

Eating biodiversity: an investigation of the links between quality food production and biodiversity protection

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Modern food production systems have long been thought of as essentially antithetic to the notion of biodiversity. By definition, crop production seeks to concentrate an often highly reduced number of plant species within a given area. This concentration, when coupled with both the removal of natural and vernacular features such as hedgerows, coppices and ditches (considered as hindrances to mechanised forms of agriculture but which are important refuges for wildlife), and the intensive use of chemicals to remove unwanted plant and animal species, has resulted in a well documented decline in UK and European species diversity.

Over the last twenty or so years, successive policy measures and instruments have been introduced with a view to reducing biodiversity loss in agricultural areas and promoting those forms of agricultural practice considered more compatible with biodiversity maintenance and enhancement, such as agri-environmental schemes, the Natura 2000 programme and the development of Biodiversity Action Plans at the national, local and farm levels. These measures and their contemporary expression in the post-Agenda 2000 suite of instruments, including higher and lower tier schemes in England as well as cross compliance rules under the revised EU Horizontal Regulation of 2003, have undoubtedly enhanced the profile of farmland biodiversity and added to the means of its protection.

However, even where land is intentionally managed to promote biodiversity, that biodiversity is still largely conceived as an 'externality' to the process of food production, albeit a positive externality. Biodiversity becomes a product, a beneficial outcome of agricultural enterprise and as such remains, for the most part, peculiarly distinct from the process of agricultural production and from the value of the end-product, food.

What we are doing in this project is inverting the traditional way of looking at farmland biodiversity and its management. We do this by positioning biodiversity as an integral 'input' and resource into quality production systems, rather than as a 'by-product' or (beneficial) outcome.

The inspiration for the project really came for some research I undertook when I was a lecturer in Geography at the University of Paris. I spent some time studying two French cheese production regions; the Comté cheese in the Jura in Eastern France and Roquefort cheese in South Western France. Both of these cheeses are produced locally by groups of farmers. Critical to both is the quality of the grasslands upon which the cows and goats graze. Farmers selling their milk to the Comté and Roquefort dairies have to maintain a specific grassland biodiversity and cannot feed their animals on any other form of feed. The particular natural grassland biodiversity is considered integral to the taste and quality of the product and is thereby critical to the maintenance of its high selling price. The result is a production-driven 'win-win-win' situation that ensures environmental quality through high levels of biodiversity, higher and distinctive product quality, economic gain through higher product prices and an enhanced degree of local social cohesion and arguably purpose in agricultural development.

Now this resonates well with contemporary rural development and environmental management concerns in the UK, in addition to the current research interest in issues of local quality foods, shorter food chains, social and ecological embeddedness and reconnecting producer and consumer interests into a more coherent set of mutual objectives.

So, in more specific terms, our research seeks to investigate, through the combining of social and natural science, the extent to which environmental distinctiveness and quality (specifically the biodiversity of grasslands) in UK food production sites can be actively 'valorised' through meat and dairy food product chains to ensure not only the protection, maintenance and enhancement of that natural distinctiveness and quality but also to achieve similarly distinctive quality food products and the socio-economic benefits for producers and rural communities. Specifically, the objectives of this research are:

- To evaluate the existing knowledge in both the natural and social sciences concerning the links between biodiversity and food products and processes, including information on the management systems and final product quality as well as the impact on rural development;
- To assess the environmental, economic and social conditions associated with quality food products drawn from countries outside the UK where biodiversity and associated natural environmental traits are considered integral to food production;
- To examine a selected number of naturally embedded food products and production practices in England and Wales (and a control sample), where biodiversity or local distinctiveness in forage resources is an important input in food production, and in doing so create the following data sets: botanical assessments of grasslands; mineral composition analyses of components of animal diet (grass, hay, silage and buy-ins);
- To provide biochemical data relating to final food products (e.g. meat composition / quality testing)
- To determine the nature and the perception of the quality of food products derived specifically from animals fed on inputs from high biodiversity sources and to compare this with a control sample of products from standard production chains;
- To assess the actual and potential role of naturally embedded food products in rural development;
- To explore varied regulatory, contractual and other instruments for delivering naturally embedded food products;
- To draw up effective management prescriptions and identify examples of good practice for the integration of biodiversity as an element of product value.

This project is fundamentally interdisciplinary, from the definition of biodiversity and food quality (both of which have natural scientific and social scientific components) to the inter-relationships between social practices and environmental and food quality management. The research will investigate all of the key elements of entire food chains which emphasise biodiversity as an input, enabling a holistic and integrated understanding of how these chains operate, their potential for future development, and how their development might be supported through the application of appropriate regulatory and policy instruments.

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