‘**Development of appropriate variety testing methodology for assessing nitrogen requirements’, Stakeholder Workshop: 2nd August 2010**

As part of a new Defra-funded research project entitled ‘Development of appropriate variety testing methodology for assessing nitrogen requirements’ (FFG0924) stakeholders are cordially invited to participate in a Stakeholder Workshop at KWS, Thriplow on Monday 2nd August 2010, from 10am to 2pm.

The project started in July 2010 and is due to report in March 2013. The project description is provided below.

The meeting will provide information and seek views on:

• The purposes of the project

• Recent research on genetic variation in crop N requirements

• Feasible methods of determining N requirements of new varieties (a review will be circulated before the meeting)

• Choice of wheat and OSR varieties to be tested in 2011 and 2012

Please let Penny.Mills@adas.co.uk know by the 16 July whether you plan to attend.

**Project description**

A crucial route to reduced reliance on nitrogen (N) fertilisers in arable cropping, hence to reduced pollution by nitrous oxide, ammonia and nitrate, is the development of varieties that have high yields but low N requirements – we call these ‘HYLO’ (High Yield Low Optima) varieties here. Much current and recent research in the UK and abroad aims to help breeders meet this goal, particularly for wheat and oilseed rape (OSR). However, HYLO varieties are not currently identified through UK variety testing systems, and they can only be favoured in the market place if testing systems assess fertiliser N requirements, along with other important agronomic traits (e.g. yield, quality, disease and lodging resistance). Although N fertilisers have recently become more expensive relative to grain, fertiliser costs are still small relative to the value of their effects; hence growers in the current market will only favour HYLO varieties if they are confident that other agronomic traits, especially yield, are not compromised. The full costs of N fertilisers are becoming more significant, both due to realisation of their environmental costs, as in the biofuel industry which must recognise GHG costs, as well as simply through market trends. Hence both industry and government have increasing needs to identify HYLO varieties.

The overall objective of this project is to develop the most cost-effective means of identifying the N requirements of wheat and OSR varieties that are candidates for introduction into the UK market. The work will be undertaken by a consortium, led by ADAS and involving Rothamsted Research, the Scottish Crops Research Institute, NIAB, and six plant breeding companies.

Initially, existing evidence for varietal differences in crop N requirement will be reviewed, so as to (i) gauge the extents of feasible near-future improvements in N requirements by new variety introductions and (ii) inform plans for modification of existing variety testing protocols. Much recent research has tested varieties with two or a few N levels, but almost no research has tested varieties with the 5 or more N levels necessary to measure economically optimal N requirements, as are necessary to formulate N recommendations. Thus options will be developed for modification of existing variety testing protocols to include assessment of N requirements and these options will be shared with Stakeholders at a Workshop. After accounting for stakeholder views, plans for a series of field experiments will be tailored to compare and validate the favoured options; the experiments will determine the minimum number and the levels of fertiliser N treatments, and the minimum extra measurements necessary for precise quantification of the N requirements of winter wheat and winter OSR varieties. Depending on the results, benefits to the public and the industry will be estimated, the most cost-effective methodologies for assessment of N requirements in wheat and OSR variety experiments will be deduced, and these will be recommended and promoted to industry and other stakeholders, including plant breeders and variety testing agencies.