



Horticultural
Development
Company

New Project

FV 351

Understanding Quality
Determinants in Pea Seeds to
improve market opportunities
that promote sustainable
agriculture

Project Number:	FV 351
Title:	Understanding Quality Determinants in Pea Seeds to improve market opportunities that promote sustainable agriculture
Start and end dates:	1 April 2009 to 31 October 2012
Project Leader:	Claire Domoney, John Innes Centre, Colney, Norwich
Project Co-ordinator:	Anthony Biddle, PGRO
Location:	John Innes Centre, Colney, Norwich

Background and project objectives

There is a demonstrable need for a higher contribution of pulses to sustainable agriculture within the UK, due to the soaring costs of nitrogen fertiliser. This is manifesting itself through demands for pulse seeds as break crop alternatives to, for example, oilseed rape in rotations, when the input costs for the latter are becoming prohibitively expensive. An increase in pulse crop area will contribute public goods through a lower energy cost and reduction in greenhouse gas emission. The need for inclusion of pulses in rotations as break crops requiring no nitrogen is, therefore, both public and commercial. A choice in favour of pulses in a rotation offers not only huge savings in growing the crop itself but also a substantial saving and benefit to the subsequent crop, as a consequence of the fixed nitrogen provided by the pulse crop. While increases to the area devoted to pulse crops are attractive to farmers based on input costs alone, further incentives for them to choose to grow pulses may be provided by the market prices and overall profit margins, that are intrinsically linked to seed quality for the human food markets. Additional drivers for growing pulses as fresh vegetable crops exist with a sustained demand by the high-value frozen food industry for home-produced UK crops. Together these factors can contribute to the economic sustainability of farming and also to its environmental sustainability.

Seed quality traits can act as the driver for these changes. Currently, premium prices are offered by home and export markets for pulses of high quality, which can, when realised, influence future choices in rotations. There exists, therefore, the opportunity to reduce the negative environmental footprint of agriculture, as well as sustaining and enhancing the environment, by addressing some of the limitations to seed quality. This proposal will provide information to pulse breeding programmes aimed at quality and end-use attributes by identifying genes influencing or linked to specific traits that enhance quality. The proposal impacts on several key issues relevant to sustainable agriculture in the UK, namely the promotion of sustainable and diverse farming practices, the management of land resources, the improvement of rural economies and lowering adverse environmental impacts of the arable sector. In addition, the project will lead to efficiency gains in current selection processes by developing a knowledge base through a partnership between science and industry.

This proposal also aims to determine the impact of improvements to systems for quality assessment in pulses, and the reality of meeting current and increased market demands, on UK sustainable agriculture by predictive modelling of the consequences of changes to rotations. Land maps and land-use efficiency data will be used in a scoping study to determine the impact of increased pulse area on the environment, building on socio-economic data and models currently under development in relation to climate change.

Further information

Email the HDC office (hdc@hdc.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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