Dung beetle paper – change in microbiome when using drenches

Hypotheses:

1. The use of drenches changes the dung beetle’s microbiome composition
2. Dung beetle’s microbiome changes with diet and it’s more “volatile” than other insects
3. Species richness of gut microbiome is lower than species richness from the rest of the dung beetle (gus vs. whole)

Treatments:

* Before: Dung beetles directly from the rearing facility – from North Island, had different dung in their diet than in our study
* Control: Dung beetles that were not subjected to any drench in their diet during the experiment
* Drenches Low: A known concentration of the drenches was applied to the non-drenched dung and then fed to the beetles
* Drenches High: 10x concentration of the drench than the Drenches Low was applied to the dung.

Drenches used:

Silver: 5 g/l Moxidectin

Blue: 2g/l abamectin, 80g/l levamisole and 45.3g/l oxfendazole

* Red: 80g/l levamisole and 45.3g/l oxfendazole

Key messages from the paper:

* Diet is the main factor in their microbiome composition
* Due to their changing microbiome nature, they are perfect candidate for microbiome engineering studies

Known drench degraders:

* Stenotrophomonas – Family Xanthomonadaceae – Class Gammaproteobacteria
* Aeromonas – Family Aeromonadaceae – Class Gammaproteobacteria

Presumed drench degraders:

* Pseudomonas – Family Pseudomonadaceae – Class Gammaproteobacteria

**Additional question: Gammaproteobacteria are known drench degraders - are they more prevalent in the gut of the dung beetle when exposed to drenches?**