

# Evaluating seed yields of *Stylosanthes seabrana* and *Stylosanthes scabra* in Southern Queensland compared to Northern Queensland

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## Introduction

*Stylosanthes* species (*S. seabrana* and *S. scabra*) are widely grown in northern Queensland (NQ) for pasture improvement and seed production. However, their adaptability and yield potential in southern Queensland (SQ) remain underexplored. This study compares seed crop yields of new *Stylosanthes* cultivars in SQ and NQ, focusing on the impact of planting time, growing degree days (GDD), and environmental conditions.

## Methods

Seed crop trials were conducted at the Kingaroy Research Facility (southern Queensland) during the 2023/24 growing season, with two sowings: Trial 1 in November 2023 (harvested May 2024; GDD = 1432) and Trial 2 in January 2024 (harvested June 2024; GDD = 894). Seed yields were compared with pre-commercial crops at the Walkamin Research Facility (north Queensland), which included both primary and ratoon harvests. Growing degree days (GDD) were calculated using a base temperature of 15 °C, and quadrat cuts were used to evaluate mechanical harvesting efficiency.

## Results

Seed yields showed clear planting-date effects. Early planting in southern Queensland (Trial 1, November 2023) produced good seed yields (average 471 kg/ha), comparable to northern Queensland yields (overall average 545 kg/ha—401 kg/ha and 236 kg/ha from first and ratoon harvests, respectively). Late planting in southern Queensland (Trial 2, January 2024) resulted in much lower yields (average 81 kg/ha) due to a shorter growing season and frost impact. Southern Queensland crops did not produce a ratoon harvest because of frost and the shorter season, whereas northern Queensland ratoon crops added extra yield but faced challenges including weed pressure and contamination. Mechanical harvesting in southern Queensland was 63% efficient compared with hand harvesting, with an average seed loss of 303 kg/ha. All cultivars (Dura, Ultimo, Cedo, Terra, Roxo) performed well in southern Queensland when planted early, but late planting significantly reduced yields.

## Discussion and conclusion

Seed crops in SQ rely entirely on the primary harvest, as ratoon crops are not viable due to frost and shorter growing seasons. Early planting is critical to maximise GDD and seed yields. Despite these limitations, SQ offers advantages such as reduced contamination risk and lower disease pressure compared to NQ.

The results suggest that SQ can be a viable region for *Stylosanthes* seed production, provided crops are sown early to avoid frost and maximise yields. Further optimisation of harvesting methods and timing could enhance efficiency and profitability for commercial growers.

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