

## IMPROVING FARMERS' ACCESS TO ADVICE ON LAND MANAGEMENT: LESSONS FROM CASE STUDIES IN DEVELOPED COUNTRIES

**Chris Garforth, Brian Angell, John Archer and Kate Green**

### Abstract

*Governments which have privatised their advisory services still try to influence farmers' land use and land management decisions in order to achieve policy objectives. At the same time farmers and other managers of rural land need access to increasingly complex and varied information and advice when making land use and business decisions. This paper reviews the range of ways in which advisory services are provided in developed countries.*

### Research findings

- *Governments have a legitimate need to influence land use in the wider public and environmental interest. But design and delivery of advisory services must be based on a coherent understanding of how and why land managers make decisions, particularly those that involve substantial or complex change in management strategy.*
- *Land managers benefit from having an array of diverse services and providers, but may require professional support to identify those most appropriate to their circumstances.*
- *Electronic information and communication technologies (ICTs) can provide cost-effective interactive tools to complement advisory schemes. However the internet is not yet a cost-effective way of distributing information widely: for most land managers it is not a natural choice of information source.*
- *Land managers develop new knowledge through a learning process, not by simple 'knowledge transfer'. Clients value schemes which facilitate learning, confidence building and motivation. This is particularly so where major changes in land use strategy are being considered or promoted, where new skills are required in order to put a desired strategy into effect, and where collective agreement or action is needed.*

### Policy implications

- *Governments should continue to fund advisory services which contribute to policy goals by supporting private sector providers.*
- *Government should not attempt to over-manage advisory services: integration of services should not be at the expense of diversity.*
- *Government should continue to fund the provision of services because of the significant market failures experienced in both the supply of, and the demand for, advice and information.*
- *However, there should be a presumption against growing a public sector capability for delivering advice and information: government funding is more efficiently used to support a diverse set of programmes and services in the private (commercial as well as not-for-profit) sector.*
- *Wherever possible, governments should avoid prescribing 'acceptable' decisions and behaviour for land managers, in favour of the development of local solutions and strategies.*

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## **Acronyms**

CAP	Common Agricultural Policy of the European Union
CBSCs	Canada Business Service Centres
DEFRA	UK Department for Environment, Food and Rural Affairs (from 2001)
EZ/EC	Empowerment Zones and Enterprise Communities
FBAS	Farm Business Advice Service
FWAG	Farming and Wildlife Advisory Group
IAF	Integrated Arable Farming Project
ICTs	Information and communication technologies
LEAF	Linking Environment and Farming
MAFF	Ministry of Agriculture, Fisheries and Food, UK (until 2001)
OCIS	Organic Conversion Information Service
PPP	Profitable Pastures Project
RDS	Rural Development Service
SAC	Scottish Agricultural College
SBDC	Small Business Development Centre
SBS	Small Business Service
SME	Small and medium-sized enterprises
Teagasc	Irish Agriculture and Food Development Authority

# IMPROVING FARMERS' ACCESS TO ADVICE ON LAND MANAGEMENT: LESSONS FROM CASE STUDIES IN DEVELOPED COUNTRIES

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## 1 INTRODUCTION

### Background to the research<sup>1</sup>

In many developed economies, former public sector extension and advisory services have been progressively commercialised and privatised since the early 1990s. Yet governments' need to provide advice and information to farmers has increased rather than diminished. Governments want to influence farmers' land use and land management decisions in order to achieve policy objectives relating to agriculture, environmental quality, food safety and rural development (Garforth, 2002).

In the specific context of England there has been intense political and public debate about the future of farming, the role of agriculture in the life of the countryside, the extent and modality of support to the sector within the framework of the Common Agricultural Policy (CAP) of the European Union (EU), the future direction of rural development and, in the wake of the BSE and Foot-and-Mouth crises of recent years, how to assure food safety.

Government policy on rural areas in England is set out in the November 2000 White Paper (DETR, 2000), the English Rural Development Programme (MAFF, 2000a) and the Action Plan for Farming (MAFF, 2000b). The overall aim is sustainable development in rural areas, which has environmental, economic and social dimensions. Key policy emphases include:

- diversification of the rural economy – enabling and encouraging diversification of farm businesses, and the development of vibrant, diverse local economies;
- increased emphasis on social and environmental goals in land management;
- local flexibility, with a stronger voice for local people in decisions which affect local services, environment and business.

A common theme in the documents emerging from current debates is the need for a re-think of the ways in which advice and information are made available to farmers.<sup>2</sup> One recent influential report concluded 'we do not think that the current approach to farm advisory services meets the needs of farmers now, or will adequately prepare the industry for the challenges and opportunities of a reformed CAP' (Cabinet Office, 2002). In particular it is suggested that advice is fragmented and that greater integration is needed – at the point of access by farmers – of environmental with production and economic advice.

Against this background, the authors carried out a review of recent developments in the provision of

advice and information in developed countries with the aim of exploring the range of options available and drawing some general lessons for the future provision of advice to farmers. The lessons drawn from this experience are likely to be relevant also for developing countries, where agriculture is increasingly expected to contribute to a complex set of policy goals ranging from environmental protection to poverty reduction. Globalisation is intensifying the need for developing country farmers to have access to a flexible array of information on market opportunities, production standards and food safety, at a time when there are considerable doubts about the continuing viability of government extension delivery systems.

### Objectives and methods

The two main objectives of the research were to:

- (1) develop criteria for the comparative assessment of approaches to the delivery of advice and information to farmers and other rural land managers;
- (2) identify effective and efficient ways of making available to rural land managers information and advice which both integrate economic and environmental content and balance the needs of government with those of land managers.

To achieve these, the research team:

- carried out a wide search of published literature and internet resources to identify recent initiatives which embody innovations in the provision of advice and information to land managers and other decision-makers in rural-based industries;
- prepared a working paper (Garforth and Angell, 2002) reviewing recent conceptual developments with respect to the provision of advice and information; this established a conceptual framework for the remainder of the research task;
- developed a set of criteria for selecting schemes or programmes for comparative review within the agreed conceptual framework;
- prepared 16 case studies, from published and unpublished sources, followed up where necessary and possible by email correspondence with those who have operational knowledge of the selected schemes and programmes;
- conducted a cross-case analysis in order to draw lessons and conclusions.

The rest of this paper is presented in three main sections. The next section reviews changes in the

conceptual frameworks within which discussions about advice and information in relation to land management decisions take place, and current trends in the ways in which advice and information services are provided. This is followed by an analysis of the 16 purposely selected case studies. In order that the lessons drawn are as relevant as possible to the UK situation, all the studies have been taken from Europe, North America and Australasia. They include three which focus on small businesses generally, rather than on farming enterprises specifically. The report ends with a set of conclusions.

## **2 ADVISORY SERVICES: CHANGES IN THINKING AND PRACTICE**

Information and advice are important tools in the achievement of rural policy objectives. The logic seems straightforward. In a liberal democracy and market economy, it is individual land managers who create the future of farming and the countryside, through the combined effects of their decisions on how to use the land and other resources under their control. They need advice and information in order to make decisions within the parameters set by law and regulation. Government wants land managers to make decisions which are consistent with its policy aims and objectives. Government therefore has an interest in ensuring that land managers have access to advice and information that will enable them to make decisions which benefit both the individual management unit and the wider public interest. At the same time, it is important to remember that information and advice on their own may have little or no effect on decisions unless complementary elements are in place.

Information and advice can be distinguished by the degree to which the provider expresses a preference for a specific course of action to be taken by the client or recipient. At one extreme is the disinterested reporting of facts or research results – for example that the effects of tillage on erosion increase with the slope of the land. Further along the continuum is advice to all or a broad category of farmers, for example the advice that farmers should plough sloping land across rather than up and down the slope. At the other extreme would be advice tailored to the needs of an individual farmer, for example that he or she should plant contour hedges on a particular sloping field and introduce a no-till system, supported by an analysis of the costs and returns of doing so. The practical implication of this distinction is that tailored advice is inherently more information-intensive, requiring an input of information about the farm before advice can be formulated. The procedures, methods, staffing and professional expertise needed to provide farm-specific advice are therefore different from those needed for making useful information available to farmers.

At different times and in different contexts, farmers need different degrees of specificity of information and different degrees of guidance on their decisions. At the same time, the providers of information and advice vary in the degree to which they want farmers to respond in a specific way rather than in a way which

best meets the farmers' own objectives. The designers of advisory services need to balance the needs of the farmer for information with the desire of government and other stakeholders to influence his or her behaviour.

To make sure information is as useful as possible to decision makers, providers need to take into account:

- accessibility and ease of use of available sources of information to potential users;
- effectiveness of sources in communicating information to users;
- coordination and integration of sources, to enhance access and usefulness;
- targeting of information to different categories of user, through audience research, testing and feedback;
- matching of content and format to the nature of decisions that may be taken.

Where tailored advice is on offer, providers need to decide:

- the number of options presented to the decision-maker;
- the degree to which the advice includes an assessment of advantages, disadvantages and range and probability of different outcomes;
- whether the service includes continuing support during implementation of the advice.

The last 15 years have seen major debates and changes in thinking about the provision of advice and information.

### *From supply-driven extension to demand-driven information systems*

Traditionally, extension has been seen as the promotion of specific practices or technologies. However, as farms and rural enterprises become increasingly diverse, such a 'one size fits all' approach becomes less relevant. A strategy or solution that is appropriate on one land management unit may not suit a neighbouring one. Röling (1988) charted the move away from seeing extension as a persuasive device for getting farmers to do what someone wants them to do, towards the management of knowledge and information systems so that farmers can gain access to advice and information that will help them in their land management decisions. Systems thinking has focused our attention on the needs of information users, rather than the suppliers (Russell et al., 1989). Each land manager is at the centre of his or her own information system, actively seeking advice and information. Professional advisers do not 'push' particular technologies but mediate between the land manager and multiple sources of information and expertise. However, in the attempt to meet policy objectives, government has to manage the tension between these two views. In the Countryside Agency's Land Management Initiatives, for example, 'promoting the uptake of new ideas and technologies' sits alongside the provision of support to farm-specific decision-making through 'whole farm appraisals' which identify all the natural, capital and human assets within the land management unit.

#### *Relative importance of information constraints*

The assumption that restricted access to information is a serious constraint to land managers' decision-making has been questioned. In an 'information age', there is no shortage of information, nor of channels through which it can be accessed. The design of advisory and information services should be informed by an analysis of the existence of information constraints, their relative importance in relation to other constraints, and their interdependence with those other constraints. If the removal of an information constraint is a necessary but not sufficient condition for land managers to make decisions about future business or land use strategies, then provision of advice and information needs to be part of an integrated package of measures. These may include training and facilitation – to enable people to develop skills and confidence necessary to use information and advice to their advantage. Stewart et al. (2000) report from Australia the use of an interactive group-based farm simulation game to deliver farming systems education to farmers. The combination of group interaction, computer simulation and peer competition stimulated their learning and enabled them to make more effective use of information both from their own farms and from outside.

#### *Theories of decision-making and behaviour change*

A simplistic view of the land management unit is that it operates like the hypothetical economically rational firm of micro-economic theory. It deploys its resources in order to maximise profits or utility in the long term, and uses information to minimise the uncertainty inherent in making decisions which change the direction or enterprise mix of the unit. Perspectives from within and beyond economics have broadened our understanding. Land managers may seek to obtain an acceptable, rather than a maximum, level of profit. They may be motivated by considerations other than profit. A farm is more than a business unit or firm: it is a social unit, whose responsibilities to family and community may have a strong influence on decision-making. Perkin and Rehman (1994) showed the interdependence of personal, family and farm business objectives in decision-making. Others have highlighted the influence of land managers' values and the opinions of other people (Willcock et al., 1999). Personality traits may also play a part. These insights have far-reaching implications for the content and design of information and advice to which land managers might respond.

#### *From top-down to interactive and bottom-up communication*

Communication is the means by which information passes from one person to another. Early models of communication (Shannon and Weaver, 1949; Berlo, 1960) described the process as a transfer of messages from a source to one or more receivers. From this conceptualisation, models of mass media influence and mass advertising developed. The planning of communication campaigns has been seen as the fine-tuning of content and careful selection of channels to ensure that 'target' audiences are exposed to and are

likely to respond to the 'messages' which government or business want them to accept or respond to. More interactive models of communication play down the notion of accepting messages, and highlight the fluid roles and varying objectives of those involved in a communication process. Rather than getting across a pre-determined message, most human communication seeks to develop new understanding between parties to the communication – a process in which static notions of 'senders' and 'receivers' are inappropriate.

At the same time, 'horizontal' communication within a social system is recognised as an important process in the articulation, sharing and exchange of ideas among land managers. An almost universal finding from studies of farmers' sources of information and influence is that 'other farmers' are their most frequently reported source. Advisory and information services can facilitate this process by (for example) arranging cross-visits. However, as the markets for the outputs of land-based enterprises become more competitive and further removed from support, land managers may become reluctant to share information and knowledge with their peers. Knowledge gained from experience gives a competitive advantage and therefore has an economic value. A study by the ADAS consultancy group for the Ministry of Agriculture, Fisheries and Food (MAFF) in 1997 found a decreased willingness among producers in specialist sectors such as horticulture, mushrooms, pigs and poultry to share their knowledge with potential competitors (Angell et al., 1997).

The practical relevance of these more interactive notions of communication is seen in the success of action research-based, iterative programmes in which professional advisers and land managers seek to learn together the most appropriate ways of moving forward in a specific context. The LandCare movement, developed initially in Australia (Campbell, 1994) and New Zealand but now having an influence more widely (Garrity, 1999), is a well known example. Farmer Field Schools have been shown to be more effective in stimulating farmers' acceptance of new approaches to pest management than traditional message-based extension programmes (Gallagher, 1999; Garforth, 2000). Visser et al. (1998) report on the application of this approach to co-learning for the management of soil nitrogen. More recently, the importance of negotiation in reaching land management decisions has been highlighted by work in The Netherlands (Röling and Wagemakers, 1998; Aarts and van Woerkum, 2001). Ison and Russell (2000) set recent experience in extension and technology development in pasture-based farming in Australia into a clearly formulated systems framework. More generally, the importance of horizontal communication and learning is seen in the re-emergence of interest in group methods of conducting advisory work.

#### *From individual to collective decision-making*

Advisory services are usually designed on the premise that the key decisions are those taken in respect of individual land management units. The search for more sustainable forms of land use (including agriculture)

has shown up the interdependence of land management units. The Landcare movement, for example, is essentially a collective endeavour. Individual decisions are taken against the background of a wider consensus among neighbouring units. This has profound implications for the way in which advisory services are provided.

*From community to interest groups*

The notion of ‘community’ is increasingly contested. The word implies common-ness, a similarity in world-views, aims and values. In reality, most rural ‘communities’ contain a range of contrasting views and interests. Professional services and political processes both have a role to play in negotiating consensus or compromise. Røling and Jiggins (1998) speak of the need for ‘platforms’ from which views and interests can be articulated, debated and negotiated.

*Public sector role in financing and delivering advice and information*

The main arguments that governments should fund advice and information for land managers are based on the concept of market failures (Cook and Sachs, 1999). There are two elements to this:

- (a) Information is often thought of as inherently a public good. It is both non-excludable (a person who acquires it cannot stop other people from using it) and non-subtractable (or non-rival – one person’s use of it does not diminish the supply for others to use). A user will not be prepared to pay the full cost of acquiring something that others can access without paying: it will therefore be under-supplied by the private sector in a free market. Information and advice may also be ‘merit goods’ – i.e. their full value may not be recognised by land managers who will therefore purchase sub-optimal amounts.
- (b) Providing information and advice is an essential part of any package of measures to correct other forms of market failure, such as externalities (including environmental effects of land use decisions), high transaction costs, moral hazard and asymmetric information. Transaction costs include those involved in accessing and evaluating information and advice from different sources,

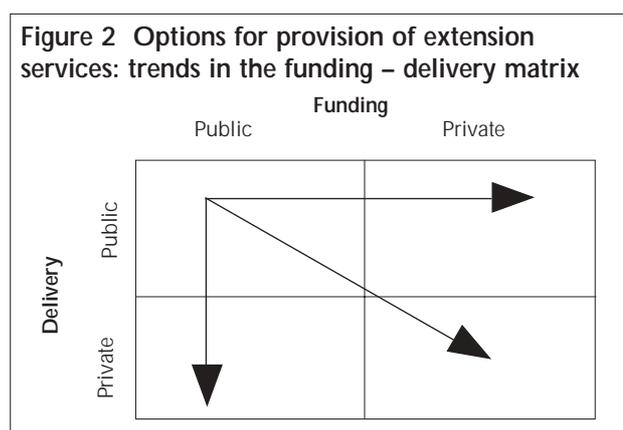
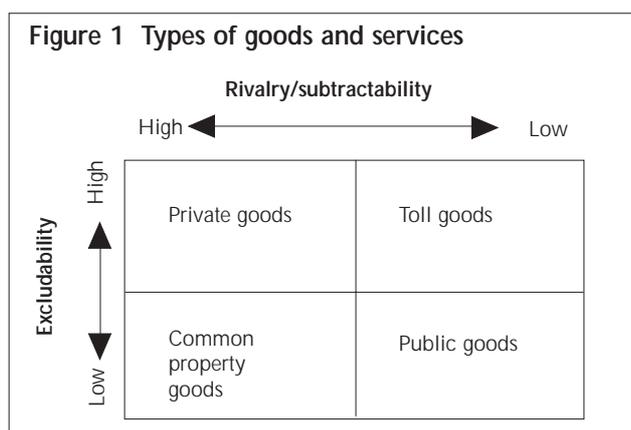
which may also lead to sub-optimal use by land managers (Kydd et al., 2000).

With respect to (a), however, information and advice are not necessarily public goods: they can fall into different categories within the public-private goods matrix (Figure 1).

Advice tailored to the specific circumstances of an individual land management unit which is of little direct relevance to others can be classified as a purely private good. A manager will in principle be prepared to pay for it, and it should therefore be supplied at an appropriate level by the private sector. Information and advice can also be turned from public goods into toll goods through various institutional arrangements, such as making information available only to those who pay a subscription. With (b), an appropriate mix is needed of advice and other measures, including regulation. Two explicit strands in UK government policy are to keep regulation to a minimum, and not to provide support where it is more appropriate for it to come from the private sector. At the same time, EU legislation already in place will inevitably mean an increase in regulation for many land managers. An example is the 1991 Nitrates Directive, which requires member states to take action to reduce water pollution by nitrate from agricultural sources. After a ruling by the European Court of Justice in 2000, the UK government is having to designate Nitrate Vulnerable Zones (NVZs) within which farmers’ use of nitrogen fertilisers, animal manures and their storage of slurry will be strictly regulated – and farmers will have a legal obligation to keep records that will allow government agencies to check their compliance (DEFRA, 2002).

Government can influence the supply and use of information and advice without directly funding it. Quality assurance of advisory services (where this is not provided by voluntary codes of practice and professional registration schemes) can be backed by legislation, regulation and inspection. It can be made a condition of receipt of public funds for research that the researchers make the findings freely and readily available.

Services funded (or part-funded) by government can be delivered in various ways. Until 15 years ago, most countries in the world had agricultural advisory and



information services which were delivered by government ministries, departments or agencies. Some European countries funded services through farmers' organisations. The situation now is much more varied. Some governments have divested themselves of a capability to deliver advice and information and contract private sector companies to do it for them. Others still maintain their capability. Arguments for divestiture are based on changing notions of governance and the proper role of the state, and on the assumption that private sector delivery will bring efficiency and cost savings through competition for contracts and by moving services beyond the constraints of public service personnel regulations and procedures. There may be merit in partnerships between public and private agencies: Haug (1999) argues that different partnership arrangements may offer a win-win situation where the advantages of public extension (e.g. open access) combine with private sector efficiency, capital and market orientation.

Figure 2 depicts a matrix of the main combinations of financing and delivery, and indicates the global trends in recent years from the top left hand box to the top right (commercialisation, cost recovery), bottom left (contracting out delivery to the private sector) and bottom right (privatisation). Marsh and Pannell (1998), for example, note policy changes towards out-sourcing, cost-recovery, formation of industry partnerships, cost-sharing, and greater participation of stakeholders in the development of initiatives that affect them. In Australia, where there still is a publicly funded and delivered extension service, government is increasingly focused on public goods services; the private sector is becoming more involved in both funding and delivery of extension. Some countries (New Zealand, England and Wales, The Netherlands) have privatised former government extension or advisory services. In other countries, such as the USA and Ireland, government remains a major deliverer as well as funder of such services.

### 3 THE CASE STUDIES

#### Selection and description

In order to select and analyse cases of recent experience in the provision of advice and information, it was necessary to establish both an analytical framework and a set of criteria for selecting the cases. In the literature, several typologies have been used to classify and compare extension or advisory approaches (e.g. Axinn, 1988; Feder et al., 1999; Röling, 1995). These are not particularly useful for the purpose of analysis and comparison: the categories within them are not mutually exclusive (e.g. a 'university-based extension approach' may incorporate elements of a 'commodity approach' and a 'group approach'), nor are they based on sets of consistent criteria. The discussion in Section 2 suggests that we can identify a set of dimensions along which any particular extension or advisory programme can be located (Garforth and Lawrence, 1997); the extension approach can then be described as a set of positions along those dimensions (Figure 3).

A programme may have a very specific focus on business objectives; or it may be attempting to address broader social policy goals, such as social inclusion or environmental goals. Similarly, its resources may be targeted on and promoted among a particular category (defined, for example, by enterprise, poverty level or geographic area) or may be offered to anyone who wishes to take advantage of it. Some programmes will seek to promote a specific view of what decisions the users of its services should take; others will have no pre-determined view but will aim to help clients take decisions which will meet their own objectives. While some programmes may have as an explicit objective the transfer of new technology to land managers, others are more concerned to facilitate a process of enterprise and community development which will remain sustainable beyond the life of the programme. Some seek to influence decisions on individual units, others address collective decision making. Some offer purely

Figure 3 Dimensions of an extension or advisory approach

Dimension		<<	<	>	>>	
Focus	business					social policy goals
Specificity of clientele	narrow target category					broad or unspecified target
Means of influence	promote specific view					help client achieve own objectives
Programme objectives	technology transfer					process
Scale of decision	individual management unit					group, community or area (collective decision)
Scope of service	information and advice					financial incentives within the scheme
Payment for service	clients pay					free to clients
Direction of information flow	top-down					bottom-up
Delivered by	public sector					private sector
Duration	short term campaign					ongoing
Intensity	no one-to-one advice					all one-to-one advice

non-material support (advice, information, training), others have financial incentives built into them. In some programmes, all services are free to the client, in some costs are shared among stakeholders, and in some the client pays the full cost. Information flow may be predominantly top-down, or bottom-up (as in participatory technology development), or somewhere in between. There are clear differences between schemes which operate as short-term campaigns, and those which are ongoing programmes. Programmes also differ in their intensity of interaction with clients or users: some invest heavily in one-to-one advice, others seek to maximise use of less intensive methods. The review in Section 2 suggests some strong trends along some of the dimensions in the matrix (e.g. from technology transfer to process objectives, from top-down to bottom-up flows of information, and from free services to payment by clients). For the purposes of this study, it was appropriate to look for cases which covered as much of the range within the matrix as possible.

Selection of advisory and extension programmes for the case study analysis was based on four criteria:

- (1) Collectively, the cases should cover the full range of positions on the 11 dimensions represented in Figure 3 (the 'extension approach matrix').
- (2) We steered away from English examples because parallel studies being carried out for the Department for Environment Food and Rural Affairs (DEFRA) were covering these in some detail.
- (3) Non-UK case studies would be limited to Europe, North America and Australasia: it was felt there would be fewer lessons to be learned from the major changes going on in advisory services in developing and transitional economies, because of the very different economic and policy contexts.
- (4) Sufficient information covering all aspects of the extension approach, including evaluation information, should be readily available through published and accessible unpublished sources, the internet and personal communication.

**Table 1 The case studies**

No.	Title	Country	Description
1	OCIS – Organic Conversion Information Service	England	Telephone helpline and on-site advice for farmers considering conversion to organic production.
2	LEAF – Linking Environment and Farming	UK	Not-for-profit farmer-led organisation promoting Integrated Farm Management through demonstration farms.
3	FWAG– Farming and Wildlife Advisory Group	UK	Not-for-profit organisation providing whole-farm conservation advice.
4	SAC – Scottish Agricultural College	Scotland	Provides research, advisory, education and training services to fee-paying clients and on contract to government.
5	Teagasc – Irish Agriculture and Food Development Authority	Ireland	Semi-state body serving as the research, advisory and training arm of the Department of Agriculture, Food and Rural Development.
6	DLV Adviesgroep NV	The Netherlands	Private consultancy company, created from the former government agricultural advisory service.
7	Integrated Arable Farming Project	The Netherlands	Government funded project to promote more sustainable farming practices among arable farmers.
8	Ferti-Mieux	France	National programme to mobilise voluntary action, through local projects, to reduce nitrate pollution, co-funded by government and the industry.
9	Online services of CBSCs – Canada Business Service Centres	Canada	Gateway to information for small businesses and start-up entrepreneurs, provided by internet, email, phone, fax and face-to-face.
10	PPP – Profitable Pastures Project	Australia	Industry-funded project promoting participatory research and extension among local groups of dairy farmers.
11	Landcare	Australia	Voluntary groups work together to develop more sustainable local land management systems.
12	Monitor Farms	New Zealand	Farm of a group member used as a focus for learning how new systems and best practice can improve profitability.
13	Private crop consulting	USA	Fee-based private sector services which have replaced State Extension and chemical companies as farmers' main source of advice.
14	SBDC – Small Business Development Centres	USA	Government (federal, state and local) funds 1,000 centres which provide advice alongside financial support to small businesses.
15	EZ/EC – Empowerment Zones and Enterprise Communities	USA	Competitive grant scheme to build capacity of low-income communities to move out of poverty.
16	IFS – Integrated Farming Systems Initiative	USA	National network of learning communities built around the values of sustainable agriculture.

Criterion (4) proved difficult to apply rigorously. There are very few schemes or programmes for which thorough quantitative evaluations have been done; and even fewer which present data which can be directly compared with other schemes or programmes.

The 16 cases are listed in Table 1. Of these, 13 focus on agricultural enterprise and land management advice, the exceptions being advice centres for small and medium enterprises across all sectors (cases 9 and 14) and a community capacity-building programme in the USA (case 15). Four are from the UK (cases 1 to 4), four from other EU countries (cases 5 to 8), one from Canada (case 9), two from Australia (cases 10 and 11), one from New Zealand (case 12) and four from the USA (cases 13 to 16). Non-agricultural examples were included in the expectation that there could be something to learn from successful experience in other sectors. In none of these, however, is the integration of business with environmental advice a major issue.

Figure 4 shows the distribution of the case studies across the positions on the extension approach dimensions. Some positions are more heavily represented than others. Relatively few, for example, are directed at narrowly defined categories of clients; and on the 'means of influence' dimension, most take client objectives as their starting point rather than the 'selling' of a particular point of view or set of recommendations. Most are ongoing programmes rather than short-term campaigns. Overall, however, the case studies give reasonable coverage of the main

points of theoretical, policy and operational interest identified in Sections 2 and 3.

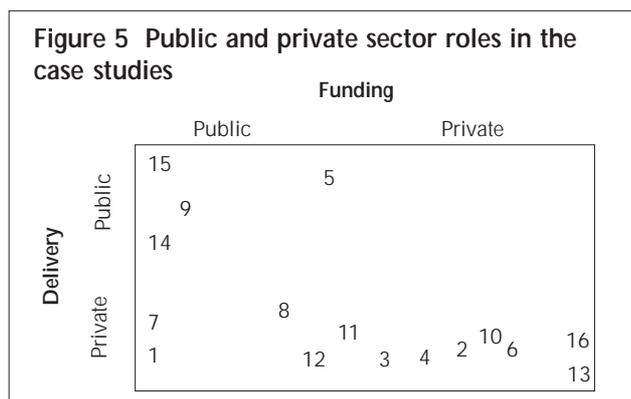
To facilitate comparison and cross-case analysis, each case study was described and analysed using a common template. This covered the policy and economic context of the programme, its objectives and scale of operation, the relationships between key actors, means of delivery of advice and information, a model of the main flows of information, the professional resources deployed, and a summary of costs and benefits.<sup>3</sup>

The case studies reflect the diversity of schemes and methods by which government and the private (both for-profit, and not-for-profit) sector seek to provide information, advice and other non-material support to land managers and rural businesses. Reference here to 'other support' is significant: as seen below, clients value the fact that many schemes go beyond the straightforward provision of advice and information, to processes of confidence building, facilitation of learning and motivation. The specifics of each reflect the objectives, institutional context and the premises underlying it: different approaches and methods are appropriate to different objectives and contexts and are not necessarily transferable to different situations.

Governments are involved in all but one of 16 cases (the exception being private crop consulting in the USA), though to different degrees and in very different roles. These range from a contract with a commercial service provider to deliver specified public interest information or advice (e.g. DLV), to the operation of a service by a government department or agency (e.g.

Figure 4 Case study location on the advisory approach matrix

Dimension		<<	<	<>	>	>>	
Focus	business	6, 9, 10, 13, 14	1, 4, 12	5, 15, 16	2, 3, 7, 8	11	social policy goals
Specificity of clientele	narrow target category	10, 13	12		1, 5, 7, 8, 9, 13, 14, 15	2, 3, 4, 6, 11, 16	broad or unspecified target
Means of influence	promote specific view		2, 7, 8	5, 11	1, 3, 4, 13, 14, 16	6, 9, 10, 12, 15	help client achieve own objectives
Programme objectives	technology transfer		5, 7, 8	1, 2, 6, 13, 14	3, 4, 10, 12, 16	9, 11, 15	process
Scale of decision	individual land management/business unit	1, 2, 4, 5, 6, 7, 9, 13, 14	3, 8, 10, 12	16	11	15	group, community or area (collective decision)
Scope of service	information and advice	4, 5, 6, 7, 9, 13	1, 2, 3, 8, 12, 16	10, 11, 14		15	financial incentives within the scheme
Payment for service	clients pay	6, 13	4	3, 5	2, 14	1, 7, 8, 9, 10, 11, 12, 15, 16	free to clients
Direction of information flow	top-down		1, 5, 7, 13, 14	2, 3, 6, 8, 15	4, 9, 10, 11, 12, 16		bottom-up
Delivered by	public sector	5, 9	11, 15	8, 10, 14, 16	7	1, 2, 3, 4, 6, 12, 13	private sector
Duration	short-term campaign		7, 10, 16		8, 12, 15	1, 2, 3, 4, 5, 6, 9, 11, 13, 14	ongoing
Intensity	no one-to-one advice	2	10, 12, 16	8, 11, 14, 15	3, 4, 5, 9	1, 6, 7, 13	all one-to-one advice



Teagasc), with many variations and combinations in between. This degree of government involvement is not due to the process or criteria for case selection. The cases were chosen to represent the diversity of current provision. Rather, it highlights the extent of government interest in influencing land management decisions, even in countries where the farmer is now expected to buy advice from the private sector. Figure 5 locates each case within the ‘funding-delivery’ matrix.

None of the schemes operates in isolation from other influences. Land managers make decisions within the prevailing legal and regulatory frameworks. However, we excluded from the study cases where behaviour is strictly controlled by legislation and where the role of advice and information is limited to ensuring land managers are aware of their legal responsibilities and have the information and knowledge necessary for compliance. In all the selected cases, the services provided seek to influence voluntary changes in behaviour. The cases illustrate the weight of society’s demands and expectations of rural land managers: agriculture and other rural enterprises are expected to contribute to the national economy, sustain the rural economy, and help to achieve national social and environmental goals. The cases also underline the intense economic and financial pressure faced by rural land-based enterprises and those who manage them.

**Cross-case analysis**

*Information, knowledge and learning*

The cases show the importance of *learning* as the process by which people develop new knowledge. ‘Knowledge transfer’ may be a convenient shorthand and label for a process at industry or sector level in which knowledge generated by research is integrated with technology used within the industry. At the level of the individual land manager, however, it should not mask the reality that knowledge is personal and cannot be transferred (Röling, 1988). Schemes which facilitate learning, confidence building and motivation are particularly valued by clients (IAF, Landcare, and Monitor Farms, for example). Selection of methods and design of approaches must allow for these processes. They are particularly important where major changes in strategy are being considered or promoted (OCIS); where new skills are required before a change of

strategy can be implemented (IAF, IFS); or where collective agreement or action is needed (Landcare).

Schemes which deliberately provide facilitation are more likely to lead to effective use of the information and advice they provide. The term facilitation in fact covers a wide range of support: from assistance to an individual farmer in completing an application for funding (e.g. Teagasc, SAC), to the building up of leadership capacities in communities (PPP, EZ/EC). In different ways, these represent efforts to empower the key actors in land management decision making.

The EZ/EC case shows how the design of project management tools can enhance learning. The internet-based Benchmark Management System allows community groups to plan and monitor their work programmes online, data from which are then also available to the programme for overall monitoring purposes. Evaluations have shown that those groups which use the system develop greater competence in project management. These learning benefits were not anticipated: the tool was seen primarily as a means of monitoring because groups were required to file regular reports through the IT system. The same programme, in its first round of project proposals and funding, provided training in group processes – such as the responsibilities of being an office holder in a group.

Some decisions and land management strategies are inherently more information and knowledge intensive than others. This is especially the case when environmental objectives are strong. Organic farming, for example, requires local solutions and adaptations; and responses to information on crop, animal and soil status are less likely to be based on rule of thumb or prescription. The design of schemes needs to take account of the knowledge and information intensity implied by the objectives and context (as in PPP and Landcare).

**Table 2 Means of service delivery within case studies**

Means of service delivery	Case studies using each as a significant element in their approach
Groups	4, 5, 7, 10, 11, 12, 15, 16
Farm / site visit by adviser	1, 3, 4, 5, 6, 7, 13
Consultancy report	1, 3, 4, 5, 6, 13
Technical literature / newsletters	3, 4, 5, 8, 16
Training	2, 8, 14, 15, 16
Internet – access to information	3, 9, 14, 16
Internet – interactive service	4, 9, 14, 15
Telephone contact / helpline	1, 4, 5, 6
Demonstration site / farm / activity	2, 8, 16
Monitor farm / focus farm	5, 10, 11
Participatory R&D	10, 16
Client monitoring / assessment	10, 11
Video	14, 16
Mass media	8, 15
Volunteers	2, 14
Lead farmers	2, 8
Self-assessment tools	2, 9
Telephone conferencing	10
Pro-active campaigns	5
Farm plans	7

### *Means of service delivery*

There were 20 different information and advisory methods identified in the 16 cases (Table 2). These range from the provision of printed information to intensive interaction in one-to-one advisory visits and group-based activities. Client evaluations and feedback highlight the effectiveness of the more interactive methods. These include internet-based tools, such as the CBSC on-line business planner.

The cases offer some very positive assessments of the effectiveness of group-based activities. Even within services which are focused clearly on business decisions by individual land managers, groups are increasingly being used to good effect (SAC, Teagasc, Monitor Farms). In DLV's consultancy services, by contrast, commercialisation and privatisation have led to a decrease in the proportion of advisory time spent working with groups – although they do use group methods within programmes they implement under contract to government. Groups are a particularly effective way of facilitating learning, confidence building and the assessment of new technology and management options – as seen in the Monitor Farms Initiative and in Landcare. Again, a key outcome of these processes is the empowerment of the group members, which is just as important as the learning of any technology or business management skill.

Decisions on what channels of information and methods of service delivery to include within a scheme must be based on an analysis of what the intended clients (a) can access, and (b) are confident with. The internet and email would seem to offer very cost-effective opportunities for service providers. The ICL/ADAS (2000) report on e-business potential in UK agriculture identifies several promising ways in which ICTs could be used to inform and support those farmers with internet access (53% in a survey of 2000 farms). However, many of the remaining 47% are unlikely to acquire a computer in the near future. DEFRA's Livestock Knowledge Transfer Initiative (Drew 2001) found that the internet was not ranked highly by farmers as a preferred source of information. A recent report by IBM's Local Futures Group (2002) warns of a 'new underclass of people in rural and remote areas who are being excluded from ... online public services by lack of access to technology'. ICT infrastructure will continue to evolve: interactive television may be a more accessible and user-friendly reality in the future than the conventional PC.

### *Public and private goods*

In practice, the distinction between public and private goods is not so clear cut as a purely conceptual analysis suggests. Governments still do fund what seem to be private goods (for example, business advice to individual small and medium-sized enterprises (SMEs) – CBSC, SBDC), because these contribute to broader social and economic goals. Cost-sharing between client and government therefore makes sense. A successful business start in an area of low economic activity has multiplier effects which contribute to building a sustainable local economy and stabilising a rural community.

Several cases explicitly integrate business and environmental goals (OCIS, LEAF, FWAG, IAF, Landcare, IFS), but with differing emphases. OCIS, for example, is premised on the question: 'Does organic conversion make good business sense for my farm?' while FWAG starts from the premise that the land manager wants to make a contribution to public environmental goods and helps him or her to identify affordable ways of doing so. Landcare, IFS and Profitable Pastures start from the assumption that the best options are not necessarily known and facilitate participatory research and development to develop them. Although this study deliberately did not cover many UK cases, it seems that there may be less facilitation of on-farm participatory technology development in the UK than in other comparable agricultural economies: this may be because the technological options are more circumscribed by regulation, or it may simply reflect the dominant approaches that have so far been taken to technology development and 'transfer'.

### *Process drivers*

There is a clear trend towards more client-driven, or demand-driven, processes, even where the rationale of the schemes is that government wants land managers to change their behaviour in order to achieve public goals. This is indicated also in the trend towards 'bottom-up' information flows. In the case of Landcare groups in Australia, for example, much of the funding comes from government, yet the main information flows are initiated by group members who decide the agenda and objectives for their group and are able to call down relevant information from external sources through community-level coordinators and facilitators (Garforth et al., 2002 Annex 1: 47). The cases identify implications of this for staff resources, and for the facilitation of client demand. The former are seen most clearly in organisations that have been through a process of commercialisation (SAC) and privatisation (DLV). Both SAC and DLV experienced considerable turnover of professional staff and recognised the need to invest heavily in re-orientation and training. In SAC's case, this included training in marketing, direct selling to farmers, and business development. DLV note the change in organisational culture, with advisers now more focused on efficiency and service quality. Other cases (e.g. Landcare, Monitor Farms) note the importance of skills in facilitation of learning, conflict resolution and communication.

The success of demand-driven services depends on clients being able to articulate their requirements, and then being aware of and having easy access to services which they think can deliver them. Schemes therefore need to pay attention to marketing their services, and helping clients analyse their situation, opportunities and requirements. The cases provide examples of peer group discussion and analysis (Landcare, Monitor Farms, EZ/EC), self-assessment tools (LEAF, CBSC), and interactive internet tools (CBSC, SBDC) for the latter. Clients are more able to assess the potential benefits of a service, or of engaging with a process, where a scheme is more narrowly defined: more facilitation is

needed in the broader programmes where local solutions and opportunities are the starting point for decision and action. More careful facilitation is also required where the potential risk from an inappropriate decision is high.

Each scheme operates in an information-rich environment; each inevitably adds to the amount of information and advice potentially available to a land manager. Schemes look very different from the perspectives of client, compared to those of the 'champion' or supplier of the service. For the latter, the scheme is a clearly demarcated route to a public interest or commercial objective; to the former, it is one among many schemes, sources and channels of advice, all of which are competing for his or her attention. Schemes therefore need to address how to help potential clients or users assess whether this is an appropriate one for them. Schemes where this is designed into the structure are likely to be more helpful: an example is OCIS, with its structured levels of provision to help a farmer reach a decision on whether a particular course of action makes sense. The design of schemes also needs to take account of complementary, potentially overlapping, and gaps in provision. For example, if training is going to be needed so that land managers can make use of the services offered by a scheme, is it already available or should it be included as an element within the scheme? Schemes can also experience constraints if the professional resources required to deliver them are in short supply.

#### *Private sector delivery*

The cases illustrate (Figure 5) the dominant role of the private sector in service delivery. Advantages of this from the funders' and clients' (who are obviously the same in many situations) perspectives include:

- Efficiency: competition, and reductions in public funding, have led to significant cost savings (for example SAC and DLV, both of which report substantial reductions in overheads).
- Flexibility: government and clients have a choice of service providers.
- Accountability: contractual relationships provide transparent criteria and levels of service.

On the other hand, it has been suggested (Teagasc) that a pluralist array of private sector providers jeopardises the synergy of a holistic, joined up knowledge and information system. This is echoed in recent UK reports referring to fragmentation of advice. Winter et al. (2000) suggest that fragmentation leads to confusion among farmers about where to go for information, duplication and wasteful competition among providers, and geographical imbalance in provision of services. There is little evidence from the cases as a whole that this is specifically a problem of a delivery system dominated by the private sector. Efforts by government or other actors to over-manage the system are in any case likely to be counter-productive. The cases do highlight the individuality and variety of land managers' situations: a pluralistic array of providers is exactly what is needed to meet their needs. The challenge is to ensure that (potential) clients – those who can make effective use of advice and information

– can find their way around the array. Government can play a strategic role in identifying gaps in provision, and then seeking to fill them through a brokerage role or by contracting service providers.

Credibility comes through as an important consideration from the point of view of clients. In some cases, the fact that the service is delivered by the private sector, even when it is funded by government, is a positive feature. This may be more related to clients' assessment, from experience, of individual advisers' expertise and objectivity than any generic perception of private sector credibility. Credibility can be compromised by perceptions of commercial interests. On the other hand, if land managers perceive government as having a policy agenda which is against their interests, they are likely to be wary of government-funded services – and particularly of services delivered by government agencies. Those providing services may need to work at improving and maintaining credibility. In two USA cases, this is supported by accreditation (private crop consulting in Louisiana) or registration (SBDC – registration of volunteers).

It is interesting that the three non-agricultural cases (CBSC, SBDC, EC/EZ) are all delivered primarily by government agencies, albeit in collaboration with a multiplicity of national and local partners. Important here, though, is the deliberate absence of a central blueprint of how the services should be delivered locally, and what form local projects should take. In this respect, their approach is similar to that of the IFS, which is run by a not-for-profit organisation.

#### *Conflicts of interest*

Where a service provider is delivering advice on a commercial or semi-commercial basis to clients and at the same time fulfilling a public interest role, there is a potential conflict of interest. A decision that is in the best business interests of the land management unit does not necessarily optimise the social returns to the community as a whole. In the end, it is the land manager who trades one off against the other, in the decisions he or she makes within the prevailing regulatory parameters. The intensity of potential conflict varies with the institutional arrangements. Where the client is receiving commercial and public interest advice from two (or more) different providers, there is no conflict. Where different sections or staff members of the same organisation are offering the two types of advice (as in the case of Teagasc), the conflict is minimised to the extent that clients recognise their different remits. With SAC, it is often the same adviser delivering the public interest service under agreement with government, while at the same time giving commercial advice under contract to the client. There is no evidence of concern among clients that objectivity may be compromised by conflicts of interest. At an organisational level, potential conflicts are minimised by a transparent recording of advisory inputs against specific contracts with individual clients and with government. What is clear, however, is that the credibility of advisers in the eyes of clients is based on perceived expertise, independence and knowledge of

the local area and land use systems. This, in the end, may determine whether clients see conflicts of interest as a real issue. It is likely that conflicts of interest are a more significant consideration – in the minds of competitors for government contracts rather than in the minds of clients – in situations of greater competition among service providers. Careful drafting of contracts for delivery of publicly funded services can help to minimise the effect of conflicts of interest.

### *Staffing issues*

Advisory services vary in their staffing intensity. Direct comparisons are difficult because of differences in the nature of the service offered and the extent of the changes in land management which might be envisaged. Some schemes make effective use of volunteers to enable them to maintain activity levels above those that would be possible with their own professional staff (SBDC, with its Service Corps of Retired Executives; and LEAF). Others achieve the same by working with networks of collaborating institutions and individuals. This leverage of other staff resources not only contributes to overall efficiency: it enriches the service with a wider set of backgrounds, competencies, insights and enthusiasms.

There is no obvious correlation between intensity and impact: one scheme (IAF) relied on intensive one-to-one advice yet reached only 38 farmers with apparently little impact on surrounding farms. Figures for two cases which offer comprehensive advice to rural land managers on a national scale indicate advisory staff to client ratios of between 1:154 for all contacts and 1:73 (Teagasc)/1:95 (SAC) for contract clients. It is reasonable to conclude from the cases that staffing intensity is not a good indicator of the likely success of a scheme: those with high intensity are unlikely to lead to sustainable change unless they are using their staff resources to facilitate the kind of learning and confidence building that will enable farmers to make future changes and improvements with much less professional input. Managed in the right way, and by staff with the appropriate skills, a lot can be achieved with relatively low intensity.

The staff who deliver a service need to have appropriate expertise, knowledge and skills if they are to be effective and remain credible in the eyes of clients. Trends towards commercialisation of public services, demand-driven processes, the search for locally adapted solutions, and the need for negotiation within and between groups for collective decision-making require a considerable shift of mind-set and a much wider range of knowledge and skills than commanded by most earlier generations of agricultural advisers. At the same time, particularly where farmers are concerned, the cases confirm the fundamental requirement of clients that advisers understand the technology and economics of local farming systems. In some cases (OCIS, for example), schemes have been constrained at least in the short term by a shortage of appropriately qualified personnel. Service providers facing a radical change in their environment have recognised the need to invest heavily in training and re-orientation.

### *Cost-effectiveness*

From the literature available, and despite intensive searching and follow up, it was not possible to compare directly the cost-effectiveness of different schemes. This is partly because there is very little data on the effects and, in particular, the impacts of information and advisory services; and also because the schemes offer very different services in different contexts – the old problem of comparing apples with oranges. The literature review produced quantitative data on activity levels, outputs and/or returns in only six case studies. Qualitative assessments were found in a few other cases – in two cases, these were based on confidential in-house or commissioned evaluations. In future evaluations or assessments of publicly funded schemes, explicit attention should be paid to levels of impact (and the methodology for assessing these) and measures of cost-effectiveness. It is also possible to design the operation of schemes in such a way that much of the data needed for these assessments is generated more or less automatically (as in the case of SBDC deriving monitoring data from groups' use of on-line project management tools).

There are two clear lessons from the cases concerning specific methods of delivery. First, qualitative assessments within the case study literature are emphatic that groups are effective for learning, motivation and confidence building; and cost-effective in terms of resources expended per client (although no figures are available for any of the case studies). Second, interactive internet services are very cost-effective for specific categories of client with access to and confidence in using the technology: CBSC gives a figure of less than 4.6 Canadian dollars per business plan produced.

The limited quantitative data from the case studies do give some indicative costs, and occasionally returns, for the services provided.

- Teagasc's advisory services produce a benefit cost ratio of 2.82:1, with annual benefits to farmer clients estimated as an average of €1270 (c. UK£800) and an increase in farm efficiency of 8%.
- The unit cost of a farm visit under OCIS is £297 and responding to a telephone enquiry costs £45; DEFRA estimates that about one in four of those who contact OCIS eventually enter land into conversion (Hansard written answers to questions, 27 June 2000 (UK Parliament, 2000)).
- The average cost of running a Landcare farmer group in Australia is A\$5000 (c. £1760) per year.
- Monitor Farms in New Zealand yield an average benefit to group members of NZ\$6700 (c. £2060) – which for the group as a whole represents a 20-fold return on an investment of \$25,000 (c. £7700) per year; production on members' farms increases 8 to 37%, and farm revenue by 13 to 31%.
- Advice to small businesses (SBDC) costs around US\$172 (c. £110) per client counselled or trained; and \$1,544 (c. £990) for each business that created or retained jobs.
- Restrictions on funding from government may have a positive effect of increasing the incentive to seek

additional funds from other sources (EC/EZ) thereby maximising the leverage factor.

#### **4 CONCLUSIONS**

Approaches and programmes for providing advice on land management are not always directly transferable from a country or sector in which they have been successful. A programme will succeed not simply because of its design, but because of the coherence between its design and the environment in which it operates – which includes the resources available, the regulatory regime, patterns of incentives within the rural economy, and the skills and expectations of the various stakeholders. Successful implementation may also depend on the enthusiasm of an individual committed to promoting it within his or her particular institutional setting. Any proposal to try in one country an approach which has been used elsewhere must be based on a careful comparison of the contexts and an assessment of whether the supporting factors which contributed to its success are likely to be in place in its new setting.

Schemes and programmes must build in provision for facilitation in order to maximise the effective take up of services, particularly by those who face the greatest transaction costs or the greatest lack of skills and confidence. Facilitation may include training, design of user-friendly forms and self-assessment materials, and structured activities and processes with groups. The appropriate form will vary; in all but the most straightforward task of making information available, however, potential clients will need some assistance or support in using the information and advice which is on offer. The facilitation may be done by the same organisations and personnel as are providing the advisory service; or in more complex situations (such as capacity building within community groups) a separate provider may be appropriate. With publicly funded programmes, resources for facilitation can be put in the hands of community groups in order to ensure accountability of facilitator to client. Although 'provision of advice and information' sounds inherently a one-way process, full interaction between providers and users at all stages from initiation to evaluation is essential to effective service delivery.

Integration can combat fragmentation. However integration can mean different things. In the present debate in England about provision of advisory services, integration can be said to cover the need:

- for synergy between business-oriented advice and environmentally oriented advice;
- for inclusion of appropriate succession and retirement advice for farmers;
- for improved links and continuity between research, advice and training;
- for diminished fragmentation in geographic coverage and content of services;
- for seamless delivery of the various government advice programmes – for example planning advice, conservation advice and farm business advice.

In all these forms of integration, the solution is not necessarily to bring all advice under one roof. As noted

above, services delivered by the public sector can be just as fragmented as those in the private sector. It is more important that it is clear to potential users what kinds of advice are available and from where, and that accessing the appropriate advisory services is straightforward. Whoever a potential user goes to should be in a position to help him or her identify – from the many available and accessible sources – which are the most appropriate and then help them make contact. Government should not try to manage the whole information system. It can, however, play an important brokerage role; it can also identify, through research, market failures and gaps in public goods and public interest provision which can be plugged in various ways – including contracting private sector providers. The detailed specification of such contracts, together with professional codes of practice, can help to foster integration at the level of the individual user. For example, a requirement that those giving business advice should integrate it with appropriate advice on environmental and other public interest matters would help to ensure that the adviser provides a brokerage role between the client and multiple sources of information. In the end, it is the individual land manager who integrates advice in the decisions he or she makes in respect of the land management unit. Providers of information and advice can assist by making the links between business and environmental considerations explicit in all their information materials and services.

Change takes time. A one-shot injection of information or generic advice will rarely lead to instant decisions and changes in land managers' behaviour. The more complex the change, the greater the perceived risk and the more people who need to be involved in the decision to change, the more time and support is likely to be needed. This has major implications for the design of advisory schemes: the more complex the change, the more the scheme will need to move beyond focusing simply on accessible provision of accurate and relevant information, to the kinds of facilitation referred to above.

Advice will be more effective if it is based on a clear understanding of how and why land managers reach decisions. Schemes underpinned by a well-founded model of human learning and behaviour change are more likely to succeed than those which make unreasonable assumptions about the significance of information and knowledge constraints. Relevant questions to ask in a particular context are what are the constraints to change? What factors are driving land managers' decisions? How do land managers trade off business, social and personal factors? The answers to such questions will not be uniform: they will vary from farmer to farmer. But there should be sufficient commonality within recognised categories of farmer to enable schemes to be designed accordingly. The kinds of decision or change which land managers may be expected to make will be relatively easy to identify if a scheme's objectives have been clearly specified – along with the criteria for determining whether they have been met and the means by which data will be compiled in order to make that assessment.

Training for staff involved in delivering services improves their performance and the overall effectiveness and efficiency of advisory schemes. It is particularly important for advisers who need to broaden their skills beyond the technical or scientific discipline in which they were trained, into areas of communication and facilitation. Training for clients may, in some situations, be an essential element of facilitation. But training will have little lasting effect unless supporting infrastructure and incentives are in place.

Surprisingly few of the advisory schemes and programmes studied in this review are premised on the once-dominant 'technology transfer' model. Blueprint solutions have been discarded in favour of more client-focused, adaptive approaches. These have achieved considerable success – in identifying technical solutions to local problems, in capitalising on local opportunities for improving efficiency of production, and in galvanising local action to improve economic performance and quality of life. There is still, however, scope for wide variation in the extent to which the range of possible decisions and behaviours is prescribed. The case studies – though these are not in any statistical sense representative of advisory schemes and programmes as a whole – suggest that land managers in Europe may be more circumscribed by regulation as to the range of decisions they can take than their counterparts in Australia, New Zealand and North America. An alternative interpretation is that government initiatives in Europe have been less open-ended and more prescriptive of the range of decisions and actions that can be taken.

This observation reinforces the first conclusion about the transferability of approaches from one environment to another. The conclusion is even more apt when the approach may be used for a different purpose than in its original context. A case in point is the Monitor Farm experience in New Zealand. In their original location, their focus is on group activity aiming to improve the farm business. In Wales, where ten monitor farms have been set up under the Welsh Sheep Strategy, the group processes are retained but the focus is on the delivery of environmental goods and there is a greater presence of non-farmer stakeholders in the groups. In England, current discussions about the use of the model suggests that monitor farms are being seen as an instrument for the demonstration of technologies and management practices to individuals which will deliver environmental goods. In New Zealand, decisions on changes in management are made by members of the monitor farm group after discussion of current technical and business performance and consideration of options for improvement: the method will not necessarily work so effectively if it is used simply to demonstrate technologies which have been determined by someone outside the group. The reference in the Curry Report (Cabinet Office, 2002) to 'Demonstration farms on the New Zealand model' suggests such a change in the approach may be intended.

Credibility of those providing the service is a key ingredient to success. Conflict of interest is only likely to arise in the eyes of a client if the adviser mixes his

or her roles when involved in delivering fee-based services as well as publicly funded schemes.

Information and communication technology (ICT) can provide cost-effective interactive tools to support or complement the delivery of advice and information programmes. Where these tools enable users to carry out tasks more confidently and efficiently, such as the CBSC on-line business planner, they have shown high usage levels. Such tools can bring additional benefits in the form of confidence, learning and motivation. Static use of ICTs to deliver information is much less effective. ICTs are certainly not a panacea, but may have a role to play. How big this role is for the majority of farmers will depend on how rapidly access to ICT facilities, infrastructure and skills in rural areas spreads in the future.

Structured access, through a series of filters, to different levels of service makes efficient use of scarce staff resources and expertise. Where these levels are delivered by different providers, however, good communication is required between them to ensure that the client experiences a seamless continuum of service.

At the beginning of this section, we emphasised that approaches are not always directly transferable between contexts. Particular care is needed when translating experience from developed to developing countries. However some of the above conclusions are likely to have widespread relevance in the current debates on reforms of extension services in developing countries. These include the continued need for governments to fund advice to address market failures and policy goals, but without trying to manage the whole knowledge and information system; the importance of understanding farmers' circumstances when designing advisory services; the benefits for farmers of having multiple and diverse sources of information and advice; and the importance of facilitation in order to help farmers make the best use of information and advice in making decisions.

It was not the intention of this review to generate specific recommendations on how advice and information can best be provided to land managers. However, the review does suggest some general principles on which future provision should be based:

- (1) Integration of advisory services should not be at the expense of diversity. From a client perspective, diversity means a rich set of options from which their particular needs are more likely to be met than from a single integrated service. Integration does, however, require support to land managers in finding their way around the multiplicity of sources of information and advice.
- (2) Government should continue to fund the provision of advice and information services, because there are significant market failures in the supply of and demand for advice and information. The boundaries between public and private goods, and between public and private interests, are not as clear cut in practice as in theory. Yet it is clear that land managers face significant transaction costs, risk and uncertainty in accessing and evaluating information, particularly where complex change and

environmental issues are involved. Reducing these costs is likely to bring benefits to society as a whole.

- (3) There should be a presumption against growing a public sector capability for delivering advice and information services: cost-effectiveness and flexibility are more likely to be achieved through contracting private sector organisations to deliver services with well defined goals and appropriate delivery methods.
- (4) There should also be a presumption against prescription of acceptable decisions and behaviours, in favour of broad principles and local development of solutions. It is necessary to balance this presumption with the need for accountability for the use of public funds, and the responsibility of government to deliver environmental, economic and social goals for the nation as a whole. But sustainable rural communities and economies are more likely to emerge from creative processes of identifying problems and opportunities, and developing strategies for dealing with them, than from the implementation of a package of measures developed by others.

## REFERENCES

- Aarts, N., and van Woerkum, C. (2001) 'Land use planning practice: Juggling with uncertainties'. Paper presented at the 15<sup>th</sup> European Seminar on Extension Education, 27–31 August 2001, Wageningen University and Research Centre.
- Angell, B., Chalmers, A., Flint, C., and Francis, J. (1997) 'Agriculture and the rural economy – information and advice needs'. ADAS report for the Ministry of Agriculture, Fisheries and Food, Land Use and Rural Economy Division.
- Axinn, G. (1988) *Guide on alternative extension approaches*. Rome: Food and Agriculture Organization of the United Nations.
- Berlo, D.K. (1960) *The process of communication: An introduction to theory and practice*. San Francisco: Rinehart Press.
- Cabinet Office (2002) *Farming and food – a sustainable future: Report of the Policy Commission on The Future of Farming and Food*. London: The Cabinet Office. [www.cabinet-office.gov.uk/farming/index/CommissionReport.htm](http://www.cabinet-office.gov.uk/farming/index/CommissionReport.htm)
- Cook, L.D., and Sachs, J. (1999) 'Regional public goods in international assistance' in I. Kaul, I. Grunberg, and I. Stern (eds) *Global public goods: International cooperation in the 21st Century*. Oxford: Oxford University Press, for the United Nations Development Programme.
- DETR (Department of the Environment, Transport and the Regions) (2000) *Our countryside: The future. A fair deal for rural England*. (The Rural White Paper). London: TSO. Published on the DEFRA website at [www.defra.gov.uk/wildlife-countryside/ruralwp/cm4909/index.htm](http://www.defra.gov.uk/wildlife-countryside/ruralwp/cm4909/index.htm)
- Drew, B. (2001) 'Knowledge transfer to the livestock industry. Progress in the new DEFRA initiative'. ADAS/IGER/University of Bristol.
- Feder, G., Willett, A., and Zijp, W. (1999) 'Agricultural extension: Generic challenges and some ingredients for solutions'. *Policy Research Working Paper*, No. 2129. Washington: World Bank (May 1999).
- Gallagher, K.D. (1999) 'Farmer Education for IPM' *Sustainable Development International* (1) Available at [www.sustdev.org/agriculture/articles/edition1/01.119.pdf](http://www.sustdev.org/agriculture/articles/edition1/01.119.pdf)
- Garforth, C., and Angell, B. (2002) *KT0110: Improving access to advice for land managers. Policy and conceptual framework*. Research Team Working Paper, January 2002. Reading, UK: The University of Reading.
- Garforth, C. (2002) *ADAS and the privatisation of extension services in England and Wales*. Case study written for the World Bank and USAID workshop on extension reform, held at IFPRI, Washington, 11–14 November 2002.
- Garforth, C. (2000) *R7500: Analysis of farmer decision making in pest management: Synthesis of findings*. Reading, UK: Agricultural Extension and Rural Development Department, University of Reading.
- Garforth, C., Angell, B., Archer, J. and Green, K. (2002) *Improving access to advice for land managers: A literature review of recent developments in extension and advisory services*. Report to the Department for Environment, Food and Rural Affairs on research project KT0110. Reading, UK: University of Reading, ADAS Consulting Ltd and John Archer Consulting.
- Garforth, C., and Lawrence, A. (1997) 'Supporting sustainable agriculture through extension in Asia'. *Natural Resource Perspectives* No. 21. London: Overseas Development Institute.
- Garrity, D.P. (1999) 'The Farmer-Driven Landcare Movement: An Institutional innovation with implications for extension and research'. Bogor. ICRAF. Available at [www.icraf.cgiar.org/sea/Landcare/Data%20Papers/2FarmerDrv/FarmerDrv.htm](http://www.icraf.cgiar.org/sea/Landcare/Data%20Papers/2FarmerDrv/FarmerDrv.htm)
- Haug, R. (1999) 'Some leading issues in international agricultural extension' *Journal of Agricultural Education and Extension* Vol.5, No. 4, pp. 263–74.
- ICL/ADAS (2000) *MAFF's role in e-Business*. Report produced for MAFF by ICL with survey information by ADAS. October 2000. Available on the DEFRA website at [www.defra.gov.uk/ebus/maffrole/contents.htm](http://www.defra.gov.uk/ebus/maffrole/contents.htm)
- Ison, R., and Russell, D. (2000) *Agricultural extension and rural development: Breaking out of traditions*. Cambridge: Cambridge University Press.
- Kydd, J., Dorward, A., and Poulter, C. (2000) 'Globalisation and its implications for the natural resources sector: A closer look at the role of agriculture in the global economy'. Paper prepared for the DFID Natural Resources Advisers' Conference, 10–14 July 2000.
- Local Futures Group (2002) *On the move – mobile and wireless communication*. London: The Local Futures Group.
- MAFF (2000a) 'English Rural Development Programme 2000–2006'. Published on the DEFRA website at [www.defra.gov.uk/erdp/erdphome.htm](http://www.defra.gov.uk/erdp/erdphome.htm)
- MAFF (2000b) 'Strategy for agriculture: An action plan

- for farming'. March 2000. Published on the DEFRA website at [www.defra.gov.uk/farm/agendtwo/strategy/action.htm](http://www.defra.gov.uk/farm/agendtwo/strategy/action.htm)
- Marsh, S.P. and Pannell D.J. (1998) 'Agricultural extension policy in Australia: the good, the bad and the misguided'. *Australian Journal of Agricultural and Resource Economics*, Vol. 44, No. 4. p. 605–627. Available at: [www.general.uwa.edu.au/u/dpannell/dpap982f.htm](http://www.general.uwa.edu.au/u/dpannell/dpap982f.htm).
- Perkin, P., and Rehman, T. (1994) 'Farmers' objectives and their interactions with business and lifestyles: evidence from Berkshire, England', in J.B. Dent and M.J. McGregor (eds) *Rural and farming systems analysis: European perspectives*. Wallingford: CAB International.
- Röling, N.G. (1988) *Extension science: Information systems in agricultural development*. Cambridge: Cambridge University Press.
- Röling, N.G. (1995) 'What to think of extension? A comparison of three models of extension practice'. Paper prepared for the Francophone edition of the AERDD Bulletin. Published on the AKIS pages of the World Bank website: [www.worldbank.org](http://www.worldbank.org).
- Röling, N.G., and Jiggins, J. (1998) 'The ecological knowledge system'. in N.G. Röling and M.A.E. Wagemakers (eds) *Facilitating sustainable agriculture: Participatory learning and adaptive management in times of environmental uncertainty*. Cambridge, UK: Cambridge University Press.
- Röling, N.G., and Wagemakers, M.A.E. (eds) (1998) *Facilitating sustainable agriculture: Participatory learning and adaptive management in times of environmental uncertainty*. Cambridge: Cambridge University Press.
- Russell, D.B., Ison, R.L., Gamble, D.R., and Williams, R.K. (1989) *A critical review of rural extension theory and practice*. Richmond, Australia: University of Western Sydney.
- Stewart, V., Marsh, S., Kingwell, R., Pannell, D., Abadi, A. and Schilizzi, S. (2000) 'Computer games and fun in farming-systems education? A case study'. *Journal of Agricultural Education and Extension*, Vol. 7, No. 2, pp. 117–128.
- UK Parliament (2000) 'Hansard: Written answers to questions' [27 June 2000] London. The Stationery Office. Available online at [www.parliament.the-stationery-office.co.uk/pa/cm199900/cmhansrd/vo000627/index/00627-x.htm](http://www.parliament.the-stationery-office.co.uk/pa/cm199900/cmhansrd/vo000627/index/00627-x.htm). Accessed 9/12/2002.
- Visser, C. and Röling, N.G. (1998) 'A co-learning approach to extension: Soil nitrogen workshops in Queensland' *Journal of Agricultural Education and Extension* Vol. 5, No. 3, pp.179–91.
- Willcock, J., Dreary, I.J., Edwards-Jones, G., Gibson, G.J., McGregor, M.J., Sutherland, A., Dent, J.B., Morgan, O., and Grieve, R. (1999) 'The roles of attitudes and objectives in farmer decision-making: business and environmentally oriented behaviour in Scotland'. *Journal of Agricultural Economics* Vol. 50, pp.286–303.
- Winter, M., Mills, J., and Wragg, A. (2000) 'Practical Delivery of Farm Conservation Management in England'. *English Nature Research Report* No. 393. Peterborough: English Nature.

## CASE STUDY BIBLIOGRAPHY

- Archer, J. (2001) 'Review of current and recent knowledge transfer activities in relation to environmental protection in agriculture'. Report prepared for MAFF Rural and Marine Environment Division by John Archer Consulting, Contract NT 1857.
- Barnett, J. and Verma, S. (2000). 'Private row crop consulting in the USA-Louisiana and implications for interdependency among private consultants, extension and farmers' in W.M. Rivera, W. Zijp, and G. Alex, *Contracting for extension. Review of emerging practices*. Washington: World Bank.
- Barnett, J. and Verma, S. (2001). 'Private row crop consulting in Louisiana and the case for interdependency among private consultants, extension and farmers'. 'Proceedings of the 15<sup>th</sup> European Seminar on Extension and Education, Integrating Multiple Landuse for a Sustainable Future'. August 27–31 2001, Wageningen International Conference Centre, the Netherlands.
- Berbezant, M. and Fleury, M.T. (n.d.) 'France: Ferti-Mieux operation'. Available on World Bank website at: [www.worldbank.org](http://www.worldbank.org)
- Campbell, A. (1998) 'Fomenting synergy: experiences with facilitating Landcare in Australia' in N. Röling, and M.A.E. Wagemakers (eds) *Facilitating sustainable agriculture: participatory learning and adaptive management in times of environmental uncertainty*. Cambridge: Cambridge University Press.
- Campbell, A. (1994) *Landcare: Communities shaping the land and the future*. St Leonards, New South Wales, Australia: Allen and Unwin.
- CBSC Annual Report 1999–2000 available on CBSC website [www.cbsc.org/annual\\_report](http://www.cbsc.org/annual_report).
- Clark, J.J. and Hookham, D.H. (n.d.) 'SAC Electronic Information Service: Keeping staff informed' <http://wcca.ifas.ufl.edu/archive/7thProc/CLARK/CLARK.htm>
- Commins, P. (2001) 'Future perspectives on rural areas'. Teagasc Research Report No. 4488. [www.teagasc.ie/research/reports/ruraldevelopment/4488/eopr-4488.htm](http://www.teagasc.ie/research/reports/ruraldevelopment/4488/eopr-4488.htm) (accessed 27/2/2002).
- DAF (Department of Agriculture and Food) (1999) *Ensuring the future: A strategy for rural development in Ireland: A White Paper on rural development*. Dublin: DAF.
- De Buck, A.J., van Rijn, I., Röling, N.G. and Wossink, G.A.A (2001) Farmers' reasons for changing or not changing to more sustainable practices: an exploratory study of arable farming in the Netherlands. *Journal of Agricultural Education and Extension*, Vol. 7, No. 3, pp.153–66.
- DEFRA (2002) 'Implementing the Nitrates Directive in England' Published at [www.defra.gov.uk/environment/water/quality/nitrate/directive.htm](http://www.defra.gov.uk/environment/water/quality/nitrate/directive.htm) (accessed 11 October 2002).
- DEFRA (2001a) 'Report of the Task Force for the Hills. May 2001'. Published on the DEFRA website at

- www.defra.gov.uk/farm/hillsrep/report.pdf
- DEFRA (2001b) 'England's rural future: Government response to the reports by the Rural Task Force and Christopher Haskins. Progress on implementing the Rural White Paper' (December 2001) www.defra.gov.uk/news/2001/011213a.htm.
- DEFRA (2001c) 'Tackling the impact of foot-and-mouth disease on the rural economy: Report of the Rural Task Force (October 2001)'. www.defra.gov.uk/footandmouth/rural/taskforce/rtf.pdf.
- Fisk, J.W., Hesterman, O.B. and Thorburn, T.L. (1998) 'Integrated farming systems: a sustainable agriculture learning community in the USA' in N.G. Röling and M.A.E. Wagemakers (eds). *Facilitating sustainable agriculture: participatory learning and adaptive management in times of environmental uncertainty*. Cambridge: Cambridge University Press.
- Frawley, J., and Phelan, G. (2002) 'Changing agriculture: Impact on rural development' pp. 22–42 in Teagasc Rural Economy Research Centre Signposts to Rural Change: Proceedings of the Rural Development Conference 2002 held on Tuesday 12 February 2002 at Tullamore Court Hotel. Available online at: www.teagasc.ie/publications/2002/ruraldev2002/ruraldev2002.pdf.
- Gasson, R. and Hill, B. (1996) 'Socio-economic determinants of the level and rate of on-farm innovation volume two – mechanisms of technology transfer in agriculture and horticulture'. Report for MAFF. OCS 945A.
- Gilmour, J. (1998) 'SAC's advisory service' pp. 266–76 in I. Wallace (1998) *Rural knowledge systems for the 21<sup>st</sup> Century: Rural extension in western, central and eastern Europe*. Proceedings of the symposium held at Reading, Cambridge and Edinburgh 6–17 July 1997. Reading: Agricultural Extension and Rural Development Department, University of Reading.
- Green, K., and Norrish, P. (2000) 'Monitoring and evaluating a European project'. Report for the AgriMMedia project. Available on the project website at www.agrimmedia.org
- Greenberg, E., and Reeder, R.J. (1998) 'Who benefits from business assistance programs? Results of the ERS Rural Manufacturing Survey'. *Agricultural Information Bulletin* No. 736–04 Sept. 1998. United States Department of Agriculture Economic Research Service.
- Grossruck, Z.T. (2001) 'A comparative analysis of SME strategies, policies and programmes in Central European Initiative countries UNIDO'. Available on the UNIDO website at: www.unido.org/doc/331004.htmls
- Haskins, C. (2001) 'Rural recovery after foot-and-mouth disease'. DEFRA October 2001. www.defra.gov.uk/footandmouth/rural/taskforce/haskins.pdf
- Hazell, P. (2000) 'Agricultural growth, poverty alleviation, and environmental sustainability: Having it all'. IFPRI 2020 Brief No. 59. International Food Policy Research Institute. Available on the IFPRI website at: www.ifpri.cgiar.org/2020/briefs/number59.htm.
- IFAD (2001) *Rural poverty report 2001: The challenge of ending rural poverty*. Oxford: Oxford University Press, for the International Fund for Agricultural Development.
- Jennings, J. (2001) 'Foucault's farmers; the archaeology and genealogy of agricultural wisdom and extension praxis'. Proceedings of the 15<sup>th</sup> European Seminar on Extension and Education, Integrating Multiple Landuse for a Sustainable Future. August 27–31 2001, Wageningen International Conference Centre, the Netherlands.
- Jennings, J. and Packham, R.G. (2000) 'Action research and issues of participation in the NSW dairy industry'. The World Congress: 5th on Action Learning, Action Research & Process Management, and 9th on Participatory Action Research, Ballarat, Australia, University of Ballarat.
- Jennings, J. and Packham, R.G. (2001) 'Extension's big bang and genealogy: How long-tun history can inform current and future practice. Australasia Pacific Extension Network Conference 2001'. Contemporary extension as a powerful vehicle for regional change. Toowoomba, Queensland, Australia, APEN.
- Jones, G.E., and Garforth, C. (1997) 'History, development and future of agricultural extension'. in B. Swanson (ed) *Improving agricultural extension: A reference manual*. Rome: FAO.
- Leavy, A. (2001) The socio-economic sustainability of rural areas in Ireland. Teagasc end of project research report no. 4497. www.teagasc.ie/research/reports/ruraldevelopment/4497/eopr-4497.htm (accessed 27/2/2002).
- Leeuwis, C. (2000) 'Learning to be sustainable. Does the Dutch agrarian knowledge market fail?' *Journal of Agricultural Education and Extension* Vol. 7, No.2, pp. 80–92.
- MAF NZ (1999) Evaluation of the focus farm and orchard programmes. MAF Policy Technical Paper 99/6. www.maf.govt.nz/mafnet/publications/focus-farm-evaluation/SLM.htm.
- Miller, P., Botham, R., Gibson, H., Martin, R., and Moore, B. (2001) *Business clusters in the UK – A first assessment* Vols 1–3 London: DTL.
- Morris, J., Mills, J., and Crawford, I.M. (2000) 'Promoting farmer uptake of agri-environment schemes: the Countryside Stewardship Arable Options Scheme' *Land Use Policy* Vol. 17, pp. 241–254.
- Natural Heritage Trust (2000) Annual Report 1999–2000. www.nht.gov.au/publications/annrpt9900/land.html
- Pannell, D.J. (2001) 'Uncertainty and adoption of sustainable farming systems'. SEA Working Paper 99/01. Agricultural and Resource Economics, University of Western Australia. Available at www.general.uwa.edu.au/u/dpannell/dpap9901f.htm
- Pooley, J. (1995) 'Rural Stress – growing your business in an adverse climate'. Paper presented at REDA Summer Conference, September 1995.
- Profitable Pasture Project (2000) Milestone report for period ending 30 November 2000.
- Proost, J., and Duijsings, P. (2002) 'Going Dutch in extension: 10 years of experiences with privatized

- extension in The Netherlands' in W.M. Rivera and W. Zijp (2002) *Contracting for agricultural extension: International case studies and emerging practices*. Wallingford: CABI Publishing. Also published on the World Bank website at [www.worldbank.org](http://www.worldbank.org)
- Reid, J.N. (2001) 'Community empowerment – a new approach for rural development'. *Rural Development Perspectives* Vol. 14, No. 1.
- Reid, J.N. and Murray, K.S. (2000) 'Empowering rural communities: A perspective at the five-year point'. Presented at the annual meeting of the Rural Sociological Society, Washington DC.
- Riddell, I. (2001) 'Monitor farms and farmer discussion groups in New Zealand'. SAC report.
- Roberts, K. (2001) Review of learning process in the Profitable Pastures Project. Final report. [www.didco.com.au/projects/large/profitpastures.html](http://www.didco.com.au/projects/large/profitpastures.html)
- Roderick, D., Cook, J., Morris, D., Francis, J., Davies, O., McCalman, H. and Hitchings, R. (2000) *Demonstration farm network review and analysis*. ADAS and Welsh Institute of Rural Studies Report for Lantra and WDA
- Scottish Executive (2001) 'A forward strategy for Scottish agriculture'. Edinburgh. June 2001. [www.scotland.gov.uk/library3/agri/fssa-00.asp](http://www.scotland.gov.uk/library3/agri/fssa-00.asp) (accessed on 26/02/2002).
- Scottish Executive Environment and Rural Affairs Department (2001) *Agriculture facts and figures*. [www.scotland.gov.uk/library3/agri/aff-00.asp](http://www.scotland.gov.uk/library3/agri/aff-00.asp) (accessed on 26/02/2002).
- Shannon, C., and Weaver, W. (1949) *The mathematical theory of communication*. Urbana, Illinois: University of Illinois Press.
- Small Business Administration (2001a) *SBA fiscal year 2001 annual performance plan*. Available on SBA website at [www.sba.gov/aboutsba/2001perf/2001perfplan.pdf](http://www.sba.gov/aboutsba/2001perf/2001perfplan.pdf)
- Small Business Administration (2001b) *Performance and accountability report fiscal 2000*. Available on SBA website at [www.sba.gov/aboutsba/annualreport/2001/](http://www.sba.gov/aboutsba/annualreport/2001/)
- Tacken, W.A.G. (1998) 'Consultancy services in the Netherlands' I. Wallace (ed) 'Rural knowledge systems for the 21<sup>st</sup> Century: Rural extension in western, central and eastern Europe. Proceedings of the symposium held at Reading, Cambridge and Edinburgh 6–17 July 1997'. Reading. The University of Reading, ADAS and SAC.
- Teagasc (2000) 'Annual Review 2000'. Published online at: [www.teagasc.ie/publications/teagascreview2000/index.htm](http://www.teagasc.ie/publications/teagascreview2000/index.htm) (accessed 27/2/2002).
- Thevenet, G., Lescar, L. and Archer, J.R. (1993) 'Communicating the principles of sustainable agriculture to the farmer'. Proceeding No. 347. The Fertiliser Society.
- Thomas, P. (1998) 'The Scottish System' in I. Wallace (ed) 'Rural Knowledge Systems for the 21<sup>st</sup> Century: Rural extension in western, central and eastern Europe'. Proceedings of the symposium held at Reading, Cambridge and Edinburgh 6–17 July 1997. Reading. The University of Reading, ADAS and SAC.
- Reading, Cambridge and Edinburgh 6–17 July 1997. Reading. The University of Reading, ADAS and SAC.
- Torner, L., and Drummond, C.D. (1999) 'Integrated crop management: on-farm experience in Sweden and in the UK'. The International Fertiliser Society. Proceeding No. 43. 44pp.
- USDA (1998) 'Rural Empowerment Zones and Enterprise Communities Initiative – Progress Report'. USDA Rural Development, Office of Community Development.
- van den Ban, A.W. (2000) 'Different ways of financing agricultural extension'. *Agricultural Research and Extension Network Paper* No. 106(b). London: Overseas Development Institute.
- van den Berg, M.H. (2001) 'The agricultural knowledge infrastructure: public or private? An exploratory study about evolving public and private goods and roles'. *SD Dimensions* (FAO on-line journal), November 2001. [www.fao.org/sd/2001/KN1103a\\_en.htm](http://www.fao.org/sd/2001/KN1103a_en.htm)
- Van Weperen, W., Proost, J. and Röling, N.G. (1998) 'Integrated arable farming in the Netherlands' in N.G. Röling and M.A.E. Wagemakers, (eds) *Facilitating sustainable agriculture: participatory learning and adaptive management in times of environmental uncertainty*. Cambridge: Cambridge University Press.
- Wallace, I.R. (ed.) (1998) 'Rural Knowledge Systems for the 21<sup>st</sup> Century: rural extension in western, eastern and central Europe'. Proceedings of the symposium held at Reading, Cambridge and Edinburgh 6–17 July 1997. Reading. The University of Reading, ADAS and SAC.
- Webb, T., Cary, J. and Campbell, A. (2000) 'Contracting to prevent land degradation, an Australian success story' in W.M. Rivera, W. Zijp, and G. Alex, *Contracting for extension. Review of emerging practice*. Washington: World Bank.
- Wielinga, E. (2000) 'Rural extension and vital networks: changing roles of extension in Dutch agriculture' *Journal of International Agricultural and Extension Education*, Vol. 7, No. 1, pp. 23–36. (Also in Kania, J., and Drygras, M. (eds) 1999) *The role of extension education in a global world*. Proceedings of the 14<sup>th</sup> European Seminar on Extension Education. Cracow, Poland. The Agricultural University of Cracow. pp. 218–38.)
- Wijnands, F.G., Asperen, P. and Janssens, S.R.M. (1998) *Evaluation and testing of integrated arable farming systems on innovative pilot farms in the Netherlands*. Brighton Crop Protection Conference: Pests & Diseases – 1998: Volume 3. Proceedings of an international conference, Brighton, UK, 16–19 November 1998. British Crop Protection Council, Farnham, UK.
- Winter, M. (1995) *Networks of knowledge – research, advice, training and education for environmentally friendly agriculture in the UK*. World Wide Fund for Nature (WWF).
- WSS (Welsh Sheep Strategy) (2000) Welsh Sheep Strategy Newsletter, Issues 1 and 2.

## **ENDNOTES**

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- 2 Recent reports which include particular reference to issues relating to the provision of advice and information include *Task Force for the Hills* (DEFRA 2001a), *Rural Recovery after Foot-and-Mouth Disease* ('The Haskins Report' – October 2001) (Haskins 2001), *Tackling The Impact of Foot-and-Mouth Disease on the Rural Economy: Report of the Rural Task Force* (October 2001) (DEFRA 2001c), *England's Rural Future: Government response to the reports by the Rural Task Force and Christopher Haskins; Progress on implementing the Rural White Paper* (December 2001) (DEFRA 2001b) and *Farming and Food – a Sustainable Future: Report of the Policy Commission on the Future of Farming and Food* ('The Curry Report', January 2002) (Cabinet Office 2002).
- 3 The case studies are available on The University of Reading website at [www.reading.ac.uk/IRDD](http://www.reading.ac.uk/IRDD)



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