Department of Agriculture and Fisheries

# Dual-Purpose Peanuts: A potential high-value legume crop to address the feed demand of the beef industry in northern Australia

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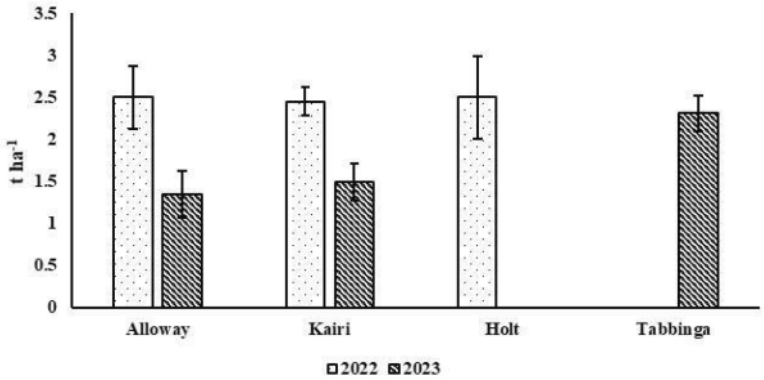
# Introduction

- The beef industry in northern Australia represents 64 % of national beef herd.
- Cattle mainly feed on native perennial grasses which are low in crude protein and low digestibility, also limited in quantity as well.
- Legumes such as dual-purpose peanut contains foliage with high crude protein, desirable fibre content and high digestibility.
- This study aims to assess the potential of newly developed peanut varieties for in-season fodder removal and the trade offs with kernel yield.

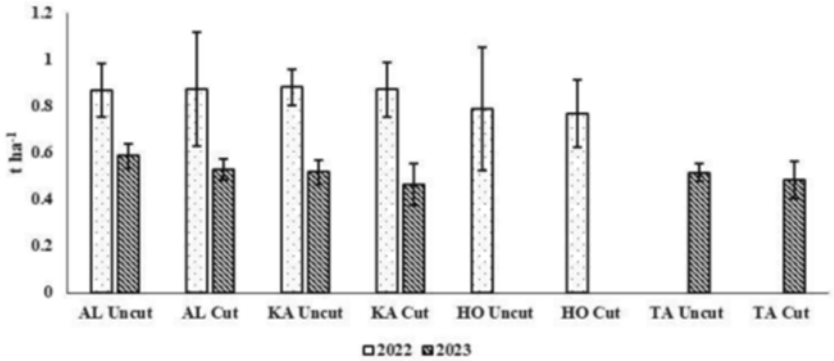
# Material and Method

- A field experiment was carried out at Katherine Research Station (KRS), Northern Territory during the 2022 and 2023.
- Randomised complete block design under split plot arrangements containing six replications. Alloway, Kairi and Holt were planted in May 2022, while Alloway, Kairi and Taabinga were planted in March 2023.
- Peanut genotypes were assigned main plot and in-season fodder removal (cut/un-cut) assigned sub plot. Plot size was 40 m long and 3.6 m wide.
- In 2022 – in-season fodder removal done at 50 % flowering, however, in 2023 – in-season fodder remove was done at 70 % canopy cover.
- A 1 square meter section was cut (5 cm above ground level) from each treatment and dry biomass was calculated during in-season and end-season. Processed nut and shell yield was recorded at final harvest.

# Results




In-season dry biomass production in 2022 and 2023.




End-season dry biomass production in 2022 and 2023.

- 2022 – in-season and end-season dry biomass production was non-significant between varieties.
- 2023 – in-season dry biomass production was significantly different between varieties, Taabinga produced highest dry biomass (2.3 t $ha^{-1}$), followed by Kairi (1.5 t $ha^{-1}$) and Alloway (1.3 t $ha^{-1}$). End-season dry biomass was non-significant between varieties.



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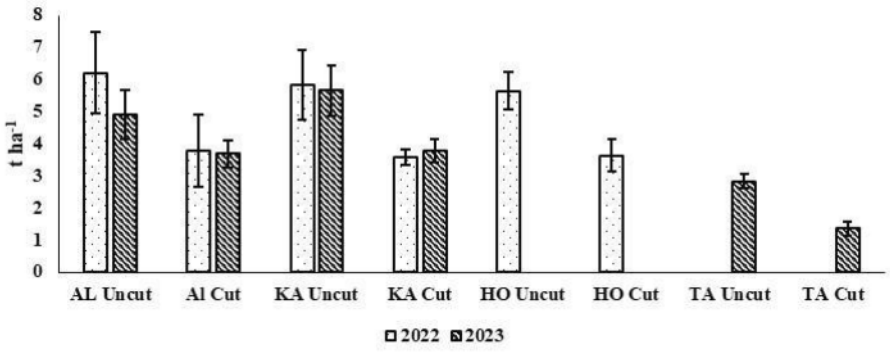


Processed nut and shell yield for all genotypes in 2022 and 2023.

- 2022 – Non-significant difference between varieties and variety x treatment interaction.
- Significant difference between cut (Averaged 5.89 t $ha^{-1}$) and uncut (Averaged 3.63 t $ha^{-1}$) treatments.

- 2023 – Significant for variety but non-significant for variety x treatment interaction.
- Cut plots yielded 4.3 t $ha^{-1}$ and uncut plots yielded 3.05 t $ha^{-1}$.



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# Conclusion

- Potential to produce 2.5 t $ha^{-1}$ in-season dry biomass.
- In-season forage harvest significantly reduces kernel yield.
- Further research on economic impacts of in-season forage harvest is highly recommended.

# Acknowledgement


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- Staff – Cropping group, Department of Agriculture and Fisheries, Northern Territory.




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# Thank you