Field Responses of *Glossina pallidipes* and *Glossina fuscipes fuscipes* Tsetse Flies to Novel Repellent Blend and Waterbuck Repellent Compounds in Kenya

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Mövenpick Hotel & Residences Nairobi, Kenya, 15th – 19th September, 2025







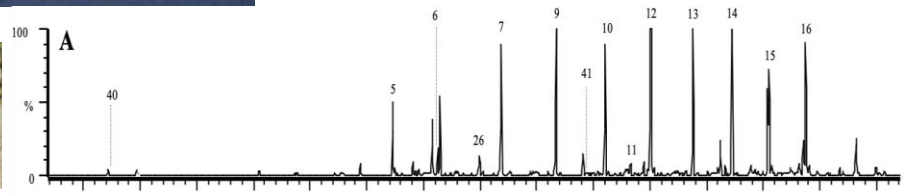
Original 15-components waterbuck repellent blend

- **Fatty Acid homologues** ($C_5 - C_{10}$)
  - **Lower Acids**: Octanoic acid, Nonanoic acid, Decanoic acid
  - **Higher Acids**: Pentatonic acid, Hexanoic acid, Heptanoic acid
- **Ketone homologues** ($C_8 - C_{13}$)
  - **Lower Ketones**: 2- octanone, 2–nonanone, 2-decanone
  - **Higher Ketones**: 2- undecanone, 2–dodecanone, Geranylacetone
- **Phenols**
  - Carvacrol
  - **Guaiacol**
- **δ-Octalactone**

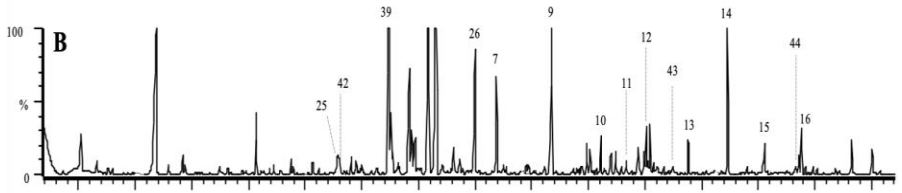
Previous structure-activity study

Any one of lower acid homologues + **2–Undecanone Geranylacetone** + **4-Methylguaiacol** + **δ-Octalactone** → **Optimised Repellent Blend**

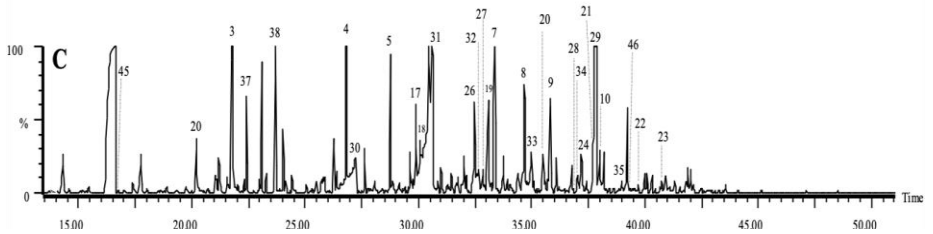












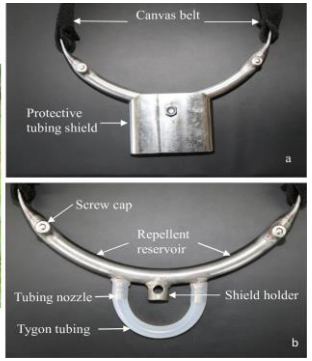
Gas chromatograms of body odors trapped from: buffalo (A), ox (B), and waterbuck (C).
Gikonyo et al., (2002). J Chem Ecol. 28(5):969-81.



Treatment	Total catch (Inside the screen)	Total catch (Inside and outside the	Total fed (inside the screen)	Feeding efficiency
Ox alone	445 (±8.5)[a]	818 (±23.5)[a]	120(±10.3)[a]	27%
Ox + repellent blend	83 (±4.5)[b]	154 (±9.6)[b]	4 (±0.2)[b]	4.80%

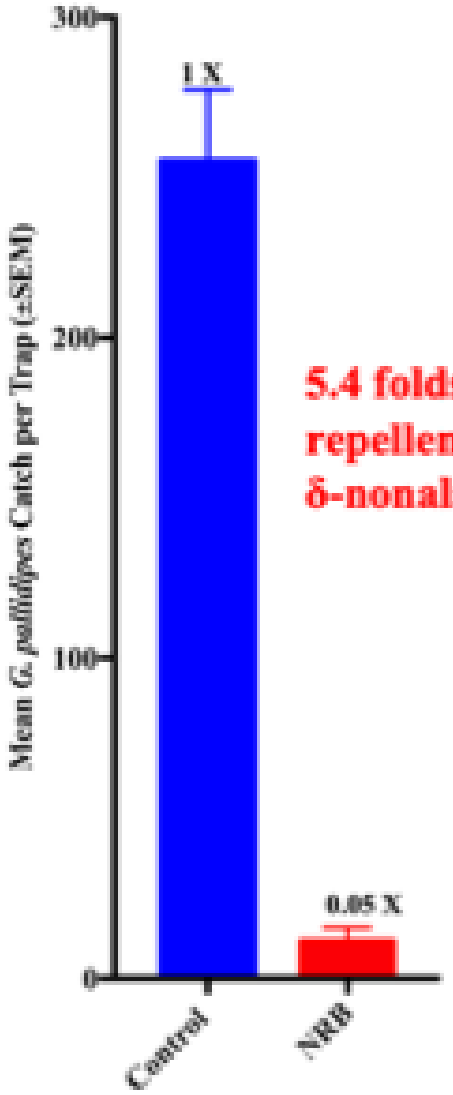
> 82% feeding efficiency reduction





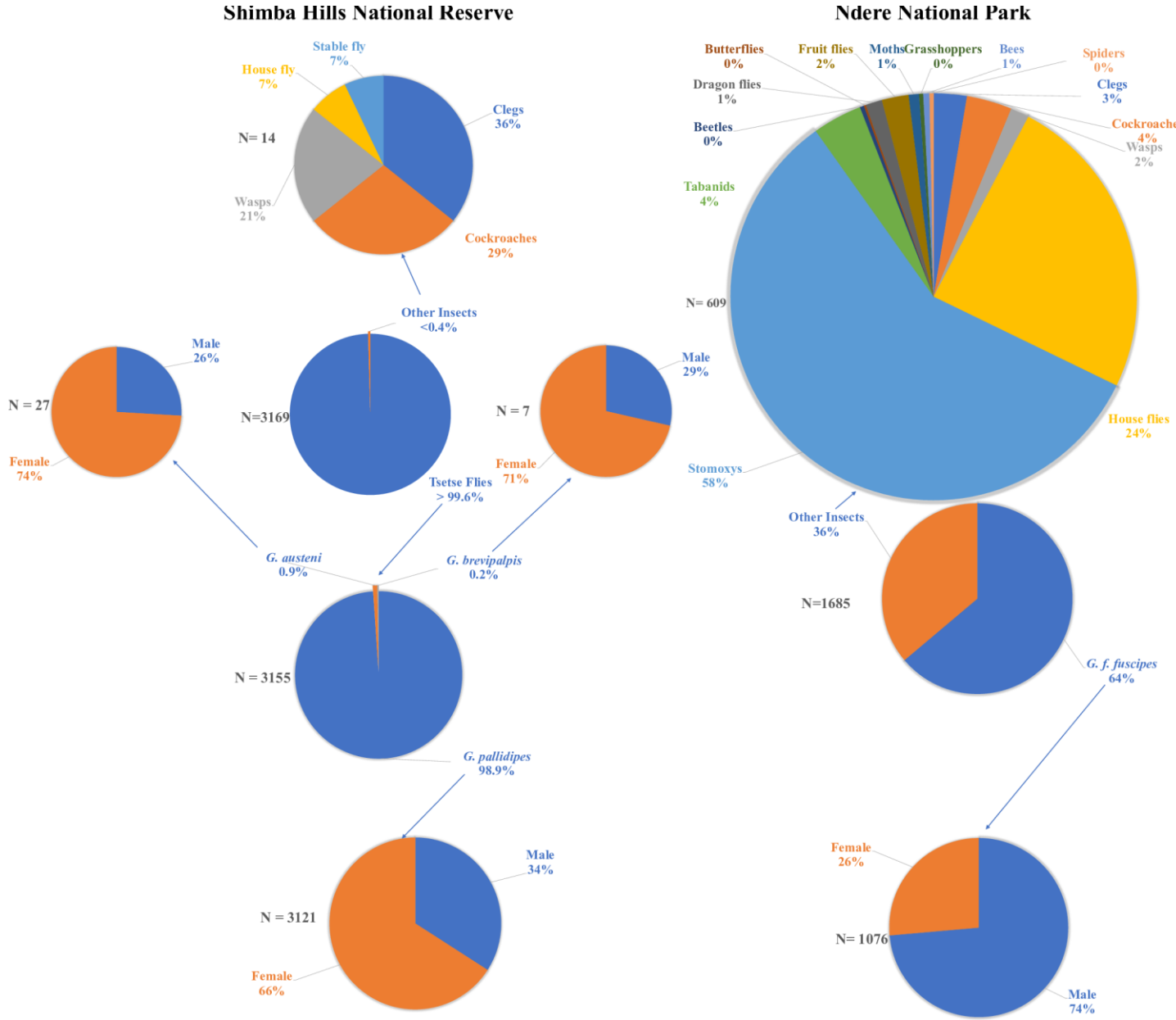
Saini et al., (2017). PLoS Negl Trop Dis 11(10): e0005977.

Novel Repellent Blend (NRB)

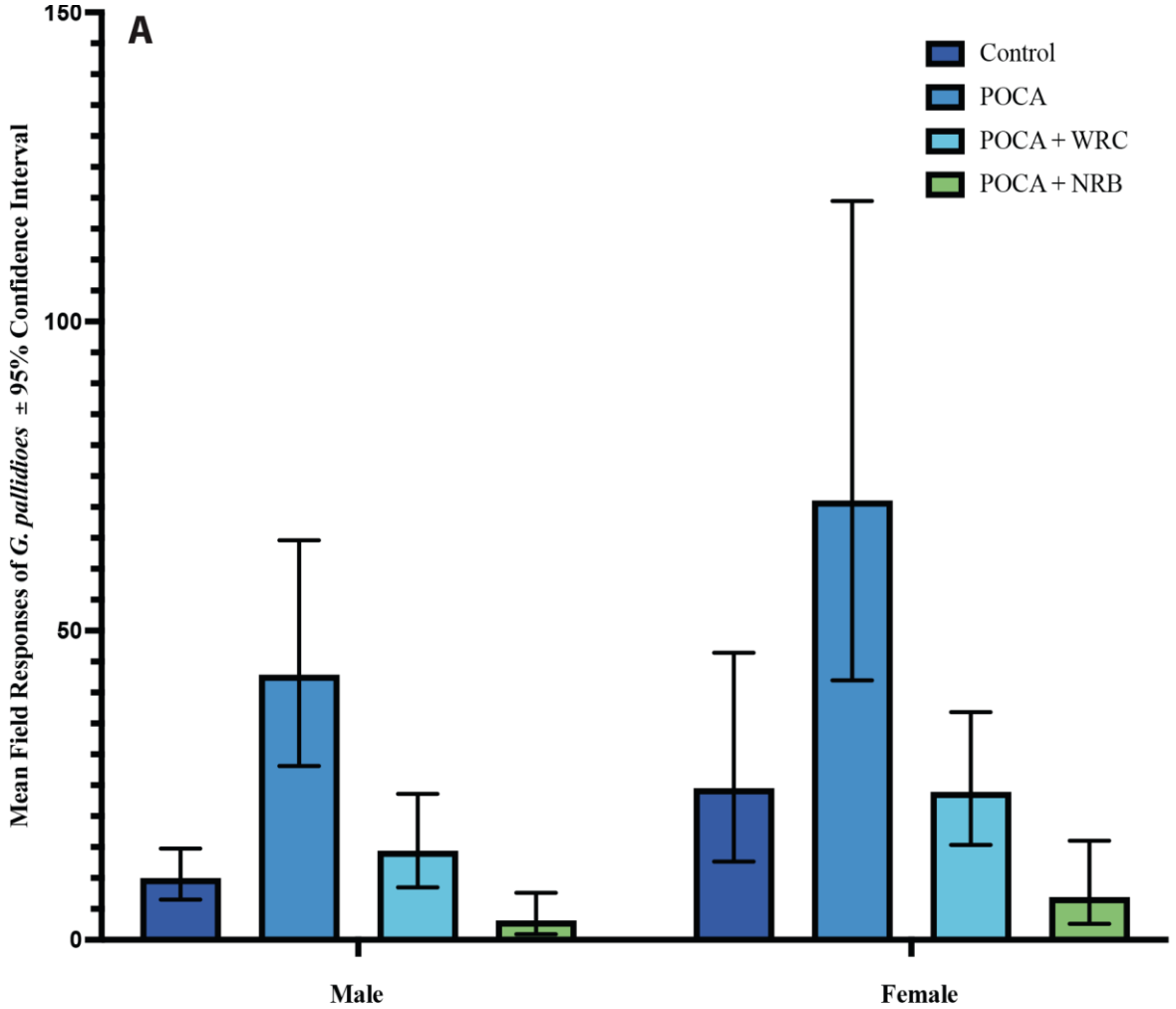


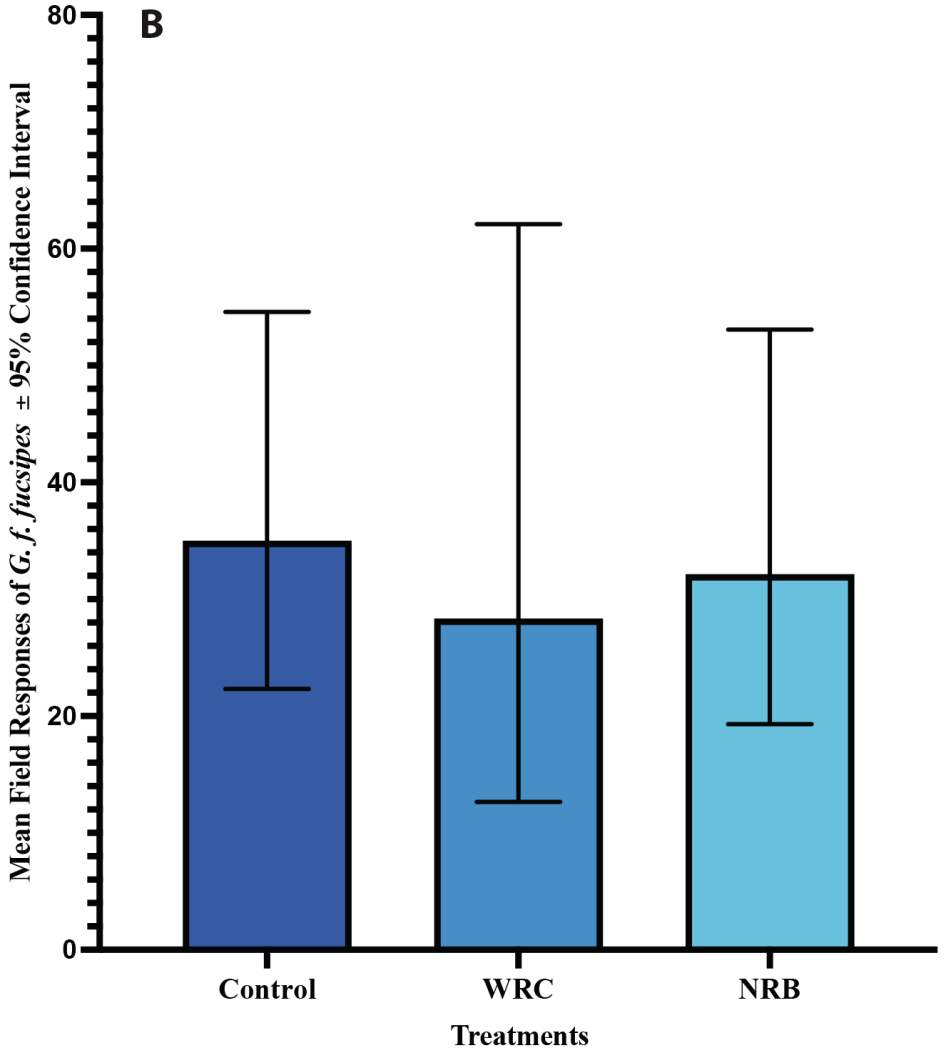
5.4 folds enhanced repellence by blending δ-nonalactone !

Wachira et al., (2020) . Acta Trop.211:105597..



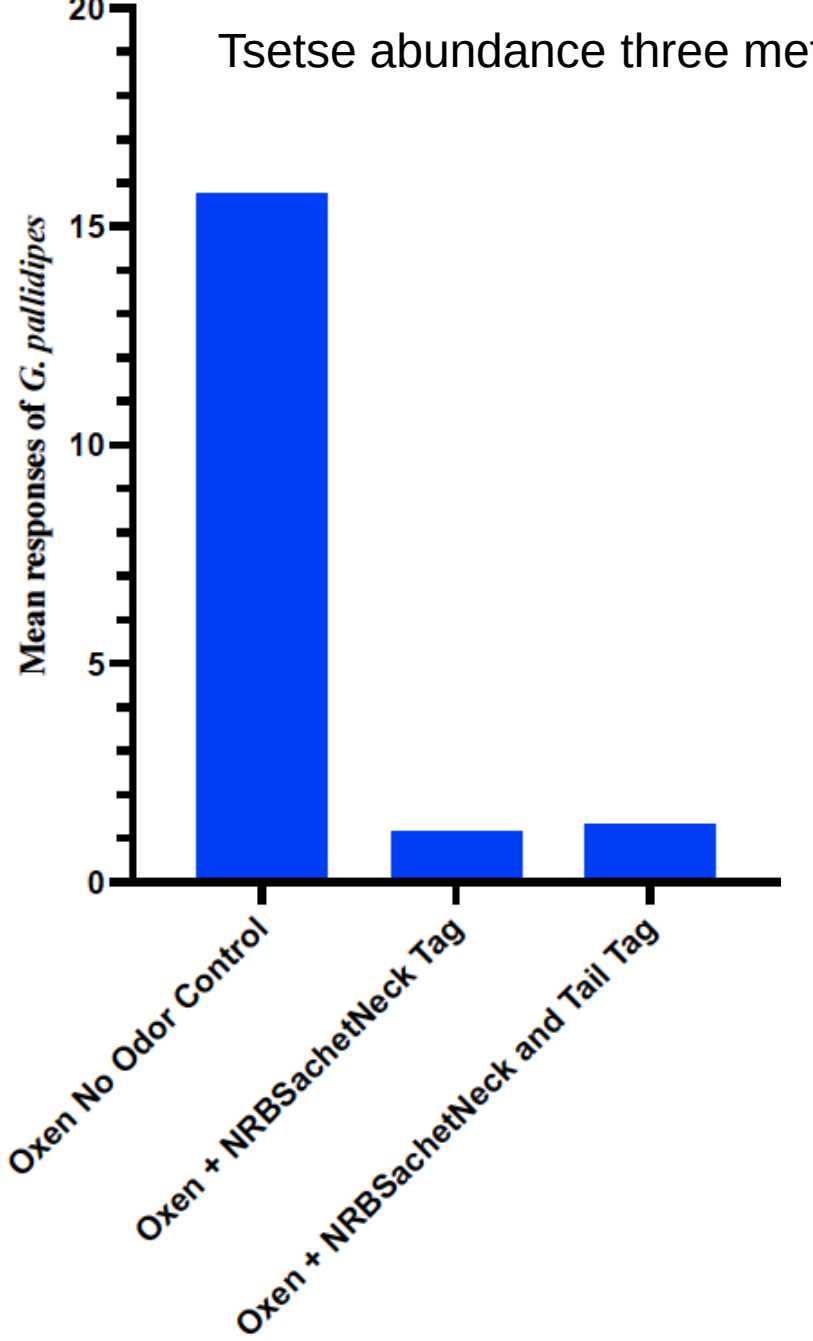
Wachira et al., (2025) PLoS Negl Trop Dis. 19(7):e0013367

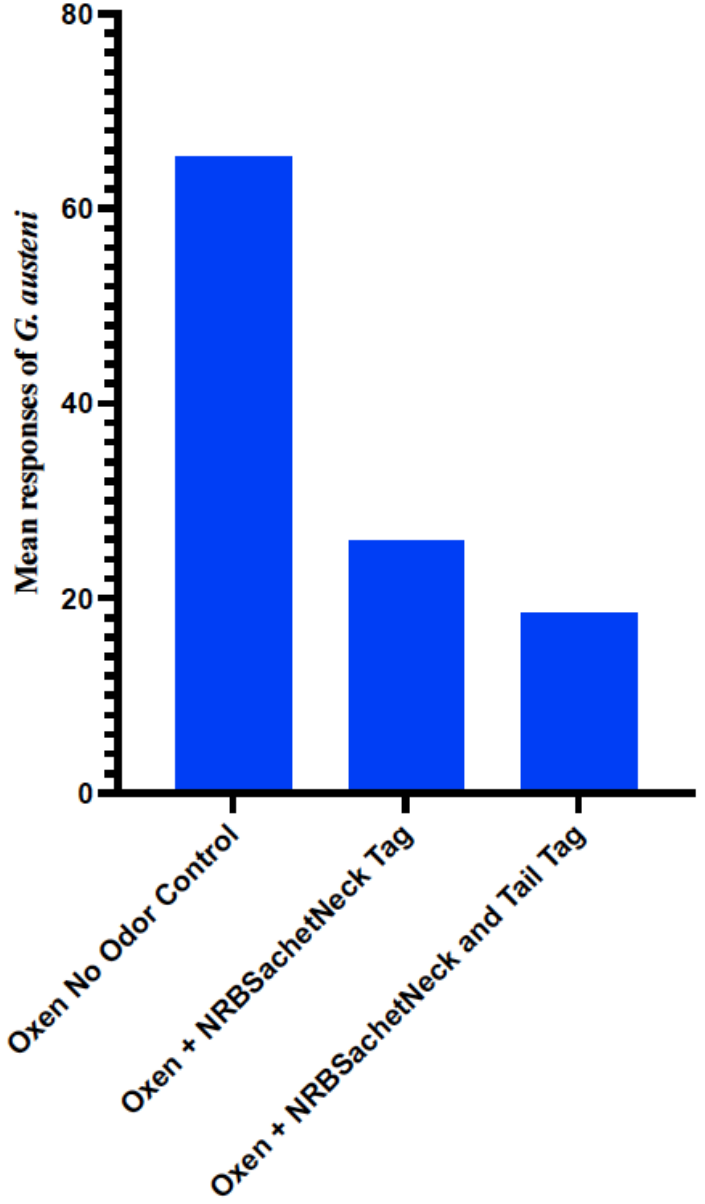


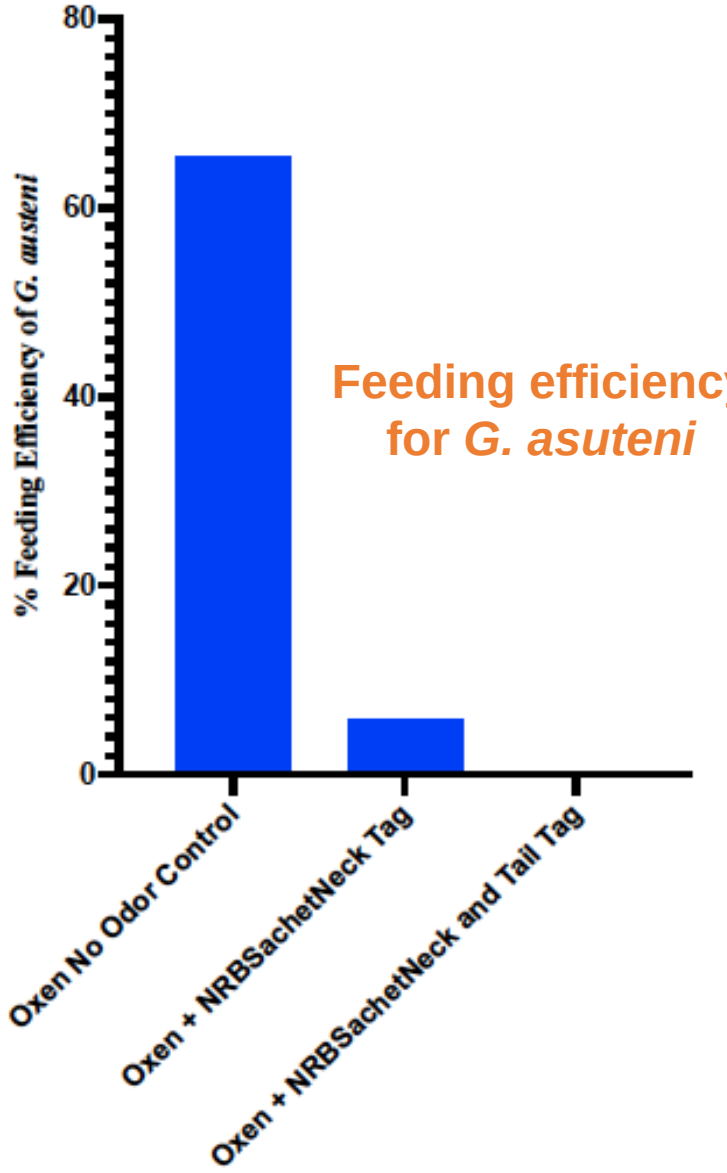


Wachira et al., (2025) PLoS Negl Trop Dis. 19(7):e0013367

Tsetse abundance three meters from oxen







Feeding efficiency for *G. asuteni*

0% Feeding efficiency for *G. pallidipes*



Paul Mireji



Ahmed Hassanali



Imna Malele



Grace Murilla



Rosemary Bateta



Brian Weiss



Joanna Auma



Robert Opiro



Richard Echodu



Winnie Okeyo



Serap Aksoy



Michael Okal



Raymond Mdachi



Johnson Ouma



Pamela Olet



Daniel Gamba

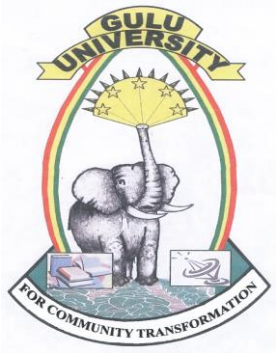


Clement Mangwiro



Kennedy Ogolla



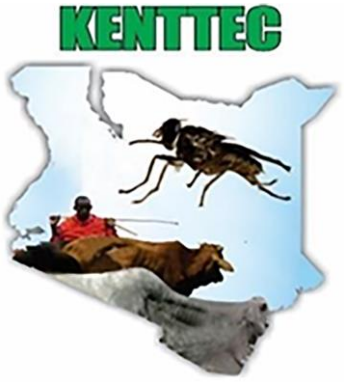


Yale







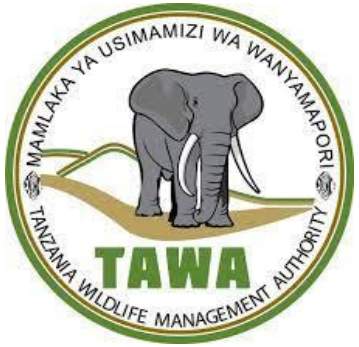






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