

Eating biodiversity: investigating the links between grassland biodiversity and quality food production

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Introduction Modern food production systems are generally detrimental to biodiversity, and the widespread loss of species-diverse grassland as a consequence of intensive farming methods is well documented. Since the 1980s, a range of policy measures and financial incentives for farmers have been introduced in Europe to halt (and in some cases, reverse) this trend, primarily to meet environmental objectives of species and habitat conservation and landscape protection. Biodiversity, where associated with agricultural production, has largely been regarded as a positive 'externality' to the process of food production; a 'product' which benefits wider society without necessarily conferring an agricultural benefit to the producer. However, with increasing emphasis on food quality, and the marketing of food products by geographical origin, method of production, gastronomic value and nutritional and health properties, there is potential to improve financial returns for farmers and the wider rural economy. Production in which grassland biodiversity is an 'input' to the livestock production food chain are embedded in some speciality systems, notably in mountain areas of Europe (Peeters and Frame, 2002). In the context of conserving grassland biodiversity there is a need to improve our understanding of the links between food products and animal diets, including pasture composition. This paper outlines a 3-year project funded by the UK RELU programme (RELU, 2005) which commenced in 2005. Results are not yet available so this summary focuses on the strategy being followed and the wider implications of linking enhanced food-product value to biodiversity.

Methodology This project is investigating the extent to which environmental distinctiveness (specifically grassland biodiversity) in UK food production sites can be actively valorised through the food product chain. Thus, it addresses the links between product value and pasture composition, and realising potential enhanced values of grassland biodiversity not just in terms of conservation objectives but to deliver socio-economic benefits for producers and rural communities. The approach combines the resources of agro-ecologists, food scientists and social scientists, through:

1. Examining examples of food products and production practices in UK where biodiversity or local distinctiveness in forage resources is an important input in food production, and in doing so create data sets on botanical assessments of grasslands, mineral composition, analyses of components of animal diet including pasture, hay/ silage and bought-in feed;
2. Providing biochemical data relating to final food products (e.g. meat composition / quality testing);
3. Determining the nature and the perception of the quality of food products derived specifically from animals fed on inputs from high biodiversity sources, compared with a control sample of products.

Interpretation and Outcomes Through the involvement of social scientists and rural economists the project will assess the actual and potential role of naturally embedded food products in rural development; draw up effective management prescriptions and identify examples of good practice for the integration of biodiversity as an element of product value; and explore varied regulatory, contractual and other instruments for delivering naturally embedded food products. In developing these outcomes evaluation will be made of existing knowledge in both the natural and social sciences concerning the links between biodiversity and food products and processes, including the impact on rural development.

Discussion The focus on identifying potential for increased value of dairy and meat products associated with biodiversity in forage resources extends societal valuation of species-rich grassland. Maintenance of farmland biodiversity has become increasingly dependent on payments to farmers for land management in ways consistent with delivering environmental goods, recognising that low-input, biodiverse systems have low levels of output. The research challenge is to identify the potential for additional product value linked to grassland biodiversity and thereby unlock benefits in terms of both conservation and rural development objectives.

References

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