

## **13. Delivery Mechanisms**

### 13.1. Introduction

There is an extensive body of academic literature that examines the relationship between agricultural practices and the environment. As well as highlighting many of the pressures on environment, the literature also deals with the positive benefits of agricultural management. There is a range of mechanisms that aim to communicate this wealth of knowledge to the agricultural industry and provide practical measures through which farmers can translate this information into agricultural practice. These mechanisms variously aim to inform, educate and raise the general level of awareness of the agricultural industry of good agricultural practices. A number of these mechanisms are considered below.

### 13.2. Mechanisms of delivery

#### *13.2.1. Publications*

A wide range of information has been published aimed at providing farmers with the information they need to comply with legislation and achieve best management practice. These include:

- Codes of Practice: e.g. Prevention of Environmental Pollution From Agricultural Activity (PEPFAA) (SOAEFD, 1997)
- Publications from other government departments and regulatory authorities, for example Scottish Agricultural College (SAC) and the Farming and Wildlife Advisory Group (FWAG).
- British Standards Specifications, for example, BS5502 Building and Structures for Agriculture which sets out guidance for storage and handling of waste, control of odours, design and construction of storage tanks etc.
- Construction Industry research and information.

This information is supplemented by information from industry groups such as the National Farmers Union, Soil Association and Linking Environment and Farming (LEAF). The information produced covers a very wide range of issues. However, different sources of information will deal with a range of specific issues and may place a different emphasis on these issues depending on the target audience. The challenge for farmers to identify the information that is relevant to their farming circumstances from the information available is considerable. In addition to the advice offered by government extension agencies, such as FWAG and SAC, a number of communication mechanisms are emerging to assist farmers to address this challenge, including environmental management computer (software) programmes, environmental audit schemes and demonstration farms.

#### *13.2.2. Environmental Management Software*

Based on the concept of whole farm management, the Environmental Management for Agriculture (EMA) software, developed by the University of Hertfordshire and sponsored by the Ministry of Agriculture, Food and Fisheries (MAFF), is an example of a comprehensive environmental management tool. This software package brings together information databases and environmental management planning tools. In

addition to collating all relevant information and good practice guidelines, it allows farmers to quickly identify and access information relevant to their farming circumstance. The software, which was initially developed for use by farms in England and Wales, is being extended to Scotland with funding from SEERAD and specifically in relation to nutrient budgetting.

#### *13.2.3. Environmental Auditing Schemes*

Environmental auditing schemes are developing in parallel to environmental management tools. One such example is Linking Environment and Farming (LEAF), a national based audit scheme aimed at helping farmers develop appropriate environmental management programmes and monitor their progress.

#### *13.2.4. Demonstration sites*

Informing farmers of good agricultural practice is only part of the communication process. By providing practical examples of how these measures can be implemented, demonstration farms play an essential role in the knowledge transfer process by translating information into practice. Demonstration farms can also play an essential role in researching the costs to farmers and effectiveness in achieving environmental objectives of different environmental measures. A range of industry and research organisations have demonstration farms (for example FWAG, LEAF, and the SNH TIBRE project).

#### *13.2.5. Partnerships*

Throughout Scotland there are a number of other practical initiatives in place that aim to address local environmental problems. One example is **The Cairngorm Partnership Agricultural Waste Scheme**. This agricultural waste management project included 60 farmers in an initial seminar, 150 farms in a farm waste (not livestock waste) collection service and 60 farms in a farm waste management training program. The initiative was mainly funded by landfill tax credit funding (£51,000).

### 13.3. Discussion

Most of the advisory practice is centred on individual farms. Much of the advice offered is top down, although farm audits do require dialogue and agreement on best descriptions of the farming practice employed. In the context of Scotland the EMA software is not fully applicable. For example, Milne (2001, pers. comm) has suggested there is room for an improvement in livestock auditing.

The use of demonstration farms is attractive as it is the only mechanism through which full farmer participation is involved. The advantages (and disadvantages) of considering the environmental benefits of working at a larger, landscape scale are not being extensively trialed. It is possible that considering geographically connected clusters, (e.g. SNH Natural Care Strategy and various catchment based initiatives) of 'environmentally aware/practitioners' may give rise to greater benefits than islands of environmentally sensitively farmed areas. The exceptions within N.E. Scotland are The Formatine partnership on the Ythan and The Tarland Catchment Initiative.

Further research and consideration of working at this larger geographical scale requires more attention. In addition to the questions to be addressed as to the environmental benefits of having isolated farms against gains that may accrue from having clusters of farms, there is a need to consider the efficacy of different solutions to the same generic problems. In this respect it is important to consider the sensitivity of different farm types and activities in different localities. For example the sensitivity of an area to soil erosion will be strongly influenced by the inherent soil properties and the angle of slope.

Finally, it is not obvious how to link between organisations to avoid replication, such as, the auditing and the establishment of demonstration farms works in relation to delivery of improved environment benefits and costs.

#### 13.4. Policy issues

This commentary has set out examples of mechanisms of knowledge transfer which aim to encourage farmers to voluntarily adopt high standards of good agricultural practice. Despite the wealth of information on good agricultural practice and the range of knowledge transfer mechanisms emerging, there is evidence to suggest that a significant proportion of farmers have yet to voluntarily adopt standards of good agricultural practice (see for example Aitken *et al.*, 2001). Where voluntary mechanisms fail, there may be a need for policy intervention to minimise the negative environmental impacts, and/or maximise the environmental benefits, of agriculture. There is a range of policy mechanisms available to Government, generally classified as regulation or economic instruments. An examination of the relative advantages and disadvantages of alternative policy mechanisms is beyond the scope of this commentary.

#### 13.5. Relevant Organisations

Macaulay Institute, LEAF, FWAG, SAC, LINK, SNH

#### 13.6. Further information

##### **Publications:**

The LEAF Handbook for Integrated Farm Management: A practical guide for the adoption of integrated farming.

##### **Websites**

EMA: [www.herts.ac.uk/aeru/emahome.htm](http://www.herts.ac.uk/aeru/emahome.htm)

FWAG: [www.org.uk](http://www.org.uk)

LEAF: [www.leafuk.org](http://www.leafuk.org)

LINK: [www.scotlink.org/agri.htm](http://www.scotlink.org/agri.htm)

SAC: [www.sac.ac.uk/FARB/External/Services/Advisory/Conservation.htm](http://www.sac.ac.uk/FARB/External/Services/Advisory/Conservation.htm)

**The Cairngorm Partnership Agricultural Waste Scheme.** Contact: Hugh Campbell, SAC, Building Design Unit, Craibstone, Bucksburn, Aberdeen, AB21 9YA.

