

**Bio:**

- Rynhardt Ferreira is an MSc candidate in Animal Science (Poultry Nutrition) at Stellenbosch University conducting research on soybean oilcake meal quality and broiler performance; supervised by Prof. R. M. Gous, Mrs Z. Viljoen and Dr J. H. C. van Zyl.
- His work comprises five large-scale in vivo broiler trials and multi-laboratory in vitro analyses to inform industry quality control and feed formulation decisions.

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# Evaluating South African soybean oilcake meal quality on broiler growth and production

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Study objective: Compare broiler performance on South African vs Argentinian soybean oilcake meals and assess how common *in vitro* quality tests predict *in vivo* performance

# Background & aim



South Africa has shifted from importing soybean oilcake meal to producing more locally, creating renewed interest in meal quality and consistency.



Feed manufacturers were initially sceptical of using locally produced soybean oilcake meal, so quality control became important.



Soybean oilcake meal quality depends on processing, and poor processing can leave anti-nutritional factors that affect broiler performance.



This study therefore tested whether local processors can produce meal that performs as well as imported meal in broilers.

# Methods & Key results



## Methods:

- Five 28-day *in vivo* broiler growth trials (2024–2025), each with 8 soybean oilcake meals (SBM) and 2 560 birds per trial (320 birds/treatment) in a 64-pen commercial-style facility.
- Basal starter (40% SBM) and grower (30% SBM) feeds; bodyweight at 28 d (BW) and feed conversion efficiency (FCE) used as performance metrics.
- 40 soybean oilcake meal samples analysed by three labs for protein dispersibility index (PDI), urease activity, trypsin inhibitor activity (TIA), KOH solubility, reactive lysine and Evonik PCI; linear regressions comparing each *in vitro* test to 28 d BW and FCE.

## Key findings:

- All tested meals met or exceeded industry standards for 28 d BW and FCE, showing commercial acceptability.
- Some South African meals (e.g., Willowton, GOCM, COFCO) produced significantly ( $p < 0.05$ ) better 28 d BW or FCE than imported Argentinian meals in several trials; no consistent biological advantage for Argentinian meals overall.
- *In vitro* tests were inconsistent predictors: Evonik PCI, TIA and reactive lysine and one KOH dataset had significant but weak associations with 28 d BW (largest  $R^2 \approx 0.144$ ); Chem Nutri KOH and PDI had weak associations with FCE ( $R^2 \approx 0.10$ ); urease activity showed no relationship to performance.
- Conclusion: South African soybean oilcake meals can match or exceed imported meals, but quality varies between processors and multiple *in vitro* tests should be used rather than a single assay. Urease activity was the only *in vitro* SBM quality test that showed no significant associations to FCE or BW and was therefore the least accurate at detecting SBM quality.