Comparative Assessment of Environmental, Community and Nutritional Impacts of Consuming Fruit and Vegetables Produced Locally and Overseas

Presentation for the Rural Economy and Land Use Conference

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RESEARCH COUNCILS UK

RURAL ECONOMY AND LAND USE

Co-sponsored by Defra and SEERAD

ifanc

Institute of Food, Active living and Nutrition, Cymru

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WHERE YOUR FESTIVE DINNER COMES FROM
SHERRY: Spain
1,100 miles
WINE: Australia
10,500 miles
TURKEY: Thailand
4,000 miles
CRANBERRIES:
United States
3,000 miles
MANGETOUT:
Zimbabwe
5,000 miles
CARROTS:
South Africa
6,000 miles
RUNNER BEANS:
Zambia 4,900 miles
SPROUTS: UK
125 miles (average)
POTATOES: Italy
1,400 miles
From the Daily Mail 9th December 2004
Source: Soil Association

The Project

- **Main research question:**

  What are the advantages and disadvantages of consuming locally produced fruit and vegetables as opposed to fruit and vegetables produced overseas?

- **Start date: 1st December, 2004**

- **Duration: 3 years**

Generic Methodology

Focus on 3 Scenarios

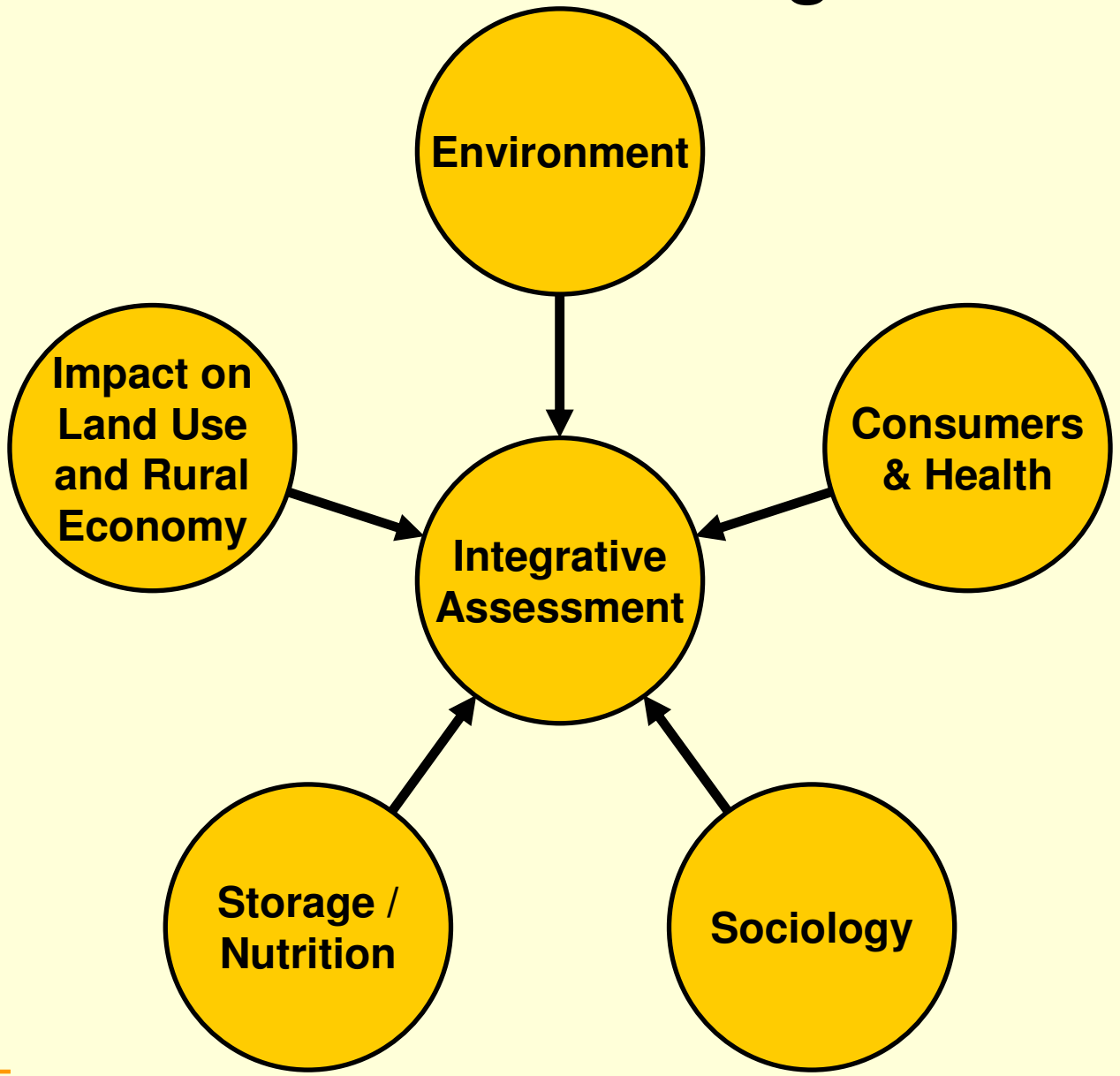
Project divided into 6 work packages, each of which will use data collected from one or more of the following locations:

1. **Domestic production of fruit and vegetables (England & Wales) using 3 rural case study areas matched with urban centres.**
   - **Herefordshire / Bristol.**
   - **Lincolnshire / Hull.**
   - **Anglesey / Liverpool.**

2. **European production of fruit and vegetables (Greece, major exporter of salad crops to UK).**

3. **Non-European production of fruit and vegetables (Kenya, horticultural produce largest currency earner).**

The Work Packages



Environment

- **Objective:**

  What are the environmental impacts of producing fruit and vegetables locally in the UK and overseas?

- **Life Cycle Assessment (LCA) approach adopted;**
- **Input and output data collected on sample of farms from the 3 UK areas, Greece and Kenya;**
- **Measurement of greenhouse gas emissions from fields on farms in the 3 UK areas, Greece and Kenya;**
- **Supported by whole-farm airborne remote sensing (ARS) of UK survey farms using NERC Facility.**

Consumers and Health

- **Objective:**

  To assess consumer perceptions of locally grown and imported fruit and vegetables (in terms of freshness, quality, cost, value for money, taste, appearance, and perceived health benefits);

- **Focus groups to explore issues;**
- **Consumer survey in the three rural areas of UK and corresponding urban centres;**
- **Market research company to be employed;**
- **Discrete Choice Model to be constructed from consumer data collected.**

Sociology

- **Objective:**

  To understand the motivations for eating fruit and vegetables and the importance of the place of origin in this motivation;

- **Explore the significance of *local food cultures*;**
- **Stakeholder interviews to include consumers, restaurateurs, and retailers in the three rural areas of UK;**
- **Qualitative and quantitative data collected;**
- **To include interviews with selected food professionals and health practitioners.**

Storage / Nutrition

- **Objective:**

  To assess the nutritional value of fresh and stored fruit and vegetables (in chilled and/or modified atmosphere environments) in terms of flavonoids, fibre and specified vitamins and minerals;

- **Crops to include 2 examples of each of the following: hard fruit; soft fruit; leafy salad; root vegetables;**
- **Experimental conditions to simulate storage conditions (modified atmosphere and chilling);**
- **3 storage periods used (1, 3 and 6 months);**
- **Range of physical and chemical parameters tested.**

Impact on Land Use and Rural Economy

- **Objective:**

  To evaluate the potential social and environmental impacts of increased production of fruit and vegetables in a case study area of the UK.

- **Isle of Anglesey used as case study area;**
- **Wide range of digitized data available for Anglesey;**
- **GIS used to show areas with greatest potential for fruit and vegetable production;**
- **Farm business data collected from a sample of farms used to assess economic impact;**
- **Data collected from environmental work package used to assess environmental impact.**

Integrative Assessment

- **Objective:**

  What are the advantages and disadvantages of consuming locally produced fruit and vegetables as opposed to fruit and vegetables produced overseas?

- **Bring together results from the other work packages, identifying recorded differences between imported and home grown fruit and vegetables for each work package;**

- **Not all characteristics likely to be equally important in identifying best overall strategy;**

- **Conduct Delphi survey of relevant scientists;**

- **Use information from consumer and health work package as proxy for society's beliefs.**

Relevance

The results from the project are will be of interest and relevance to a wide audience:

- **Consumers / citizens;**
- **Policy makers – climate change;**
- **Development – impact of horticultural exports on domestic food security, environment, economy, incomes;**
- **Public health – drive to encourage fruit and vegetable consumption to avoid obesity and related illnesses;**
- **Horticultural industry;**
- **Scientists.**