

Effects of Biostimulants on the growth, yield and quality of wheat in field and pot trials

Corlie Smit [MSc Agronomy, 1st year]

About me:

Originally from Pretoria, I am a passionate, hard-working agronomy student who never shies away from a challenge. Agriculture is in my blood and being able to work on relevant challenges in the field is my favourite part of studying at Stellenbosch. On the weekends you can find me outside; hiking, gardening or visiting the botanical gardens across South Africa.



Methodology

Aim:

Evaluate the effect of 10 selected commercially available biostimulant programs on wheat growth, yield and grain quality under field conditions and controlled pot trials.

Experimental Design:

Randomised Factorial Design

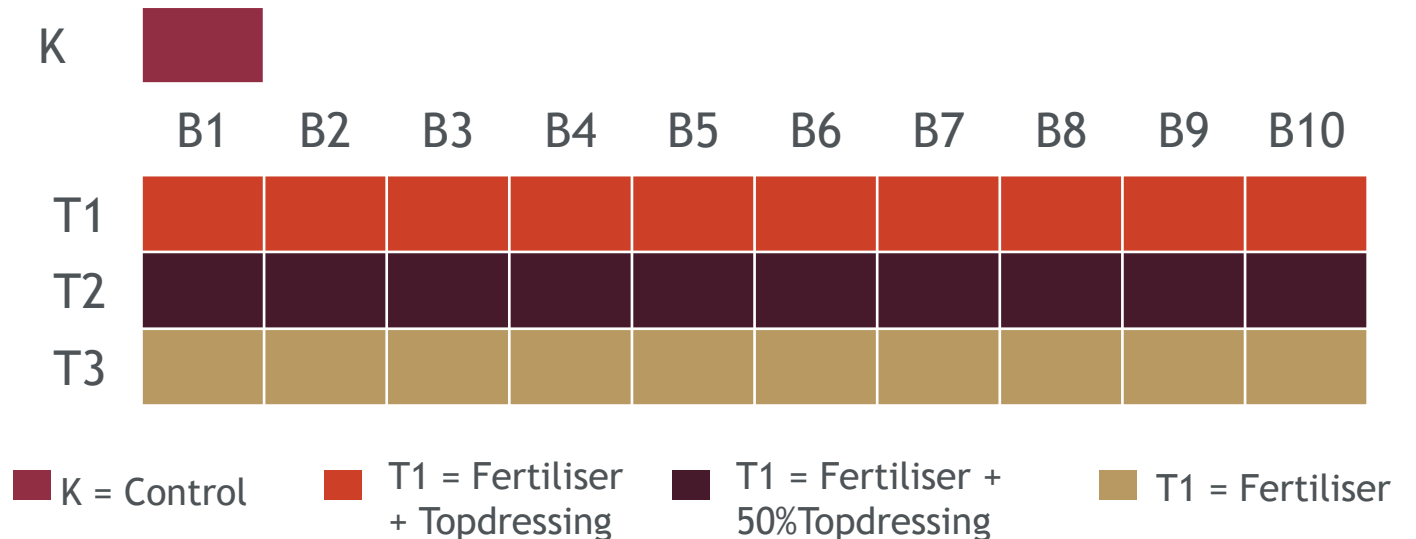
- 10 Biostimulant programs, each consisting of commercially available products, will be evaluated.
- Products within each program will be applied according to the manufacturer's recommendations at four crop growth stages:
 - In-furrow (Planting)
 - Tillering
 - Flowering
 - Soft Dough
- Each biostimulant program will be tested under four different fertiliser regimes.
- This experimental design will allow the effects of biostimulant programs, fertiliser regimes, and their interactions on crop performance to be assessed.

Field Trials

1. To evaluate the effects of selected biostimulants on wheat growth, grain yield, and quality under field conditions across different fertiliser treatments.

Pot Trials

2. To evaluate the effects of selected biostimulants on wheat root growth under controlled pot conditions



Progress Update

Field Trial Planted

[08/05/2026]

First Samples

Plant count [05/06], Chlorophyll measurements, [20/06] Biomass samples [01/06], Leaf samples for DPPH measurements [26/06]

Application

Application at In-furrow & Tillering [20/07] stages have been completed

Next steps...

Root samples, data analysed, next round of application, lab analysis of leaf samples

Establish Pot Trial

480 pots were filled with soil & wheat seed was planted [02/06], growth monitoring underway



Outputs and Relevance

- The use of biostimulants as an alternative to traditional chemical inputs, such as fertilisers and crop protection products, has gained significant popularity in recent years. Despite their widespread availability, independent, region-specific research on the use of biostimulants in wheat production remains limited. As a result, uncertainty persists among producers regarding their benefits and mechanisms of action.
- Through this project, we aim to provide producers and farmers with greater clarity on the role and benefits of biostimulants within sustainable, climate-smart farming systems. The study will also generate evidence-based recommendations to support informed decision-making and the adoption of effective biostimulant practices in wheat production.

