

# Culturally-acceptable fermented grain improves gut health in South African postpartum mothers in a randomized trial

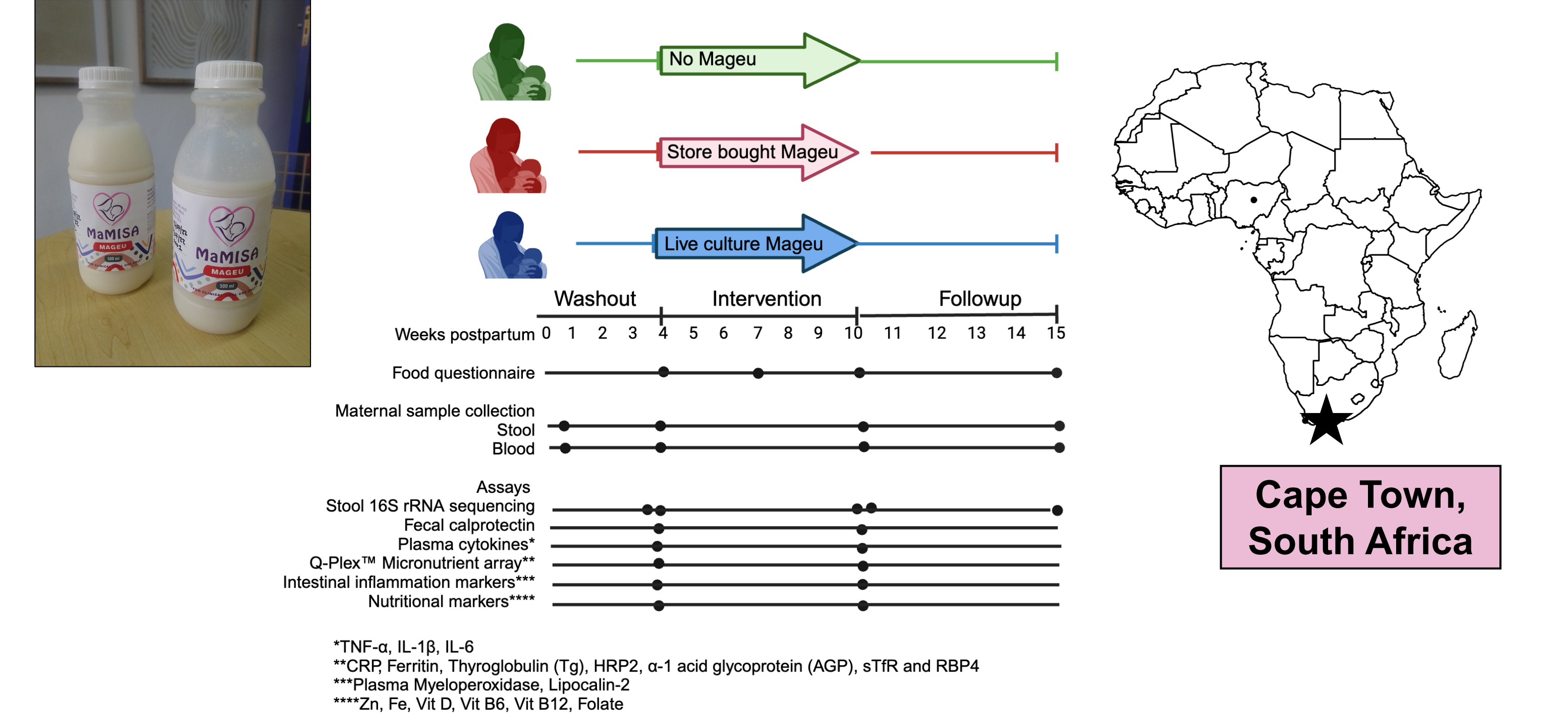
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## Introduction

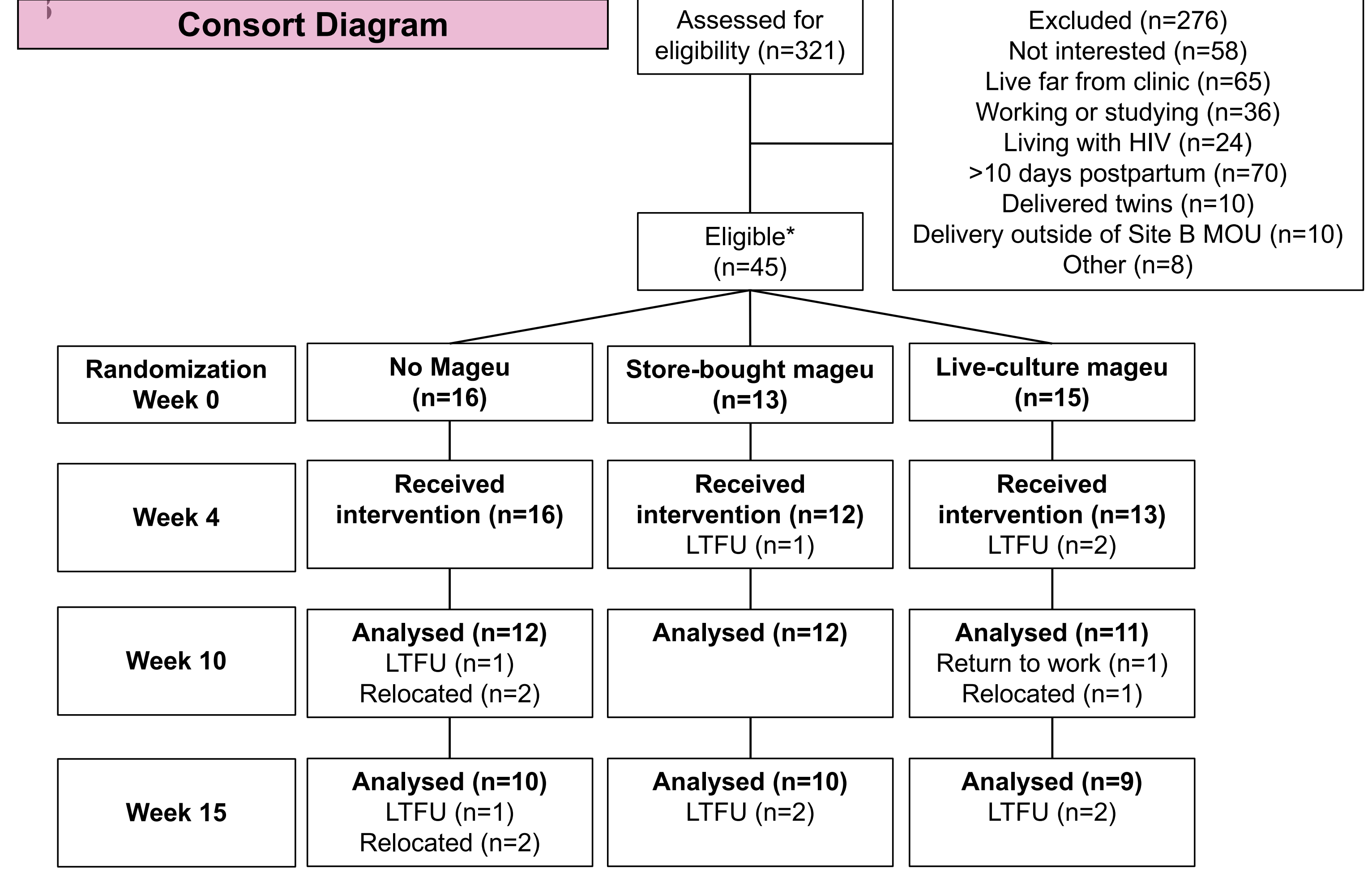
- Fermented foods have been found to decrease inflammation, improve gut microbial diversity, and increase bioavailability of nutrients, yet data from low-and-middle income countries is scarce.
- Optimizing nutrition during lactation is critical to mother and infant, and the relationship between fermented food consumption and the mother's gut microbiota, nutritional and inflammation status is unknown.
- Mageu is a well-accepted fermented porridge in South Africa; we thus hypothesized that fermented Mageu improves gut microbiota in a pilot randomized controlled trial among postpartum, lactating South African mothers.

## Study design

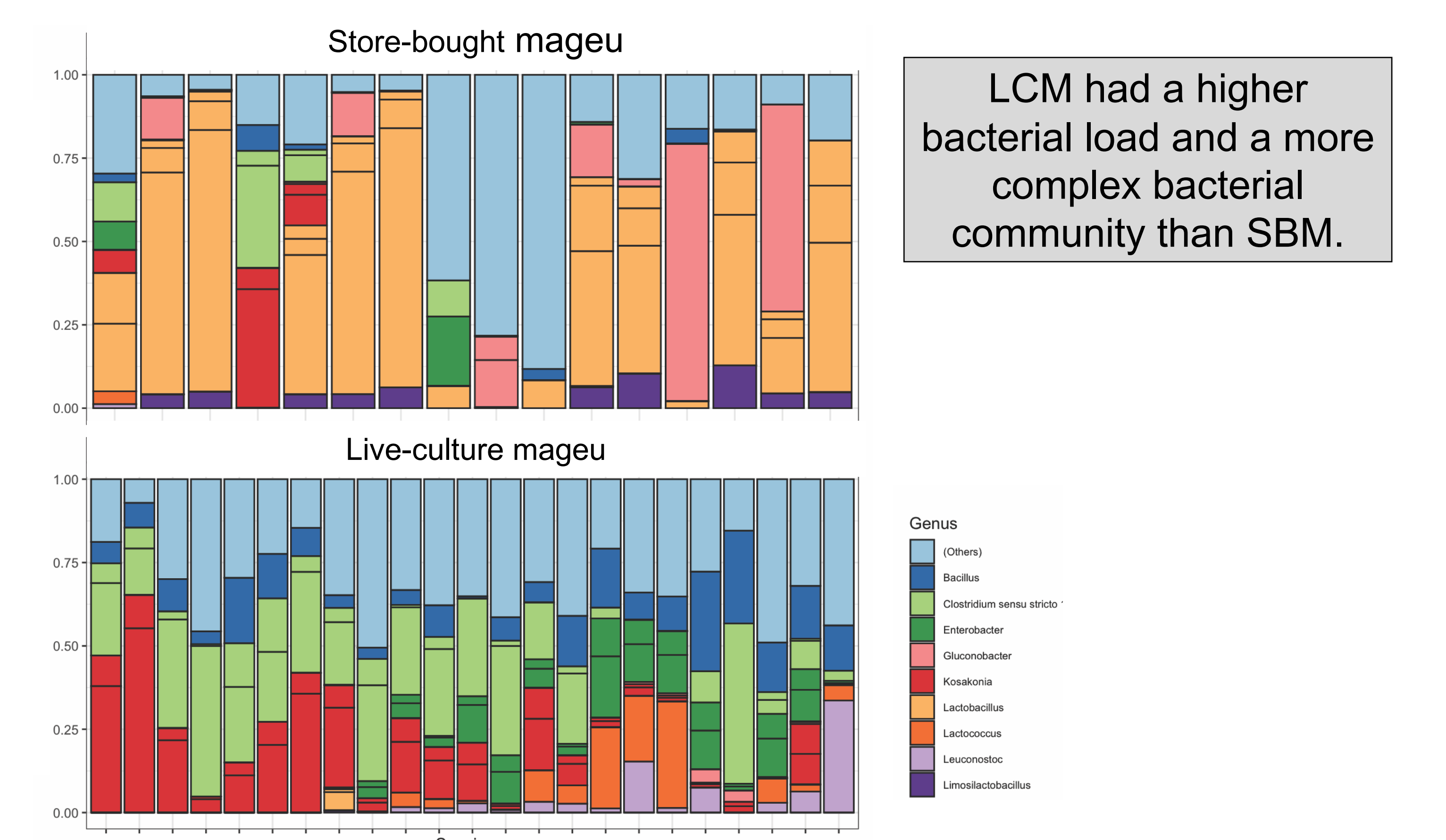


- Randomised controlled trial of a live-culture mageu (LCM), pasteurized store-bought mageu (SBM), or no mageu.
- Mothers consumed Mageu from weeks 4 to 10 weeks postpartum.
- Primary outcome: change in maternal stool alpha diversity using Shannon or Faith's PD index from week 4 to week 10.
- Secondary outcomes: maternal gut beta diversity and bacterial taxa at weeks 10 and 15, and changes in systemic inflammatory and nutritional markers from week 4 to week 10.

## Results



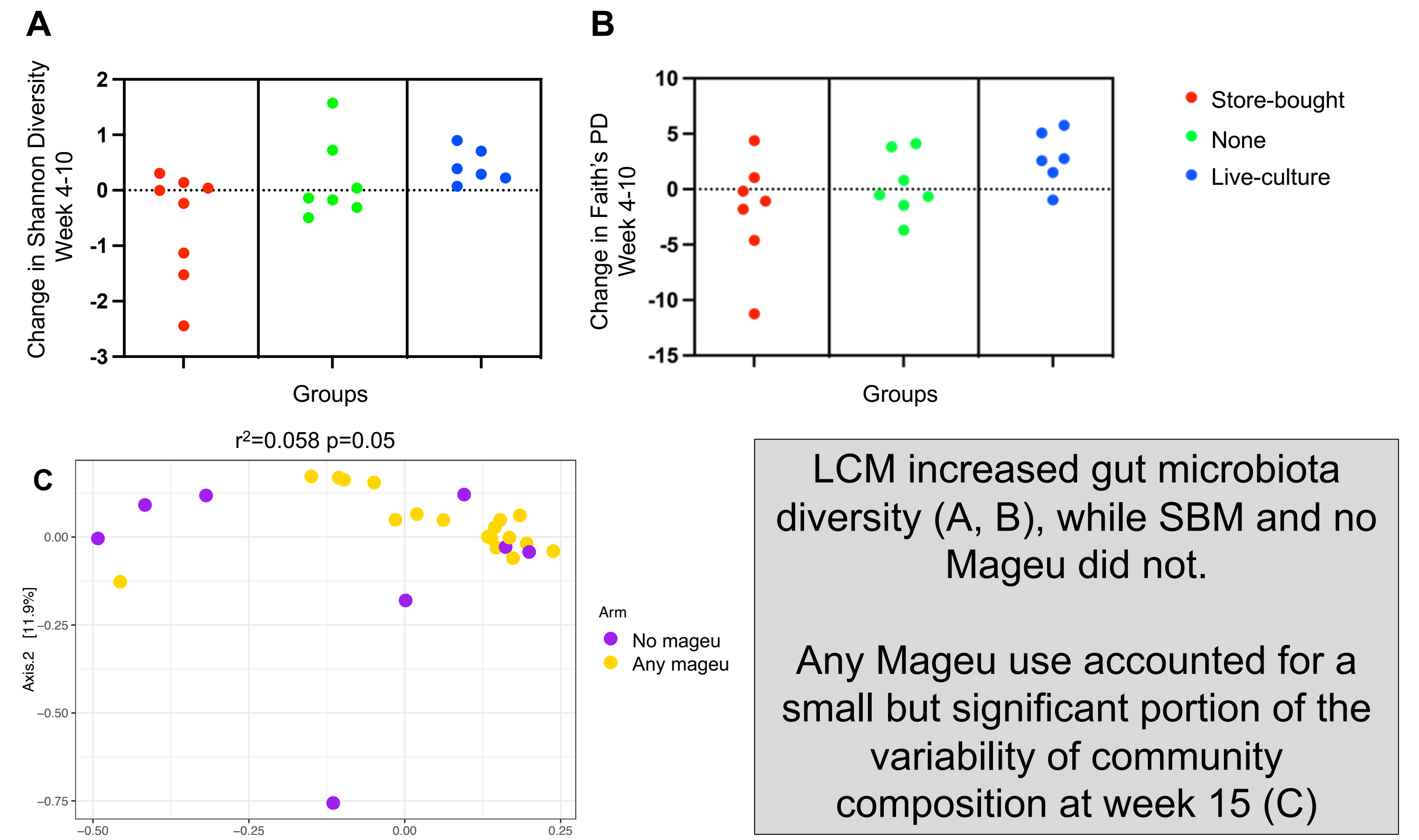
### Description of Mageu products



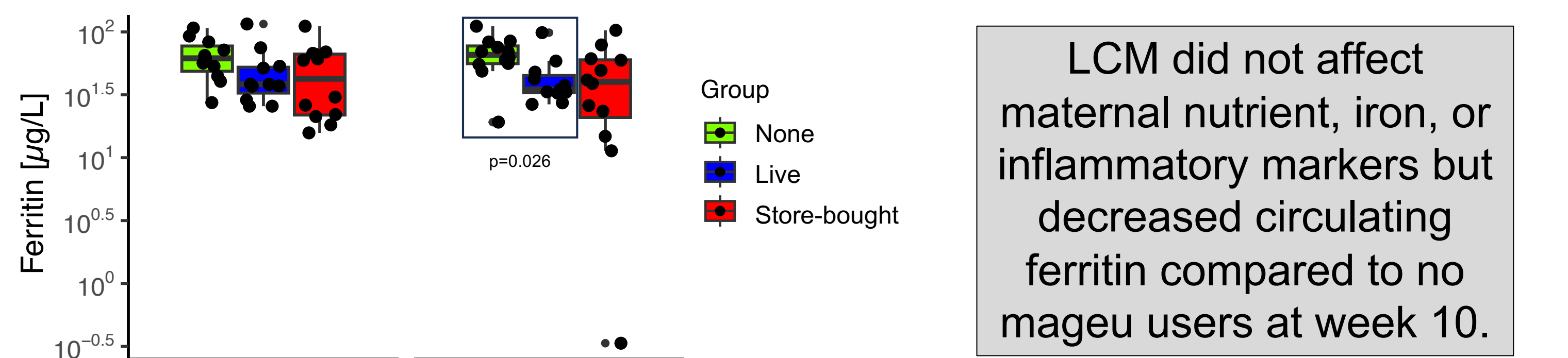
LCM had a higher bacterial load and a more complex bacterial community than SBM.

## Results

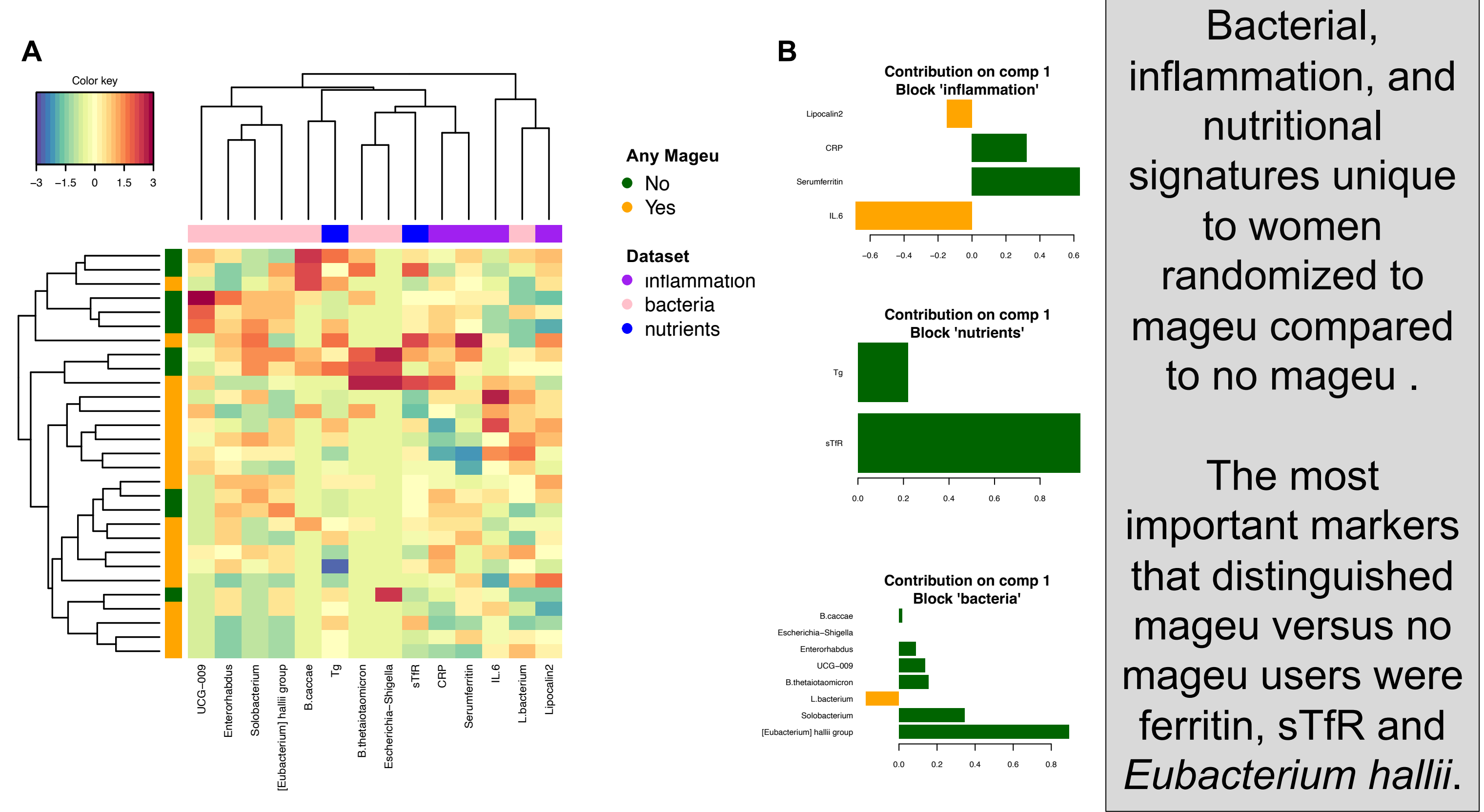
### Gut microbiota diversity



### Inflammatory, nutrient and iron markers



### System analysis



## Conclusions

- This pilot trial found that LCM might have beneficial effects on gut and immune health of women.
- This project is highly relevant in South Africa – a country with significant economic disparities.
- Given the local relevance of these findings for maternal and infant nutrition, this should be explored in a larger cohort.
- Assessment of maternal breastmilk and infant gut microbiota, immune status, and overall health would provide significant insight into the usability of a plant-based, local fermented food to improve maternal and infant health outcomes.

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