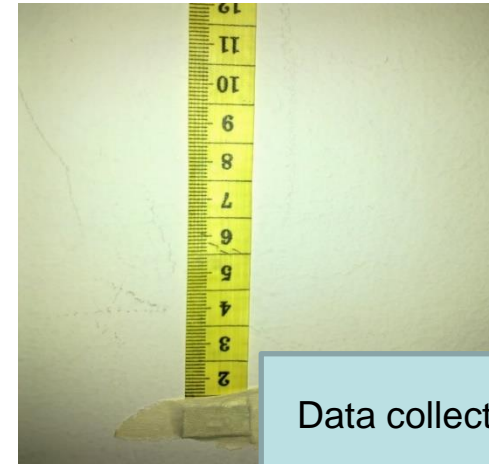
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# Materials and methods cont'd

## Data collection and analysis

- Two middle rows per plot will be used for data collection.
- Growth parameters to be measured:
  - Plant height
  - Stem diameter
  - Fresh and dry biomass.
- Data will be subjected to ANOVA using the STATISTIX-8.
- Means will be compared using Tukey's test at  $P \leq 0.05$  significance level.



Data collection



Data analysis



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# Materials and methods cont'd

## ANOVA

Sources of variation	Degree of freedom
Treatments t-1	5-1=4
Replications r-1	4-1=3
Error (t-1)(r-1)	12
TOTAL n-1	19



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# Dissemination of research outcome

- Symposia and seminars
- Farmers' days
- Information days
- Scientific Publications



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# Action plan

Activity	Date	Responsible Person
Sites Identification and consultation	Sept 2021	Researcher
Soil Sampling	June 2022	Researcher
Land and seedbed preparation	August and Sept 2022	Researcher
Planting	October - Feb 2022	Researcher
Monitoring and management	October - March 2022	Researcher
Data collection and harvesting	Nov - April 2022	Researcher
Report Writing	June 2022	Researcher



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# Estimated project cost

- R100 000.00



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# CONCLUSION

Thank you



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