

# Faecal microbiota and stillbirth rate in sows



Dr Tanya Nowland



# Acknowledgments

Co-authors: Kate Plush, Thi Van and Rob Moore

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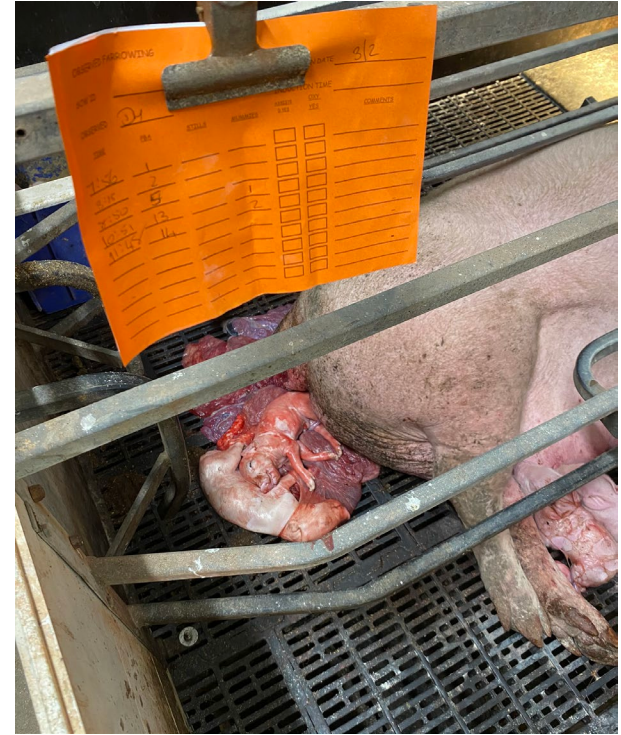
# Background

Stillbirth: Piglet death during the birthing process.

Causes:

- Large litter sizes
- Prolonged farrowing length
- Hypoxia
- Overweight sows

An increasing issue with losses ranging from 5-20%



**Microbiome:** is a collection of microorganisms (bacteria, archaea, fungi and viruses), including their genomes and extra-chromosomal elements present in and on the host.

- Present on all body surfaces
- Influences all body systems
- Involved in maintenance of host health
- Studies linking it to sow and piglet productivity, including stillbirth.

Potential to manipulate the microbiota to improve host health and performance and reduce stillbirth.

**Need to know what bacteria to target**



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# Aim

To identify potential microbial drivers for stillbirth in sows and to determine whether parity influences them.



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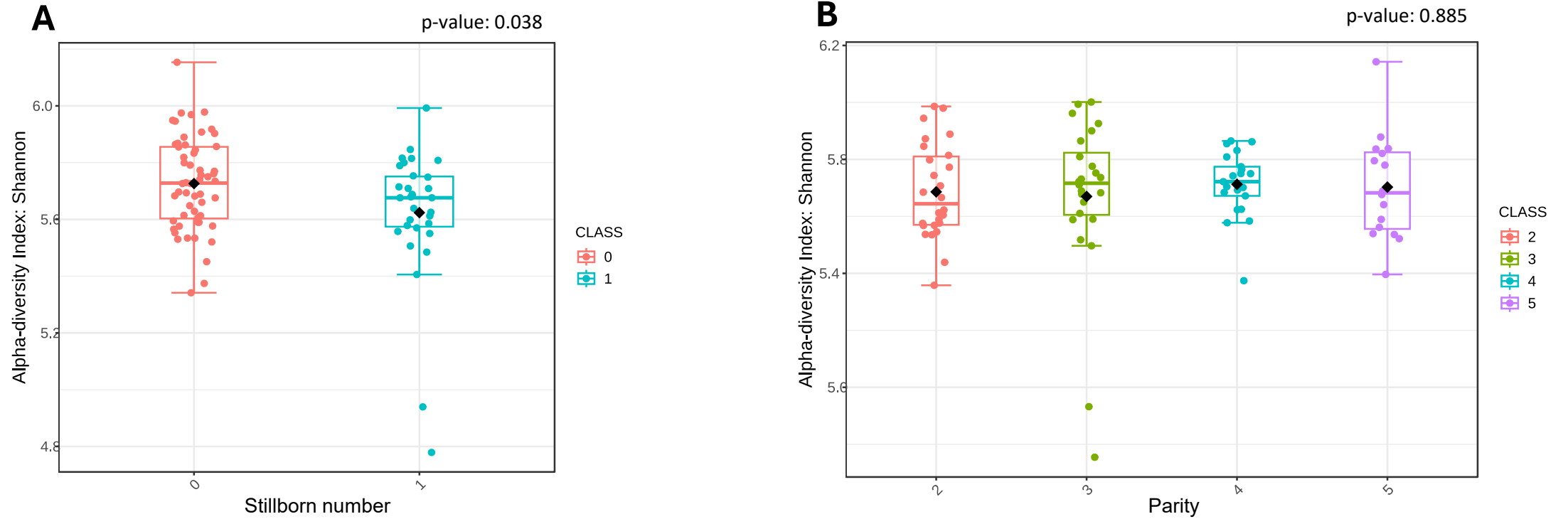


# Methods

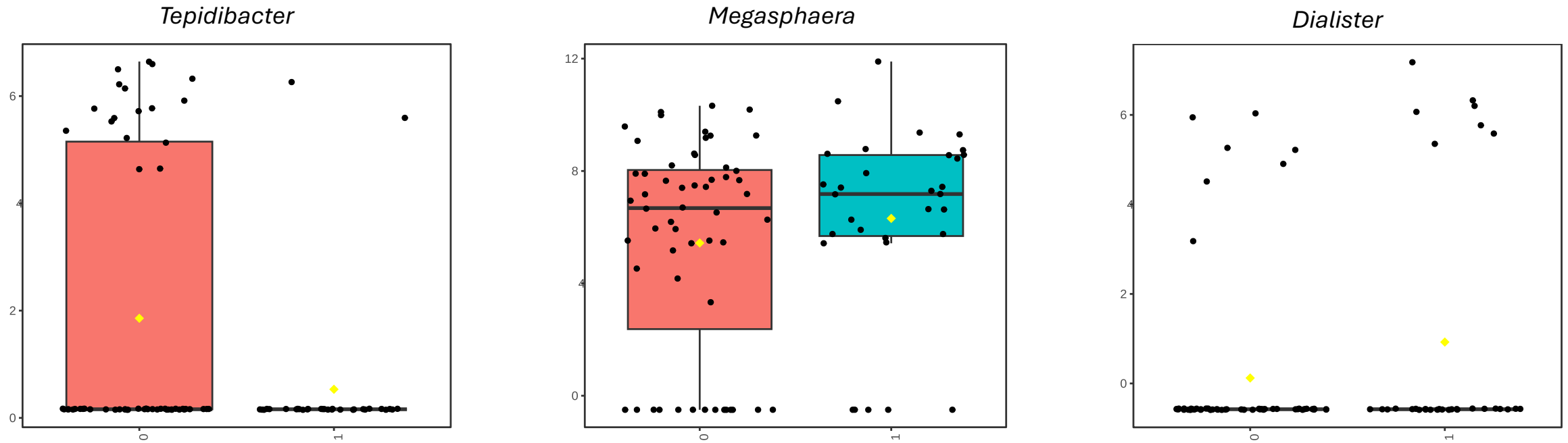
- $n = 87$  sows
- Faecal samples collected at farrowing house entry ( $4.1 \pm 0.1$  days prior to farrowing)
- Collected: Parity, total born, born alive and stillborn
- Grouped as having given birth to none ( $n = 56$ ) or one or more stillborn piglets ( $n = 31$ )
- Faecal DNA underwent 16S rRNA gene amplicon analysis



# Results



**Figure 1.** Boxplot of alpha diversity observed in the faecal microbiota of sows grouped by (A) if they gave birth to 0 or 1 or more stillborn piglets and (B) parity



**Figure 2.** Bacterial genera identified as driving the differences observed in the faecal microbiota of sows giving birth to 0 or 1 or more stillborn piglets

- *Megasphaera*
  - Potentially beneficial bacteria, butyric acid fermenter, influences gut health
- *Dialister*
  - Potentially pathogenic genus
  - Associated with disease activity and inflammation

# Conclusions

This project identified some potential drivers for stillbirth rate in sows.

Ultimate goal is to identify potential candidates for in feed probiotics to enable a targeted approach at reducing stillbirth rate.

More research is needed to establish the mechanisms of action and to identify specific species to target and to understand the influencing factors for their abundance.

# Thank you!

Thanks to all partners for their support and participation

