The incorporation of important traits underlying sustainable development of the oat crop through combining 'conventional' phenotypic selection with molecular marker technologies ('OatLink')

LK0954

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Project Partners: IGER, Roslin Institute, ADAS, SW Semundo Ltd, Britis Oat and Barley Millers Association (BOBMA), Bernard Matthews Foods Ltd, British United Turkeys, British Poultry Council, Oat Services, GB Seeds Ltd, Svalöf Weibull AB, Elm Farm Research.

Total project Cost: £4,753,200

Sponsored by: Department for Environment, Food & Rural Affairs & SEERAD

ABSTRACT

The project seeks to increase the value of oats as a profitable component of conventional and organic production for human and livestock consumption. It builds on recent advances through scientific approaches and shared investment combining the various, yet synergistic, industrial interests to exploit the real opportunities for oats as a crop, focussing genetic improvement on differentiated quality markets. The growing of more oats would result in impressive benefits through protecting the environment in terms of lower nutrient and pesticide loads and from increasing biodiversity.

Although farmers, millers and poultry producers have different aims, there is also much in common in terms of the need for economic competitiveness, good agronomic and disease characteristics and the sharing of molecular markers.

Major targets for genetic improvement are

- the identification of new lodging, disease resistant milling quality husked oats protecting and enhancing oats' image and markets
- the entry of oats into least-cost formulated poultry diets resulting from the identification of molecular markers for added-value traits for sustainable production and premium livestock feed.
- To enhance oats as a profitable and sustainable break crop meeting the needs of farmers, industry and society in arable, mixed farming and organic systems.

The use of molecular markers will allow more effective selection for key traits associated with differentiated quality within the context of a real breeding programme to more effectively select for high trait expression. The project will address a number of major issues such as cost and type of marker, population size, robustness and transferability of markers from other species and to diverse populations, and short- and medium term selection gains.