**Focused Meeting 2018: Microbiomes Underpinning Agriculture**

**Microbiome Methods Workshop Summary**

The Focused Meeting 2018: Microbiomes Underpinning Agriculture explored the role microbiomes play in the agricultural systems and how we could use this resource to advance productivity and sustainability. Following the sessions on Plant, Animal and Soil Microbiomes, the event continued with a Microbiome Methods Workshop, introducing talks from leading computational biologists, providing technical insights into microbiome analysis in agricultural systems and ending with a tour of the Moorepark laboratories.

Orla O’Sullivan opened the session by providing an outline of sequencing technologies for agriculture, their main challenges and the importance of having a clear plan before doing microbiome analysis. Chris Quince offered an overview of the *de novo* method, giving an example of a human microbiome and explaining its relevance to the animal microbiome. Leighton Pritchard discussed the connection between plant health and pathogen communities. Chris Creevey talked about the rumen microbiome and how it acts like a structured microbial community.

The presentations can also be downloaded from this page.

The second part of the workshop was a panel discussion, where speakers discussed general aspects of microbiome analysis for agriculture as well as specific issues they’ve encountered.

One of the questions raised was concerning possible issues speakers had encountered within their specific field. The answer underlined that there are still a lot of unknown factors and even unidentified species. Moreover, there is huge potential in discovering what sequencing can do and how we could use the interaction between pathogen and the plant’s immune system to bring about innovative research on microbiome analysis.

Delegates also discussed if there are ways in which sequencing could be improved. The speakers mentioned that it is a matter of experiential design and explained that a better method to sequence in depth is yet to be found. However, when concerns were raised about the aspect of contamination, they highlighted that not all sequencing for plant will necessarily be contaminated and that it is important to look at all of them.

The final query was what advice would they give to PhD students starting their career in computational biology or any area of microbiology and what skills should they aim to develop. The answer was that students should not focus all their attention on learning every technical aspect but have a working understanding on the concepts and rely on using the software.