



## PHD FELLOWSHIP OPPORTUNITY

### The influence of genotype, environment and management factors on yield development, grain filling and grain quality in oats

Walsh Fellowship Ref: 2017222

#### Background

Demand for oats is increasing as a result of positive health effects associated with the consumption of oats but there is a relatively poor understanding of how to improve yield and quality in oats. The preferences of millers for certain oat varieties with good grain quality characteristics often results in the same varieties being sown in the autumn and spring. This practise is unique to oats grown within the British Isles but there is a lack of understanding as to how such different sowing dates influence yield development and grain filling in the same variety.

The principal objective of this 4 year project is to study the effect of genotype, environment and management factors on yield development and grain filling in varieties of oats sown in both the autumn as well as in the spring. Oat lines from the oat breeding programme in Aberystwyth together with oat varieties used for commercial oat production in Ireland will be grown in replicated field experiments over a three year period in two environments, Aberystwyth in Wales and Carlow in Ireland. This will include genetic stocks developed at Aberystwyth in which specific regions of the genome associated with flowering time and vernalisation have been introgressed into a common genetic background. This material will be sown in autumn as well as in spring and subjected to different management strategies in order to create different yield development and grain filling strategies. Physiological and phenological parameters will be measured in all treatments during each growing season and the relationship between such parameters and panicle architecture, grain filling, grain yield and grain quality will be determined. It is expected that this project will lead both to the identification of genetic material particularly suited for both autumn and spring sowing and to significant insights into the optimal agronomic practises which can maximise yield and grain quality for both autumn and spring sown oats.

This 4 year PhD Fellowship is a joint research project between Teagasc, Carlow and the Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth University. This project will involve periods of fieldwork conducted out of both Aberystwyth and Teagasc (Carlow) and laboratory work in Aberystwyth. The student will be registered at Aberystwyth under the supervision of Drs. Catherine Howarth and Irene Griffiths in association with Teagasc supervisors (Dr John Finnan and John Spink). The Fellowship will start as soon as possible after 1<sup>st</sup> of October when the most suitable candidate is appointed.

#### Further Information/Applications

This Walsh PhD fellowship covers 100% of tuition fees at the UK/EU rate and an annual maintenance grant equivalent to the RCUK rate (£14,553 for 2017/18). Applicants should hold, or expect to obtain, a minimum of a first or upper-second class honours or a masters degree in a relevant subject (e.g. plant science, genetics, agriculture). A full EU driving licence is also required. Contact Catherine Howarth ([cnh@aber.ac.uk](mailto:cnh@aber.ac.uk)) or John Finnan ([John.Finnan@teagasc.ie](mailto:John.Finnan@teagasc.ie)) to discuss the project, or for general queries IBERS Postgraduate Co-ordinator Michelle Allen ([myd@aber.ac.uk](mailto:myd@aber.ac.uk)). For information on IBERS see <http://www.aber.ac.uk/en/ibers/> and for how to apply see <http://www.aber.ac.uk/en/postgrad/howtoapply/> - please enter the lead supervisor name under "Project title applied for".

**Closing date** 30<sup>st</sup> June 2017.