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### IBERS scientists lead major new £4.9m oats study

**The Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University is leading a major new study to develop improved varieties of oats that will provide significant economic and environmental benefits for growers, millers, and the dairy, beef and poultry industries.**

Quality Oats (QUOATS), a £4.9m five year project funded by the Biotechnology and Biological Sciences Research Council (BBSRC), Defra, the Welsh Assembly Government and the Scottish Government, is also expected to enhance health benefits as more and more people turn to oats as part of a healthier diet.

Increased demand for safe, healthy and nutritious food or feedstuff, together with increased agricultural energy and fertiliser costs and the need to farm in a more sustainable manner are among the drivers behind the study according to Dr Athole Marshall, head of the Oat Breeding Programme at IBERS.

"Oats are a valuable break crop in cereal rotations reducing disease and weed problems, require less fertiliser than wheat, perform well in marginal areas and are a high value animal feed which can be grown and fed on-farm."

" At IBERS, we are successfully combining fundamental research on plant genetics with plant breeding techniques to develop commercially viable plant varieties that help meet the challenges of food, water and energy security, and environmental sustainability" he added.

Oat varieties developed at IBERS currently account for more than 60% of the UK oat seed market, with a farm gate value of £80m. One variety, *Gerald*, developed by the Institute is the most-widely grown winter oat with 45% of the market, while an Institute dwarf naked oat

variety accounts for about 5% of the total winter oat crop.

Despite the advantages that oats already offer, Dr Marshall believes there is a need to develop new varieties that will respond well to environmental and climate change, use less fertiliser, be more productive and more attractive to manufacturers and consumers.

The project is being supported in part by the Welsh Assembly Government through the EU funded Academic Expertise for Business (A4B) programme, which is geared to ensure Wales maximises the economic impact of its academic institutions.

Lesley Griffiths, Deputy Minister for Science, Innovation and Skills said: "We need to improve and accelerate the transfer of knowledge and expertise from Wales' world-class research base into "added value" for the economy."

"Projects like these have the potential to create significant benefits for the economy and the environment and it is good to see industry working side by side with academia to develop a rich seam of projects with real commercial potential."

This project brings together the whole of the oat production chain including breeders, crop marketeers, levy boards and industrial end users. A new development will be the use of the most recent genomics technologies to study traits in a model system based on an old diploid cultivar.

"Combining expertise in molecular and conventional plant breeding and analysis of grain composition with evaluation of new and novel varieties by research and industrial partners will ensure that new oat varieties meet the requirements of the different end users" says Dr. Marshall.

Developing oats that meet the needs of the milling industry is important. The team will study the genetic basis of  $\beta$ -glucan content in oats, which is known to lower blood cholesterol, with the aim of developing new varieties that are tailor-made for the healthy foods market.

Oats are traditionally an important animal feedstuff and modern varieties fit well into rations. The team will also develop oats that provide a high energy feed for the poultry and ruminant sectors that may also help reduce greenhouse gas emissions from animal production.

And, in a novel and innovative development, the project will also investigate the possibility of using oats to manufacture important platform chemicals for the plastics, cosmetics and food industry.

**Ends.**

**Further information:**

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Project website: <http://www.quoats.org/>

**Notes for the Editor****QUOATS Funding**

The QUOATS project is jointly sponsored by BBSRC, Defra through the Sustainable Arable LINK Programme, and European Regional Development Funding through the Welsh Assembly Government's Academic Expertise for Business Programme and through the Scottish Government Contract Research Fund.

**QUOATS Partners**

The project partners are ADAS UK Ltd, Bernard Matthews Ltd, British Oat and Barley Millers' Association, Du Pont (U.K.) Limited, G B Seeds, Halo Foods Ltd, Harper Adams University College, Mole Valley Feed Solutions, Nairns Oatcakes Ltd, Oat Services, Phytatec (UK) Ltd, Poultry Xperience, The Organic Research Centre (Elm Farm), Scottish Crop Research Institute, Senova Ltd and the DairyCo, EBLEX and HGCA divisions of the Agriculture and Horticulture Development Board (AHDB).

**IBERS**

The Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth University, was established in April 2008 following the merger of the Institute of Grassland and Environmental Research, formerly part of the Biotechnology and Biological Sciences Research Council (BBSRC), with Aberystwyth University. IBERS continues to receive significant funding for research from the BBSRC and benefits from financial support from the Welsh Assembly Government, DEFRA and the European Union.

**Oat breeding at IBERS**

The oat breeding programme at IBERS has produced landmark varieties, such as the short-strawed winter oat variety *Gerald* (listed in 1993) which was awarded the NIAB Cereal Cup for an outstanding contribution to UK arable farming in 2002. *Kingfisher* and *Millennium* followed in 1999 and 2000. A further winter oat variety *Mascani* was added to the Recommended List in 2004 for its combination of high yield and outstanding milling quality in terms of high kernel content, high specific weight and low screenings followed by *Tardis* and *Brochan* in 2007. *Tardis* is a high yielding variety with excellent resistance to mildew and crown rust, while *Brochan* is very resistant to lodging due to extremely short straw associated with a novel plant architecture and high kernel content for milling. *Balado* in 2009 is a husked oat that offers a bumper crop for farmers.

Six milestone naked winter oats have also been produced: *Kynon* (1990), *Grafton* (2000), *Hendon* (2003), *Expression* (2004) and *Racoon* (2005) and *Fusion* (2009).