Teagasc PhD Walsh Scholarship Opportunity
Agronomy of multi-species grassland mixtures to optimise yield under lower nitrogen conditions
Walsh Scholarships Ref Number 2021226

Background
Agricultural systems are increasingly expected to increase production to feed the growing world population, while lowering environmental impacts and coping with further stress from extreme weather events due to climate change. Within intensively managed agricultural grasslands, recent results demonstrate important yield advantages of four-species grass-legume swards compared to monocultures of either grasses or legumes. Our recent research shows additional advantages of six-species mixtures comprising grasses, legumes and herbs, and that mixtures with lower-nitrogen fertiliser can out-perform perennial ryegrass monocultures with high-nitrogen fertiliser application. Thus, multi-species mixtures offer an important practical, farm-scale management practice for more sustainable agriculture.

This Scholarship is part of the collaborative Multi4More project funded by DAFM & DAERA. Through a combination of field experiments and pot trials, this research will experimentally manipulate the composition of grassland mixtures, and assess what combinations of species and functional groups are needed to optimise yield and forage quality, especially under lower levels of nitrogen application. Main activities of this PhD research will include design and maintenance of field and lab experiments; data collection, analysis and interpretation, and; publication of results. There will also be opportunities for travel to visit other laboratories and to attend national and international conferences. The successful candidate will join a team with a track record of success in this research topic, and have access to research infrastructure (field plots, harvesting equipment, sample processing, technical and farm support, glasshouses, sample analysis) and development (PhD training, statistical modelling of mixture experiments, and professional development).

The doctoral candidate will be supervised jointly by Dr John Finn, Teagasc, Johnstown Castle, Wexford and Prof. Caroline Brophy, Trinity College Dublin. The successful candidate will be located at Teagasc, Johnstown Castle, Wexford during their PhD, and registered as a PhD student at Trinity College Dublin.

Requirements
Applicants should possess a first class or upper second-class honours degree in ecology, agricultural science, soil science, plant science or a related subject, and a Master’s degree will be an advantage. Knowledge of agronomy/ plant ecology and a strong quantitative ability are desirable, and training will be provided. Applicants must hold a full EU driving licence. For further information, please contact Dr John Finn (john.finn@teagasc.ie) or Prof. Caroline Brophy (caroline.brophy@tcd.ie).

Award
The scholarship funding is €24,000 per annum, which includes University fees of up to a maximum of €6,000 per annum and student stipend at a flat rate of €18,000 to the Scholar, and is tenable for 4 years.

Application procedure
Applications should be sent by email to both Prof. Caroline Brophy caroline.brophy@tcd.ie and Dr John Finn john.finn@teagasc.ie on or before Wednesday 27th July 2022 and should include a covering letter and CV, copies of relevant degree transcripts and the names and contact details of two academic referees. Details regarding English language requirements can be found here.

Closing date: 27th July 2022. September 2022 start date expected (some flexibility to March 2023)
FURTHER INFORMATION
Examples of our recent research are available at: [https://farmecol.blogspot.com/2021/03/multi-species-mixtures-at-british.html](https://farmecol.blogspot.com/2021/03/multi-species-mixtures-at-british.html) and other blog posts. This includes the yield benefits of multi-species mixtures, their effects on nitrous oxide emissions, and resilience to drought.