RESEARCH PROJECT

"Business Competence"

Report on a research project commissioned by Defra to review recent research into business competence amongst farmers, to carry out a stock take of publicly funded measures aimed at raising business competence amongst farmers in England, and to consider the implications for policy

Berkeley Hill

Emeritus Professor of Policy Analysis
University of London (Imperial College)

Report for the Department for Environment, Food and Rural Affairs
April 2007

EXECUTIVE SUMMARY

PART I – DESCRIPTION OF THE PROJECT

- The terms of reference of this project were;
  - to review recent research into business competence amongst farmers, including business competence in relation to diversified activities, and summarise the findings and conclusions and identify where there are still knowledge gaps which require further research to fill.
  - to carry out a stock take of wholly or partially public funded measures and initiatives that are carried out in England, whose objectives, overtly or otherwise, include raising business competence amongst farmers.
  - To consider the policy implications of (i) and (ii).
- Technical competence (for example, in crop and animal production processes) is required for a farm to be successful in the business sense, but this is not the focus of the present study.
- The project was carried out largely as a literature review, with a small amount of discussion with stakeholders.

PART II - RESEARCH INTO BUSINESS COMPETENCE AMONG FARMERS

- Using terminology developed from Rougood et al. (1998), business competence of an individual can be seen as the possession of the personal skills to deal with emerging problems and opportunities at the right time and in the right way, and to carry out the set of inter-related tasks necessary to allow the farm business to adapt.
- These skills can be described; they include business planning (including strategic planning), financial management, people management, sales and marketing, leadership, collaboration, and risk management.
- As the period under consideration increases, the mix of skills involves an increasing component of what are essentially entrepreneurial skills.
- A business may possess competence drawn from the skills and abilities of more than one individual, and the overall competence of the business management will reflect this summation. The way that different people found on a holding have business skills and exercise them to achieve business competence for the farm as a whole is an interesting subject for research.
- Some business skills need not be possessed personally by farm operators (or the persons working in the farm business) if there is a capacity to buy them in (consultants, advisory systems etc.).

- The attributes that determine the competence of a farmer are multi-factor and, while some are capable of change by education or by training (such as in business planning), some are not easily manipulated (such as certain forms of intelligence). Change in these must rely in the longer term on succession and turn-over among the operators of farm businesses.
- The role of general education and its relation to training in specific business skills is complex. The difficultly of distinguishing the impact on business competence of education (which involves the combining of knowledge, skills and abilities, understanding and problem-solving) and that of vocational training is encountered throughout this report. Higher levels of education appear to be associated with greater awareness of the benefits from training and with innovation
- The picture of business competence among English farmers and farms is not entirely clear. Improvements in basic statistics are needed (for example, information on the educational and training of household members, not just the principal farmer), and options to fill such gaps should be considered.
- From available evidence it appears that the formal educational qualifications of England's farmers appear to be relatively low compared with operators of other small businesses.
- In international terms, if comparisons are restricted to HE and FE that are strongly linked to the sector (but including technical subjects), UK agriculture seems to rank about one third from the top among EU Member States, much higher than Italy or Spain but with less than half the levels seen in Germany and France. But it seems to be lower placed when only the larger-area farms in the EU are considered.
- Evidence on the association between factors thought to influence business competence (such as education) and farm performance is less clear-cut that might be assumed, though there is little to challenge view that greater business competence is desirable.
- More specific information could be useful in demonstrating the benefits of taking steps to improve management competence and in encouraging take up of training opportunities.
- Other factors associated with good performance are more determined by biographic characteristics, for example motivation.
- Better performing farm businesses tend to be those that apply specific business skills, in particular planning. Lantra has evidence of skills gaps in specific business skills. The extent to which these gaps handicap the productivity and competitiveness of agriculture is not clear and deserves further research.
- Relationships can be found between change on the farm and educational qualifications and management skills, but these do not seem to be strong. In view of the importance of adaptation of farms and structural adjustment as responses to change, including to shifts in support mechanisms, this is an area in which more research is recommended.

- Many of the routes of by which a farm becomes part of a diversified set of economic activities (such as being run by a pluriactive farmer, and diversification of the business) bring skills into this sector. A competent entrepreneur from a non-farming background will recognise where skills are needed and take the steps necessary to ensure they are available in the types and quantities requiredl. This will include taking up (perhaps not in person) training courses and making use of consultants.
- There is an information gap on the extent to which skills associated with business competency are brought into the sector by pluriactive incomers. This suggests an area for further research.
- Several types of barrier to acquiring business competence by farmers have been identified. These include
    - Personality of the present cohort of farmers
    - Structure of the industry (business size and family nature of farms)
    - Information deficiencies
    - Costs to the individual of education and training
    - Characteristics of delivery mechanism of education and training
    - Time constraints of trainees
    - Lack of social capital (for example, where networking is poorly developed)
- Only some of these barriers are capable of being addressed by policy, of which information deficiencies and avoidance of problems in the delivery system seem the most readily lowered barriers.
- There is evidence for a relationship between age and formal educational qualifications, though this is probably largely a 'vintage' effect and can be expected to be now much diminished.
- Changes in the way that farm businesses are run, with a greater spread of managerial and entrepreneurial responsibility, is probably reducing the relevance of any link with the age of the person recognised for statistics purposes as the principal farmer. This reinforces the need to develop suitable household-level data sources (covering multiple households as necessary).
- No estimates of the rates of return to different forms of education and training in an agricultural context appear to be available, either in general or in relation to business skills. Without this information it is not possible to judge the marginal efficiency of using public resources in supporting education and training in agriculture or to compare alternative ways of improving business competence.
- Estimating private rates of return in agriculture (that is, calculation using the costs and benefits to the individual) and social rates of return (that is, comparing the resource costs and overall benefits, which may be greater than those accruing to the trained person) seem to present a useful avenue of economic research.

PART III – STOCKTAKE OF PUBLICLY FUNDED MEASURES

- In general, education appears to raise national productivity and strengthen the national economy. Attempts to raise the level of business competence in agriculture by training in specific business skills must be seen against the wider background of the provision of education
- Education seems to facilitate enhancing business competence in other ways, such as searching for information, increasing innovation and the greater use of advice and training.
- Comprehensive figures on the supply of education and training using public resources that impacts on agriculture are difficult to come by, not least because education is often generic.
- Courses directly concerned with business competence are only part of this provision and are not well described in data sources.
- Some training in skills related to business competence takes place outside the publicly-supported framework
- Some training is available specifically for people currently working in agriculture. The Vocational Training Schemes (VTS) is restricted to those working mainly in agriculture and closely related sectors. Public spending on the VTS is not large in relation to that going on FE courses and training, which are not restricted to people currently in the industry.
- The provision of VTS courses is not directly demand-led but there is a logic in identifying and filling skills gaps.
- Only about a third of VTS activity is to do with skills that are clearly and obviously related to business competence (and with ICT excluded), though this has risen over time.
- Although the evidence is not yet strong, VTS seems to improve the income of the farm in only a minority of cases, but there are wider effects that may pay off in the longer term.
- The picture of public sector support of training cannot be fully described without reference to activities taking place under the other Structural Funds. The extent of this is not easily judged.
- Though explicitly not covered by this study, public resources are currently involved in the provision of certain forms of farm business advice and benchmarking. Both are tools that competent business operators can use and can be expected to increase the effectiveness of training in business skills. No attempt is made here to consider the case for public funding of advice or benchmarking.

PART IV – POLICY IMPLICATIONS OF THESE FINDINGS

- The rationale for using public funds to intervene in the economy may be expressed in terms of economic efficiency (especially with respect to market failure), equity (in particular assisting groups that are seen as

disadvantaged) and political economy (for example, to secure some political objective, such as agreement to the reform of agricultural policy).

- Public finance of certain types of training can be justified on economic grounds (such as in the provision of environmental services which have public goods characteristics). In contrast, the case for public support of measures to improve business skills may be far less secure, though issues of political economy and equity may be important. The rationale for intervention to raise the level of business competence needs to be set out more clearly than happens at present.
- Because of information deficiencies (a form of market failure), operators of small businesses (including farmers) may not necessarily be the best judges of their own training needs in business competence skills. However, problems are experienced if the supply side determines what is provided. This suggests that a balance has to be struck between the demand expressed by existing farm operators and external assessments of training requirements.
- Problems faced by farmers in gaining business competence skills seem mostly to be common to businesses that are small and located in rural areas, rather than being unique to agriculture.
- There are many aspects of agriculture's performance that would appear to benefit from greater levels of business competence and many policy issues to which it is relevant. In particular, agriculture needs to adjust to the drivers of change (including policy reform) and greater business competence implies that adjustment will be easier. More research seems needed on this important link.
- The existence of market failure does not, by itself, justify intervention. For intervention to be efficient the value of the additional benefits to society that flow from the intervention must be at least as large as the value of public resources used in this way.

- Public benefits from higher business competence brought about by education and training are difficult to measure, as they may stretch over a long period and involve non-market goods and services. Nevertheless, an attempt at valuation should be made and compared with the private and public costs.
- Providing information to farm operators on the private benefits from training may be a candidate for the use of public funds where there is an element of market failure (that is, where voluntary solutions are insufficient).
- The key to improving business competence in the longer terms seems to lie with encouraging higher levels of education, as this appears to heighten awareness of opportunities, including for the use of advice, training and innovation. Education, training, CPD and advice should be seen as part of the same system and undue compartmentalism should be avoided.

CONTENTS

PART 1 – DESCRIPTION OF THE PROJECT

I.1. Background

There is widespread interest in OECD countries with the performance of small and medium enterprises (SMEs). Many countries (including the UK) have research groups that study them and public sector bodies charged with examining how their management can be improved by giving them access to suitable skills, to the benefit not only of the firms themselves but also to the national economy. Examples of literature coming from them include, for the UK, the Council for Excellence in Management and Leadership working group on SMEs (2002b), for New Zealand, Tweed (2005) and Massey (2005), FAS/Enterprise Ireland (2005) and Industry Canada (2005). In addition to national research, a number of international studies have attempted to look at evidence and practices across a range of countries, with particular attention being given to identifying best practice (OECD, 2003; Observatory for European SMEs. 2003). Mostly these studies deal with SMEs in general, though some research is directed at particular sectors, such as firms developing computer software and biotechnology.

Agriculture in England is an industry in which businesses at the bottom of the size range of SMEs dominate the structure in terms of numbers; a similar pattern is found in most other EU Member States. While farms can be expected to exhibit many of the generic characteristics of SMEs, a case can be made that they are also sufficiently different (policy context, location, exposure to risk, family ownership and operation etc.) that a separate look at the issues faced in developing the business capacity of their managements is justified.

Defra's current interest in business competence and how it might be improved has to be set against the long-standing concern by government in improving the performance (and thus the competitiveness) of the agricultural industry. A commonly acknowledged feature of farming in England (though not unique to this country) is the wide variation in economic results among farms of similar sizes and types. The Policy Commission on the Future of Food and Farming (Curry, 2002) drew attention to the range of efficiency in the industry that cannot be entirely explained by factors such as differences in climate or soil quality. Disparities in competence of the operators is likely to contribute to the phenomenon. The competitiveness the sector as a whole might be expected to rise if the management of the lower-performing farms were to be improved. This mirrors the more general finding of the UK Council for Excellence in Leadership and Management (2002a, 2002b) that improving the quality, calibre and capacity of operators of SMEs could have a significant impact on the British economy.

Farm management advice has frequently involved drawing comparison between results achieved by the average farmer and those obtained by the better-performers (such as the top 20%), with searching for explanations for such differences, and with making changes on the less-well-performing businesses so that they can move nearer

the premium group. "Benchmarking"[1] is a development of this practice, and the better managers in agriculture can be expected to use benchmarking as a business tool.

Other factors making this an opportune time to look at business competence in agriculture include the following:

- The introduction of the Single Farm Payment from 2005 is thought to throw greater emphasis onto the need for business skills, both to adapt and to continue farming in the more competitive environment.
- Defra's has a commitment, under Public Service Agreement 2005-08 (PSA4 Productivity), to reduce the gap in productivity between the least well performing quartile of rural areas and the English median by 2008. Improving business competence among farmers is likely to form part of the means by which this may be brought about.
- Defra's participation in the government initiative (co-ordinated by the Department for Trade and Industry) to the Business Support Simplification Programme, announced by the Chancellor in the 2006 Budget, may carry implications for the way that training in business skills is delivered.

According to the documentation that Defra issued when commissioning this project, in recent years there have been various research projects into business competence amongst farmers. There have also been publicly funded measures and initiatives aimed at raising business competence. Business competence links into three key outcomes that Defra is seeking: sustainable farm based businesses, improved environmental performance, and animal health and welfare-friendly food. Defra was aware of the need to carry out a stock take of this research and other activities so that a robust assessment could be made of the requirement for any further work.

I.2. Terms of Reference and research objectives

The terms of reference of this study were as follows:

> To undertake a literature review of research that has been undertaken since 1st January 1995 into business competence amongst farmers, both in the UK and abroad, and to carry out a stock take of wholly or partially public funded measures and initiatives that are carried out in England, whose objectives, overtly or otherwise, include raising business competence amongst farmers, including business competence in relation to diversified activities, and to consider the policy implications.

In a clarification of coverage by Defra, it was agreed that 'business competence' did ***not*** relate to skills in the physical processes involved in agricultural production, such as technical competence in carrying out spraying on crops or in timing of insemination of dairy cows. Nevertheless the management of a farm forms a clear nexus between technical and economic matters, so that business competence must

[1] "Benchmarking: The competence to identify comparative operations an benchmark against key performance indicators." FAS/Enterprise Ireland (2005)

embrace the capacity of management to secure satisfactory levels of technical performance, including the absorption of innovations.

The objectives of this project were:

(i) To review recent research into business competence amongst farmers, including business competence in relation to diversified activities, and summarise the findings and conclusions and identify where there are still knowledge gaps which require further research to fill. In this context research into business competence includes issues such as:
   a. the extent to which farmers have business competence,
   b. impact of business competence on the farm business,
   c. extent to which business competence impacts on development of the business, including uptake of diversification,
   d. extent to which diversification impacts on business competence,
   e. barriers to acquiring business competence,
   f. why some farmers have business competence and others do not,
   g. relationship between age and business competence

(ii) Carry out a stock take of wholly or partially public funded measures and initiatives that are carried out in England, whose objectives, overtly or otherwise, include raising business competence amongst farmers. This includes initiatives not specifically aimed at farmers but available to them.

(iii) To consider the policy implications of (i) and (ii).

I.3. Methodology

These tasks were to be accomplished very largely by a review of literature. This is listed at the end of this report, together with a related bibliography of entrepreneurship in agriculture.

In the typology of reviews presented by P. Davies in the HM Treasury *Magenta Book* (2003), this review is in part one of *narrative type* (for the coverage of business competence training and observed relationships between skills as an input and business outputs such as profits or rates of innovation). An attempt has been made to cover the contents of the main academic journals in agricultural economics and farm management and to explore the 'grey' literature by electronic searches. Relevant work commissioned by Defra has been taken from its website. As far as the stock-take of measures / schemes is concerned, the aim was for a *systematic review,* that is a complete coverage. In synthesising findings caution has been exercised to avoid the main sources of bias and quality problems that are outlined in the *Magenta Book.*

When gathering information on public funded measures and initiatives carried out in England, whose objectives, overtly or otherwise, include raising business competence amongst farmers, the contract foresaw that:

- it might be necessary to go beyond a review of published and unpublished material.
- relevant contacts might need to be consulted.

- coverage of funded measures and initiative should extend to those not specifically aimed at farmers but available to them.

In line with these intentions, a meeting took place with a representative of Lantra (arranged by Defra and with Defra staff participating) and a discussions was held with participants in an Advanced Farm Management course, a Continuing Professional Development (CPD) activity held under the auspices of the Worshipful Company of Farmers at the Wye campus of Imperial College and supported by the Vocational Training Scheme of the England Rural Development Programme[2].

I.4 Structure

Following this outline of the project, Part II reviews the literature on research into business competence and how it relates to the performance of agriculture in England, using the list of issues identified by Defra when commissioning this project as a template, though with additions. In doing so a number of areas are encountered in which the evidence is weak and where it seems important that strengthening should take place. Part III reviews the measures, supported using public funds, that are intended, directly or indirectly, to raise the level of business competence among farmers and farms. Part IV considers the policy implications of the findings.

[2] In relation to later material in this Report, it is interesting to observe that this course does not lead to a recognised professional or educational qualification, is held off-farm, is residential, is intense over a period of several weeks, and involves some direct costs to the individuals taking part. It is also subject to detailed feed back from participants, which helps shape subsequent courses, with a generally high respect for the enhancement that is made to their business skills. In retrospect at least some would have been prepared to bear the entire cost of the course, or recommend that the businesses from which they came did.

PART II – RESEARCH INTO BUSINESS COMPETENCE AMONG FARMERS

II.1 Clarification of the term 'Business Competence'

A necessary early task is to clarify what is meant by the term 'business competence'. In particular, there is a need to differentiate between business competence and the contiguous concept of entrepreneurship. While there is a substantial literature on entrepreneurship (see later), that on business competence is far less extensive.

Business competence is not easily susceptible to precise definition. Rather, it may be described as comprising the ability to carry out a set of tasks associated with running a business over a period. These tasks and the balance between them will reflect parameters of the business, such as its scale of operation. The structure of the land-based industries (including agriculture) in the UK is dominated numerically by micro-business[3], typically operated by farm families with small amounts of hired labour. Their business form is mainly sole-proprietorships and partnerships, though companies (typically family-owned and managed) of some assume greater significance among the larger businesses. Agriculture is frequently combined with other economic activities within the same set of business accounts, particularly among small farms.

In a review of the meaning of 'competence' (in the context of entrepreneurship in agriculture) Bergevoet et al. (2005), drawing on general literature, describe it as the ability to perform specific tasks. This ability reflects underlying knowledge, skills, abilities, personality traits, and know-how that result in effective task fulfilment. These factors shaping competence are (a) context-bound (b) subject to change, (c) connected to activities and tasks, and are (c) interrelated (cited from Stoof et al., 2002). Business management on farms provides one particular context in which specific tasks are performed with competence.

Another perspective is given by Green and Hardill (2003) who point out that 'skill' is a multi-dimensional and dynamic concept, but the idea of competence or proficiency lies at its core. Business competence in the present context comprises a combination of a set of related skills.

Indications of what these skills involve come from a number of sources. For the UK the Council for Excellence in Leadership and Management (2002a, 2002b) reported that the skills which entrepreneurs of SMEs identify as crucial to building strong businesses are abilities with people and with strategic and analytic thinking. A more detailed list of the set of skills for "High Performance Management" practice (also referred to by the term Total Quality Management) in small businesses in general has been articulated by research commissioned for the Expert Group on Future Skills Needs in Ireland (FAS/Enterprise Ireland, 2005). Some 19 skills and abilities are

[3] Lantra's *Skills Foresight 2001* found that sole operators formed 60% of all businesses in the land-based sector (which includes other activities in addition to agriculture), 34% employed 1-10 people and only 6% employed more than 10. Lantra (2001b). Three quarters of all main agricultural holdings in provided work for fewer than 3 regular workers in 1997,

listed; these are reproduced in Annex 1 to this study report. However, the OECD (2003) points out that the composition of the bundle will be rather different for those starting up SMEs from the set that is appropriate to running established businesses. Start ups will need training in formulating business plans, identifying markets, hiring workers and complying with government regulations. More established businesses need skills in marketing and exporting, product development, process improvement, identification and use of new technology, increasing cooperation between staff, enhancing networking, and generally improving adaptability and flexibility.

The specific skill requirements of competent business management in agriculture can be expected to be similar to these, but there may be differences, at least in the balance. One way to map the skills appropriate to agriculture is to observe what suppliers and researchers commonly list as the activities they are attempting to underpin or investigate. The literature reflects a range of levels of professional activity and degrees of completeness of coverage of activities; what is appropriate to assist the operator of a small farm to become more proficient in electronic communications is of a different order of magnitude from the attempt to provide a comprehensive training to the manager of a large and diversified agri-business. Several publications of this type have been encountered.

In the Action Plan for Farming SkillCheck Report, Lantra (2000?) outlined nine key areas that it saw as training needs, which it investigated as preparation for the introduction of the Vocational Training Scheme, a strand within the England Rural Development Programme 2000-06. These areas were as follows:

Financial planning
Business management
Marketing
Resource management
Staff and self management
Looking at new ways of working
Use of Information Communications Technology (ICT)
Conservation and the Environment
Diversification Opportunities

Following on from this analysis of training needs, the various categories under which assistance was offered to activities via the VTS were elaborated. Those that broadly relate to 'business competence' within the RDP are shown in Box II.1. This list reflects priorities seen at the national level, and these may be subject to regional variations. Note that this list excludes training needs related to technical proficiency in agriculture, horticulture, forestry or food production (including animal welfare and hygiene).

Box II.1 Categories of training actions relating to business competence that are eligible for support under RDP (Technical skills in agriculture and horticulture, forestry and food production covered by the VTS are not included in this list)

Information and Communication Technology (ICT) skills – training ranging from the most basic to advanced skills, to enable the use of ICT based business record keeping, planning and farm management systems, and to encourage effective business use of ICT.
Business skills – this covers all aspects of running and operating a business from organising business paperwork and office systems through to the development and implementation of a business plan. The preparation of financial information, its importance and use are also covered.
Marketing skills – areas covered include understanding the needs of customers and consumers, understanding how the market is changing, preparation of a marketing plan and all forms of marketing and promotional activity. Customer care skills, direct marketing to the public and the development of farmers markets will be dealt with under this category.
Conservation and environment skills – this area includes a wide range of activities from the identification of wildlife habitats through to pollution control and the management of fertiliser and pesticide usage. The integration of good environmental practice in farm management plans will be covered as will traditional management techniques and skills e.g. dry stone walling, hedge laying, coppicing, heather and moorland management
Diversification opportunities – farmers and foresters will be prompted to consider diversification opportunities and will be taught the skills required to make diversification a success. This category will cover organic farming methods and will deal with a number of non farming activities. These include hospitality, tourism and leisure and the development of non farming enterprises such as horse and livery enterprises.
Managing resources – this covers the use of all resources e.g. buildings, staff, consultants and inputs such as energy, fertilisers etc. It will also include consideration of the legislative environment within which farming and forestry businesses operate.
Managing yourself and your staff – this category will cover a wide range of personal development issues aimed at both owner managers and their staff. It will cover presentation skills, CV writing, recruitment, interviewing, staff development, effective communications, employment law etc. It will also cover the need to raise awareness of health and safety, animal welfare, hygiene and environmental matters.
New ways of working – training available under this category will encourage farmers and foresters to be receptive to new ideas and in particular to consider new ways of generating income, breaking into new markets and running the business more flexibly. This could include the use of machinery rings, contractors or collaboration with others.
On-farm food production and processing skills – includes packaging, labelling, negotiations with buyers and market development. Trainees will also be encouraged to consider the benefits of co-operative working or ventures. The development of organic food products and niche and speciality food markets will also be covered.

This approach was carried forward into Lantra's *Defra Skills for Business Review* (Lantra, 2005?) which enquired into the competence in six aspects of management:

- Business planning
- Financial management
- People management
- Sales and marketing
- Leadership
- Risk management

In this context competence in business planning implies having a strategic approach that builds on strengths and is subject to monitoring.

Lantra's findings on the extent of competence of English farmers in these aspects of management are considered in Section II.2 below.

In its England consultation document on the development of the Sector Skills Agreement for the land-based industries, Lantra (2005f) was quite explicit on the skills and business requirements that are being thrown into prominence by the change factors to which agriculture (and the other sectors) are currently subject. These included the skills of management and leadership, sales and marketing, innovation and technology transfer, business development (which would include planning), and access to advice, guidance and support. Another feature implied was the need for people to be able to learn, such as by participation in Continuing Professional Development (CPD) course. A competent farm business would thus be expected to possess these skills (Annex 3 of this paper gives the full list, taken from Lantra's 2005 *Sector Skills Agreement Stages 1-3 Report – England National Consultation Document*)

On an anecdotal level, Dalton (2005) discusses the skills that have been of importance to him as a small and part-time farmer (as well as pursuing an academic career in farm management analysis and research). He concludes that information/knowledge can be divided into three components – technical relationships (outside the coverage of this study), economic conditions and financial performance. He advocates that managers should have foundation courses in agricultural sciences, economics and statistics. The framework of legislation and regulation should be taught, as should the foundations of conservation. Other skills highlighted by Dalton are time and management organisation, problem analysis, financial control, and handling uncertainty.

In a review of the skills that a farmer needs to succeed in the farming industry based on interviews (RuSource 2006?), the general picture emerging was that the key ones were business planning, collaborative working and marketing. EFFP (2005) regard the role of collaboration and innovative partnerships in the food chain as paramount to the future of the farming industry. In the USA, work on the top-performing small farms (Perry and Johnson, 1999) found that these were characterised by three features: cost control, active marketing (the use of hedging or futures and options, forward contracting, and spreading sales throughout the year), and the use of effective financial strategies (management of cash and credit). By implication, skills in this areas were important to success.

Another perspective of competence comes from the contents of courses that are designed to equip managers of farms with the skills necessary now and in the future. The longest-established in England is the "Advanced Course in Agricultural Business Management", held in association with the Worshipful Company of Farmers at Wye (formerly Wye College, University of London and from 2000 the Wye campus of Imperial College London). It receives support under the England Rural Development Programme by Defra and the European Agricultural Guidance and Guarantee Fund (EAGGF).

The contents of the AFM courses must reflect what their organisers (who are professionals operating in farm management) consider an appropriate mix. Given the high degree of feedback from the batches of about two dozen participants, who are very largely practicing farmers in their late 20s and 30s and who have achieved managerial responsibility on medium and large holdings, the contents are also a reasonable indication of what practitioners have demanded for application in their home businesses.

According to the publicity material for the 57th ABM course[4] (AEBM, 2006), the overall objective is to provide participants with information, concepts and skills in the management of change. Five particular areas are stressed:

1. The need for a strategic view in the perception of the goals of the business, and of the changes in the environment within which the business operates.
2. The identification of alternative strategies in order to exploit opportunities or to counter difficulties.
3. The evaluation of these alternatives in terms of their contribution to the goals and objectives of the business.
4. The choice and implementation of one of these alternatives given the particular culture and organisation of the business.
5. The management of such changes and the modification of plans where necessary.

The course currently covers six major areas:

1. *Business Strategy and Planning* is concerned with techniques of analysis and evaluation, which assist in the making of decisions. Emphasis is placed on the setting of objectives and the development of medium and longer-term strategies. Practice is given in the use of microcomputers to aid the calculations involved.
2. *Management Accounting and Finance* involves the collection and use of relevant financial and physical data essential for controlling the progress of the business, for effective decisions and for benchmarking. Factors affecting the financial strength of a business are also addressed.
3. *Human Resource Management* examines the behaviour, thinking and values of people acting individually and in groups. It emphasises that business development is associated with personal development. It also looks at the problems of obtaining co-operation and understanding both within and between groups. It is thus concerned with communication, motivation and the development of leadership skills.
4. *Management of the Supply Chain* deals with the internal and external factors, which affect the marketing of existing and potential products from agricultural businesses. Important ingredients include communication with customers and with the market place. It involves an awareness of the influence of changing market structures, particularly with respect to the food industry.

[4] Held early in 2007.

5. *Agricultural Policy and Politics* include an examination of the forces underlying current developments in agricultural policy at the national, the European and the global level. Changes to policy objectives and to policy instruments are discussed in relation to the World Trade Organisation, the CAP and the UK.
6. *The Managerial Environment.* Various aspects are discussed which relate to the general social and economic environment within which the agricultural industry operates. Emphasis is given to the impact of the "green" revolution in public attitudes to countryside affairs generally.

By teaching material in a highly interactive way, participants develop their personal skills and abilities in managing themselves and others. They are encouraged to debate value systems and ethics and to articulate their own attitudes toward social and personal responsibilities. Many would see these opportunities to be a highly valuable outcome of the course. Further details of sessions are given in Annex 2 to this paper)

In a critique of undergraduate courses in the USA (Boland and Akridge, 2004) the authors cite the results of a survey of the skills, capabilities and experiences sought in new graduates who were thought to have potential to become leaders in their businesses in the food and agriculture sector. The responses were given by senior executives of a broad range of food and agribusiness organisations and various industry associations and government and NGOs. Interpersonal communications skills and critical thinking skills rated were rated the most highly (a position that was similar to the findings of previous studies), which embedded the ability to get things done through or influence the behaviour of other employees. These were followed by generic business skills, with knowledge of food and agricultural markets taking a middle-ranking position. Experience in the production activities of agriculture ranked last. This importance attributed to interpersonal skills (including collaboration and networking) and generic business skills broadly reflects the contents of the ABM course at Wye.

At the university and college level the purpose seems to be to provide education rather than task-specific skills. Although the distinction is not a precise one, education in agriculture seems to comprise the following elements (Gasson, 1997, based on literature from the US):

- combining knowledge, skills and abilities
- understanding, managing and problem-solving
- handling inter-relationships and
- taking a broad view of agriculture, the food system and the ecosystem

Summing up, what emerges is that business competence in agriculture involves a package of skills and abilities, the contents of which are very similar to those identified by the OECD for SMEs in general, though many of these will be rather larger than firms found in farming. While the OECD has differentiated between the bundle of skills needed in business start-ups from those required by established firms, in the context of agriculture no such distinction has been encountered in the literature, perhaps because new entrants tend to come from within existing farm businesses.

II.1.1. The relationship between 'business competence' and 'entrepreneurship'

'Entrepreneurship' is another term that is capable of a range of interpretations. The Oxford Dictionary of Economics (Black, 1997) defines an entrepreneur as a person with overall responsibility for decision-taking in a business, who received any profits and bears any losses. Schumpeter (1949) described the entrepreneur as one who reorganises economic activity in an innovative and valuable way. That is, an entrepreneur engages in a previously unknown economic activity and thus is a risk-taker because being innovative means there are few rules or history for guidance (Goldsmith, 2006). A recent Green Paper by the European Commission described entrepreneurship as 'the mindset and process to create and develop economic activities by blending risk-taking, creativity and/or innovation with sound management, within a new or an existing organisation' (European Commission, 2003). The association with 'sound management' is worth noting.

Typically, in agriculture the management of the farm business is undertaken by individuals or groups that are also owners of the business. As such, they are risk-bearers and perform the entrepreneurial function (unlike the purely salaried manager). The residual reward coming from operating the business is a hybrid of factor earning, comprising returns to their own (physical) labour, entrepreneurial input and owned capital and land. Various attempts have been made to partition this reward to the various elements, including the return to entrepreneurship, by imputing costs to labour or land or capital, though the results are not very convincing because of the somewhat arbitrary way in which imputed sums are arrived at.

Probably because in agriculture the managerial and entrepreneurial functions are usually carried out by the same persons, the literature often fails to draw a clear distinction between the two. The VTS coverage, in Box II.1 above, includes training for some tasks that are clearly of an entrepreneurial nature (including diversification, new ways of working, a development of niche markets). The whole process of developing a strategy for the business (in the ABM course) implies an entrepreneurial function, as does much of risk assessment. In summary, the skills needed to manage a business in a dynamic environment (including selecting the responses to policy change) in other than very short term periods requires an entrepreneurial component. In an industry such as agriculture, business competence can thus be interpreted as including an element of entrepreneurship.

However, at least conceptually, the two are distinct. An entrepreneur need not be business competent, as these skills can be hired. In a large company the entrepreneurial function is exercised by the shareholders and the board of directors (who may also hold shares). Many of the managerial tasks needed to keep the business operating are delegated to employees, with specific competences in marketing, regulation, finance, human resources and so on. However, strategic decisions involving risk such as major investments, shifting product mix etc. will be taken at board level using information provided by the company's hired staff and specialist advisors. This risk-taking element is essential for the operation of a business in a market economy.

A substantial literature is building up on entrepreneurship and agriculture. A EU-funded research project, with the title 'Developing entrepreneurial skills of farmers' is

in progress and has generated a literature review of entrepreneurship in agriculture (McElwee, 2005); the list of references covered in that review is shown separately in this report's bibliography. The EU project is to be seen in the context of policy reform and the need for farm operators to respond to changes in their economic environment. Its primary concern "is to recommend ways how conditions of the social, economic, political and cultural framework can be changed in order to facilitate the adoption of entrepreneurial skills for farmers and how farmers themselves can improve their entrepreneurial skills".(p 6 of McElwee, 2005). Both general literature among SMEs and the more specialist (and more recent) area of entrepreneurship in agriculture is covered. The objectives (p10) were:

- To provide a narrative account of farm entrepreneurship based on an analysis of the publication patterns and themes in farm entrepreneurship research in an attempt to provide initial definitions of farm entrepreneurship and entrepreneurial skills;
- To determine the pressures and barriers facing farmers;
- To determine what are the predominant research techniques and the subsequent methods of data analysis;
- To consider what policy implications if any are considered in the literature.

There is some overlap with the present project on business competence, and the journals reviewed in the EU entrepreneurship study included those on business and management, and farm management.

In this review, following work by Vesals (1996), three dimensions of the skills of entrepreneurs are identified, in each of which the entrepreneur is engaged in active, dynamic and competitive economic striving, in a continuing pursuit of opportunity:

> *1. Risk-taking dimension*
> The assumption is that an entrepreneur takes calculated economic risk, but also maximises profit by bearing the state of uncertainty caused by the possibility of failure.
>
> *2. Growth orientation dimension*
> The aim of maximizing the profit by expansion of business activities and growing the firm. The assumption is that entrepreneurs are not satisfied with simply earning their own living, but are expected to aim for growth.
>
> *3. Innovativeness dimension*
> The searching, developing and trying new products, markets, methods and so forth.

In an agricultural context, work on Dutch dairy farms Bergervoiet et al. (2005) dissected competence of (successful) entrepreneurship into the following:

- *Strategic competencies* that relate to setting, evaluating and implement the strategies of the enterprise. They include the abilities exercised in:
  - defining a farm's mission,

  - transferring this mission into objectives, after conducting an internal and external analysis,
  - formulating a strategy to achieve these objectives,
  - implementing and evaluating the strategy.

- *Opportunity competencies* that relate to the ability to scan the environment for business opportunities and are needed to recognise and develop market opportunities through various means. Underlying competencies are
  - general awareness
  - international orientation,
  - market orientation
  - information-seeking competence (to make timely and adequate decisions, entrepreneurs have to be able to search for and find the relevant information on the important factors related to the decisions)

- *Relationship competencies* relate to person-to-person based interactions or individual-to-group-based interactions, e.g., building a context of co-operation and trust, using contracts and connections, persuasive ability, and communication and interpersonal skills. Relationship competencies are an essential part of (and a prerequisite for) the other entrepreneurial competencies. For example, having a large network of peers, advisers, and other contacts facilitates the discovery of new opportunities.

The upshot is that, in the present study, business competence is the main focus but it is not possible to divorce from some consideration of entrepreneurship where adjustment to a changing economic, policy and technical environment is concerned.

II.1.2. What are the factors determining business competence?

The skills in managing a business outlined above are not disembodied but rather are exercised by individuals and groups. Rougood et al. (1998) studied management capacity, which they define as "having the appropriate personal skills …. to deal with the right problems and opportunities in the right moment and in the right way" and is thus closely similar to the notion of business competence. The source of this capacity they divide into two components; (a) personal aspects of the people making the management decisions (e.g. their drives, motivations, abilities and biographical fact(s) such as age, education and experience on the farm, and (b) aspects of the decision-making process itself (e.g. the practices and procedures in planning, implementation and control of decisions). These two are linked because the personal aspects of the manager may influence his/her ability to follow a decision-making process. A manager may possess high personal skills yet fail to achieve high performance for the business if the decision-making process is poor. Thus when considering management capacity both aspects have to be accounted for, and ignoring one will not lead to satisfactory measurement.

Some of the personal aspects (age, education) can be relatively easily measured, whereas others, such as drives and motivations, are harder to detect and quantify. However, Gasson (1973) explored the orientation of farmers towards their businesses (grouping them into intrinsic, expressive, social and instrumental). The intrinsic orientation dominated her findings from farmers in England, something that helps

explain both the ready uptake of grants (such as those introduced in 1957 and 1972) to modernise farms (reinforcing intrinsic satisfaction) and the history of poor impact of schemes to encourage older farmers to leave the industry (which cuts farmers off from their major source of utility). The significance of taking non-financial aspects into account has also been underlined for Scotland by McGregor et al. (1996). More recently psychological techniques have been employed to tackle these more difficult areas, though Nuthall (2001), when reviewing the literature, concludes that psychologists tend to believe how a person behaves is dependent on just three attribute groups

- Personality (which can be grouped as the five basic traits of neuroticism, extroversion, openness, agreeableness and conscientiousness),
- Intelligence (grouped into 'fluid ability', which is broad-based reasonability and encompasses inference, induction, memory span, flexibility of closure, intellectual speed), and 'crystallised ability', which is fluid ability as it is expressed in a particular culture, encompassing verbal, mechanical, numerical and social skills. Visualisation, retrieval capacity and cognitive speed are added by some psychologists.
- and, possibly, Motivation (though the differentiation between personality and motivation is somewhat arbitrary).

The willingness to be rational, and memory, are also mentioned as being of importance to managerial capacity.

The importance of psychological and social factors in influencing farming behaviour is also demonstrated by work in Scotland by Willock et al., (1999) in which alternative conceptual frameworks are discussed. These include the Theory of Reasoned Action, that argues that behaviour is best predicted by a person's intention, which are in turn affected by their attitudes and the influences of significant others on their intention to act, and the Transactional Model of behaviour, that classes variables into antecedent variables (typically fundamental traits of the person and features of the environment, such as the level of social support), mediating variables (such as cognitive constructs such as copings styles, appraisals and so forth) and outcome variables (behaviours).

In the present circumstances it is important to note that Nuthall (2001) concludes that about one third of personality is genetically determined, and that fluid intelligence is largely genetic. This means that, for any given generation of farmers, the opportunity to change management capacity by providing training and education is bounded at least in some respects by their genetic makeup. Training can only impact partially on personality and to little effect on 'liquid intelligence'. It is hard to see how this may be changed other than by a turn-over of farm occupiers with time. Genetics may be a significant factor in an industry in which farm businesses are commonly passed between generations of the same family. Entrants from non-farming backgrounds may affect some of these factors more rapidly.

However, it would appear much more feasible to affect the second element in managerial capacity identified by Rougoor et al (1998) – the decision-making process – and thereby improve business performance. These authors distinguish between planning, implementation and control. Ohlmer et al (1998) re-examined the structure

of decision-making among Swedish farmers. Rather than the linear process that has been traditionally assumed (values, and goals, problem detection, problem definition, observation, analysis, development of intention, implementation, and responsibility bearing), they conclude that there are four phases (problem detection, problem definition, analysis and choice, and implementation) and four sub-processes (searching and paying attention, planning, evaluating and choosing, and checking the choice). They also note that farmers prefer the ability to continually update their evaluation and plans, a qualitative rather than a quantitative analysis, a 'quick and simple' versus a detailed and elaborate analysis, small tests and incremental implementation, and 'feed forward' rather than ex post evaluations. Such findings are of obvious relevance for the design of training courses that attempt to encourage a greater awareness on the part of farm managers of the decision-making process that they are involved in. They are also of relevance to the other ways in which publicly-funded actions may be taken to improve this process, such as making benchmark figures of farm performance available.

The importance of planning within the farm management process is underlined for the UK by Robinson (2000) who points out that objectives of these plans may be substantially constrained, at least in the short term. He cites situations in which a farm has been inherited under social pressure to continue the business and there is a conflict with personal goals of maybe pursuing a non-agricultural career, of conflict between the urgent and the important, and where there is inadequate distinction between intermediate and final objectives so that, for example, growth in farm size (a possible means to higher incomes) becomes an end in itself, sight being lost of its purpose in the overall plan. Bone (2003) using Australian farms found that the ability to plan was seen as a priority skill if farms were to develop, and this was recognised both by farms that were presently high performers and those that were not.

II.1.3. Establishing a level of business competence

Business competence is difficult to measure directly other than by track record. Quality of management of the business is one factor that is usually left as a residual factor, though there is some research on measuring managerial efficiency. Trip et al. (2002) broke down the decision-making process of a sample of Dutch glasshouse producers into four steps (goal formulation, planning, monitoring and evaluations) and assessed the quality of each using expert opinion. The results showed positive associations between firm efficiency and the quality of decisions taken, concluding that this process had been helpful in moving towards a measurement of this critical input.

However, another and more practical aspect of business competence is the system set up to provide and validate qualifications in various skills linked to competence and therefore to enable the market for labour with these skills to operate more successfully. Individuals with validated skill qualifications can be regarded as 'work-ready' or job competent. This was the approach embodied in the Lantra (2005a) *Developing Business Competence – The Business Case for a Competence Framework*. In an industry dominated by micro-businesses (employing less than 10 employees) it was unlikely that frameworks will emerge without some public support – the transactions costs are too high.

Lantra highlights the ambiguity of the unit over which competency applies. This could be the individual or the whole business. 'For very small businesses and the self-employed, overall competence is the sum of the parts' (Executive summary page 5). A business may comprise one individual, in which case the overall business competence will equate with the competence of the individual. In larger businesses, however, the sum of individual competencies of the operator and staff will determine how 'competent' the whole business is. In agriculture this will typically include the members of the farm household or the households of partners

The concept of competence in this Lantra (2005a) report appears to focus primarily on technical issues, though there is some discussion of management of the business. These areas of competency could range from specific skills and knowledge for business management, for example business planning and financial and risk management, through to demonstrating systems which recognise appropriate features such as the management of health and safety, awareness of the regulatory framework, advocacy of the business case for training and development and (potentially) the recognition of business champions, or the demonstration of a 'gold standard'. It was assumed that existing Quality Management Systems (QMS) would be used to measure and assure overall business competence, such as ISO 900 or Investors in People. However, with diversified micro-businesses dominating the sector, any assessment of business competence would need to cover a range of requirements, and the facility to recognise such diversity was seen to be an essential requirement of a potential competence framework.

Key findings

- Using terminology developed from Rougood et al. (1998), business competence of an individual can be seen as the possession of the personal skills to deal with emerging problems and opportunities at the right time and in the right way, and to carry out the set of inter-related tasks necessary to allow the farm business to adapt.
- These skills can be described; they include business planning, financial management, people management, sales and marketing, collaboration, leadership and risk management.
- As the period under consideration increases, the mix of skills involves an increasing component of what are essentially entrepreneurial skills.
- A business may possess competence drawn from the skills and abilities of more than one individual, and the overall competence of the business management will reflect this summation.
- Some business skills need not be possessed personally by farm operators (or the persons working in the farm business) if there is a capacity to buy them in (consultants, advisory systems etc.).
- The attributes that determine the competence of a farmer are multi-factor and, while some are capable of change by education or by training (such as in business planning), some are not easily manipulated (such as certain forms of intelligence). Change in these must rely in the longer term on succession and turn-over among the operators of farm businesses.

- The role of general education and its relation to training in specific business skills is complex. The difficultly of distinguishing the impact of education (which involves the combining of knowledge, skills and abilities, understanding and problem-solving) and that of vocational training on competency is encountered throughout the issues considered in this report. Higher levels of education appear to be associated with greater awareness of the benefits from training and with innovation.
- The notion of developing measures of competency is more straightforward with technical skills (e.g. the application of sprays) than with business competence skills, especially those that border on entrepreneurship.

II.2. The extent to which farmers have business competence

It is very hard to measure the business competence of farmers directly since it is multifaceted and has some commonality with entrepreneurship. No studies have been encountered in which, for example, the ability to construct and implement business plans by farmers is compared with that of the operators of other micro-businesses and SMEs. Further complications arise when at least some of the business skills are hired by farm operators; this is increasingly the practice with the technical aspects of cereal production (Hill et al, 2002) and dairying. Farmers have for long employed accountants, and the larger farm businesses commonly appear to make use of paid-for business consultants.

If farmers lack business competence, this is likely to be reflected in the way that their businesses perform and the incomes that they earn. Here the evidence carries mixed messages. Though information for the UK is incomplete, it appears that England's farm households as a group, as in most OECD countries, have incomes that compare well with those of other socio-professional groups and wealth that puts them in a substantially more advantageous position (see evidence summarised in Hill, 2000). They have proved adept at adjusting to the evolving technical, economic and policy environments, and diversification has played a part in this process since at least the 1870s. To this extent, at group level, then, competence has been demonstrated.

On the other hand there is some evidence that the productivity of UK agriculture has suffered a decline relative to that of other EU Member States (Thirtle and Holding, 2003). The slow down in 1984 occurred more or less when funding of public research into agriculture in the UK was cut and the state extension service was privatised and became less accessible to farmers (though an association does not provide a causal link).

Attention has already been drawn to the range of performance levels among farms of similar sizes and types, suggesting that management competence plays a part. Even within a generally competent industry there will be individuals with lower abilities and lower incomes as a result. Improving the competence of this subset to a level nearer that o the best performers can be one way of delivering income goals and at the same time may lead to a better use of national resources. It is worth noting that the link between improving productivity and achieving a satisfactory standard of living

was a fundamental on which the Common Agricultural Policy was built (as reflected in the first two objectives of the CAP, set out in Article 39 of the Treaty of Rome, 1957). Of course not all farm operators that lack business competence will be candidates for income support on equity grounds (households whose incomes are deemed to be unfairly low).

In the farm-level analysis part of the research on productivity reported by Thirtle and Holding (2003)(and updated by Hadley, 2006), all farm types studied apart from sheep farming (the others were cereals, dairy, pigs, poultry) displayed relatively high levels of efficiency, with a large proportion of farms operating close to the production frontier. However, whilst the frontier farms were becoming more efficient through time due to technical change (ranging from 6% a year for cereal farms to 0.7% a year for sheep farms), the analysis found that the average farm of each type was becoming less efficient relative to the frontier, so that mean levels of efficiency declined between 1982 and 1997 (excepting sheep farms where the level of efficiency was reasonably stable). No variables directly to do with business competence skills were included in the analysis, though the ability of competent manages to remain technically up to date is obvious. The age of farmer (the only other socio-economic parameter included) bore a relationship with efficiency level among cereals farms, where the highest performing quintile tended to be younger, though in other types there was no clear pattern. Further research into the reasons why the best performers were forging ahead while others were not (though their performance may have been improving but at a slower rate), and the role played by business competence skills, is obviously of importance.[5]

As noted above, business competence is shaped by a mixture of factors, including the biography of farm operators (including age, education and experience on the farm) and aspects of the decision-making process (e.g. the practices and procedures in planning, implementation and control of decisions). In the present context it is helpful to ask to what extent do farmers lack education and experience and training relevant to the decision-making process. The age issue is reserved for later treatment. Here the concentration on education and training.

II.2.1 Attainment levels in education

Gasson (1997) reviewed the all the various pieces of information that were available on the educational attainment levels of UK farmers, including data from 12 studies and surveys from 1970 to 1996[6]. Her conclusions were as follows:

- Taken together, the evidence suggested that at least one third and possibly as many as half of all UK farmers held Higher Education (HE) or Further

[5] There are some technicalities concerning the basic data that suggest these results must be treated with a degree of caution. For example, the sets of accounts (whether at aggregate or farm level) are based on fictional units (the agricultural holding and the Local Kind of Activity Unit) rather than complete institutional units (the unincorporated business operated by the household, or company), so that there are problems in capturing both inputs and outputs satisfactorily. And in recording the age of the farmer it is assumed that there is only one entrepreneur/manager per business, which is too simplistic in an agricultural structure such as that of England. Nevertheless, this research establishes that there is a range of productivities, the explanation for which needs causal factors.

[6] These included the ATB-Landbase 1994 *Education and Training Survey* and its 1995 *Labout Market and Training Needs Survey*

Education (FE) qualifications from full-time or part-time study. Some 4-6% had degrees, a similar proportion had HNDs, and between quarter and a third had FE qualifications (a mix ranging from two-year full-time or three year sandwich courses to day release study).

- Educational levels had risen sharply since the early 1970s, when only 10% had such qualifications.
- In terms of formal education, farmers appeared to be less qualified than managers of other small businesses. The 1991 Population Census found that only 9% of male 'managers in farming, horticulture, forestry and fisheries' held higher qualifications (above A-level standard) compared with 19% of all male employees and self-employed and 27% of male managers and administrators. The Quarterly Labour Force Survey (Dec. 1995 to Feb 1996) found that farmers were much less likely to have degrees and less likely to hold FE or school leaving certificates than were managers of other small businesses.

Table II.1 Highest qualification obtained by farmers and managers of other small businesses in UK, 1995/96

Highest qualification	Farmers	Small business managers
	% with qualifications	
Degree	4.1	16.4
Other HE qualification	11.2	9.7
FE qualification	20.4	24.2
School-leaving certificate	31.1	38.0
None	33.2	11.7
Total	100.0	100.0

Source: Table 6 of Gasson (1997), based on the Labour Force Survey Dec 1995 to Feb 1996.

- UK farmers were more likely to have HE qualifications than the EU in general, but less likely to have FE qualifications.
- Arable farmers were more highly qualified (55% with some agricultural qualification) than livestock farmers (39%).
- Higher levels of educational attainment were associated with larger businesses. Sons on smaller farms would, especially in the past, be more obliged to leave school early to work at home. However, there was some evidence of a 'U' shape in the relationship; while highest educational levels were associated with the largest farms, the lowest levels were not found on the smallest but on those somewhat larger. This seemed to be explained best by the incidence of pluriactivity and the need for qualifications in off-farm occupations.

- There were distinct patterns of educational attainment and age of farmer and between those of farmers and their successors. (These are dealt with in section II.7 below.)
- There were some significant geographical differences detected in the 1970s that persisted to the mid-1990s. In the 1995-6 Quarterly Labour Force Survey, Eastern England had the largest proportions of farmers with HE (28%) and FE (30%) as their highest qualifications, followed by the Western, with the Northern the lowest (6% and 20%).

Gasson (1997) also provides information on the relevance of educational levels to the behaviour of farmers as managers. 'The higher the level of education, the greater use farmers make of formal and informal sources of knowledge, advice and information'. '..Farmers with university or agricultural college education are significantly more likely than other farmers to seek technical information, use computers and pay for advice. Better-educated farmers are more inclined to avail themselves of training, especially management training. In other words, farmers appear to use advice and training to supplement education rather than as an alternative'. There was also evidence that better-educated UK farmers were more likely to participate in environmental schemes and other initiatives such as schemes to promote forestry and diversification. There was also a link with perceiving the need for change.

The Defra VTS Policy Analysis paper (2002) showed that only a small proportion of the agricultural workforce held formal qualifications. In 1996 a survey (CRER, 2002) found that only 35% of the workforce was qualified to National Vocational Qualification (NVQ) Level 3[7], and this was considered to be well behind the Government's own targets of 50% qualified by 2002. Lantra (2001a) in its *Land-based Sector Development Plan,* citing the Labour Force Survey (Skills for all: Research Report from the National Skills Taskforce, 2000), stated that

- 44% of the (land-based) workforce either did not hold any qualification equivalent to an S/NVQ level or did so only at the lowest level; this compares to 31% for all in employment within the UK
- 17% held their highest level of qualification at S/NVO level 2 or equivalent, compared to 24% of all in employment

[7] National Vocational Qualification Level 3 corresponds to job **c**ompetence that involves the application of knowledge in a broad range of varied work activities performed in a wide variety of contexts, most of which are complex and non-routine. There is considerable responsibility and autonomy and control or guidance of others is often required.
*The approximate academic equivalents of the five levels of NVQ qualification are***:**
NVQ 1 = foundation GNVQ/three to four GCSEs at grades D-E
NVQ 2 = four to five GCSEs at grades A-C
NVQ 3 = two A levels
NVQ 4 = degree
NVQ 5 = postgraduate qualification

- 22% of the land-based workforce was qualified to level 3, and 17% to level 4.

As Gasson (1997) points out, there is a problem in drawing exact parallels between educational attainment and NVQs, the latter being related to a vocational capacity rather than a level of academic examination.

The Annual Small Business Survey (ASBS), which began in 2003, is a potential source of data on the qualifications of business operators, including farmers. It also identifies skills shortages. An analysis has been published in which various aspects of the businesses in rural areas (including operator qualifications) are contrasted with those in urban areas (Telford, 2006). However, no breakdown for farmers (or the primary group that also includes hunting and fishing) is available, and it is not safe to draw inferences from findings for rural areas, as even in rural areas classified as "dispersed", farmers and other primary producers only accounted for 25% of businesses in 2004 (17% in villages).

II.2.2 Competency in management skills

Lantra (2005?) in its Skills and Business Review for Defra investigated the level of formal management qualifications and also the respondents' views of the competency found in their business. This Review included a desk study, focus groups, and a survey of businesses (a target of 1000 split between sub-sectors of agriculture, for which purpose some 8,000 questionnaires were distributed). The focus was on skills rather than education, and the types of training were implied from the sources mentioned in the questionnaire when respondents were asked to which they would look for training (Further Education Colleges, Land-based Colleges, private training organisations, Local Learning and Skills Council, word of mouth, Business Links, Internet).

Six aspects of business skills were selected (see table below), and for each three levels of competence were outlined (low knowledge and understanding, a basic knowledge and understanding and an extensive knowledge and understanding). Respondents were asked, if 2008 were selected as a benchmark for the acquisition of skills at the advanced level of competency ('extensive knowledge, understanding and business application'), at present where were the farmer and/or their staff with respect to this target? The date was chosen to reflect the time needed for training to be absorbed and made operational. In effect, this was a self-declared indicator of the present level of business skills.

Only some 10-15% reported formal management qualifications and advanced competence, with sales and marketing being at the lower end of this spectrum. If the answers were broadened to include those that had undergone some training, the proportion of those claiming competency rose to mostly between 50% and 60%, but sales and marketing was again lower (39%)(see Table II.2).

Table II.2. Competency of management skills

Area of competency	Advanced, having formal management qualifications	Competent, having done some appropriate training	Sum of (i) and (ii)
Business planning	16.3	40.3	56.6
Financial management	16.7	43.1	59.8
People management	12.8	41.8	54.6
Sales and marketing	9.5	29.8	39.3
Leadership	14.0	40.2	54.2
Risk management	10.7	36.9	47.6

Source: Based on Table 33.1 of Lantra (2005?) *Skills for Business Review*

An attempt was made to quantify the mean competency of management skills for each of the above areas (business planning, financial management etc.) by sub-sector (agricultural crops, agricultural livestock, environmental conservation, equine activities, game conservation, landscaping, production horticulture, trees and timber), a classification that does not correspond directly to the farm typology used in the Farm Business Survey (within agriculture) and which reflects a broader range of land-using activities. The scale of competence ran from 1 (no competence) to 4 (advanced degree of competence, corresponding to the second column of the table above. Typically scores across the industry were of the order of 2.3 (sales and marketing, but with game conservation and landscaping 2.1) to 2.7 (financial management, with 2.9 recorded for agricultural cropping businesses).

Lantra attempted to identify 'skills gaps' by contrasting the respondent's perception of each skill's level of importance (within the new policy environment) with their current competence[8]. The 'gaps' ranged from 39% in risk management to 50% in financial management. Rather surprisingly, respondents indicated that only a minority share of these gaps needed formal training to fill them. For example, in relation to the 50% skill gap in financial management, in only 7 percentage points was formal training perceived as being needed. In sales and marketing the training need was seen to be relatively greater, but still in a minority (10% out of the 43% gap).

II.2.3 International comparisons

In view of the interest in the international competitiveness of England's farming industry, and the role that education and training might play in it, it may be helpful to put what is known about the UK national position in a EU context. The periodic EU Survey of the Structure of Agricultural Holdings (the Farm Structure Survey – FSS) collects data on the level of training among the managers of holdings in Member

[8] To this reader at least, the methodology is not particularly transparent, and the results are to be treated with a degree of caution.

States (managers will normally also be the holder where the business is other than a company). Currently only one manager is allowed to be designated per holding, which may not be appropriate where there are partnerships or several directors who participate in business decisions. Commission Regulation (EC) No. 1444/2002 requires the highest level of agricultural training of the manager to be recorded according to three categories:

- Only practical agricultural experience – experience acquired through practical work on an agricultural holding.
- Basic agricultural training – Any training courses completed at a general agricultural college and/or an institution specialising in certain subjects (including horticulture, viticulture, sylviculture, pisciculture, veterinary sciences, agricultural technology and associated subjects). A completed agricultural apprenticeship is regarded as basic agricultural training.
- Full agricultural training – Any training course continuing for the equivalent of at least two years full-time training after the end of compulsory education … and completed at an agricultural college, university or other institute of higher education in agriculture, horticulture, viticulture, sylviculture, pisciculture, veterinary sciences, agricultural technology and associated subjects).

These forms of training experienced by the managers clearly go beyond farming, narrowly defined, and the courses followed will have embraced more than business competence skills. According to the results for 2005 (data are not being collected at EU level for 2007) just over a quarter of UK holding managers (27%) had more than just practical experience and had received at least basic agricultural training, as defined in the classification above. This put the UK in 20th position among the twenty-eight countries listed in Table II.3a. However, there may be considerable difficulty in drawing meaningful comparisons between countries because of what may be considered to be a course contributing to basic training. The very high proportion of managers with basic training in Italy (90%) raises particular concern. Metadata on how the figures are arrived at in each country are not easy to acquire.

Table II.3a Relative position of UK in level of training of holder-manager - Farm Structure Survey 2005

Ranked by percentage with combined basic and complete agricultural training

Member State	Practical experience only	Basic agricultural training	Full agricultural training
	%	%	%
Italy	7	90	3
Netherlands	29	67	5
Germany	32	23	46
Luxembourg (Grand-Duché)	44	14	42
France	46	11	43
Belgium	52	24	24
Austria	52	20	28
no Norway	52	9	39
Czech Republic	55	20	25
Denmark	55	40	5
Finland	59	33	8
Poland	61	22	16
Latvia	66	12	22
Sweden	66	16	18
Estonia	67	11	22
Ireland	69	17	14
Lithuania	69	19	12
Slovenia	72	21	7
United Kingdom	**73**	**10**	**17**
Slovakia	85	11	3
Hungary	87	5	8
Portugal	88	10	1
Spain	90	9	1
Romania	93	6	1
Cyprus	94	6	1
Bulgaria	95	4	1
Greece	95	5	0
Malta	100	0	0

Source: Eurostat. Note some of the national Statistics in Focus reports from Eurostat do not correspond to these figure taken from the central data base.

When consideration is given only to the 'full' agricultural training, which correspond with HE and FE courses and in which there may be greater international comparability, the UK is somewhat more highly placed (see Table II.3b). Its 17% of managers with this sort of professional training gave it eleventh place, and very similar to Poland, ranked next below. However, Germany, France, Norway and Luxembourg each had at least double the UK's figure for training at this level. Nevertheless, compared with some other 'large' agricultural producers in the EU, the UK was relatively highly placed; both Italy and Spain had only a very small proportion of managers with 'full' training.

Table II.3b Relative position of UK in level of training of holder-manager - Farm Structure Survey 2005

Ranked by percentage with complete agricultural training

Member State	Practical experience only %	Basic agricultural training %	Full agricultural training %	Full agricultural training %
Germany	32	23	46	84**
France	46	11	43	
Luxembourg (Grand-Duché)	44	14	42	63*
Norway	52	9	39	
Austria	52	20	28	62*
Czech Republic	55	20	25	72**
Belgium	52	24	24	
Latvia	66	12	22	58*
Estonia	67	11	22	53*
Sweden	66	16	18	46**
United Kingdom	**73**	**10**	**17**	**35****
Poland	61	22	16	60*
Ireland	69	17	14	30**
Lithuania	69	19	12	37*
Finland	59	33	8	24**
Hungary	87	5	8	62*
Slovenia	72	21	7	44**
Netherlands	29	67	5	75*
Denmark	55	40	5	8**
Italy	7	90	3	15*
Slovakia	85	11	3	44**
Portugal	88	10	1	13*
Spain	90	9	1	4*
Romania	93	6	1	
Cyprus	94	6	1	2*
Bulgaria	95	4	1	
Greece	95	5	0	
Malta	100	0	0	

* 50 ha and over; ** 100 ha and over.

Source: Eurostat. Note some of the national Statistics in Focus reports from Eurostat do not correspond to these figure taken from the central data base.

One characteristics shared by almost all the countries for which Eurostat has yet published a national *Statistics in Focus* for the 2005 is that the percentage of managers with 'full agricultural training' rises across the size spectrum (measured in hectares). The single exception is the Netherlands where the figure for the largest area farms was slightly below that of the next-largest group, probably a reflection of intensive horticultural holdings not necessarily occupying the largest areas. In the UK percentage with 'full' agricultural training rose from 13% on holdings of less than 20 ha to 35% above 100 ha..

There may be interest in focussing attention on only the largest farm in each country, as these are generally responsible for the majority of output and are thus

disproportionally important in establishing international competitiveness. Comparison between Member States is rather difficult because, first, analysis by size is not yet published for all countries, and, second, the largest category is not consistent in what if covers. In some countries, the published tables take 100 ha and over as large farms (indicated in the final column of Table II.3b as **), whereas in others they include holdings above 50 ha (indicated by *). Such farms are quite small in terms of the distribution by area in the UK. Given this, it seems that the UK's relative position is substantially lower in the ranking when only the largest end of the EU farm spectrum is examined. Of the twenty-one countries for which results are published, thirteen have higher levels than the UK of 'full' agricultural training among the managers of large farms, with Germany and the Czech Republic both recording more than 70% on their farms of 100 ha and over (in comparison with 35% in the UK on farms of this size). Only seven Member States are below the UK.

It should be noted that while, on the one hand, these figures include technical as well as business skills, on the other they relate only to training (and education) that is sector-related. Other forms that may benefit business competence (such as of accountancy, economics, business management or any other subjects that directly or indirectly may affect the capacity of management to address current issued and to adapt to change) are left out.

Key points

- The picture of business competence among English farmers and farms is not entirely clear. Improvements in basic statistics are needed (for example, information on the educational and training of household members, not just the principal farmer), and options should be considered.
- From available evidence it appears that the formal educational qualifications of farmers appears to be relatively low compared with operators of other small businesses.
- In international terms, if comparisons are restricted to HE and FE that are strongly linked to the sector (but including technical subjects) UK agriculture seems to rank about one third from the top among EU Member States, much higher than Italy or Spain but at less than half the levels seen in Germany and France. But it seems to be lower placed when only the larger-area farms in the EU are considered.
- Lantra has evidence of skills gaps in specific business skills. The extent to which these gaps handicap the productivity and competitiveness of agriculture is not clear and deserves further research.

II.3. Impact of business competence on the farm business

A critical step in setting out the rationale for policies to promote business competence among farmers (that is, to provide them with the bundle of abilities and skills identified in Section II.2) is to establish that greater competence is associated with higher levels of performance by the business. This relationship provides the incentive for acquiring competence, though there may be market failures that prevent the

system from working. Furthermore, an assumption behind schemes that intervene with the intention of raising the competence of the existing management (and their successors who are already part of the farm firm) is that this will lead to performances that are better than would otherwise have been seen. This section looks at the evidence for the broad relationship between factors associated with business competence and performance of the farm. The outcome of specific training input is dealt with later (Section III.3). Here the focus is on general business competence and the factors associated with it rather than individual skills (such as planning, the importance of which has been covered in Section II.1), though this distinction is not always possible to maintain consistently.

In its international review of evidence on SMEs, the OECD (2003) concluded that there was a positive correlation between the degree of management training and the bottom-line performance of an SME, and that management training was associated in several studies with lower rates of business failure (Storey, 1994; SFEDI, 1999). Of course, these findings were not specific to agriculture.

In the land-based sector Lantra has found that that the ability to demonstrate the commercial benefits of training was key to encouraging businesses to engage in training in general,. It is likely that this applies as much to business competence skill as to technical ones (*Learning and Skills Advocacy Strategy: Raising Awareness of the Business Benefits of Training,* Lantra, 2005b). Information collected from crop farms found there was a focus on benefits to profitability ("the bottom line") from the better management of change and risk, while among livestock businesses the focus was more on preventing losses. In horticulture there was a broader spectrum of concerns with efficiency, productivity and profit. The implication is that higher skill levels are perceived as being associated with greater profits, though this relationship is not formally established by evidence in the Lantra study. [9] More specific figures have been estimated for the UK's red meat industry where Fearne (2005) suggests that there was the potential for Business Clubs and benchmarking to improve livestock profitability by 10 to 15% through increased productivity and cost savings.

The findings of Rougoor et al (1998) on the associations (in agriculture) between the individual elements that bear on managerial capacity (or business competence), based on an extensive and systematic international literature search (though much of it concentrating on low-income regions), showed a complex pattern in which there were mixed results for some variables. Furthermore, in looking for the way in which farm businesses are effected, a distinction should be drawn between the impact on technical relationships (technical efficiency or rate of innovation) and on financial/economic outcomes, which themselves may be measured in various ways (such as the value of assets or level of indebtedness). The impact on profit or residual income is only one such parameter.

Among the personal aspect that relate to business competence, overall there was confirmation for the hypothesis that education, as part of the farmer's biography, will have a positive effect on business efficiency and farm results, though some studies

[9] A general awareness of the benefits of better and leaner business management is shown by research undertaken as part of the *Fresh Start Review* (accenture, 2007). A survey of levy payers found that about a third stated that better business know how and business improvement were key positive factors contributing to their bottom line.

failed to find such relationships. The other elements that contribute to the 'biography' of farmers had been relatively little examined. Among research on the influence of experience and/or age of the farmer both positive, negative and no relationships were found. Rougoor et al. also found that almost all the available studies showed that farm results were dependent on some aspects of drives and motivations, but that the ways in which these were measured varied, making synthesis difficult. Some studies of temperamental factors ('orientation') found links with business characteristics, but the general conclusion (at the time) was that there was an information gap here.

Rougoor et al. (1998) conclude from the literature that the use of planning usually has a positive effect on farm results (a specific skill identified in Section II.1 above). Other relationships are more ambiguous. One way of gaining access to business competence that the farmer him/herself does not possess in person is to buy it in by hiring consultants. In the studies reviewed the use of consultants to aid (technical) decisions had a mixed financial result, with the suggestion that the focus on technical efficiency associated with consultants may lead to excessive production, at levels beyond the economic optimum. On the implementation of decisions, no clear picture emerged of the impact on the farm's financial results of the farmer's time spent on management tasks and running systems, though this might be because of poor quality data on the allocations of time to different activities. Similarly, results were mixed in terms of the greater use of control systems.

Among the literature for the UK, work by Wilson et al (2001) on the technical efficiency of wheat farms in eastern England shared a methodological feature of these international findings by including explanatory variables that covered both personal aspects and aspects of decision making. These comprised experience and further education (biographical indicators) and the farmer's own ranking among their objectives of profit maximisation and of maintaining the environment (both deemed to reflect motivation). Another variable was constructed from the types of information sources used; this formed a proxy for the practices and procedures in planning and was expected to have a direct influence on implementation and control of decisions, or aspects of the decision-making process in general. In the survey sample the majority of farmers were operating relatively close to the fully-efficient frontier. The number of years of experience bore a significant (if small) relationship with technical efficiency, and the information source variables were also significant in explaining technical efficiency, those who sought information being more efficient that those farmers who consulted fewer information sources. It should be noted that the variable of experience of further education was not statistically significant, though the coefficient was of the anticipated direction (though, again, small). Both the profit maximisation and the environmental priority objectives proved significant, those who ranked these objectives highly being more efficient that those who did not, by the order of 2%. While the first of these might be expected, the link with the environment is perhaps less intuitive; Wilson et al. offer the explanation that farmers who are environmentally aware may practice a more efficient use of inputs than those who are environmentally less aware.

The significance of these findings to the present study of business competence comes from the evidence that some, but not all, of the business variables can be influenced by training and education, though the role of further education is thrown into some doubt.

Bone et al (2003), working in Australia, also found no significant difference in levels of education between the top and bottom performing groups of farmers (using a Business Performance Index, which is not described in detail). Thus acquisition of (formal) knowledge did not necessarily lead to change that would improve performance. Performance is a factor of ability and motivation and the findings indicated that attitudes (self-efficacy, self-confidence, motivation, positive thinking, proactivity, will to achieve) can enhance or inhibit the propensity to change and improve performance. But, in contrast, Bone et a. cites other Australian research where successful farmers were found to be more highly educated.

For England the relationship between education and farm performance could potentially be explored using the Farm Business Survey. For the most recent years this has collected the level of formal education of the farmer, other unpaid partners, directors and managers, and of paid managers[10]. No distinction seems to be made between the subjects in which educational qualifications have been obtained. However, analysis that links this variable with farm characteristics (including performance) does not yet appear to have been published.

At the level of training (in contrast with formal education) the top 20% of farm operators were found by Bone (2003) to be more likely to have a more positive attitude towards training and attend more training courses than the bottom 20%, though the line of causality is by no means clear. The top quintiles tended to rate business issues highly, seek out new information, use consultants, see change as a positive phenomenon, create their own ways, and have a good understanding of the Australian Goods and Services Tax and its implications for their business. Farmers at both ends of the spectrum recognised the importance of planning to successful operations, which suggests that training in this is a fundamental part of any policy to improve performance, irrespective of its target group.

Perhaps surprisingly, there was a stronger preference for record keeping and analysis from the bottom 20% and a bias for experiential learning from others with the top 20%. These results are consistent with the studies by Landvall (1992) on innovation that suggests that learning occurs through experience doing the job. Murray-Prior and Hart (1998) also established that farm business management activities were more likely to be successful if they focused on hands-on activities with a considerable amount of interaction between the participants. This informal learning occurs when an individual decides that they need to know something to do their job and takes steps to learn it[11]. Informal learning is self-motivated, self-directed and purposeful. It follows that the top 20%, with high levels of self-efficacy, were more likely to initiate informal learning opportunities in their workplace. Informal learning is predominantly experiential and non-institutional.

Therefore, future education and training courses could assist this learning process by providing appropriate learning guides and mentors in order to develop attitudes and skills and produce explicit knowledge. In Bone et al.'s research, the bottom 20%'s

[10] According to the 2006/2007 Farm Return (FAS 24 (Rev. 10/06) the education codes are: 0 = school only; 1 = GCSE or equivalent; 2 = A level or equivalent' 3 = College / National Diploma / certificate; 4 = Degree; 5 = Postgraduate qualification; 6 = Apprenticeship; 7 = Other.

[11] This point also emerged in discussions with a representative of Lantra.

higher priority to production/sustainability compared to the top 20% suggests that they may be less commercially oriented than the top performing farmers. The top 20% prioritised the business topics of risk management, business expansion and business planning higher than the bottom 20%. Popular training courses, such as financial recording and computer skills, had a higher rating with the bottom 20% than the top 20%. The choice of training methodology produced some distinctive differences between the two groups. Firstly, both groups recognised, as a first priority, the value of proven and relevant courses. The bottom 20% put a higher value on short, suitably timed programs and "hands-on", practical experiences. The top 20% considered quality presenters more highly than the bottom 20%.

Key points

- The evidence on the association between factors thought to influence business competence (such as education) and farm performance is less clear-cut that might be assumed, though there is little to challenge view that greater business competence is desirable.
- More specific information could be useful in demonstrating the benefits of taking steps to improve management competence and in encouraging take up of training opportunities.
- Other factors associated with good performance are more determined by biographic characteristics, for example motivation.

II.4. Extent to which business competence impacts on development of the business, including uptake of diversification,

This section looks at the relationship between business competence and change in the farm, including diversification.

The earlier discussion of the nature of business competence found that many commentators stress the greater importance of the skills that comprise competence in times of rapid change, which may be economic, technical or policy-related. The reform of the CAP, including the shift of support to the Single Farm Payment / Single Area Payment from 2005, is one such change. Responses may be varied (including shifts of enterprise mix, diversification, farm growth, and exit from the industry), but it is unlikely that non-response is a tenable option.

Burton et al (1999), looking at the determinant of adoption of organic horticultural techniques in the UK, found that organic producers are more likely to be younger and the age at which they had started to work in agriculture were greater, some six to ten years after their conventional counterparts. They were also more likely to be female. Although the survey found that over 50 per cent of organic horticultural producers had received further or higher education, this variable did not prove to be statistically significant, contradicting some previous studies, particularly in the USA. Organic producers prioritised a different set of information sources, a finding consistent with the view that organic farming is information intensive and that this information is a crucial element in innovation. Other farmers were a particularly important source, pointing to the role of informal networks of organic producers. There were a number

of attitudinal variables that were consistent with the view that adopting organic production reflects lifestyle decisions, and to ignore these would be unsatisfactory.

In a survey of Australian farmers, Bone et al, (2003) found that, when it came to identifying key attitudes and skills in order to bring about change in current practice, there were differences between farmers according to their present level of economic performance; the top 20% showed a slightly higher preference for business and management skills than the bottom 20%, with a significant difference in the proportions recognising planning as a training need (17% in the top quintile, 7% in the bottom).

There is a long-established awareness in England (going back to at least 1972 when socio-economic guidance schemes were introduced under EC Directives) that farmers as a group are poorly equipped in terms of their human capital to diversify in the way that economic pressures are requiring them to do. Rodgers (1994) has differentiated between the general human capital that farmers possess and that which is farm-specific; the former is found to be particularly important in determining a person's non-farm income, at least in the US context. The evidence based for the England RDP (CRER, 2002) refers to the evidence in the Socio-Economic Determinants of the Level and Rate of On-Farm Innovation (Gasson & Hill, 1996) that suggests "higher levels of training are associated with greater on-farm innovation and technology transfer." The message that higher educational attainment is strongly associated with agricultural restructuring, particularly in non-traditional forms, also comes from Lobley et al. (2002).

Though for English farmers diversification is not a panacea, the possession of provision of advice and training facilitates appears to be important to their success (Smallbone et al., 2002). In England the Vocational Training Scheme (part of the England Rural Development Programme 2000-06) underwent a mid-term evaluation in 2003 (ADAS, 2003). A survey of people who had received training (which embraced both business skills and technical ones, though it is not possible at this stage to breakdown who received what training) found that less than one fifth of respondents felt that the training had led to an increase in income, though perhaps this was too early for such outcomes to be detected. However it was clear that a far larger share of people that had received training had initiated changes and had equipped themselves with ICT capability, which should be reflected in future incomes.

Perhaps surprising in the mid-term evaluation was the very low association of VTS with diversification either within farming (including organic production) or in non-farming activities – less than a fifth of beneficiaries under the VTS felt that the scheme had led in these directions. The fact that there were other schemes within the England RDP on diversification and organic conversion may be linked with this response. The findings of the Mid-term Evaluation are discussed in greater detail in Section II of this study.

Turner et al. (2006) recently conducted a study specifically focussed on public funding and diversification on farms in England. Though primarily concerned with grant aids, issues of business competence were touched on. Inadequate market research, poor business skills and insufficient capital were found more likely to lead to unsuccessful enterprises than a lack of advice. Stakeholders, administrators and

advisers were strongly supportive of the importance of training (and on-going mentoring) for successful diversification, though many farmers remained unconvinced. There was an expressed preference for intensive training away from the farm, rather than very short courses, which were the main form currently in use. Business management training was rated either essential or very useful to diversification by farmers that underwent it, more so than marketing or compliance with regulations. However, two-thirds of diversified enterprises had been set up without any training being involved.

The importance of education in securing a career outside farming is well illustrated for Ireland by Hennessey and Rehman (2007) who examined the qualifications of nominated heirs (successors). Planning for complete exit was relatively rare, most opting for either pluriactivity, with the farm continuing as one occupation which was to be combined with some other(s). Occupational choice and the decision to continue in higher education were found to be made jointly. Those destined to take over the more profitable farms, becoming full-time farmers, were less likely to pursue tertiary education than those who were to become part-time. This example also points to the need to have information on the line of causality when interpreting statistical associations. In the absence of information on the development strategy of the farms involved, an association between unprofitable farming and more higher education among heirs could lead to quite erroneous conclusions about the relationship between human capital and farm performance. The role of education in entry and exit has been explored for England by ADAS (2004), with broadly similar findings on the strategic role it plays in farm family business development over time.

Key points

- Relationships can be found between change on the farm and educational qualifications and management skills, but these do not seem to be strong.
- Access to advice seems important.
- In general there seems to be a lack of solid evidence on the way in which business skills impacts on the development of farm businesses. In view of the importance of adaptation of farms and structural adjustment as responses to change, including to shifts in support mechanisms, this is an area in which more research is recommended.

II.5. Extent to which diversification impacts on business competence

Pluriactivity is increasingly recognised as an enduring feature of the structure of agriculture in OECD countries, not least the UK. Attention in agricultural policy is often focussed on the way in which farm operators can use their land and other agricultural assets in non-agricultural ways (on-farm tourism being a favourite form of agricultural diversification). However, the other resources belonging to the farm family (their labour, entrepreneurial ability and capital) are often spread to non-agricultural uses off the farm. Labour may be employed in other sectors or non-farming business, or professional firms may be operated. Investments may be made in non-agricultural businesses, including the provision of housing services. The phenomenon of combining farming with some other occupation or profession was

found to be common in the 19th century and helped explain the rate of survival at the time of the severe agricultural depression that started in the late 1870s.

Gasson (1997) points out that many occupiers of farms, and probably the majority on smaller holdings, have other jobs for which they may be qualified. She cites examples where the acquisition of qualifications is part of a strategy to enable younger family members on unviable farms to leave the sector. But in the UK entrants can bring qualifications with them; a study in England and Wales is cited by Gasson in which smaller farms were the most likely to be owned by new entrants, typically members of professions or in business, for whom farming was never intended to be more than a sideline. Such farmers tended to have the most 'personal capital' in terms of higher education and training.

Pluriactivity is very heterogeneous, both in terms of how it arises and the sorts of forms it takes (types of activities, status in the off-farm occupation, degree of income dependency etc.). Though the incidence of such diversification of family activities is most prevalent among the smallest farms, an element can be found across the size spectrum. While the lowest (relative) incidence occurs among the small commercial units, it is probably more common again among the very largest farms, which are often parts of portfolios of multiple businesses.

A pluriactive household can arise in many ways. One way is though the development of non-agricultural activities by farm families (farming being their only previous occupation) under economic pressure from falling returns from agriculture. This path of development is the one that attracts the greatest attention from agricultural policymakers, however, in England they only account for a minority of cases. Experience in other businesses can impact on the way the farm is run. Other routes include people with established careers in other occupations buying themselves into farming (usually but not exclusively acquiring small farms) with a mix of quality-of-life and commercial/investment motives in mind. They are diversifying into agriculture. There are also some occupiers who have made a 'U' turn, such as children of farmers who had established careers off the farm but who received the farm by inheritance or other inter-generational transfer of assets. Change of occupancy, whether by sale or by other means, has been identified as a key point at which pluriactivity is brought about.

While in some cases the pluriactivity is a transitory phenomenon, as people move out of agriculture altogether of move in to become full-time farmers, in many others (and probably the majority) it is a stable and enduring form, bringing both financial and non-financial benefits.

Key points

- Many of the routes of by which a farm becomes part of a diversified set of economic activities (pluriactivity, diversified businesses) bring skills into this sector.
- While some of these skills and abilities (such as pop music, or dentistry) may have little direct relevance to agriculture, it should be noted that, at least as far as innovating behaviour in agriculture is concerned, the type of higher education that an operator possesses does not appear to be of importance. The significant element is the exposure to the HE experience.
- Others (accountancy, law, banking, IT) are more immediately applicable, and success in running a business in another sector will also bring commercial experience.
- A competent entrepreneur from a non-farming background will recognise where skills are needed (both technical ones to do with production and the more operational ones involved in business management) and take the steps necessary to ensure they are available in the types and quantities required to make the farm operational. This will include taking up (perhaps not in person) training courses and making use of consultants.
- There is an information gap on the extent to which skills associated with business competency are brought into the sector by pluriactive incomers. This suggests an interesting area for research.

II.6. Barriers to acquiring business competence

The barriers to acquiring business competence relate to both education and the more specific training needed to manage farms. According to the Defra webpage on training (accessed Jan 2, 2007), the uptake of training in the farming and forestry sectors historically has been poor. The explanation seems to lie principally on the demand side rather than the supply side.

On the supply side, in higher education excess capacity seems to be the prime characteristic, leading institutions to lower entry bars and to seek alternative ways of using their facilities. In training, Turner et al. (2006) found that there were plenty of courses available to farmers who wished to diversify their businesses as a response to the changing economic and policy environment in which agriculture was placed, but a distinct lack of enthusiasm for training among farmers. Two-thirds who had diversified had not made use of training, despite a lack of experience and knowledge of the new enterprises they had entered. Not all the evidence supports this view, and Errington and Nolan (1997) found (in Devon and Cornwall) a lack of training provision, but this may have been overtaken by events both on the demand and supply sides. Defra's 2004 *Learning, Skills and Knowledge Review* also concluded that access to learning opportunities is limited, but this seemed to be not because of the lack of courses (or providers) but more because of a lack of awareness among farmers or because of the way in which they were structured (timing, duration, distance to the provider etc.). In particular, the multiplicity of publicly-funded support services with different access points was confusing and uncoordinated. (Supply side issues are dealt with in detail in Part III of this report.)

On the demand side many comments are encountered that suggest that there is a potential willingness to improve management capacity by undertaking education and training, but that somehow this is not expressed. The UK's Council for Excellence in Management and Leadership (2002a, 2002b) is much concerned with enabling this potential among SMEs to be realised and with meeting it.

Research on SMEs in general (OECD, 2003) suggests that the smallest businesses (which would include most farms) face the greatest problems to acquiring training in management skills. There may be additional factors associated with operating in rural areas that impose barriers that are common to agriculture and other small businesses located there. Both demand and supply side impediments need consideration. For example, it has been shown in *Productivity in Rural England* (Defra, 2005b) that the proportion of people in the most rural areas of England receiving job-related training is consistently lower than the England average. While there may be some particular barriers to uptake in farming, any explanation for this lower incidence of training must look primarily at other sectors because agriculture now represents only a minor share of rural employment in most areas.

The nature of these barriers to acquiring business competence is important, as they may form the basis of justifications for government intervention to overcome them. This is particularly the case if issues of market failure or equity can be uncovered, and if the costs of remedying them are modest in comparison with the benefits achieved.

II.6.1 Personal characteristics as barriers

Following on from earlier discussion on entrepreneurship in agriculture, it appears that among the factors that may inhibit the uptake of education and skills linked with business competence are the personal characteristics (including age and intelligence) and the personality and motivation of the present cohort of farmers and their families. Some of these are capable of being influenced (such as the more positive attitudes to training that appear to flow from higher education), and some not, being only addressed by turnover of occupiers and succession. Bone (2003) for Australia commented that barriers to further learning in Australia have been linked to low self-efficacy and esteem, in that people often underestimate their own experience and knowledge and overestimate others (reporting Johnson, Bone & Knight, 1996). Farmers were often working in isolation and thus found it difficult to conceive of alternatives to their working situation. These factors may apply in the UK. The research on *Lessons from the Land Management Initiatives* (LMI) carried out for the Countryside Agency (CCRU, 2003) reported that farmers do not regard training as a priority, but this may be the result of other factors rather than something that is an inherent characteristics of the people involved.

II.6.2 Structure of agriculture as a barrier

According to Defra's *Economic Appraisal of the RDP* (Defra, 2000?) and the mid-term evaluation of training element in the England Rural Development Programme (ADAS, 2003), agriculture's structure poses problems of diseconomies of size and encourages strategic behaviour by farmers, both of which result in sub-optimal uptake of training. Agriculture is characterised by small businesses, particularly in terms of the level of employment per unit, with around three quarters of all main holdings in

England providing work for fewer than 3 regular workers in 1997. In such industries it is often difficult for businesses to act individually, or even collectively, to support training initiatives. The transactions costs of setting up voluntary solutions (networks to arrange training) may be relatively great in comparison to the uncertainty of the anticipated benefits, in which case the rational decisions is to abstain from training. Nevertheless, examples of such cooperation exist (Errington and Nolan, 1997).

These researchers also note that the family nature of farm businesses, though often seen as a strength, is also a potential source of weakness with regard to the development of human capital. Family tuition provides a one-to-one relationship but, according to their survey findings, this often militates against willingness to use formal training. In addition, releasing people in a micro-business for off-farm training may pose technical problems.

Defra's *Learning, Skills and Knowledge Review* (2004), quoted in the draft England strategy for the RDP 2007-13 (Defra, 2006b), suggested other possible barriers to skills enhancement: for example, in some regions of England it can be difficult for rural businesses to access mainstream training and advice packages because of the lack of critical mass, the high unit cost of training in such areas, and their 'limited economic pull' (a term not explained).

Where the training of employees is concerned, there is a risk that trained workers may leave to work elsewhere, so the cost of training to the individual business is not recouped, though other economic agents (including consumers) may benefit from their enhanced skills. 'The fact that training tends to raise the mobility of labour by increasing skill levels and raising the attractiveness of workers to competing employers acts as a disincentive to individual initiative (on the part of the employer) or voluntary collective action.'

II.6.3 Barrier of imperfect information

The Mid-term Evaluation of the ERDP (ADAS, 2003), referring to the reasons why insufficient training is undergone in agriculture (quoting the HM Treasury *Green Book*). This included imperfect information, leading to employees being unable to judge the quality of their training or appreciate the benefits. This reduces their willingness to accept lower wages during the training period or receive any training at all; though couched in terms relevant to employees who may finance their own training, the logic is easily adapted to self-employed farmers.

II.6.4 Credit and finance barriers

Training involves costs, which may be private or public or a combination, but individuals who embark on it expect to obtain benefit in various ways. Some individuals may wish to borrow to fund training in the expectation that they will be able to pay back the loan through higher future wages or earnings (if self-employed). However, low paid employees in particular are likely to be credit-constrained and unable to obtain loans to pay for training, a problem that may be particularly significant among hired labour in farming.

In times when there is a downward pressure on the profits from farming the sector may offer fewer opportunities for training its employees. Anecdotal evidence from

discussion with farmers[12] suggests that few treat expenditure as a budgeted item in their plans, and that sums available to finance training are unpredictable and liable to interruption. Credit market imperfections and constraints may come into play for heavily indebted farmers, especially in the tenanted sector with their typically smaller assets base.

However, a study for the National Audit Office (NAO, 2004) suggested that in many cases it was not the lack of capital that formed the barrier to farmers adapting their businesses to future needs, but a lack of advice and support in taking forward such adaptation.

II.6.5 Barriers in the delivery of training

In rural areas there are important issues surrounding the delivery of training which may pose impediments to the development of business competence among farmers. Green and Hardhill (2003) cite the low numbers of potential learners, the challenge to what may be the sole provider in an area of delivering a broad and diverse curriculum, relatively high costs of provision, and higher fixed administrative and travel costs associated with service delivery in areas of dispersed populations. Such problems would be expected to be more acute in areas of lowest population densities; there is some indirect supporting evidence for this concerning management skills from the 2004 Small Business Survey (Telford, 2006). However, differences between the educational qualifications of business owners in dispersed rural areas, in villages, in rural towns and in urban areas were small, suggesting that rurality does not constitute a significant barrier to the delivery of formal schooling and higher education.

The economic appraisal of the training element of the England RDP by Defra (2000?) identified several aspects of the delivery mechanism of existing training as being implied barriers. Consequently the introduction of the Vocational Training Scheme aimed to secure a significant increase in training volumes in part by addressing the problems they posed. This would involve :

- providing more flexible delivery mechanisms (implying that the existing system was inflexible);
- providing more local / community based training facilities (implying access was an issue);
- creating more lifelong learning programmes (implying that the existing schemes did not permit a matching of career need with provision);
- overcoming problems of delivering practical craft skill training (suggesting that these were an area of particular difficulty);
- assisting with the cost of training (implying that cost was an issue);

The research report on Lessons from the Land Management Initiatives (LMI) carried out for the Countryside Agency also identified several problems across the LMIs with regard to VTS (CCRU, 2003). These included the issue of inappropriate scale – VTS generally involved large applications for a relatively large number of days of training, whereas most farmers were seeking shorter periods of training. The general lack of

[12] Discussion with participants in the 2007 WCF Advanced Farm Management Course held at Wye.

innovation in VTS-supported training provision was also highlighted in this report. Several LMIs reported that VTS simply subsidised established training providers offering conventional courses that might not truly reflect ERDP objectives. They called for VTS to better support environmental training for farmers. The report also wanted to find "other ways of stimulating the 'reorientation' of farmers' perspectives about their future land use and income options."

The NAO (2004), commenting on the findings from the Mid-term Evaluation of the VTS, also identified some aspects of its administration that apparently were proving to be a barrier. Some three quarters of farmers were not aware of the VTS, suggesting a communications problem. Although a large number of training days had been funded under the VTS, some training providers had difficulty filling places. Defra had attempted to address this by changing some of the Scheme's rules to make it easier for individuals to apply for support, such as by removing the minimum number of training days and introducing a 'fast-track' application procedure for individual trainees. The blanket exclusion for funding for training required by legislation was also removed.

II.6.6 Time constraint barrier

Several pieces of research on training have highlighted the difficulty of participants finding time for training (implying that time constraints were important) and have looked at ways of helping them (Defra, 2000?). This view is repeated in the England Strategy for the next RDP 2007-13 (Defra, 2006b). Other studies have also found it difficult to get farmers off-farm to attend training events (CCRU, 2003). Time availability seems a generic problem of small businesses rather than a phenomenon peculiar to farming (OECD, 2003), though longer travel times to reach training centres in more sparsely populated regions may be an issue for rural firms.

In the research *Lessons from the LMI* (CCRU, 2003) the main evaluation survey showed that 49% of respondents agreed with the statement that it is difficult to find the time to undertake training. Hence innovation in the delivery of training, such as distance learning which allows the trainees to chose their own times, would be welcome. A further 48% stated they did not have the staff to run the business while training. More flexible innovative delivery mechanisms could help to improve the impact of the scheme, something that was also recommended for application to all SMEs by the UK Council for Excellence in Management and Leadership (2000b) and the OECD (2003). The provision of a farm relief service, which could attract funding under the Rural Enterprise Scheme (paragraphs 9.7.16 – 9.7.19)(rather than the VTS) might be expected to help overcome any time pressure problem.

However, discussions with Lantra in course of drawing up this report have cast doubt on the strength of the time constrain as a barrier to acquiring business (and technical) skills. Anecdotal evidence suggests that this may be a convenient way of covering other more fundamental factors that cause farm operators, particularly the self-employed, give training a low priority.

II.6.7 Lack of social capital

The OECD (2003) notes that research findings indicate that managers of small businesses (in general) learn best in broadly homogeneous groups and where

interactions are possible to confront, help and share problems. The importance of the individual's ability to participate in networking, which might be considered a form of social capital, is illustrated by the review by Defra of the Vocational Training Scheme (Defra, 2002b). This showed that regions that had training groups supported, either through the old Agricultural Training Board (ATB) network or more recently Lantra, were more successful in putting together applications compared to the areas that had few supported training groups. This accounted for the differences in regional spend.

Key points

- Several types of barrier to acquiring business competence have been identified. These include
  - Personality of the present cohort of farmers
  - Structure of the industry (business size and family nature of farms)
  - Information deficiencies
  - Costs to the individual of education and training
  - Characteristics of delivery mechanism of education and training
  - Time constraints of trainees
  - Lack of social capital

- Only some of these barriers are capable of being addressed by policy, of which information deficiencies and avoidance of problems in the delivery system seem the most readily lowered barriers.

II.7. Relationship between age and business competence

Gasson (1997) pointed out that there is a clear relationship between age and level of educational attainment among UK farmers, the younger farmers having a steeply increased level of formal education. Most studies cited found higher levels of education among successors than the farmers they were following However, this was heavily influenced by the 'vintage effect' and the expansion of secondary and tertiary education, especially in the second half of the 20th century.

In Gasson's review of six different surveys that had looked at the relationship, notwithstanding their differences between methodologies, the results suggested that less than 10% of farmers born before the First World War ever acquired formal qualifications. For those born between the Wars, between 10% and 30% gained qualifications. Among those under 40 years old (at the time of survey and thus born post-Second World War), the surveys found that around three quarters had at least school-level qualifications, and some (rather fragmentary) evidence found that three quarters of young farmers (between 25 and 34 years old) had some kind of formal education or training in agriculture or a related subject since leaving school. In Gasson's view the potential impact of this relatively high proportion of the younger generation with college or university training was tempered by the finding (citing Warren and Hoggard, 1990) that those who emerge from such educational institutions typically have to wait 10-15 years before being able to exert an effective influence on farm business management, with the danger that their knowledge may become dated.

Lantra (2001a) also states that national evidence shows that a 50-59 year old is twice as likely than 20-29 year old to possess no formal qualifications.

In discussion with Lantra during the drawing up of this report it was pointed out that age is not necessarily associated with poorer business skills, and that younger farmers are not necessarily the most able to innovate and react to changes in their economic, technical and policy environments. Formal education is only one factor associated with business competence, and perhaps not the most potent. Attitudes and motivations are at least as important.

Another factor to be considered is that, while agricultural statistics (for example the Farm Structure Survey in the EU, to which England contributes) often assume that there is a single principal farmer, and the biographical details that are recorded for the holding are those of this person. In practice, many farm businesses will contain several people who share in business decisions, whether formally as partners and directors, as managers with designated responsibilities (such as for an enterprise), or informally as part of the farm household. Consequently, the principal farmer, if one exists, may not be responsible for exercising all the business skills the farm possesses, and age of the principal farmer may be a misleading parameter with which to correlate the competence of the farm as a whole. If, as seems to be the case, that there is a general rise in the extent to which entrepreneurial responsibility is being spread on English farms, the age of the principal farmer may be loosing its relevance.

Key points

- There is evidence for a relationship between age and formal educational qualifications, though this is probably largely a 'vintage' effect and can be expected to be now much diminished.
- Changes in the way that farm businesses are run, with a greater spread of managerial and entrepreneurial responsibility, is probably reducing the relevance of any link with the age of the person recognised for statistics purposes as the principal farmer.
- The way that different people found on a holding have business skills and exercise them to achieve business competence for the farm as a whole is an interesting subject for research.
- There is a need to develop data sources to gather evidence on human capital at the farm household level.

II.8 Returns to qualifications in education and skills that are associated with business competence

Earlier sections have indicated that higher levels of education and training tend to be associated with more profitable and better performing farms, though the relationship is not simple. Of course, the lack of a qualification does not necessarily mean the lack of business skills, nor does passing tests and examinations necessarily mean that the person's skills are fully operational in the context of running a business (though this will depend on the nature of the qualification). Nevertheless, the possession of

qualifications is often taken as a proxy for capacity to exercise a skill. This raises the issue of whether it is possible to demonstrate rates of return to different levels of education and training in business skills. If these are evident, especially in the form of higher incomes (which may come through costs avoided), the task of persuading people to acquire them is made easier.

Looking at education and training in the economy as a whole (that is, across all sectors including agriculture), studies have been made of the value to the individual in terms of the earnings potential of education (Sianesi, 2003; Walker and Zhu, 2001), which tend to show wide variations for the UK between the marginal returns for different levels and types of education. Professional qualifications gave the highest returns and a first degree the second highest, but with higher degrees providing a lower return. An attainment of five or good GCSE's gave a return very similar to that of a first degree (27%), but a small number of GCSEs (1-4) a gave figure similar to that of a higher degree (15%).[13]

The literature shows that there is variation between the sector in which assessment takes place (Sianesi, 2003) and between subjects of study (Walker and Zhu, 2001), so rewards from the general education of farmers may not correspond with the all-industries average. However, no specific UK literature has been encountered on the private returns to education and training of people in agriculture, either in general or in skills related to business competence in particular. Neither has there been any assessment of the returns to courses that might be considered to be agricultural in nature (in which case the rewards might be earned in other sectors) or delivered by institutions that are land-based. This seems to be an information gap that could be filled.

Such studies that exist on the specific relationship between education and agriculture tend to be in countries that are strongly dissimilar from England; for example, work by Taylor and Yunez-Naude (2000) in rural Mexico show a high return to years spent in school, with a return in terms of income of nearly 10% per year to the head of household but also with a link to the development of new (off-farm) income sources and a switch to those sort of agricultural activity that could benefit from a more educated workforce. Their review of other research in developing countries, which reveals mixed results, points to the need to take into account technological change and diversification; at least some of the low or negative returns to schooling appear to flow from the poor scientific design of the research, such as by taking too narrow a view of activity choice and of failing to include variables on the education of members of the farmer's family.

Private returns, of course, do not necessarily reflect the benefits to society, and private costs may be very different from social costs when an element of public funding is involved (US Congress, 2000). A social view of the benefits from education and training applied to agriculture would need to take into account the impact of increases of output resulting from increased productivity on price levels and the value of aggregate production, and on the ability of labour to leave farming to find uses in other industries. This issue is revised in Section IV.

[13] In the same study NVQs (3-5) gave a small positive return whereas for NVQ 1 and 2 they were negative. Again, NVQs in agriculture did not necessarily have the same results as the all-industry national average.

Key points

- No estimates of the rates of return to different forms of education and training in an agricultural context appear to be available, either in general or in relation to business skills. This information would be necessary to the allocation of public resources between the various forms of government intervention to raise business competence in agriculture, and to compare returns with using these resources in agriculture or in other sectors.
- Without this information it is not possible to judge the marginal efficiency of using public resources in supporting education and training in agriculture.
- Estimating private rates of return in agriculture (that is, calculation using the costs and benefits to the individual) and social rates of return (that is, comparing the resource costs and overall benefits, which may be greater than those accruing to the trained person) seem to present a useful avenue of economic research.

II.9. Why some farmers have business competence and others do not

This forms a convenient point at which to bring together the research findings covered in previous sections to summarise the factors explaining why some farmers have business competence and others do not. Because many farms are operated by more than one individual, the skills available to be business are likely to be greater than those possessed by the person who, for statistical convenience, may be regarded as the principal farmer. The indicators of human capital commonly applied when studying the capacity of farm operators – such as educational attainments or skills qualifications – do not always bear a close relationship with the observed financial performance of the farm business, and only some of these are to do with business skills.

Some of the factors associated with greater business competence are capable of manipulation, for example by education and training. Factors associated with business competence cover the following groups:

- The personal attributes of the people responsible for managing farms that are not capable of being changed (other than by replacing one set of managers by another), such as age, intelligence and personality. Over time these factors will shift, as inter-generational transfer of farms takes place and entries and exists occur.

- The biographies of these people, including their education levels and experience (both in agriculture and in other occupations) that shape their generic behaviour (such as innovation and search for information). Evidence on the impact of formal education on farm performance is mixed, but perhaps this is because studies usually fail to capture the longer-term benefits in facilitating structural change. Again, in the short-term the opportunity for changing formal education levels is limited, but with succession by younger family members and with entry by people

from non-farm backgrounds (especially as part-time farmers) these groups of factors will shift. Skills brought by incomers have also been noted as a valuable resource to businesses in general located in rural areas (Smallbone et al, 2002).

- The skills in specific areas of business management of the individuals that comprise the institutional unit (firm, which will often be the farm household or partnership). The ability to plan seems to be a key skill in determining business performance. The provision of vocationally-related education (such as HE courses in business management or agricultural business management) and training (for example, in marketing or financial control) will have their greatest relevance here, though with different time spans. At least some of this specific training will become obsolete with the passing of time, requiring a continuous process of updating.

- The access that managers have to these skills from other economic agents (hire of consultants, use of services provided free or at reduced rates using public funds etc.). The use of consultants is one aspect of business management in which training may be given.

- There are also factors related to the delivery of this human capital investment that help explain why some farmers currently have competences and other do not. Attention has been drawn to market imperfections (such as lack of awareness of the benefits from training, and risk of bearing costs without being assured of benefits) and, in particular, the difficulty in small businesses of being able to allocate time to this process, especially when the operations of the farm depend on the presence of an particular individual. Many of the delivery problems seem to be at their most severe among the smaller farms on which there is no other source of income (though not necessarily the smallest, where other gainful activities to the household are often present).

PART III – STOCKTAKE OF PUBLICLY FUNDED MEASURES

The OECD's overview report on management training in SMEs found that countries used a variety of delivery mechanisms (OECD, 2003). Colleges and universities, private sector providers, chambers of commerce and industry associations, and public organisations were involved, though in different balances and combinations. The OECD observed that the UK appeared to place (relatively) heavy emphasis on supporting one-to-one consultancy guidance for SMEs, but only had small scale schemes to provide management training. The inference was that there is no single "best" institutional model for management development; delivery has to be contingent on the circumstances of each country. For the UK the SME Working Group of the Council for Excellence in Management and Leadership (2002b), set up by the Secretaries of State for Education and Employment and for Trade and Industry, noted that there is was plethora of schemes available to support management development, many publicly funded. However, they had been created on a piecemeal basis, and entrepreneurs were confused by the array of opportunities. Of course, the special provisions for agriculture add a further dimension.

Publicly funded measures affecting business competence among the operators of agricultural businesses can be grouped as follows:

- education
- training in skills to enhance business competence that is not specific to the operators of farm businesses but which are available to them
- vocational training schemes targeted at the agricultural sector (with forestry and related industries)

While formal education is primarily an activity undertaken by young people, training in skills is something that can be experienced either at the outset of a career (which might be linked with education) or later, such as through participating in Continuing Professional Development (CPD) programmes (which may themselves contain an educational dimension).

Consideration of the use of public funds to provide advice to farmers and farm businesses and the performance of schemes to deliver this advice (such as the Agricultural Development Scheme) is outside the coverage of this research project. However, it is worth noting that advice, both public and privately funded (and now typically provided by the private sector) is a tool commonly used by competent business managers.

The supply of education and training of English residents leading to business competence can be thought of as having two components. The first is "replacement" for the turnover of people in the agricultural industry, so that a dynamic equilibrium can be maintained. The second is "incremental", in that it raises the level of competence above the existing equilibrium level. Of course, immigration can bring skills developed in other countries, and emigration will lose it to the domestic economy.

Lantra has described current provision in the documentation provided to the Sector Skills Development Agency (SSDA) leading towards the Sector Skills Agreement (SSA) for the Environmental and Land-based Sector. The *Stage 2: Assessment of Current Provision* (Lantra, 2005e) covers the UK and the *Stages 1-3 Report England National Consultation Document* (Lantra, 2005f) summarises the situation for England. The coverage is wider than agriculture (as defined for purposes of National Accounts or for the Farm Business Survey), but many of the other sub-sectors are activities in which some farm businesses are already involved or might be interested when considering diversification (e.g. landscape, trees and timber, equine).

III.1. Education

Farmers and their families, like other members of society, are subject to compulsory school education up to the statutory age, after which a number of voluntary routes are open to young people. While issues of general education are beyond the direct responsibility of Defra, there may be room to influence developments through, for example, rural proofing of plans for the supply of school places.

As noted above, the attained level of (non-vocational) education has an impact on the way businesses are run. In part this can be seen as a form of human capital that is reflected in the capacity of a person to carry out the actions required of management. In part its impact flows from the actions that a greater level of education fosters, for example in a greater willingness to seek out opportunities for technical training and advice that has been found to be a characteristic of farmers with higher levels of formal education. Core educational attainments (such as basic literacy and numeracy and related communications skills, including ICT[14]) are likely to be essential to the exercise of business competence (though examples can be found of successful entrepreneurs who have very limited formal education). No easy differentiation in terms of the impact on business competence can be drawn between education that uses subjects that bear some obvious relationship with management of agricultural businesses (for example, mathematics, economics, biology) and that which does not (such as history, languages or fine art). It seems to be the exposure to study at this level, rather than the subject studied, that is critical to behaviour such as the take up of innovation and the searching for information.

Education in state-sector schools is both publicly funded and publicly provided. Those parents who choose private sector education could, in principle, have access to public funds. It seems that there are now few schools that have a distinctly agricultural element in their curriculum (Rural Science appears to have contracted as environmental studies have expanded), and the number with farms attached to them (once common) is much reduced[15]. There are currently 65 school farms across the UK, each providing a range of services that link into the National Curriculum, though their emphasis seems to be largely on the technology of the production process (including animal welfare) rather than the business aspects (School Farms Network, 2006).

[14] The use of computers and the internet as a source of information has been the subject of special study (see Warren et al., 2000)

[15] In 1990 it was estimated that 31 of Conwall's 33 secondary schools taught Rural Science, and that 29 of these had animals or gardens on site (School Farms Network, 2006).

Post-school, non-compulsory education (Further Education (FE) and Higher Education (HE)) is at least part-funded by the state, and this applies both to studies that might be considered directly related to business competence in agriculture and to other subjects that might be studied by people who become farmers. In HE the contributions made by the individual (or their parents) has broadened the burden as the result of the abolition of maintenance grants and the introduction of top-up fees. This has raised doubts about equity of access to HE. The agriculture-related subjects are dealt with below.

Enhancing educational levels as a way of improving economic performance is a long-term exercise and forms part of general policies on regeneration, social inclusion and productivity. In a review of public funding and returns on education in Europe, the PuRE project found that investing in the education of individuals raises their productivity in working life, and thus contributes to productivity and output growth in the economy (PuRE, 2001). Throughout Europe there is a potentially higher-than-average return on education from socially-deprived groups of people who have acquired little education. The strengthening of the national economy is used to justify governmental involvement in the production and financing of education. The recent Leitch report (Leitch, 2006) draws attention to the relatively small number of UK graduates and the likely implications this holds for the longer-term economic prospects for the economy.

Key points

- Formal education is very largely (compulsory school level and FE) or partly (FE and HE) financed by public funds.
- In general, education appears to raise national productivity and strengthen the national economy
- Attempts to raise the level of business competence by training in specific business skills must be seen against the wider background of the provision of education
- Education seems to facilitate enhancing business competence in other ways, such as searching for information, increasing innovation and the greater use of advice and training.

III.2. Training in business skills which is not specifically targeted at people working in agriculture

The first category of publicly funded measures concerns those that, in principle, are not restricted to people working in the agricultural industry. Restricted measures are dealt with in the next section.

Defra, in its Strategy Document for the next England Rural Development Programme 2007-13 (Defra, 2006b) asserts that most business support, advice and training for the agrifood and forestry sectors is delivered through mainstream services applying to all businesses, though no supporting evidence is offered. This approach has benefits in terms of streamlining delivery and recognising the integral role of agriculture and forestry in the wider economies of rural areas and communities.

Defra, in its *Sustainable Farming and Food Strategy* (Defra, 2006c) points to the generic business support needs provision through the Business Link network, managed by the Regional Development Agencies. Making farmers more aware of such services is seen as one function of Defra media, including giving information on the 'While Farm Approach'[16].

Data from the Department for Education and Skills found that in 2004/05 some 63,000 students were taking 'land-based provision' courses in Further Education in England (72,000 for the UK)(Table III.1). This included (presumably) the 'industries' (more in the nature of sub-sectors) for which Lantra is responsible. Some 11 thousand were in UK HE institutions studying a group of subjects that included agriculture and veterinary science. Some, but not all, of these FE and GE courses would have impact of business competence, and this competence could also have been affected by the study of other courses. Errington and Nolan (1997) point to the very substantial restructuring that had taken place even by then among the FE and HE institutions concerned with agriculture and related land-based education and training.

Table III.1. Data from Education and Training Statistics for the United Kingdom 2006 (Department for Education and Skills)

		Date	UK	England
Employees in any form of job related training (in last 4 weeks)	Agriculture, forestry and fisheries	2006	*Percent of total number of employees 9.2% =15,000*	
Employees in any form of job related training under present employer	Agriculture, forestry and fisheries	2006	*Percent of total number of employees 60.6 (= 98,000)*	
			Numbers (000)	
Students in FE	Land-based provision	2004/05	21 FT/51PT	20FT / 43PT
Students in HE - First degree	Vet Science, agriculture and related	2004/05	11 FT/ 0.5 PT	
First degrees awarded	Vet Science, agriculture and related	2004/05	2.9	
Students in HE - postgraduate	Vet Science, agriculture and related	2004/05	2.2 FT/ 1.9 PT	
Postgraduate degrees awarded	Vet Science, agriculture and related	2004/05	1.4	

[16] The 'Rural Enterprise and Skills' webpage, within Defra's Rural Affairs website, also mentions Rural Business Pathfinder, operated by the Small Business Service, that applied in the Welland sub-region of the East Midlands.

In 2001 Lantra gave a more comprehensive description of the spectrum of training then underway. Its key points were that:

- There were 51 specialist agriculture and horticulture HE and FE colleges (including university faculties)
- A further 190 general FE colleges offered land-based qualifications in specialist departments
- There were 600 employer-led training groups
- 360 training providers, including colleges, were registered with Lantra (non-registered providers were estimated at 1,000)
- 97,000 students were enrolled on full or part time courses in the UK
- Approximately 100,000 individuals undertook short courses in 1999/2000
- 2,123 Modern Apprentices had completed since this programme began in 1994

According to Lantra (2001a), FE colleges are vital providers of training in the land-based sector (which covers more than agriculture and horticulture). Provision is concentrated in specialist agriculture/horticulture colleges but many land-based courses are also offered at general colleges of FE. There were over 84,500 students in England on Programme Area 2 (agriculture and land-based) courses. This represents 2.2% of enrolments for the total English FE population. Of the 84,500 students, over 67,000 were enrolled on FEFC funded programmes (implying the use of public funds for this training) and almost 17,000 enrolled on non-funded programmes.

There were also approximately 300 enrolments for courses funded by the Department of Higher and Further Education, Training and Development.

Finding the amount of public support to education and training that is directed at agriculture is difficult because of the fragmented nature of the supply system and its overlap with general education. One of the few available pieces of information relates to the expenditure on FE. According to data assembled by Lantra in its 2005 *Assessment of Current Provision,* in the period 2000-4 the Learning and Skills Council committed some £192m in core funding for FE in the land-based areas of learning, supporting some 160,000 enrolees, plus another £50m on additional learner support. In 2003-4 the spending on this sector represented 2% of the total LSC budget for that year.

No estimates of the public funding of HE courses related to agriculture appear to be available. However, the HE end of the educational scale in agriculture has received some special attention in farm management circles (Park et al, 2002). While acknowledging that agriculture as a whole needs skills of many types, many of the managers in this industry are likely to have undergone courses at degree or HND levels. The authors had concerns over the quality of applicants, changes in ways of teaching and organisation of courses that may not achieve the previous level of outcome in terms of learning experience, and the consequences of over-supply for the institutions providing courses. Park et al. describe the strategy adopted by some, including withdrawal from this subject area and diversification into business courses not obviously related to agriculture, environmental studies etc.. They point out that,

following a period of expansion, the number of applicants and acceptances for degree and HND places in the Agriculture (D2) group of courses in the UK had held up quite well, at least from 1996 to 2001, though against a background of expansion in other subjects and with a sharp fall of applicants in the last years. In 2001 there were 1,537 successful degree applications and 1,241 HNDs (compared with 1,482 and 1,187 respectively for 1996). However, since then there has been a substantial shrinkage in numbers now applying for advanced courses in agriculture. UCAS statistics show combined degree/HND numbers in the UK in 2005 at barely half the 2001 level (1,452 in 2005 compared with 2,751 in 2001)[17]. The inevitable conclusion is that, the demand for HE courses (and HNDs) has shrunk dramatically in a short period. It is by no means certain that this shrinkage implies anything negative about the future prospects of farming.

For the future business competence of the industry it would be instructive to know what educational paths have been followed by the students who might have been expected to take these HE qualifications, and what types of degree and other qualifications those entering the industry now have pursued. Degrees in general business studies, economics and accountancy may be seen as preferable to courses specific to agriculture, especially in the light of the structural changes anticipated for farming within the working lives of today's student cohorts.

Lantra also reported on other forms of training. Lantra maintain a register of training providers who supply ***short courses*** for land-based industries. In 2001 Lantra had registered 360 training providers, some of which were colleges and machinery rings. In the year to 1 April 2000, over 25,000 people took part in courses registered with Lantra. Unfortunately information on the breakdown of these courses so that those directly related to business competence is not forthcoming. Survey work done by Lantra with the training providers estimates that courses registered with Lantra accounted for approximately 25% of all work-based short course provision, indicating a total figure of 100,000 for overall participation. The non-registered courses included training provided by commercial and professional firms without the use of public funds, such as tax-planning seminars by accountancy firms. Other forms of training also existed (apprenticeships, distance learning[18]).

Key points

- Comprehensive figures on the supply of education and training using public resources that impacts on agriculture are difficult to come by, not least because education is often generic.

[17] According to UCAS statistics for 2005, there were only 1,193 applications for degrees in D4 Agriculture in 2005, of which 1055 were from the UK. There were 826 applicants from England. In the UK there were 271 accepted for HND in agriculture, of which 255 were UK students. Only 105 HND students in England were accepted. The major drop between 2001 and 2005 has been in HNDs, presumably reflecting an upgrading of courses to degree status.

[18] A review in Wales of vocational training and education for the agricultural and land-based sectors (National Council – ELWa, 2002) found *inter alia* evidence of excessive competition between FE institutions, qualifications were seen as a fall-back rather than to providing an effective contribution to operating a business, insufficient co-ordination between FE and HE colleges, and the need for strategic lead on skills development. The review builds on a number of previous studies.

- Courses directly concerned with business competence are only part of this provision and are not well described in data sources.
- Some training in skills related to business competence takes place outside the publicly-supported framework

III.3. Vocational training under the Rural Development Regulation 1257/1999

This category covers training that is only available to people working in the agricultural and closely related industries. Others are ineligible.

In the England Strategy for the England RDP 2007-13 (Defra, 2006b) the case is made for special support to training for agriculture (and forestry). Defra asserts that the general support framework for all businesses may not cover all of this sectors' needs. For example, specialist advice and training may be necessary to help farmers and foresters adapt to the challenges of CAP reform, the review of Community Animal Health Policy, and to the increasing emphasis on water protection and mitigating the effects of climate change. Though most of the examples cited relate to technical issues rather than business competence, there are areas where economic management responses are required, including diversification and development of income streams from the supply of environmental services. In addition, Defra draws attention to the problems that farming (together wish other agrifood firms and forestry) shares with other rural businesses in relation to access to training, knowledge transfer or advice in rural areas (small sizes, dispersion etc.). On this basis a case for training targeted specifically at farming might be made (a point taken up later). The Rural Development Programme provides such an opportunity. Given that there are wider public benefits to be gained from effective implementation of the Plan (e.g. environmental enhancement), which are captured neither by the employer nor the employee, extra weight is added to the case for public sector support for appropriate training.

The RDR 1257/1999 allowed for the provision of "support for vocational training to contribute to the improvement of the occupational skill and competence of farmers and other persons involved in agricultural activities and forestry activities and their conversion". Under the England Rural Development Programme (RDP) 2000-06 this was provided by the Vocational Training Scheme (which closed for new applications on June 30, 2006). According to the RDP, improving the skills base of the agricultural, horticulture and forestry (sub)sectors was seen as a key priority in the drive to ensure "an improved economic situation, greater diversification, improved competitiveness and a strengthened rural economy. Improving the skills base is also vital for the successful delivery of projects under all aspects of this Programme. In addition, vocational training will play a key role in assisting the modernisation and improvement of agricultural and forestry holdings. It will also aid the adoption of sustainable and environmentally sensitive practice together with high standards of animal welfare and hygiene".(Defra website).

The Rural Development Regulation required the provision of training to 'prepare farmers for qualitative reorientation of production, the application of production practices compatible with the maintenance and enhancement of the landscape, the protection of the environment, hygiene stands and animal welfare and lead to the

acquisition of the skills needed to enable them to manage an economically viable farm'. Vocational training was not exclusive to farmers (though those spending less than half of their time on the holder were not eligible) but also included others involved in agricultural and horticultural activities and those engaged in "conversion". "Vocational" in this context meant any training related to the performance of a person's occupation or work. The Regulation envisaged that in most cases the occupation would be farming (or forestry) though other occupations could be covered where conversion of a farming or forestry business was involved. "Conversion" meant diversification into non-farming (or forestry) activities, e.g. leisure, tourism, horse-riding, livery and other horse related activities, non forestry arboreal work, or a change from one type of agricultural activity to another.

It should be noted that the intention of "competence" appeared to relate to the performance of agricultural activities (for the UK as described in section 109 of the Agriculture Act 1947), though business skills could be covered by the "skills needed to enable [farmer operators] to manage an economically viable farm"

After consultations and surveys on skills requirements and how they were expected to develop over the ensuing 3-5 years, priorities for training support under the England RDP 2000-06 were set out. They were under the following headings:

- Information and Communications Technology (ICT)
- Business skills - covering all aspects of running a business, including development of business plans and preparation of financial information and use.
- Marketing skills
- Conservation and environment skills
- Diversification opportunities (including organic farming)
- Managing resources - covering the use of buildings, staff, consultants and physical inputs, and consideration of the legislative environment within which the farming business operates.
- Managing yourself and your staff – a broad range of personal and human resource skills, including raising the awareness of health and safety, animal welfare, hygiene and environmental matters.
- New ways of working – including new ways of generating income, breaking into new markets and running the business more flexibly. The use of machinery rings, contractors and collaboration with others are given as examples.
- Technical skills (forestry)
- Technical skills (agriculture and horticulture)
- On-farm food production and processing skills

It should be noted that all but the fourth and the last three of this list could be counted as part of business competence.

According to the Defra website "Training" it was envisaged that most projects would have a strong local focus and would be delivered through established training delivery channels (including Agricultural Colleges, FE Colleges, Training Groups, other private sector suppliers and other approved providers e.g. Forestry Commission). A

typical Training Group was envisaged as having some 60-100 farmer members and would be run by a professional group organiser.

Typical delivery mechanisms set out in the RDP included training in the workplace, short training courses delivered elsewhere, workshops or briefing fora, and demonstration farms. Where appropriate, the training was expected to lead to the acquisition of a recognised qualification or a part of such a qualification. The aim was to provide 48,000 full cost equivalent training days for people in farming and forestry by 2007.

The organisers of training form the main group of applicants for funding, rather than farmers and other involved in agriculture, though applications by individual trainees form another route of funding. Thus the training mix was not strictly determined by demand, a feature recommended by the Leitch Report (2006) and supported by a in other countries (e.g. FAS/Enterprise Ireland (2005). Rather, demand was filtered through the network of providers, with courses not attracting support (presumably) being discontinued.

At the level of the individual trainee funding was dependent on a Training Needs Assessment and a demonstration how the proposed training would meet a properly researched and clearly identified training need. It was also expected that it could be demonstrated how the training would help improve the performance of the businesses involved, contribute to effective project delivery (where the training was related to another area of activity in the RDP) or lead to quantifiable environmental, animal welfare or hygiene benefits.

Eligibility for VTS required the beneficiaries of training to fall into one or more of the following categories:

- Farmers and growers spending at least 50% of their working time on the farm or horticultural holding
- People, including family members, who derive a direct income from agricultural or horticultural activities
- Persons involved in forestry
- Persons involved in the conversion of farming or forestry activity.

These requirements have been seen as too restrictive within a context of rural development, as people in other occupations may benefit considerably for training opportunities, with spins-off for the broader community and economy. Whether the 50% working time qualification is, in practice, a significant filter is something that the Mid-term Evaluation did not explore.

After initial checks for completeness, applications were assessed using the following criteria:

- Meeting objectives of VTS and ERDP.
- Clarity of the project objectives, indicators and milestones.
- Sustainability and long term impact.
- Key policy themes and priorities.
- Its financial viability.

- Additionality, displacement and need for public support.
- Project management & delivery
- Risk assessment & sensitivity.
- Regional fit.
- Value for money.

This process has an impeccable logic and should, in theory, lead to the efficient use of public funds.

Mid-term evaluation of the VTS

The VTS was reviewed as part of the mid-term evaluation of the England RDP (ADAS, 2003)[19]. According to the 2005 RDP Annual Report, nearly £18 million of the £22 million VTS total budget over the 7 year life of the Programme had been committed through approved applications. (This budget appears very small when set against the £192m spent on core funding of FE courses in England in 2000-04, with another £50 going on support to trainees.). The RDP Annual Report for 2006 states that, of the target of 48,000 training days for people in farming and forestry by 2007, some 30,969 were achieved in 2005, and the cumulative number of days to the end of 2005 was 131,643 (see Table III.2). According to discussions with Defra, the large overshoot in these output figures (though not in expenditure) reflect the difficulty of establishing meaningful targets *ex ante* and the unexpected economies in the delivery system (such as having training classes that were larger than had been anticipated).

Table III.2. Vocational Training Scheme - Progress against Indicative Measures and Indicators, 2000-05

	Target	Achievements in 2005	Cumulative up to end of 2005
No. of training days	48,000	30,969	131, 643
Number of training courses/workshops	2,400	2,569	15,385
Number of qualifications obtained	5,000	2,693	12,774

Source: Defra (2006a) RDP Annual Report 2005, Table 1 (p30)

The way that training was divided between the various skills is reported in the 2003 Mid-term Evaluation. Although at the time of this evaluation there were few completed training projects, the applicants had to specify the type of training at the outset and these can be classified according to the initial measures as follows. Numbers shown are the individual trainees. Just under two thirds of trainees (65%) and a slightly higher share of training days (71%) were involved with skills that might be broadly grouped into business competence, the remaining one third relating to technical competence in agriculture, horticulture, forestry and food processing or

[19] The equivalent mid-term evaluation of the Wales RDP did not include detailed consideration of its VTS as very little activity had taken place by 2003, largely due to historical factors.

conservation and the environment (the last four categories in the following Table III.3). Information is not to hand on expenditure broken down in the same manner. However, this would be unlikely to change the impression that skills relating to business competence account for a major share of VTS activities, of which ICT formed by far the largest single category. Whether ICT is now really a business skill or a basic life skill (together with literacy and numeracy) is a moot point. If ICT is discounted as a business skill, then only about one quarter (27%) of claimants' days were related to training in business competence.

Table III.3. Type of training to April 2003 (Table 7 of ADAS (2003))

Training Nature	Count of Claimants identified (2)	Training days**
Business Skills	599	1,355
Diversification opportunities	185	305
Information and Communication technology	1,704	6,328
Managing Resources	222	383
Managing Yourself and your Staff	369	695
Marketing Skills	147	232
New Ways of Working	420	912
On-farm food production and processing Skills	228	410
Technical Skills (Agriculture and Horticulture)	1,547	3,129
Technical Skills (Forestry)	49	131
Conservation and Environment Skills	240	378
Blank (1)	133	-
Total	5,843	14,256

(1) In a percentage of cases, the applicant has omitted the detail or RDS staff has not entered information onto the central database correctly.

(2) A claimant is the term used by Defra for individual trainees.

** Target for the RDP 2000-06 was 48,000

Source: Defra Monitoring Data, 2003, quoted in ADAS (2003)

Later VTS monitoring data supplied to this project (Table III.4) suggests that ICT is no longer an expanding area – the number of trainees has held steady from 2002 to 2006, but the share of trainees taking such courses has fallen as the total number of trainees has expanded. For the period as a whole, skills related to business competence accounted for over a third of the total trainees (36.7%), though this reflected a sharp increase towards the end of the period. Between 2005 and 2006 trainees in 'business skills' more than doubled and accounted for most trainees for the entire period (11.2%). 'Diversification opportunities' was in second place, but the peak for this type of training seemed to have been passed; numbers of trainees was greatest in 2005.

Table III.4 Paid claims on approved VTS projects where payment date is up to 30-sep-2006

	Year						
	2002	**2003**	**2004**	**2005**	**2006**	**Total**	
Training Days Completed	7,243.0	14,829.5	23,209.0	22,940.5	34,626.0	102,848.0	
Training Courses Completed	776	1,915	2,920	4,001	4,492	14,104	
Qualifications Obtained	183	227	1,094	2,801	4,531	8,836	
EAGGF Grant Paid	520,227.07	1,049,345.84	1,411,736.40	1,899,271.92	1,854,729.02	6,735,310.25	
Exchequer Grant Paid	520,227.07	1,049,345.84	1,411,736.40	1,899,271.92	1,854,729.02	6,735,310.25	
Total Grant Paid	1,040,454.14	2,098,691.68	2,823,472.80	3,798,543.84	3,709,458.04	13,470,620.50	

	Year						
Breakdown of trainees by age	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**	***Per cent***
<30	244	882	1,428	3,555	4,003	10,112	*15.4*
30 - 39	470	1,389	2,742	5,275	5,974	15,850	*24.2*
40 - 64	1,000	2,809	6,154	11,752	15,040	36,755	*56.1*
65+	60	126	406	885	1,364	2,841	*4.3*

	Year						
No. of trainees by training nature	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**	***Per cent***
Information & communications technology	1,238	1,046	1,419	1,557	1,302	6,562	*8.7*
Business skills	210	698	1,602	1,860	4,023	8,393	*11.2*
Marketing skills	27	241	476	500	729	1,973	*2.6*
Conservation & environment skills	106	581	1,757	2,996	4,094	9,534	*12.7*
Diversification opportunities	31	625	1,380	2,940	2,280	7,256	*9.7*
Managing resources	109	358	865	551	1,204	3,087	*4.1*
Managing yourself & your staff	220	305	444	1,142	1,351	3,462	*4.6*
New ways of working	91	634	738	1,007	915	3,385	*4.5*
Technical skills (forestry)	6	239	451	672	604	1,972	*2.6*
Technical skills (agriculture & horticulture)	751	2,078	4,502	7,718	8,759	23,808	*31.7*
On-farm food production & processing skills	90	812	1,572	2,238	965	5,677	*7.6*
TOTAL	2,879	7,617	15,206	23,181	26,226	75,109	*100.0*

The 2003 Mid-term Evaluation contained comments on the way the VTS had been operating and was organised and contained recommendations for change. These criticisms included the complexity of the application process (which has been simplified), high running costs (some 46% of total spending, though this was projected to fall to what was still considered a high figure of over 21%), lack of clarity in weighting objectives and thus the pattern of training days between the various types, and the possibility of it being too strongly linked with existing training organisations. This last point carries the danger that the provision of training may be not be sufficiently demand-driven, a feature that Leitch Report of 2006 recommends.

The fact that ICT formed the largest single skill category raised the issue of duplication with other training programmes not specifically targeted at agriculture or the other subsectors covered by the VTS. This ICT training was rather generic and is often available from Further Education (FE) institutions. Whether the delivery via the VTS was justified by the way it related to the land-based sectors was an issue raised by the evaluators that needed further exploration at the *ex post* stage.

In the context of this study the focus of interest is how the skills provided via the VTS impact on business competence, and how this might be assessed. The Mid-term Evaluation provides some 'soft' indications of this by means of a survey of VTS applicants. The following positive training outcomes were reported (ADAS, 2003), being the share of respondents who strongly agreed or agreed that the VTS had led to these outcomes (figures in the text of ADAS, 2003 are not fully consistent with the detailed graphic in Appendix II, quoted here). The proportions of respondents answering this particular question, which may influence the way the results are interpreted, are given in parentheses:

- Greater enjoyment – 61% (89%)
- Not as reliant on seasonal work – 15% (31%)
- Income increased – 18% (88%)
- Initiating changes to farming practice – 58% (85%).
- Improved communication skills – 67%. (82%)
- Initiating changes to business processes – 51% (80%).
- Better understanding of the market they operate in – 56%.(73%)
- Improved marketing – 19% (41%)
- Identified ways to add value – 24% (49%)
- Better understanding of the financial aspects of the business – 46% (72%).
- More aware of employment legislation – 36% (51%)
- Better understanding of work health and safety issues – 50% (64%)
- Embarked on non-farming diversification – 16% (65%)
- Identified opportunities for industrial crops – 13% (53%)
- Provide agricultural services – 18% (66%)
- Convert to organic – 5%.(66%)

It may be noted that less than a fifth of respondents felt that the training had led to an increase in income (perhaps this was too early for such outcomes to be detected) though it was clear that a far larger share had initiated changes and had equipped themselves with ICT capability, which should be reflected in future incomes. Perhaps surprising was the very low association of VTS with diversification either within farming (including organic production) or in non-farming activities. The fact that there were other schemes within the VTS on diversification and organic conversion may be linked with this response.

Some 71% of respondents agreed with the statement that it was unlikely that training would have taken place without VTS funding. This, and the other issues touched on above, will no doubt be revisited in the *ex post* evaluation expected to take place in 2008 or thereabouts.

Key points

- VTS spending is not large in relation to that going on FE courses and training
- VTS is restricted to those working mainly in agriculture and closely related sectors.
- The provision of courses is not directly demand-led but there is a logic in identifying and filling skills gaps.
- Only about a third of VTS activity is to do with skills that are clearly and obviously related to business competence (and with ICT excluded), though this has risen over time.
- Although the evidence is not yet strong, VTS seems to improve the income of the farm in only a minority of cases, but there are wider effects that may pay off in the longer term.

III.4 Links between RDR (VTS) and training activities financed under the Structural Funds

The VTS was intended for beneficiaries who were part of the agriculture and forestry sectors. However similar training activities could be financed in areas designated for support under Objective 3 of the Structural Funds, aimed at improving people's employability. The following activities related most closely to the Vocational Training Scheme :

- improving access to training for disadvantaged groups e.g. ethnic minorities and women;
- identification of emerging skills shortages;
- widening participation in lifelong learning by targeting groups least likely to take part in training and those people lacking basic and key skills;
- improving employability by supporting lifelong learning that is responsive to the changing needs of employers e.g. in relation to ICT, management skills and the environment.

Similarly, training activities might be financed by the European Social Fund in Objective 2 areas, where there were specific economic or social difficulties. As a result they are expected to have a somewhat different focus. Because of the non-agricultural focus of the Objective 2 and 3 activities, Defra's ex ante economic assessment of the VTS expected that the scope for overlap would be very limited, but steps were taken in test of eligibility to avoid duplication of Community aid between training activities.

Key point

- The picture of public sector support of training cannot be fully described without reference to activities taking place under the other Structural Funds. This is not easily obtained.

III. 5 Other forms of specific advice related to business competence

One aspect of business competence is the use of advice. Thus the existence of advice is likely to raise the performance of farm businesses. It is appropriate to note here that there are a number of government-funded and supported options available to farmers for business advice. These include:

- Farm Business Advice Service (FBAS) - funded by Defra but delivered in the regions by business advisers. The service was launched in 2000 aimed at improving farm business profitability and sustainability. The service was restructured in 2005 focussing on helping farmers consider their business options following the introduction of the Single Payment Scheme. The time-limited service ended in March 2007, having delivered advice to a total of 30,000 farmers in England, involving costs of £33.5m..
- Farm Management Accounting material
- Farm Benchmarking
- *Business Link[20], which receives funds from Defra to increase the uptake of business advice in economically underperforming rural areas, and which is not specifically for farmers, has been dealt with above.*

In addition the Rural Development Service Farm Advice Unit provides a series of seminars, conferences, walks, farm visits and workshops covering business and environmental advice. These are managed nationally but delivery is focussed by region.

Key points

- In addition to supporting education and training, public resources are currently involved in the provision of certain forms of farm business advice. Though more in the nature of tools that competent business operators can use, nevertheless advice can increase the effectiveness of training in business skills.

[20] In addition *Rural Business Pathfinder* in the Welland sub-region of the East Midlandsr

- Whether the provision of advice should be supported with public funds is a rather different issue from the one tackled in this report, as is the case for the public finance of information benchmarking. No attempt is made here to consider either.

PART IV – POLICY IMPLICATIONS OF THESE FINDINGS

The findings above have implications for the way that business competence is perceived as a policy problem and, in particular, for the measures that government has in place, and might consider having in place, to address the problem. This section starts out by trying to establish what would be the general characteristics of an efficient policy, then turns to the particular circumstances of what currently exists for supporting business competence on farms in England.

IV.1. Business competence and general rationales for government intervention

It is worth considering briefly the general rationale on which cases for public intervention are built and how business competence relates to them (Blandford and Hill, 2006; OECD, 2003). The reasons fall into three main categories (efficiency, equity, and political economy), the first of which has important subdivisions linked with market failure. It is important to recognise that the presence of market failure does not *necessarily* mean that action to counter it is justified.

Efficiency

The efficiency rationale can be subdivided into four:

(a) Avoidance of losses to society. If operators of existing farms lack adequate business competence because of the barriers explored in Section II above, there can be a penalty for society in terms of a reduced level of output and national income. This can come both from a sub-optimal use of resources (statistic inefficiency) and from a reduced capacity to cope with adjustment in the face of economic trends and shocks, such as disease or rapid changes in agricultural policy (dynamic inefficiency). Greater business competence is likely to bring about both a more efficient use of resources in the short-term and easier adjustment in the longer term. Furthermore, there may be benefits to the whole economy from more rapid economic growth; expanding SMEs are seen as 'large net job creators and drivers of economic growth' (OECD, 2003). However, it may be easy to over-estimate the benefit to the national economy from this enhanced performance of farms, given the small size of the agricultural sector, the inelastic nature of the demand for farm commodities, and the characteristics of farm workforce who might find themselves looking for employment outside the agricultural sector.

Though some resources transfer from one farm operator to another in response to the market signals that accompany economic, technical or policy change, others (particularly labour and entrepreneurship) shift to non-agricultural uses. This has implications for the productivity and competitiveness of the remaining agricultural industry. But, as many of the skills associated with business competence are generic, the improvement in national performance is reaped primarily in the sectors to which the workers transfer. Given the evolving structure of the national economy it could be argued that there would be a net gain from this reallocation of trained resources.

(b) Externalities and public goods: Where greater business competence is necessary to cause public goods to be generated, or public bads to be avoided, then there is the

basis of a rationale for a policy to enhance it. Market failure is being corrected. But this only supports the provision of support for those aspects of business competence that are linked with these features (i.e. those forms of training directly or indirectly linked with environmental practice or the provision of other public goods). It can be argued that the fabric of rural society is to some extent held together by the businesses located there (including farmers)(Smallbone et al., 2002), so that training and advice that enables them to survive has a socially-valuable externality. Again, the issue of whether intervention is efficient will reflect, on the one hand, the opportunity cost of the resources used in enhancing these aspects of business competence and, on the other, the value that society ascribes to the environmental improvements and the provision of other public goods.

The point has been made earlier that the regulatory load on farm operators has been increasing (e.g. in the areas of health and safety, traceability and animal welfare), and the need to comply is assuming a rising importance within business competence. If the regulations are correctly set, then farmers who do not respect them will lead to a loss of welfare for society. Fines for those who fail to meet regulatory standards will result in public revenue but may not be effective at achieving compliance. Public spending on compliance training may, in these circumstances, represent an efficient use of public funds though, as is discussed below, equity and/or political economy may feature more strongly in the rationale for schemes that enhance competence in meeting regulatory standards than efficiency.

(c) Transactions costs and information deficiencies: High transactions costs and information deficiencies (including asymmetry) are impediments to the satisfactory working of markets[21]. Voluntary solutions can be found to some of these problems, such as co-operation agreements among producers of a particular crop and the establishment of networks for mutual support, which would include the role of farmer's unions as a way of bringing members together and encouraging the exchange of information. However, in order to make them happen input may be required from government[22]. An example is the establishment of one-stop places (physical or electronic) where comprehensive ranges of information can be available to users[23].

If improving business competence enables farm operators to enhance their access to information that is already available and to use it more effectively in planning their allocation of resources (including to non-agricultural uses) or to reduce their transactions costs (such as by higher IT skills), there can be a gain to the national

[21] Not all information is a public good, in the sense that it is non-excludable and non-rival. Discussions with farmers on the 2007 WCF Advanced Farm Management course at Wye suggested that, increasingly, much information is seen as a way of achieving market advantage and thus is not something readily shared.

[22] The establishment of Levy Boards can been seen as another form of government intervention, with funding contributed by levy payers. Levy Boards provide various services to help their members improve their profitability and competitiveness, cope with regulations, and innovation (accenture, 2007).

[23] The mid-term evaluation of the Wales Rural Development Plan noted that farms in the national park of Snowdonia had high incidence of multiple schemes, and explanation being that the agricultural officers the could provide comprehensive information on funding opportunities. More generally, the Farming Connect system was built on the rationale of providing expert advice to help draw up a farm development plan (which might include diversification), and making available information on the range of funding possibilities that could used to implement it (Agra CEAS, 2003).

economy, both generated by the agricultural sector and by the stimulation of other industries (such as tourism)[24]. If this gain to society exceeds the public costs of securing the improvement in business competence, there is a net gain, and it is rational to use public funds in this way.

Information gaps may be compounded by 'rational ignorance' – where the anticipated cost to the individual of acquiring the information exceeds the anticipated benefits that possessing it might bring. In such circumstances the most obvious way of addressing market failure is to promote information of the benefits (to the operator) from enhancing their business competence. Lantra's advocacy strategy for raising the awareness of the business benefits of training is a case in point (Lantra, 2005b).

In this context it might be noted that the provision of training, advice and information to farmers free or at subsidised prices because the farmers will not pay commercial rates does not, by itself, constitute a correction for market failure. If the operators judge that the (marginal) benefits to them are not worth the (marginal) cost, then their failure to take up the training represents an efficient choice. However, there may be an element of market failure if that decision is based on inadequate evidence or where there is a distortion of the timescale over which benefits or costs accrue (similar to a smoker's continuing habit because of excessive discounting of future health implications).

(d) Imperfect competition (market power of monopolies, oligopolies, monopsonies and oligopsonies) can form part of the rationale for increasing the business competence of farm operators, in that improved marketing and negotiating skills can be used to strengthen the market power of producers that, as independent operators, would otherwise be weak. This may be deemed desirable to counter the power of other elements in the food chain, in particular large-scale purchasers of farm commodities. Networking leading to the establishment of associations, and various forms of vertical and horizontal integration, require skills that may be considered elements of business competence. Of course, there may be more cost-effective ways of achieving these ends, including legislation on competition or the public sponsorship of marketing co-operatives[25].

Equity

Early in this Report it was observed that the need for business competence is heightened in a dynamic environment, irrespective of whether the changes are economic, technical, or related to policy. When policy is reformed, reducing support and allowing market forces to play an enhanced role in shaping the decisions (both current and structural), some farmers and their households may face significant private adjustment costs (income losses and falls in asset values). There seems to be a consensus that action should be taken on equity grounds to cushion private adjustment costs, especially where these results from changes in long-established policies. The provision of training in business competence and of professional advice to complement it may form part of this package, justified on grounds of equity.

[24] See Turner et al. (2006) for a parallel exposition of the rationale for public support, in that instance linked to farm diversification.

[25] For an alternative articulation of the case for government intervention on grounds of market failure, see Drew Associates (2007)

Where incomes among a particular sector are at a level that is deemed to be 'unfairly' low, the public funding of schemes to improve business competence among this sector may be a cost-effective way of alleviating their poverty. Enabling farmers to use their resources more effectively in the market may be less resource-demanding than providing income support directly, and thus represent a more economic way of achieving a given policy aim, such as income enhancement. However, this aspect of the equity case for providing business competence advice implies a selective approach – with the focus on those cases where incomes are unfairly low – not one that covers the whole industry. It should also be noted that enhanced business competence skills may well result in resources transferring out of agriculture either partially (by diversification) or completely (exiting the industry).

Another aspect of equity concerns who bears the costs of training and who receives the benefits. This has particular relevance where farms that bear some (or all) of the cost of training staff see these people move to other businesses (a point discussed below).

Political economy

Public use of funds to enhance business competence may be justified where this is necessary to achieve agreement to other, usually more radical, changes in policy, so that there is a net economic gain to society. History is full of examples where compensations have been offered to the agricultural (and landowning) sector to make policy reform politically feasible (see Blandford and Hill, 2006). The main form this has taken recently has been compensatory payments (such as the headage and area payments accompanying the 1992 CAP reforms) but UK history has seen earlier situations in which structural forms of assistance have formed part of a package (including the 1957 Small Farms Scheme). Publicly-funded schemes that involved the development of farm plans and vocational training (both of which may be interpreted as raising business competence) and socio-economic advice (which the competent businesses may access) have been common elements in changes to policy that have attempted to limit or reduce the cost of market support. The provision of vocational training remains part of the latest rounds of Rural Development Programmes for England, within the overall shift of support from CAP Pillar 1 to Pillar II.

Though perhaps less obvious, the institutions concerned with the provision of education and training may present political economy issues. For example, colleges will be keen to seek ways of using their staff and facilities when traditional courses no longer attract adequate numbers of students, and funding bodies may provided support for initiatives that are at least in part an attempt to sustain the institution in the short-term.

Key points

- The rationale for using public funds to intervene in the economy may be expressed in terms of economic efficiency (especially with respect to market failure), equity and political economy.

- Certain types of training can be justified on economic grounds (such as in the provision of environmental services which have public goods characteristics), but this is not strongly self-evident with regards to general business skills.
- There appear to be information failures (gaps) on the (private) benefits and costs associated with training. A rationale may exist for the use of public resources to remedy the situation.

IV.2 General rationale for intervention in the provision of training.

In addition to the general rationale for intervention, considered above, there are two specific articulations concerning the public provision of training that should be noted. First, the Treasury 'The Green Book' (HM Treasury, 2003) states that there are three form of 'market failure' that may cause a skills gap (See Box IV.1), a series of points repeated in the mid-term evaluation of the England Rural Development Programme when the rationale for the Voluntary Training Scheme operated as part of the RDP is discussed (ADAS, 2003). The first is risk of loss of benefit to an employer who has incurred costs of training staff when those individuals leave his employment, in many cases transferring benefits to other firms who have not borne the cost. Though the Green Book labels this as an 'externality', this is probably incorrect. The element of market failure arises because of the lack of the ability of the cost-bearing employer to exercise ownership rights over the human capital embodied in the trained worker. Given that the freedom to move between jobs is usually considered a basic human right, the issue is the high transactions costs incurred in setting up and enforcing contracts to lock trained employees into the employer's business for a period necessary to recoup the training cost. Public funding of training, in part or in total, might be argued on equity grounds, in that employers will then only bear a proportion of the cost.

Of course, this rationale only applies to employees. Other reasons must be found for any shortfall in the training in business competence of self-employed farm operators, explored in Section II.5 above. For them the second point made in the HM Treasury Green Book example (information deficiency) is the most likely, as lack of resources to fund the acquisition of business competence skills would probably only be a problem among a relatively small sector of farm operators. The issue of present age of farmer and access to formal training has been dealt with in Section II.6 of this paper.

The second is the influential Leitch Report (2006) that considered skills levels in the UK as a whole. This stated that 'governments should only intervene where there is market failure'. Though Leitch recommends that the system of education and training should be driven by employers and individuals to deliver economically valuable skills, there is some doubt as to whether demand from these sources is the most reliable indicator of the social optimum among small businesses (Observatory of European SMEs, 2003). Their demand could incorporate an element of market failure (such as undervaluing the benefits from better management) that would justify correction by government intervention. However, there is general acceptance that the provision of training should not be left to the judgement of its suppliers (see the summary of the literature in FAS/Enterprise Ireland (2005); though the problems that

may flow are not well articulated in that publication, it seems that they relate to the availability, level and mix of training opportunities which, if set according to the priorities of the supplier, are likely to be suboptimal from the perspective of society. The views of independent experts may have a role to play here; ideally such experts should not be financially involved in the supply system though in practice this may be hard to avoid as the providers of training may have the best knowledge of the potential for training. Under such circumstances a balance has to be struck between the demand coming from entrepreneur perceptions and the assessment of experts.

Box IV.1 Extract from HM Treasury 2003 *The Green Book*

Rationale for Government intervention - Example 'Expanding Vocational Training'

There is evidence that skilled workforces have positive impacts on high-level economic aims, such as productivity and GDP growth. At the same time, there is evidence of a major skills deficiency in the UK, which is reflected in the low numbers holding intermediate level vocational qualifications, compared to Germany and other European countries. There is further evidence that there are three forms of market failure that continue to cause this skills gap:

1. Externalities leading to under-investment in training by employers. Firms are concerned that once trained, an employee will leave the firm before the firm has recouped its investment. Unless training pays off very quickly, firms are therefore reluctant to provide training to their workers.

2. Imperfect information leading to employees being unable to judge the quality of their training or appreciate the benefits. This reduces their willingness to accept lower wages during the training period or to receive any training at all.

3. Credit market imperfections. Training is costly, but individuals expect to obtain higher wages from training. Some individuals may wish to borrow to fund training in the expectation that they will be able to pay back the loan through higher future wages. However, low-paid employees in particular are likely to be credit constrained and unable to obtain loans to pay for training.

These market failures mean that the level of training provided by the market is likely to be inefficiently low from society's point of view. Well-designed government intervention may help to bridge the gap.

Key point

- Because of information deficiencies (a form of market failure), operators of small businesses may not necessarily be the best judges of their own training needs in business competence skills. However, problems are experienced if the supply side determines what is provided. This suggests that a balance has to be struck between the demand expressed by existing operators of small businesses (which would include farmers) and external assessments of training requirements.

IV.3. Justification for policy action to enhance business competence in agriculture

Improving skills, and the training to do so, forms an integral part of the government's policy for agriculture, as set out in Defra's *Sustainable Farming and Food Strategy: Forward Look* (Defra, 2006c) and for the economy in general (Leitch, 2006). In relation to the core theme of 'succeeding in the market' Defra states that "Following the CAP reform of 2003, the key challenge here is for farm business and the food chain collectively to move away from dependence on subsidy, and towards a more business-focussed approach, based on greater awareness of market opportunities, including for diversified enterprises, the benefits of collaboration and co-operation, and the acquisition of skills needed to exploit these new opportunities" (Executive summary para 3). This greater awareness and power to exploit bear an obvious relationship to business competence, together with a fair measure of entrepreneurship. Elements relating to other themes also involve business skills include resource management (environment theme), adding value through production of food that has a lower environmental impact (sustainable production theme), and new crops (climate change theme). Advice, training and skills form one of the cross-cutting themes that are expected to play a significant role in delivering the strategy, which is intended to give greater impetus to the behavioural change required in the farming and food sector.

The need for farm businesses to adapt to economic, technical and policy pressures, and for farm operators to have the skills that facilitate adaptation, is frequently restated in lower-level documents and is a theme that predated the latest round of CAP reform. The study on the evidence base for the 2000-06 England RDP (CRER, 2002) stated that, as the agricultural sector restructured, there would be a need for appropriate training opportunities to assist the workforce to adapt. The market already provided some training opportunities but new options would develop. Therefore, well-targeted training schemes would improve the skill base of the workforce and assist agricultural businesses meet the challenges of Agenda 2000. The rationale and objectives of the VTS that formed part of that England RDP are gives in Box IV.2.

Subsequently, the introduction of the Single Farm Payment/Single Area Payment system of support from 2005 took this line of argument further. This case for providing skills to cope with adaptation was repeated in the *Rural Labour Markets, Skills and Training* report (Green and Hardill, 2003) and Lantra's consultation document relating to England when preparing the Sector Skills Agreement (Lantra, 2005f). This contained a detailed analysis of change factors, main issues and the impact on skills and business requirements; it is reproduced in Annex 3 of this paper. Furthermore, in the consultation document for the next England Rural Development Plan (2007-13), Defra (2006b) proposed that skills acquisition, knowledge transfer and innovation in the farm and food sectors was a prime focus of Axis 1 (see Box IV.3), which is aimed at building a "profitable, innovative and competitive farming, food and forestry sectors, that meet the needs of consumers and make a net positive contribution to the environment achieving." (Defra 2006, Annex 2. p 34). Again, these clearly relate to business competence.

Box IV.2. Rationale for and Objectives of the Vocational Training Scheme (within the England Rural Development Programme 2000-06)

Rationale

60. Agriculture is characterised by small businesses, particularly in terms of the level of employment provided, with around three quarters of all main holdings in England providing work for fewer than 3 regular workers in 1997. In such industries it is often difficult for businesses to act individually, or even collectively, to support training initiatives, particularly where benefits accruing to businesses might be lost through trained workers leaving to work elsewhere or where they are likely to be quickly dissipated to the wider benefit of consumers or other economic agents. The fact that training tends to raise the mobility of labour by increasing skill levels and raising the attractiveness of workers to competing employers acts as a disincentive to individual initiative (on the part of the employer) or voluntary collective action.

61. Despite increasing skill requirements arising from the adoption of new technology and diversification opportunities a relatively small proportion of the workforce in the sector hold formal qualifications. In 1996 only 35% of the workforce was found to be qualified to NVQ Level 3, well below the Government's target of 50% by 2002.

62. Given that there are wider public benefits to be gained from effective implementation of the Plan (e.g. environmental enhancement), which are captured neither by the employer nor the employee, extra weight is added to the case for public sector support for appropriate training. Evaluation evidence also tends to suggest that higher levels of training are associated with greater on-farm innovation and technology transfer (Socio-Economic Determinants of the Level and Rate of On-Farm Innovation, Gasson & Hill, Wye College, 1996)

Objectives

63. In the context of the restructuring of the agricultural sector, there will be a need for appropriate training opportunities to be available in order to assist the rural workforce adapt to changing circumstances and make the most of the possibilities for rural development activities afforded by the Plan. Although the market will already provide some training opportunities and new options are likely to develop in response to the Plan, potential participants may not always be aware of what is available or, in some areas, may be dissuaded from participation because of their remoteness. It is widely recognised that the scattered population in rural areas means that access to services, including education and training, is more difficult than elsewhere. In addition, some initial impetus may be required to stimulate training providers to develop training opportunities that are geared specifically towards the needs of rural development.

64. The introduction of **small scale locally targeted** assistance for training activities will therefore aim to facilitate the delivery of other 1257/99 measures, as well as broadening the skills base of the rural workforce generally and of the agricultural workforce in particular. Improving access opportunities to reduce exclusion from education and training should help the rural workforce to meet the challenges of the re-orientation of agriculture and the new demands of the rural economy, raising the capacity of local communities to take a more pro-active role in the regeneration of their area.

65. The proposed expenditure will facilitate the provision of some 2,400 training courses or workshops and provide training to about 24,000 people.

Source: Defra (2000?) Economic Appraisal of Spending under the Rural Development Regulation

Box IV.3. Extract from the *Rural Development Strategy for England.* Annex 2 **RDP 2007-13 (Defra, 2006b)**

Axis 1
138. Axis 1 will be used to build profitable, innovative and competitive farming, food and forestry sectors, that meet the needs of consumers and make a net positive contribution to the environment.
139. In line with the areas of development potential identified in Chapter One, the focus for Axis 1 will be on :
· developing a greater awareness of market opportunities, and a greater ability to exploit these opportunities, particularly in relation to renewable energy and added value products
· promoting and encouraging greater collaboration and cooperation amongst producers, and between producers and the rest of the supply chain
· improving agricultural and forestry industry uptake of technology and entrepreneurial skills
140. The types of activity that might be supported include, though are not restricted to
· increased access to training and knowledge transfer opportunities (e.g. for resource protection, on how to exploit the biomass and renewable materials sector, improving animal health and welfare standards)
· projects that reduce waste and increase efficiency through the food chain
· projects that facilitate the development of business opportunities in new markets
141. ……. the priority sectors for investment in human and physical capital are to increase opportunities for knowledge transfer and skills enhancement and to promote the adoption and dissemination of innovative business processes and practices. …. maximum value added from interventions is best realised through a targeted approach, with a focus on providing a clear public benefit over and above that provided to the individual beneficiary.
142. In taking forward the approach outlined above, we will clearly need to make effective use of measures aimed at knowledge transfer and innovation. However, such activity can be complemented by focused use of measures aimed at restructuring and modernisation, for example through targeting projects which have the potential to disseminate new business processes and practices or to improve the performance and efficiency of the business.

But the ability to respond to changes in policy is only a particular manifestation of the general principle that a more business competent farming sector will perform better in many ways, and that education and training can assist in developing this competence. The general rationale for improving the education of the population in general was given in Section II.8 above and will not be repeated here. Evidence specific to the impact of education on the performance of agriculture in England is not strong. However, the general conclusion is that a more educated set of farm business operators and managers would result in a more productive, innovative and competitive industry and generate higher average incomes, but economic theory suggests that this would only be for a smaller number of people (including fewer self-employed farmers).

Higher business competence among England's farm operators might assist in achieving a number of specific policy ends. Concerning productivity growth and hence the competitive position of the UK industry, the author of Defra's (2006d) *Sustainable Farming and Food Strategy: A Forward Look – Supporting Economic and Statistical Analysis* (Stuart Platt) affirms that research studies suggest three groups of factors are important; education and skills; innovation and technology

transfer; and business structures and organisation. The implication is that education and skills, if inadequate, may be harming competitiveness and action may be proposed to remedy this situation. Evaluation evidence also suggests that higher levels of education are associated with greater on-farm innovation and technology transfer. It is also seen as a component of encouraging diversification and as a way of responding to income problems in farming. There is also international evidence to support the view that higher qualities of human capital assist agriculture in making adjustments to policy reforms (Blandford and Hill, 2006).

Most of the evidence that is used to justify policy actions is in the form of statistical associations. It is fairly clear is that England's farmers as a group lag behind some other sectors in terms of education and skills, and this is seen as putting it at a competitive disadvantage. A policy analyst might wish to see more evidence on the underlying causes of this lag, as these hold the key to effective action to reduce it. As noted in Section II.5 above, much of the education and skills characteristics of agriculture can be related to the structure of the industry, which is dominated in numerical terms by small (micro) unincorporated businesses operated by households, where formal retirement at the age normal for the rest of society is relatively unusual, and in which inheritance is a major method of entry. Some of these factors are not readily addressed. Others factors appear to be determined primarily outside the industry, such as by developments in the wider education system (for example, on the school leaving age, curriculum development and examination system), ICT progress and choices by people to enter this industry as pluriactive from established careers in other businesses and professions.

There seems to be relatively little direct evidence on the mechanisms by which the present levels of business competence impose a handicap in terms of the performance of this industry (which could be measured in various ways). This would involve exploring the cause-and-effect relationships between competence levels and various aspects determining performance. For example, is it the weakness in risk assessment or poor staff management that is the limiting factor, and what forms of education or training are best suited to tackling the problems?

Furthermore, there should be some consideration of the extent to which business competence in agriculture should be raised. Clearly, it would not be efficient to use resources to increase the competence of all operators, irrespective of their size and complexity of business, to the highest international levels. Are there diminishing returns? To what extent is it necessary to narrow the gap between the group-average competency of farmers and that of and other occupations, or even reverse it? This has relevance to how many public resources should be used to this end, and the opportunity cost of using them in this manner. Evidence for the rates of return to different types of education and training (for example, Sianesi 2003) appear to concentrate on the private returns, as measured by higher wage earnings, and have neither specific information for agriculture nor have considered the self-employed as a group.

Key points

- There are many aspects of agriculture's performance that would appear to benefit from greater levels of business competence and many policy issues to which it is relevant.

- Agriculture needs to adjust, and greater business competence implies that adjustment will be easier.
- Given that general primary and secondary education is publicly provided in England, the issue is whether, and to what level, further public resources should be provided for higher and further education and training that enhances the business competence of farmers, their families and other engaged in agricultural activity.

IV.4. The basis of an efficient policy to raise business competence in agriculture?

Several instances have already been given of the need to consider both the costs of policy interventions and the benefits to be gained by them. This 'efficiency' aspect of policy is often neglected, so it is worthwhile underlining the central issue with respect to actions to raise the level of business competence among farmers.

The first requirement for policy intervention is that a mechanism exists by which the desired outcome can be achieved. In the case of raising the level of business competence in agriculture, a number are available, including education, vocational training, CPD, and the provision of advice. More drastic measures, such as imposing eligibility tests on people who want to become farmers or steps to force exits by the poorly qualified and less able are not part of the English tradition, so will not be explored further.

The fact that it may be technically possible for governments to intervene to increase the level of business competence (the choices between alternatives has been left deliberately open at this stage) does not necessarily mean that it is economically efficient to do so. That depends on the opportunity cost to society of the resources used in this way and the marginal benefits to society achieved. If the (marginal) benefits of raising business competence by, for example, setting up a training scheme exceed the (marginal) costs of doing so, then from society's standpoint there is a net benefit and the training should be put into effect. But if benefits are smaller than costs the economically efficient action might be to NOT intervene to alter business competence.

The difficulty of obtaining the information for such a judgement should not be underestimated. While costs can probably be assessed (both private and social ones) in a fairly straightforward manner as these relate primarily to the time period over which the intervention takes place, the benefits from greater business competence are farm harder to measure. Factors explaining this include (a) the long period over which benefits are likely to be reaped (b) establishing the counter-factual (c) valuing market outcomes and public goods that may flow from greater business competence. In such circumstances evaluation tends to concentrate on economy rather than efficiency[26], that is the least-cost way of providing a particular form of training or

[26] When considering the performance of individual measures it is conventional to apply a ROAME(F) conceptual framework (a systematic approach which looks at the Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback arrangements). In the evaluation phase it is customary to use the tests of effectiveness, economy and efficiency.

advice that enhances competence, rather than on efficiency in the use of resources. However, it is still necessary to raise the issue of efficiency, and to try to measure costs and benefits, as with this assessment the continuation of many forms of government action could remain unchallenged.

Key points

- The existence of market failure does not, by itself, justify intervention. For intervention to be justified the value of the benefits that flow from the intervention must be at least as large as the value of public resources used in this way.
- Public benefits from higher business competence brought about by education and training are difficult to measure, as they may stretch over a long period and involve non-market goods and services. Nevertheless, an attempt at valuation should be made and compared with the public costs.

IV.5. Case for a special sector-specific system to raise business competence for agriculture

According to Defra's draft strategy for the next Rural Development Programme for England (Annex 2)(Defra, 2006b) the rationale for a separate scheme for agriculture (and forestry) holdings to raise skills levels is as follows:

- mainstream services (applying to all businesses) may not cover all of the sectors' needs (such as to help farmers adapt to the challenges of CAP reform)
- the particular barriers faced by firms in general in rural areas in their access to training, knowledge transfer or seeking advice in rural areas (Defra 2005 *Productivity in Rural England*), though this is explained more in terms of size of business, difficulty of making time available and the high cost of providing training in such areas.

The first of these is not very convincing in relation to business management and entrepreneurial skills, though Defra does offer in its strategy document examples of the need to conform with environmental and water regulations that appear to require very specific knowledge and skills. Training that is associated with other actions under the RDP may greatly enhance their performance, so there may be an element of synergy that has to be considered.

The second is more a rationale for support to the development of skills in small (and micro) businesses in general and to those in rural areas in particular. There is nothing peculiarly agricultural in this justification. This concern that the rural population's access to services, education and training, is more difficult than elsewhere is also reflected in the texts of the study on the evidence base for the 2000-06 England RDP (CRER, 2002), the mid-term evaluation of the VTS within that programme (ADAS, 2003), the review by Green and Hardhill (2003) of rural labour markets, skills and training, and Defra's 2004 *Learning, Skills and Knowledge Review*.

Where problems of delivery are general in rural areas, the appropriate policy response is for an improved system for all businesses there, from which farmers should be able to draw. Evidence, though, seems rather mixed. On the one hand Errington and Nolan (1997) repeat the assertion, providing some empirical if dated support (Errington et al. 1994). Smallbone et al. (2002) point to what appears to be greater costs of delivery of training in rural areas and the greater costs to participants in training, due for example to the costs of travel to urban centres for 'off-the-job' sessions. Small firms in the most remote areas have been shown to be lagging behind in terms of process technology and the use of the internet. On the other hand, there have been periods (such as the 1980s) where rural SMEs outperformed urban firms in terms of employment growth, though this seems now to have been reversed. The migration to the countryside of highly educated, business-competent and well-networked people is one way in which rural areas obtained skills needed for economic success and development. According to the Countryside Agency's 2003 *Rural Economies: Stepping Stones to Healthier Futures* the majority – up to two thirds – of rural start-ups are by incomers (first-time immigrants or returnees to rural areas), many of whom bring with them a desire to run their own businesses as part of a lifestyle change.

A further element in the rationale, though one that is not often articulated in official documents, must be that funds are available from the Community budget for spending on vocational training in the 1999 and 2005 Rural Development Regulations. Some of the cost of the VTS that operated from 2000 to 2006 was borne by the EU budget. For the next (2007-13) RDP there is a minimum required spend (share) allocated to each of the four Axes. Though some actions permitted under the RDR for the 2000-06 programming period were not adopted in England (or Wales), for example special measures to assist new entrants or early retirement, this non-adoption tends to have been justified on grounds of their non-effectiveness, poor value for money and (in Wales) unfairness when similar provisions were not available to operators of other rural businesses. Such negative evidence and perceptions do not appear to apply to training in business competence. The point here is that there may be financial reasons in part justifying the expenditure on vocational training.

Key points

- The problems faced by farmers in gaining business competence skills seem mostly to be common to businesses that are small and located in rural areas, rather than being unique to agriculture.
- In the rationale for a scheme unique to agriculture, there may be issues of national finance to be considered, including the potential to draw down EU funds.

IV.6. Performance of policy actions to raise business competence

Given that there is a commitment on the part of government to improving skills in England's agriculture (and food) sector, including management skills and entrepreneurship, it is reasonable to ask whether means of achieving greater levels can be found. A prerequisite for policy intervention using public funds is that a technical solution to a particular problem is available. Only then does the issue of efficiency of

using resources in this direction arise. At this stage it is instructive to ask how recent schemes to enhance business competence of the people currently in farming have performed. (It should be noted that no attempt is made in this study to examine the performance of publicly-funded advisory systems or benchmarks, though it is expected that competent business operators would take advantage of both).

Evidence on the effectiveness of policy interventions to support initiatives such as the Vocational Training Scheme is surprisingly weak, in particular those elements associated with raising business competence. The CRER (2002), in its review of the evidence base for the 2000-06 England RDP, was not able to find any evaluations or literature on the effectiveness of the VTS. Rather baldly, it concluded that there was no evidence on the value for money of the VTS, the impact of the scheme on farmers' attitudes or management practice, impact of the scheme on wider rural development, the attitude of the wider public to the environment, the profile of benefits delivered over time or administrative costs of the scheme. But it noted that a previous evaluation commissioned by MAFF had reviewed the economic rationale for continuing core funding Lantra (the National Training Organisation) for the whole land-based sector and whether this represented value for money. It concluded that it was needed for the provision of corporate services, development services and communications.

In its mid-term evaluation of the VTS component of the England RDP 2000-06 ADAS (2003) again reported that there appeared to have been no independent evaluation of training courses or workshops provided by VTS funding (which would have covered more than business competence training), other than a few evaluation sheets held on file, completed by beneficiaries. Nor had there been any consideration of the impact of training within the context of the overall ERDP. In the absence of a formal evaluation, a number of stakeholders were interviewed, and their views on effectiveness of the VTS were rather mixed.

This sparseness of evidence on the impacts of such schemes on farm or farmer performance for the UK has also been noted by Byles (2005). who studied the impact on a sample of farmers participating in courses in the Duchy College Agriculture Department's Vocational Training Scheme. The research showed that undergoing these CPD courses did not necessarily deliver a positive impact on profits (it might be easier to recruit farmers if they did); profitability was not linked with any CPD metrics explored in this project. But there may have been other outcomes that needed longer to come to fruition. Factors mentioned by farmers included increased confidence, awareness and interaction with others, and with improved methods of management. International literature (reported in Byles, 2005), though not comprising many studies, tends also to not find any clear link to profitability, even with courses giving financial training, but there is an impact on attitudes, skills and aspirations and hence management practice. On the other hand, Bergevoet et al. (2005) found, in a controlled experiment using Dutch dairy farms, that it was possible to improve entrepreneurial competence by a form of training that involved study groups that developed and discussed farmers' strategic plans. On average all participants benefited, irrespective of farmer or farm characteristics or the level of (entrepreneurial) competence at the start of the programme. The main manifestation of this competence was the size of the dairy herd, which acted as a proxy for the longer-term prosperity of the business.

In the US, participation in financial management (and other) training is a condition for loans from the Farm Services Agency, unless borrowers can demonstrate an adequate knowledge and ability in the subject (Blandford and Boisvert, 2005). Training typically focuses on key finance topics, such as 'the balance sheet, income statement, cash flow budget' fixing broken farm finances, financial planning …(and) goal-setting and decision making' (Hanson et al., 1996). The FSA also requires borrowers to provide information on their financial performance and to take part in an annual review The significant lesson for the present context is that an analysis of the impact of training on farmers in Maryland, New York and Pennsylvania in 1996 suggested that the application of business plans developed in the course of training would result in an increase of some 4% in (pre-tax) income, including that coming from off-farm sources (Hanson et al, 1998). Interestingly, the financial impact was consistent between farmers of differing levels of education, and workshops revealed substantial impacts at all levels of attainment. Another study that looked at the impact of management-related courses (and continuing support) to low-income micro-businesses in a mainly rural area (Vermont) found a range of positive outcomes, including higher household income in a quarter of cases from their business, and a quarter also reported that they had created employment (beyond their own job)(Schmidt et al., 2006).

Each of these studies seemed to be concerned only with the private benefits of training, mostly short-term and reflected in incomes or profits. Admittedly, measuring the output of training to raise business competence (e.g. the number of training days provided) or the results (such as the numbers of people in agriculture that have achieved given levels of NVQ because of the training) is far more straightforward than measuring the outcome of this training. Tracing outcomes would need to follow the impact on individual farms over a protracted period (in order to capture factors such as changed innovation or adjustment behaviour), to assess the extent to which any change in performance could be attributed to training, and to evaluate these benefits, both to society and to the individual, against private and social costs. There would be formidable problems of establishing the counter-factual and of identifying additionality. Nevertheless, it would be hoped that this would form part of the ex-post evaluation of the VTS.

Key points

- UK evidence on the outcome of the use of public funds to improve business competence via the VTS is surprisingly weak.
- The impact on profitability is mixed, though there may be other outcomes that could influence management practice in a positive way.

IV.7. Key policy challenges in relation to business competence

Several challenges are presented by the above review.

(a) To judge how much resource, if any, should be spent on supporting initiatives that are intended to raise business competence.

(b) To achieve the most appropriate balance between spending on education, vocational training, CDP and advice

The first challenge is to determine whether there are sound economic reasons why the level of business competence should not be left to market forces and structural change (including the turnover of farmers) to determine. Given that a system of general education exists and which is open to farmers and their families, the argument can focus on whether special and additional facilities should be provided for the operators of farm businesses. As yet, the rationale for actions using public funds to raise business competence in agriculture based on market failure (the basis of intervention cited by Leitch, 2006) and looking at both the benefits and the costs to society has not been well articulated.

Part of the rationale for the provision of vocational training in agriculture is likely to be political economy, in that such training is likely to form part of a package involving the withdrawal or scaling back of other forms of support. Without training provision the package would be less likely to be accepted by the industry. There may also be an element of equity, as farm operators may have been encouraged to enter the industry on the assumption that previous patterns of public support would continue. When reform takes place the provision of training may be part of the compensation for what were, in retrospect, misleading policy signals. Equity is also involved where training is used as a way of assisting farm household with low incomes.

However, the main plank of the rhetoric that accompanies the call for the provision of training to raise management skills seems to assume that government intervention can be justified on grounds of economic efficiency (mainly correcting for market failure). This case is strong only in regards to skills associated with externalities and public goods – mainly in delivering environmental services. Even here the training will have to be judged in relation to other policy instruments, such as legislation. But for training in skills needed to operate the business in which benefits are private, there seems little reason why public funds should be used to support what should be purchased on a commercial basis. Improving the performance of those producers that are substantially inside the production possibility boundary, shifting them nearer the technical efficiency of the best, may carry implications for markets (commodities, inputs and fixed factors) and agricultural structures (including employment levels) that might not be universally welcomed. The benefits to society, in contrast to those of the reduced number of individuals who remain in farming), might be small or non-existent. The case for the use of public funds seems to require a more close examination.

If market failure exists, the review of the barriers to becoming business competent suggests that it is likely to take the form of information failure. A critical factor explaining poor take-up of opportunities seems to be the lack of awareness of the (private) benefits of training in business skills. The appropriate action to correct for

this market failure and to overcome the barrier is one of providing this information. *Ex post* evaluation of the VTS in which the impact and outcome of raising business competence by training at the level of the individual case (trainee) would be very helpful in generating this information. If a skills gap is identified in a business, and the gap is filled, then it would be reasonable to expect a positive change in the profitability of the business (or increased stability).

But the efficient use of public funds relates not to private benefits but to those of society (such as increased national income). The costs of policy actions have to be weighed against the economic (and other) benefits from these actions and options ranked and compared. The choice of the appropriate level and balance of interventions designed to raise business competence depends on having more thorough measurements of the costs to society and the outcomes of education and training in agriculture than we seem to have at present. In such an analysis a clear distinction has to be maintained between the social and private aspects of both. As noted above with respect to private benefits, while public costs may be incurred over a relatively short timeframe in providing education and training in ways that enhance business competence, the benefits will accrue over a far longer period and may be difficult to quantify, particularly their additionality component.

Studies of the returns to education and training available for the UK produce results that are not necessarily applicable to agriculture, with its high dependence on self-employed labour and small business structure. There seems to be a lack of strong evidence on the outcome from the use of public funds both in the education of people who currently operate farms, in the vocational training in which they or their employees engage, and the various combinations of education, training and use of advice that is found in agriculture. Without this it is not possible to reach an informed judgement of the quantity of resources to be used and on the balance between the various forms of assistance.

In addition to this major point there are other issues that deserve attention.

(a) *Business competence seems strongly related to education.*

Business competence implies more than simple proficiency in a set of skills; it also involves the ability to access, combine and synthesise these skills, to understand the context in which they may be applied and to appreciate the consequences of their application. As such, the abilities required for business management, particularly the tasks allied to entrepreneurship, seem to be those fostered by education rather than skills training[27]. While the lower levels of education include training in transferable life-skills (basic numeracy and literacy, ICT), higher levels appear to encourage innovation and use of opportunities to acquire specific advice and skills training. Thus the key to improving business competence seems to lie with encouraging higher levels of education. The recent announcement (January 2007) of the intention to raise the age at which people leave full-time education may be helpful in achieving this.

[27] In Gasson's (1997) reading of the literature, reported in Section II, education in agriculture seems to comprise the following elements: (a) combining knowledge, skills and abilities; (b) understanding, managing and problem-solving; (c) handling inter-relationships and (d) taking a broad view of agriculture, the food system and the ecosystem

But it is equally apparent that the type of education provided needs to be tailored to the abilities of those receiving it.

(*b) Education, vocational training, CPD, and advice must be seen as part of the same system*

The ability to use information and training, the acquisition of information and training, and access to advice from outside the business closely interact with each other. This was acknowledged by the Policy Commission (Curry, 2002). By concentrating on just one of the three there is danger of losing sight of the system of a whole. Therefore when using public funds with the intention of enhancing business competence all three should be within the single framework.

Closely related to the above, the public costs of support to the four elements should be more readily accessible than they are at the present.

(c) Schemes should be rural rather than limited to the land-based sectors

Arguments have been put forward that small businesses in rural areas are likely to have a sub-optimal take-up of training in business skills, explained by factors such as business size, risks of not reaping the benefits from training employees, and information deficiencies. Difficulties in making time available for training are widely expressed among operators of small businesses, though this may hide more fundamental reasons for not taking up opportunities. If there is a case for using public resources to improve business skills, it would seem to be applicable to all small rural businesses rather than just farmers.

The costs of supplying and access to training in business skills may be higher in rural areas than in urban ones because of sparseness and remoteness. This does not by itself constitute an economic justification for the use of public funds to subsidise training. And unlike education (or health care), in which equality of access by individuals where-ever they live is commonly seen as a mark of equity in modern society, there is no clear rationale why training costs faced by businesses in rural and urban locations should be made equal (or, for that matter, why the costs of services provided by accountants should be subsidised).

Key points

- The rationale for intervention to raise the level of business competence needs to be set out more clearly than happens at present. In contrast with environmental skills, the case for public support of measures to improve business skills may be far less secure, though issues of political economy and equity may be important.
- Information on the public costs and public benefits of intervening to promote business skills is not easily available, and this represents a research need. Information is also needed on the performance of different types of intervention.

- Providing information to farm operators on the private benefits from training may be a candidate for the use of public funds where there is an element of market failure (that is, where voluntary solutions are insufficient).
- Thus the key to improving business competence seems to lie with encouraging higher levels of education, as this appears to heighten awareness of opportunities, including for the use of advice and innovation. Education, training, CPD and advice should be seen as part of the same system and compartmentalism should be avoided.

Bibliography

Accenture (2007) *UK Levy Boards: Research to Underpin the Fresh Start Review*. Report prepared for: The Department for Environment, Food and Rural Affairs.

ADAS Consulting (2003) *The Mid-term Evaluation of the England Rural Development Programme (ERDP): Vocational Training Scheme.* ADAS Consulting Ltd. for the Department for Environment, Food and Rural Affairs.

ADAS Consulting (2004) *Entry to and Exit from Farming in the United Kingdom* (RMP 2037). Report prepared for: The Department for Environment, Food and Rural Affairs.

AEBM (2006) *57th Advanced Course in Agricultural Business Management.* Applied Economics and Business Management Group, Kent Business School and Imperial College London

Agra CEAS (2003) *Mid-term Evaluation of the Rural Development Plan for Wales.* Agra CEAS Consulting Ltd. Welsh Assembly Government, Cardiff.

Baker, J. C., Mapes, J., New, C. C. and Szwejczewski, M. (1997) 'A hierarchical model of business competence'. *Integrated Manufacturing Systems,* Vol. 8, No. 5, 265-72.

Bergevoet, R.H.M., Giesen, G.W.J., Saatkamp, H.W., van Woerkum, C. M. J. and Huirne, R.B.M. (2005) *Improving enterpreneurship in farming: The impact of a training programme in Dutch dairy farming.* International Farm Management Association, 15th Congress, Brazil – 'Developing Entrepreneurship Abilities to Feed the World in a Sustainable Way.'

Black, J. (1997) *Oxford Dictionary of Economics.* Oxford University Press.

Blandford, D. and Boisvert, R. N. (2005) Policy for Agricultural Adjustment in the United States. Chapter 16 in: *In:* Blandford, D. and Hill, B. (eds)(2005) *Policy Reform and Adjustment in the Agricultural Sectors of Developed Countries.* CABI, Wallingford.

Blandford, D. and Hill, B. (2006) 'Helping European Agriculture to Adjust – A Proactive Approach to Agricultural Policy'. *EuroChoices,* December 2006.

Blundell, R., Dearden, L. and Sianesi, B. (2001) *Estimating the Returns to Education: Models, Methods and Results*. University College London and the Institute for Fiscal Studies.

Boehlje, M. and Gray, A. (undated) *Strategic Positioning for the Farm Business: Options and Analysis Tools.* Center for Food and Agricultural Business, Purdue University.

Boland, M. A. and Akridge, J. T. (2004) 'Undergraduate Agribusiness Programs: Focus or Falter?' *Review of Agricultural Economics,* Vol. 26, No. 4, 564-78.

Bone, Z., Henry, E., Hunt, E. and Sefton, C. (2003) *Attitudes and Family Farm Business Performance*. International Farm Management Association Congress 2003 'Farming at the Edge', Brazil.

Burton, M., Rigby, D. and Young, T. (1999) 'Analysis of the Determinants of Adoption of Organic Horticultural Techniques in the UK'. *Journal of Agricultural Economics,* 50(1)m 47-63.

Byles, S. M. (2004) 'Farmers, training and business performance: does it stack up?'. The Middleton Memorial Lecture. *Journal of Farm Management,* Vol. 12, No. 5, 267-76.

CRER (2002) Chapter 7 (Vocational Training Scheme) in: *ERDP Evidence Assessment.* Centre for Rural Economics Research (with CIC Consulting and Segal Quince Wicksteed), Department of Land Economy, University of Cambridge.

CCRU Univ. of Gloucestershire, (2003) *ERDP MTE Lessons from the Land Management Initiatives Programme*. Research Report for the Countryside Agency, Cheltenham.

Commission of the EU (2003) *The activities of the European Union for small and medium-sized enterprises.* Brussels.

Council for Excellence in Management and Leadership (2002a) *Managers and Leaders – Raising Our Game.* DEE and DTI, London

Council for Excellence in Management and Leadership (2002b) *Joining Entrepreneurs in their World: Improving Entrepreneurship, Management, and Leadership in UK SMEs.* SME Working Group, DEE and DTI, London

Countryside Agency (2003) *Rural Economies: Stepping Stones to Healthier Futures.* Countryside Agency, Cheltenham.

Curry, D. (2002) *Farming and Food – a sustainable future.* Report of the Policy Commission on the Future of Food and Farming. Cabinet Office.

Dalton, G. (2005) 'Management experiences of a part time farmer'. *Journal of Farm Management,* Vol. 12, No. 4. 187-205.

Defra (2000) *Economic appraisal of proposed expenditure under the Rural Development Regulation*. Department for Environment, Food and Rural Affairs, London.

Defra (2002a) *The Strategy for Sustainable Farming and Food.* The Stationary Office, London.

Defra, (2002b) VTS *Policy Analysis Paper: Improving the Vocational Training Scheme*. Land Management Improvement Division, Defra. (Cited in ADAS, 2003)

Defra (2004) *Learning, Skills and Knowledge Review, Final Report*. Department for Environment, Food and Rural Affairs.

Defra (2005a) *Economic Position of the Farming Industry*. Department for Environment, Food and Rural Affairs.

Defra (2005b) *Productivity in Rural England.* Department for Environment, Food and Rural Affairs.

Defra (2006a) *England Rural Development Programme, Annual Report 2005*. Department for Environment, Food and Rural Affairs.

Defra (2006b) *Rural Development Strategy for England.* Draft for submission to the EU Commission, December 2006.

Defra (2006c) *Sustainable Farming and Food Strategy: Forward Look.* Department for Environment, Food and Rural Affairs, London

Defra (2006d) *Sustainable Farming and Food Stategy: A Forward Look – Supporting Economic and Statistical Analysis* (author - Stuart Platt). Defra.

Drew Associates (2007) *Economic Evaluation of the Agricultural Development Scheme.* Report for Defra, SSFE Division.

EFFP (2005) *A study of long-term trends affecting the farming industry.* Report for Defra, Farming Regulation Strategy Division.

Errington, A. J., Harrison-Mayfield, L. E. and Bennett, R. (1994) *The Awareness, Preconceptions and Use of Vocational Education, Training and Business Services among the Rural Population.* Department of Agricultural Economics and Management, University of Reading.

Errington, A. and Nolan, J. (1997) 'Meeting farmers' training and development needs – new solutions to an old problem?' *Farm Management,* Vol. 9, No. 12, 635-45.

European Commission (2003), '*Com Green Paper Entrepreneurship in Europe'* Document based on COM(2003) 27 final

FAS/Enterprise Ireland (2005) *SME Management Development in Ireland.* Expert Group of Future Skill Needs, FAS and Enterprise Ireland, Dublin

Fearne, A. (2005) 'Major saving possible' *2005 Conference Special*. Red Meat Indutry Forum.

Garforth, C., Rehman, T., McKemey, K., Tranter, R., Cooke, R., Yates, C., Park., J. and Dorward, P. (2004) 'Improving the design of knowledge transfer strategies by understanding farmer attitudes and behaviour'..*Journal of Farm Management,* Vol. 12,. No. 1, 17-32.

Gasson, R. (1973) 'Goals and values of farmers'. *Journal of Agricultural Economics,* 24(3), 521-42.

Gasson, R. (1997) *Educational Attainment Levels of Farmers.* Department of Agricultural Economics and Business Management, Wye College, University of London

Girdler, D. J. (1995) 'Measuring the value of training'. *Farm Management,* Vol. 9 No. 4, 166-73.

Goldsmith, P. (2006) *What is Entrepreneurship? Initiative for the Development of Entrepreneurs in Agriculture.* University of Illinois Extension**.**

Goodwin, B. K. and Mishra, A. K. (2004) 'Farming efficiency and the Determinantsof Multiple Job Holding by Farm Operators. *American Journal of Agricultural Economics,* 86(3), 722-729.

Green, A. E. and Hardill (2003) *Rural Labour Markets, Skills and Training***.** Institute for Employment Research, University of Warwick and International Studies Department, The Nottingham Trent University. Defra website.

Hadley, D. (2006) *Efficiency and Productivity at the Farm Level in England and Wales 1982 to 2002.* Report to the Department for Environment, Food and Rural Affairs.

Hall, C. R. Fairchild, G. F., Baker, G. A., Taylor, T. G. and Kerry K. Litzenberg, K. K. (2003) 'Agribusiness Capstone Courses Design: Objectives and Strategies'. *International Food and Agribusiness Management Review,* Volume 6, Number 4, 2003.

Hanson, G., Delavan, W. and Power, L. (1996) Mandated financial training for FSA/USDA farm borrowers. *Journal of Extension,* 34(2).

Hanson, G., Parsons, R., Musser, W. and Power, L. (1998) Impact analysis of farm finance workshops. *Journal of Extension,* 36(3)

Hennessy, T. C. and Rehman, T. (2007) An Investigation into Factors Affecting the Occupational Choices of Nominated Farm Heirs in Ireland. *Journal of Agricultural Economics,* 58(1), 61-75.

Hill, B. (2000) *Farm Incomes, Wealth and Agricultural Policy.* 3rd ed. Ashgate Publishing: Aldershot.

Hill, B. with Gasson, R. and Edwards. A. (2002) *Evaluation report' Sector challenge wheat project: Transferring now concepts into practive to improve the competitiveness of UK wheat producers.'* Project report 292. Home Grown Cereals Authority.

HM Treasury (2003) *The Green Book*. Stationery Office.

HM Treasury (2003) *The Magenta Book - Chapter 2: What do we already know.* Background Document by Phil Davies, Government Chief Social Researcher's Office. Cabinet Office Strategy Unit.

HM Treasury (2006) *Understanding Policy Options*.

Ilbery, B., Maye, D., Watts, D. and Holloway, L. (2006) *Research into the Potential Impacts of CAP Reform on the Diversification Activities of Tenant Farmers in England – Baseline Study* (EPES

405/05). Report for the Department for Environment, Food and Rural Affairs**.** Geography Department, Coventry University and Department of Geography, University of Hull.

Industry Canada (2005) Management Competencies and SME Performance Criteria: A pilot Study – Linking Performance and Management Competencies. *Small Business Research and Policy.*

Jackson-Smith, D., Trechter, D. and Splett, N. (2003) 'The Contribution of Financitl Management Training and Knowledge to Dairy Farm Financial Performance'. *Review of Agricultural Economics,* 26(1), 132-47.

Kingston University (2005*) Improving Access to Business Advice in Rural Areas: an Evaluation.* Small Business Research Centre (SBRC), Kingston University, Kingston upon Thames. Report for The Department for Environment, Food and Rural Affairs.

Klair, K., Boggia, A., and Wynn Richardson, D. (1998) *The changing information needs of farmers in the U.S. and Europe.* Paper to the Sixth Joint Conference on Food, Agriculture and the Environment, Minneapolic, Minnesotat.

Landvell, B. (1992) *Natural Systems of Innovation*, Pinter Publishers, London. (cited in Bone et al. (2003) op cit.)

Lantra (2000) *Action Plan for Farming SkillCheck Report.* Lantra, NAC, Kenilworth, Warsickshire.

Lantra (2001a) *Land-based Sector Workforce Development Plan.*

Lantra (2001b) *Skills Foresight 2001 – A dialogue for action.* Lantra National Training Organisation.

Lantra (2004) *Cultural Barriers to the Uptake of Learning in Rural Areas.* Report to Defra.

Lantra (2005?) *Defra Skills for Business Review.* Lantra National Training Organisation

Lantra (2005a) *Developing Business Competence: The Business Case for a Competency Framework. Final Report.* Report prepared on behalf of Defra (Skills and Rural Enterprise Division).

Lantra (2005b) *Learning and Skills Advocacy Strategy: Raising Awareness of the Business Benefits of Training, Final Report 2005.* Report prepared on behalf of Defra (Skills and Rural Enterprise Division).

Lantra (2005c) *Rural Training Group Support Network.* Report prepared for the Department for Environment, Food and Rural Affaits (Skills and Rural Enterprise Division).

Lantra (2005d) *Sector Skills Agreement – Overriew of the Size and Structure of the Sector.* Lantra National Training Organisation.

Lantra (2005e) *Sector Skills Agreement – Towards a Sector Skills Agreement fot he Environment and Land-based Sector. Stage 2: Assessment of Current Provision.* Lantra National Training Organisation.

Lantra (2005f) *Sector Skills Agreement Stages 1 – 3 Report England.* National Consultation Document December 2005. The Sector Skills Council for the Environmental and Land-based Sector

Leitch, S. (2006*) Prosperity for all in the global economy - world class skills* (The Leitch Report). HM Treasury.

Liito (2006) *Boosting business with new operating models and know-how: Liito – innovative business competence and management 2006-2010.* Tekes – Finnish Funding Agency for Technology and Innovation, Helsinki, Finland.

Lobley, M., Errington, A., McGeorge, A, Millard, N. and Potter, C. (2002) *Implications of Changes in the Structure of Agricultural Businesses.* Report for Defra. University of Plymouth, Seale Hayne campus.

MacGregor, M., Willock, J, Dent, B., Deary, I., Sutherland, A, Gibson, G., Morgan, O. and Grieve, B. (1996) 'Links between psychological factors and farmer decision making'. *Farm Management,* Vol. 9, No. 5., 228-39.

McElwee, G. (2005) *A Literature review of entrepreneurship in agriculture*. Developing entrepreneurial Skills of Farmers. EU-SsoF, Contract No. SSPE-CT-2005-006500. University of Lincoln.

Massey, D. (ed)(2005) *Entrepreneurship and Small Business Management in New Zealand.* New Zealand Pearson Education, Aukland.

Middlesex University Business School (2002) *Encouraging and Supporting Enterprise in Rural Areas*. Report to the Small Business Service**.** Centre for Enterprise and Economic Development Research, Middlesex University

Murray-Prior, R. & Hart, D. (1998) *Farmer Perceptions of Farm Business Management Training in WA: Preliminary Findings.* Cited in Bone et al (2003) op cit.

National Council – ELWa (2002) *Review of Vocational Training and Education for the Agricultural and Land-based Sectors.* National Council, Education and Learning Wales.

NAO (2004) *Helping Farm Businesses in England*. Report by the Comptroller & Auditor General. National Audit Office HC 1028 Session 200302004: 16 September 2004.

North Carolina Department of Agriculture and Consumer Services (NCDA & CS) *et al*. (2002) *Review of Farmers' Attitudes and Experiences in the Process of Adoption of Best Management Practices (BMPs) as Currently Proposed for Critical NC Watersheds.* Prepared for the Corn Growers Association of North Carolina, Inc.

Nuthall, P. L. (2001) 'Managerial ability – a review of its basis and potential improvement using psychological concepts. *Agricultural Economics,* 24, 247-62.

Observatory of European SMEs (2003) *Competence Development in SMEs.* Report 2003/1. European Commission, Brussels.

OECD (2003) *Management Training in SMEs.* Organisation for Economic Co-operation and Development, Paris.

Ohlmer, B,. Olson, K. and Brehmer, B. (1998) 'Understanding farmer's decision making processes and improving managerial assistance'. *Agricultural Economics,* 18, 273-90.

Olsson, R. (1988) Management for Succss in Modern Agriculture. *European Review of Agricultural Economics,* 15(2/3), 239-59.

Park, J., Rehman, T. and Keatinge, J. D. H. (2002) 'Some contemporary challenges of teaching agriculture at institutions of higher education'. *Farm Management,* Vol. 11, No. 5, 327-37.

Perry, J. and Johnson, J. (1999) What Makes a Small Farm Successful? *Outlook,* November. Economic Research Service, US Department of Agriculture, Washington.

Peters, G. H. (1995) 'Agricultural economics: an educational and research agenda for nationa in transition'. *Agricultural Economcis,* 193-240.

PuRE (2001) *Public Funding and Private Returns to Education.* Final report of study. Research Institute of the Finnish Economy, Helsinki.

PyysiÃµinen, Jarkko; Anderson, Alistair; McElwee, Gerard; Vesala, Kari (2006) 'Developing the entrepreneurial skills of farmers: some myths explored' *International Journal of Entrepreneurial Behaviour and Research*, Volume 12, Number 1, pp. 21-39(19)

Robinson, M. (2000) 'Clarification and identification of relevant business objectives'. *Farm management,* Vol10, No 8, 486-98.

Rodgers, J. L. (1994) 'Differential human capital and structural evolution in agriculture'. *Agricultural Economics,* 11, 1-17.

Rougoor, C, W., Trip, G., Huirne, R. B. M. and Renkema, J. A. (1998) 'How to define and study farmers' management capacity: theory and use in agricultural economics'. *Agricultural Economics,* 18, 261-72.

Rudmann, C. (2005) *How can Entrepreneurship in Agriculture be encouraged? An international research project examines how farmers can improve their entrepreneurial skills***.** FiBL, Ackerstrasse, CH-5070 Frick, Switzerland.

RuSource (2006?) *Farmers' entrepreneurial skills.* Briefing 308. RuSource – the rural information network.

SBS (2004?) *A government action plan for small business - Making the UK the best place in the world to start and grow a business.* Small Business Service, Department of Trade and Industry

Schmidt, M. C., Kododinsky, J. M., Flint, C. and Whitney, B. (2006) The Impact of Microenterprise Development Training on Low-Income Clients. *Journal of Extension,* 44(2).

School Farms Network (2006) *School Farms: a vital resource.* Federation of City Farms and Community Gardens, and the Department for Education and Skills, Growing Schools Programme.

Schumpeter, J.A. (1949) *The theory of economic development : an inquiry into profits, capital, credit, interest, and the business cycle*. Harvard University Press, Cambridge.

SFEDI (1999) *Small Firms Training Impact Assessment.* Centre for Enterprise (cited in FAS/Enterprise Ireland, 2005) SFEDI Ltd, Newton Aycliffe, UK DL5 6WE

Sianesi, B. (2003) *Returns to Education: A Non-Technical Summary of CEE Work and Policy Discussion.* Institute of Fiscal Studies and Centre for the Economics of Education, London.

Smallbone, D, North, D, Baldock, R. and Ekenem, I. (2002) *Encouraging and Supporting Enterprise in Rural Areas.* Report to the Small Business Service. Centre for Enterprise and Economic Development Research, Middlesex University Business School, The Boroughs, London.

Spedding, A, and McElwee, G. (2006) Farmers' entrepreneurial skills. *RuSource Briefing 308.*

Stoof, A., Martens, R.L., Van Merriënboer, J.J.G.and Bastiaens, T.J. (2002) The boundary approach of competence: A constructivist aid for understanding and using the concept of competence. *Human Resource Development Review* 1, 345-365.

Storey, D. J. (1994) *Understanding the Small Business Sector.* Routledge, London.

Taylor, J. E. and Yunez-Maude, A. (2000) 'The Returns from Schooling in a Diversified Rural Economy'. *American Journal of Agricultural Economics*, 82, 287-97.

Telford, R. (2006) *Small Businesses in Rural Areas An analysis of the Annual Small Business Survey 2004.* Small Business Service Analytical Unit, Department for Trade and Industry.

Thirtle, C., Holding, J. *et al.* (2003) *Productivity of UK Agriculture Causes and Constraints*. Report on Project No. ER0001/3 for Department for Environment, Food and Rural Affairs.

Trip, G., Thijssem. G. J. Renkema, J. A. and Huirne, R. B. M. (2002) 'Managing managerial efficiency: the case of commercial greenhouse growers'. *Agricultural Economics*, 27, 175-81.

Turner, M,. Whitehead, I and Millard, N. with Barr, D. and Howe, K. (2006) *The Effects of Public Funding on Farmer's Attitudes to Farm Diversification.* Centre for Rural Research, University of Exeter. Report for The Department for Environment, Food and Rural Affairs.

US Congress (2000) *Investment in Education: Private and Public Returns.* Joint Economic Committee, United States Congress, Washington.

Walker, I and Zhu, Y. (2001) *The Returns from Education: Evidence fromt eh Labour Force Survey.* University of Warwick. DfES Research Brief No. 313.

Warren, M. F., Soffe, R. J. and Stone, M. A. H. (2000) 'Farmers, Computers and the Internet: A study of adoption in contrasting regions of England'. *Farm Management,* 10(11), 665-84.

Willock, J., Deary, I. J., Edwards-Jones, G., Gibson, G., McGregor, M. J., Sutherland, A., Dent, J. B., Morgan, O. and Grieve, R. (1999) 'The Role of Attitudes and Objectives in Farmer Decision Making: Business and Environmentally-Orientated Behaviour in Scotland'. *Journal of Agricultural Economics,* 50(2), 286-303.

Wilson, P., Hadley, D., and Asby, C. (2001) 'The influence of management characteristics on the technical efficiency of wheat farmers in eastern England'. *Agricultural Economics,* 24, 329-38.

Bibliography cited in McElwee (2005)

Aldrich, H. and Baker, T. (1997), *'Blinded by the cites? Has there been progress in entrepreneurship research?'* In: Sextion, D. and Smilor, R. (eds.), Entrepreneurship 2000.

Alsos, G. A., Ljunggren, E., and Pettersen, L.T. (2003), *'Farm based entrepreneurs: What triggers the start up of new business activities'* Journal of Small Business and Enterprise Development, Vol. 10 (4), pp.435-443.

Atherton, A. (2004), *'Saying what you mean and meaning what you say: Relating Cognition and Voice in Business'.* Philosophy of Management, Vol. 3 (3).

Atherton, A. and Lyon, F. (2001), *'Segmenting support for small and medium enterprises. Identifying and disseminating best practice'.* Research summary. The Foundation for Small and Medium Enterprise Development, University of Durham.

Audretsch, D. (2002), *'Entrepreneurship: a survey of the literature'*, Enterprise Directorate General, European Commission. Brussels.

Bandura, A. (1986), *'Social Foundations of Thought and Action'. A Social Cognitive Theory.* Prentice –Hall. Englewood Cliffs.

Beaver, G., and Ross, C. (2000), *'Enterprise in recession: the role and context of strategy'.* International Journal of Entrepreneurship and Innovation, 1 (1), pp. 23 – 33.

Beedell, J., and Rehman, T. (2000), *'Using social-psychology models to understand farmers' conservation behaviour'.* Journal of Rural Studies, Vol. 16 (1), pp. 117-127.

Belletti, G., Marescotti, A. and Moruzzo, R. (2003), *'Multifunctionality and legislative Instruments: possibilities of the new Italian law on agriculture'.* In: Multifunctional Agriculture – A New Paradigm for European Agriculture and Rural Development, edit by Durand, G. and Van Huylenenbroeck, G. Ashgate.

Bock, B. B. (2004), *'Fitting in and Multi-tasking: Dutch Farm Women's Strategies in Rural Entrepreneurship.'* Sociologia Ruralis Vol. 44 (3), pp. 245- 256.

Bont, C. J., de, Everdingen, W.H. and Jager, J.H. (2004), *'Hervormingen EU-suikerbeleid, gevolgen voor de Nederlandse landbouw van de mededeling van de Europese Commissie', (Reforms of the EU-sugar policy, consequences for the Dutch agriculture., In Dutch with English summary).* Agricultural Economics Research Institute, Report 6.04.13, ISBN 90-5242-944-8.

Bont, C. J., de and Knijff, A. van der (2004), '*Actuele ontwikkeling van bedrijfsresultaten en inkomens in 2004' (Actual development of farm results and incomes in 2004, In Dutch with English summary).* Agricultural Economics Research Institute, Report 1.04.05.

Borsch and Forsman (2001), *'The competitive tools and capabilities of micro firms in the Nordic food sector'*. In: The food sector in transition. Nordic Research, Proceedings of NJF seminar No. 313, June 2000 NILF – report 2001:2.

Boyd, N. G. and Vozikis, G. S. (1994), *'The Influence of Self-efficacy on the Development of Entrepreneurial Intentions and Actions'*. Entrepreneurship Theory and Practice, 19 (Spring), pp. 63-77.

Bremmer, J. (2004), *'Strategic Decision Making and Firm Development in Dutch Horticulture*' Wageningen University and Research Centre.

Brockhaus, R. H. and Horwitz, P. S. (1986), '*The Psychology of The Entrepreneur.'* In: Sexton, D. L., and Smilor R. W., Ed. The Art and Science of Entrepreneurship 25-48. Cambridge.

Brunori. G., and Rossi, A. (2000), **'***Synergy and Coherence trough Collective Action: Some insights from Wine Routes in Tuscany.'* Sociologia Ruralis Vol. 40 (4), starts p. 409.

Bryant, C. (1989), *'Entrepreneurs in the rural environment'*. Journal of Rural Studies, Vol. 5 (4), pp. 337-348.

Burrell, G., and Morgan, G. (1979), *'Sociological Paradigms and Organisational Analysis'*. Heinemann.

Busenitz, L. W., Page West III, G., Shepherd, D., Nelson, T., Chandler, G. N. and Zacharakis, A. (2003), *'Entrepreneurship research in emergence: past trends and future directions'*. Journal of Management 29 (3), 285-308.

Carland, J. W., Hoy, F., Bouton, W.R. and Carland J. C. (1984), *'Differentiating Entrepreneurs from Small Business Owners'*. Academy of Management Review, 9, pp. 354-369.

Carter, S. (1999), *'Multiple business ownership in the farm sector: assessing the enterprise and employment contributions of farmers in Cambridgeshire'*. Journal of Rural Studies, Vol. 15 (4), pp. 417-429.

Carter, S., and Rosa, P. (1998), *'Indigenous rural firms: farm enterprises in the UK'*. International Small Business Journal, Vol.16 (4), pp15-27.

Carter, S. (1998), *'Portfolio Entrepreneurship in the farm Sector: indigenous growth in rural areas?'* Entrepreneurship and Regional Development, Vol.10 (1), pp.17-32.

Centre for Rural Research (2003), '*Farm Diversification in England 2002'*. University of Exeter, DEfRA.

Chaplin, H., Davidova, S., and Gorton, M. (2004), *'Agricultural adjustment and the diversification of farm households and corporate farms in Central Europe'*. Journal of Rural Studies, Vol. 20 (1), pp. 61-77.

Conroy, M., and Dusansky, R. (1995), *'The productivity of Economics Departments in the US: Publications in Core Journals'*. J. Econ. Lit. Vol. 33 (1), pp 966-71.

Corman, J., and Lussier, R.N. (1996), '*Small Business Management, a planning approach'*. Irwin/McGraw-Hill, United States of America.

Curran, J. and Blackburn R. (2000), *'What is small business policy in the UK?'*. International Journal of Small Business, Vol. 18 (3), pp. 36 - 50.

Dąbrowska, A. (2001), *'Poziom i struktura konsumpcji usług jako determinanta rozwoju przedsiębiorczości wiejskiej w perspektywie integracji z Unią Europejską. Rozwój przedsiębiorczości wiejskiej w perspektywie integracji z Unią Europejską'*. (*'The level and structure of services consumption as a determinant of developing rural entrepreneurship in correlation of future joining of EU'*). Międzynarodowa Konferencja Naukowa, Kraków, 11-12 stycznia 2001.

Damianos, D., and Skuras, D. (1996), *'Farm business and the development of alternative farm enterprises: An empirical analysis in Greece'*. Journal of Rural Studies, Vol. 12 (3), pp. 273-283.

De Roest, K., and Menghi, A. (2000), *'Reconsidering "Traditional" Food: The case of Parmigiano Reggiano Cheese'*. Sociologia Ruralis, Vol. 40 (4), starts p. 439.

DEFRA (2005), '*Agriculture in the United Kingdom'*.

Dollinger, M. J. (2003), '*Entrepreneurship – strategies and resources*'. Pearson International Edition, New Jersey.

Duczkowska-Małysz, K. (1993), '*Przedsiębiorczość na obszarach wiejskich: w stronę wsi wielofunkcyjnej' ('Entrepreneurialism of rural areas; multifunctional villages').* Warszawa.

Eikeland, S., and Lie, I (1999), *'Pluriactivity in Rural Norway'*. Journal of Rural Studies, Vol. 15 (4), pp. 405-15.

Erkkilä, K. (2000), '*Entrepreneurial education: mapping the debates in the United States, The United Kingdom and Finland'*. Garland, New York/London.

European Commission (1996), '*Introduction to Electronic Commerce'*. DGIII/F/6, http://www.ispo.cec.be/ecommerce/whatis.html.

European Commission (2003), '*Com Green Paper Entrepreneurship in Europe'*. In:

Falconer K. (2000), *'Farm-level constraints on agri-environmental scheme participation: a transactional perspective'*. Journal of Rural Studies, Vol. 16 (3), pp. 379-394.

Firlej, K. (2001), *'Rozwój przedsiębiorczości i tworzenie nowych miejsc pracy w re-gionie małopolskim. Rozwój przedsiębiorczości wiejskiej w perspektywie inte-gracji z Unią Europejską: Międzynarodowa' ('Developing entrepreneurship and new jobs in the region of southern Poland')*. Konferencja Naukowa, Kraków, 11-12, stycznia 2001.

Gasson, R. (1998), '*Educational qualifications of UK farmers: A review.'* Journal of Rural Studies, Vol. 14 (4), pp. 487-498.

Gibb, A. (1992), '*Can academe achieve quality in small firm's policy research?'*. Entrepreneurship and Regional Development, 4, pp. 127-144.

Gibb, A. (2000), *'SME policy, academic research and the growth of ignorance, mythical concepts, myths, assumptions, rituals and confusions'*. International Small Business Journal, 18 (3), pp. 13-35.

Gill, J., and Johnson, P. (1997)*, Research Methods for Managers'*. Paul Chapman

Gnyawali, D.R. and Fogel, D.S. (1994), *'Environments for entrepreneurship development: key dimensions and research implications'*. Entrepreneurship Theory and Practice, Summer, pp. 43–62.

Grant, P. and Perren, L. (2002), *'Small business and entrepreneurial research'*. International Small Business Journal, 20 (2), pp. 185-211.

Gray, C. (2002), *'Entrepreneurship, Resistance to change and Growth in Small Firms'*. Journal of Small Business and Enterprise Development, 9 (1), pp.61-72.

Greve, R. W., James, S., and Lagron, W. (1960), '*Production and Income Variability of Alternative Farm Enterprises'*. Agricultural Exp.Sta.

Gutkowska, K., and Capiga, J. (2001), *'Rozwój przedsiębiorczości wiejskiej w per-spektywie integracji z Unią Europejską' ('Developing rural entrepreneurship in correlation of future joining of EU')*. Międzynarodowa Konferencja Naukowa, Kraków, 11-12, stycznia 2001. Wydawnictwo SGGW 2001; pp. 11-15.

Halicka, E., and Rejman, K. (2001), *'Przedsiębiorczość rolników wobec integracji z UE tworzenie grup producentów rolnych Rozwój przedsiębiorczości wiejskiej w perspektywie integracji z Unią Europejską' ('Farmers entrepreneurship before joining EU establishing producers organizations')*. Międzynarodowa Konferencja Naukowa, Kraków, pp. 11-12 stycznia 2001, Wydawnictwo SGGW 2001.

Hanf, C. and Müller, R. (1997), *'Schlüsselaktivitäten betrieblicher Anpassung: Informationsbeschaffung, Wissensakquisition, Erwerb von Fähigkeiten'*. In: Schriften der Gesellschaft für Wirtschaft- und Sozialwissenschaften des Landbaus e.V., Vol. 33 (1997), pp. 207-218.

Harrison, R. and Leitch, C. (1996), *'Discipline emergence in entrepreneurship: ac-cumulative fragmentalism or paradigmatic science?'*. Entrepreneurship, Innova-tion and Change, 5 (2), pp. 65-83.

Harvey, D. R. (2003), *'Policy Dependency and Reform: Economic Gains versus Political Pains'*. International Convention Centre, 16-22 august, Durban, South Africa.

Heady, E.O. (1952), *'Diversification in Resource Allocation and Minimisation of Income Variability.'* Journal of Farm Economics 34, pp. 482-496, November 1952.

Helming, J.F.M. (2005), '*A model of Dutch agriculture based on Positive Mathematical Programming with regional and environmental applications*'. Agricultural Economics Research Institute, Report PS.05.02.

Hill, B. (1982), *'Concepts and measurement of the incomes, Wealth and economic well being of farmers'*. Journal of Agricultural Economics, Vol 33 (3), pp. 311-324.

Hisrich, R. and Drnovsek, M. (2002), *'Entrepreneurship and small business research – a European perspective'*. Journal of Small Business and Enterprise Development, 9 (2), pp. 172-222.

Hoekstra, H. A. and van Sluijs, E. (1999), '*Management van competenties; het realiseren van HRM'*. Van Gorcum and Comp. Assen.

Johnson, S. R. (1967), *'A Re-examination of the Farm Diversification Problem'*. Journal of Farm Economics, Vol. 49 (3), pp. 610-621.

Kallio, V. and Kola, J, (1999), *'Maatalousyritysten menestystekijät: Aluetutkimus Etelä-Karjalassa, Etelä-Savossa ja Kymenlaaksossa' ('Success Factors of Farm Enterprises in Finland').* University of Helsinki, Department of Economics and Management, Publications No. 24.

Kłodziński, M. (2001), *'Czynniki warunkujące rozwój przedsiębiorczości wiejskiej. Rozwój przedsiębiorczości wiejskiej w perspektywie integracji z Unią Europejską : Międzynarodowa Konferencja Naukowa, Kraków'*. 11 - 12 stycznia 2001.

Knudson, W., Wysocki, A., Champagne, A. and Peterson, H. C. (2004), '*Entrepreneurship and Innovation in the Agri-food system'*. American Journal of Agricultural Economics, Vol. 86, December, pp. 1330-1338.

Koolen, J.T.G.M., R. Schreuder, F.J. Munneke, R. Kranendonk, R. van Paassen (in press), *'Van overheidsregels naar eigen verantwoordelijkheid, belemmeringen door wet- en regelgeving voor de plantaardige sectoren' ('From governmental rules to farmers' responsibility, an inventarisation of hindering rules in Dutch agriculture', in Dutch)*. Wageningen University and Research Centre.

Kupiainen, K. *et al.,* (2000), '*Maaseudun pienyritysten menestyminen' ('Perform-ance of small rural enterprise').* Agricultural Economics Research Institute, Re-search reports 239.

Lans, T., Bergevoet, R., Mulder, M. and Woerkum, C. van (2004), *'Identification and measurement of competences of entrepreneurs in agribusiness'*. Wageningen University and Research Centre.

Lauwere, C., de, Verhaar, K. and Drost, H. (2002), *'Het Mysterie van het Ondernemerschap, boeren en tuinders op zoek naar nieuwe wegen in een dynamische maatschappij' ('The Mystery of Entrepreneurship; Farmers looking for new pathways in a dynamic society, in Dutch with English summary').* Wageningen University and Research Centre.

Lauwere, C., de, Schoorlemmer, H.B., Smit, A.B., Roelofs, P.F.M.M., Poelman, A.A.M. (2004), *'Onderzoek naar verbeterpunten in het ondernemerschap van geïntegreerde en biologische telers: vertrekpunt voor verdere professionalisering' '(Research for aspects to improve in entrepreneurship of integrated and organic farmers, in Dutch with English summary').* Wageningen University and Research Centre.

Lowe, P., and Talbot, H. (2000), *'Providing advice and Information in support of Rural Microbusinesses'.* Centre for Rural Economy Research, Report University of Newcastle, Newcastle Upon Tyne.

MacFarlane R (1996), *'Modelling the interaction of economic and socio-behavioural factors in the prediction of farm adjustment*'. Journal of Rural Studies, Vol. 12 (4), pp. 365-374.

MAFF (2000b), *'Strategy for Agriculture: An Action Plan for Farming'*. http://www.maff.gov.uk/farm/agendtwo/strategy/action.htm, 19/04/2000.

Man, T. W. Y., Lau, T. and Chan, K. F. (2002), *'The competitiveness of small and medium enterprises - A conceptualization with focus on entrepreneurial competences'*. Journal of Business Venturing 17, pp. 123-142.

Maskell, P. Eskelinen, H. Hannibalsson, I. Malmberg, A. and Vatne, E. (1998), '*Competitiveness, Localised Learning and Regional Development. Specialisation and Prosperity in Small Open Economies'.* London: Routledge.

McClelland, D.C. (1987), *'Characteristics of successful entrepreneurs.'* The Journal of Creative Behavior 21 (3), pp. 219-233.

McElwee, G. (2004), *'A segmentation framework for the farm sector'.* 3rd Rural Entrepreneurship Conference University of Paisley.

McElwee, G., and Atherton, A. (2005), *'Publication trends and patterns in entrepreneurship'*. Journal of Small Business and Enterprise Development, Vol. 12 (1).

McElwee, G., and Robson, A. (2005), *'Diversifying the farm: opportunities and barriers'*. Finnish Journal of Rural Research and Policy, 4/2005.

McElwee, G., and Warren, L. (2001), *'The farmer as entrepreneur: barriers to diversification'*. Academy of Marketing Symposium, 26th Annual Symposium on the Marketing Entrepreneurship University of Kingston.

McInerney, J.P., Turner, M.M., and Hollingham, M. (1989), *'Diversification in the use of farm resources'*. Report No. 232, University of Exeter.

McNally, S. (2001), *'Farm diversification in England and Wales – what can we learn from the farm business survey'.* Journal of Rural Studies, Vol. 17 (2), pp. 247-257.

Meert, H., Van Huylenbroeck, T., Bourgeois, M., and van Hecke, E. (2005), *'Farm Household survival strategies and diversification on marginal farms'*. Journal of Rural Studies 21, pp. 81-97.

Meulen, H.A.B. van der, and Venema, G.S. (2005), *'Ontwikkelingen rond de financiering van agrarische bedrijven' ('Developments in financing of agricultural enterprises in Dutch with*

English summary'). Agricultural Economics Research Institute, Report 2.05.01, ISBN 90-5242-971.

Morris, H. M., Kuratko, D. F., and Schindehutte, M. (2001*), 'Towards Integration: Understanding Entrepreneurship through frameworks'*. The International Journal of Entrepreneurship and Innovation, Vol. 2 (1), pp. 35-50.

Mulder, M. (2001), *'Competence development - Some background thoughts'*. The journal of Agricultural Education and Extension, 7 (4), pp. 147-158.

Niemi, J., and Ahlstedt, J. (eds.) (2005), '*Finnish Agriculture and Rural Industries 2005 – Ten Years in European Union'*. Helsinki: Agrifood Research Finland, Economic Research (MTTL), Publications 105a.

Newby, H. Bell, C. and Rose, D. (1978), '*Property, Paternalism and Power: Class and Control in Rural England'*. Hutchinson.

OECD (1998), '*Fostering Entrepreneurship'*. OECD, Paris.

Onstenk, J. (2003), *'Entrepreneurship and education'*. European Educational Research Journal, 2 (1), pp. 74 - 89.

Padel, S. (2001), *'The diffusion and institutionalization of organic farming. Conversion to organic farming: A typical example of the diffusion of an innovation?'*. Sociologia Ruralis, Vol. 41 (1), starts p. 40.

Perez, J. (2000), *'Rural development in Europe: the EU Leader programme reconsidered. The Leader Programme and the rise of rural development in Spain'*. Sociologia Ruralis, Vol. 40 (2), starts p. 200.

Perren, L., and Ram, M. (2003), *'Case-study method in small business and entrepreneurial research: mapping boundaries and perspectives'*. Forthcoming.

Peura, J., Siiskonen, P. and Vesala, K.M. (2002), '*Entrepreneurial Identity among the Rural Small Business Owner-Managers in Finland'*. In: Tanvig H. W. (Ed.), Rurality, Rural Policy And Politics. In: A Nordic-Scottish Perspective. Esbjerg: Danish Centre For Rural Research And Development, Working paper 1/02.

Ploeg, J. D. van der (2000), '*Revitalizing agriculture: farming economically as starting ground for rural development'*. Sociologia Ruralis, Vol. 40, pp. 497-511.

Poot, E. H., Balk-Theuws, A.J. de Buck, J.S. Buurma, C.J.M. van der Lans and P.L. de Wolf (in press*), 'Voorlopers en voortrekkers, ondernemerschap in netwerken - case plant'. (Pioneers and guides, entrepreneurship in farmers' networks, in Dutch)*, Wageningen University and Research Centre.

Pugliese P. (2001), *'Organic Farming and Sustainable Rural Development: A Multifaceted and Promising Convergence'*. Sociologia Ruralis, Vol. 41 (1), pp. 112-130.

Pyykkönen, P. (1996), *'Maatalousyrityksen kasvuprosessi' ('The growth process of the farm – Empirical study on structural change in Finnish agriculture and farm growth').* Reports and discussion papers 141, Helsinki: Pellervo Economic Research Institute.

Rantamäki-Lahtinen, L. (2002), '*Finnish Pluriactive Farms – the Common But Unknown Rural Enterprises'*. In: Tanvig H. W. (Ed.), Rurality, Rural Policy And Politics. In: A Nordic-Scottish Perspective. Esbjerg: Danish Centre for Rural Research and Development, Working paper 1/02.

Ratnatunga, J., and Romano, C. (1997), *'A citation classics analysis of articles in contemporary small enterprise research'*. Journal of Business Venturing, Vol. 12 (3), pp 197-212.

Renting, H. and Ploeg, J.D. van der (2001), *'Reconnecting nature, farming and society: environmental cooperatives in the Netherlands as institutional arrangements for creating coherence'*. Journal of environmental policy and planning, Vol. 3, pp. 85-101.

Riepponen, O. (1995), '*Maaseutuyrittäjänä menestyminen' ('Succeeding as a Rural Entrepreneur').* University of Helsinki, Centre of Rural Research and Training, Mikkeli, Publications 40.

Röling, N.G. and J. L. S. Jiggins (1994), *'Policy paradigm for sustainable farming'*. In: European Journal for Agricultural education and Extension, Vol. 1 (1), pp. 23-43.

Romano, C., and Ratnatunga, J. (1996), *'A citation analysis of the impact of journals on contemporary small enterprise research'*. Entrepreneurship Theory and Practice, Spring, pp. 7-21.

Rotter, J. (1966), *'Generalized Expectations for Internal vs. External Control of Reinforcement'*. Psychological monographs: General and Applied, vol. 80 (1), pp. 1-27.

Ruuskanen, P. (1995), '*Maaseutuyrittäjyys puheina ja käytäntöinä' ('Rural Entrepreneurship In Parlance and Practice. The Case of the Rural Areas of Finland').* Chydenius-Instituutin tutkimuksia 5/1995, Kokkola: Jyväskylän yliopisto, Chydenius-Instituutti.

Schelske, O., and Seidl, I. (2002), *‚Anbau und Vermarktung alter Landsorten: Ein Fallbeispiel'*. In: AGRARForschung 9 (10), pp. 434-439.

Schiebel, W. (2002), *'Entrepreneurial Personality Traits in Managing Rural Tourism and Sustainable Business'*. In: Agrarmarketing Aktuell 2002/2003, pp. 85-99.

Shane, S. A. (2000), *'The promise of entrepreneurship as a field of research'*. Academy of Management Review, Vol. 25 (1), pp. 217-226.

Sikorska, A. (2001), *'Przedsiębiorczość na wsi w świetle ankiety IERiG ' (Rural entrepreneurship. Results of IERiGŻ studies)*. 2000.

Smit, A.B. (2004), *'Changing external conditions require high levels of entrepreneurship in Agriculture'*. In: Bokelman, W. (2004), Acta Horticulture No. 655, Proceedings of the 15th International Symposium on Horticultural Economics and Management, Berlin, Germany.

Stanworth, M. J. K. and Curran, J. (1973), '*Management Motivation in the Smaller Business'*. Gower Press. Great Britain.

Stevenson, H. H. and Jarillo, J. C. (1991), *'A New Entrepreneurial Paradigm'*. In: Etzioni, A. and Lawrence, P. R. (eds.), Socio-Economics. Toward a new synthesis. M. E. Sharpe. New York.

Stevenson, H. H., and Jarillo, J. C. (1990), *'A paradigm of entrepreneurship: Entrepreneurial management'*. Strategic Management Journal, 11, pp. 17-27.

Timmons, J.A (1994), '*Opportunity recognition'*. In: New Venture Creation: Entrepreneurship for the 21st Century.

Uffelen, R. L. M. van, Ham, A., and van den, Splinter, G. M. (2005), *'Succes met innovatief ondernemerschap, Ondernemers in beeld die zijn genomineerd voor de prijs "Agrarisch Ondernemer van het Jaar"' ('Success with innovative entrepreneurship, pictures of entrepreneurs nominated for the award "Agricultural entrepreneur of the year", in Dutch with English summary').* Agricultural Economics Research Institute, Report 2.05.04.

Van den Tillaart, H. J. M. (1987), *,Zelfstandig ondernemen: het blijft een zaak van maatwerk'*. ITS, Nijmegen.

Vesala, K. M. (1996), *,Yrittäjyys ja individualismi. Relationistinen linjaus' (,Entrepreneurship and Individualism A Relational Perspective').* Helsingin yliopiston sosiaalipsykologian laitoksen tutkimuksia 2/1996, Helsinki.

Vesala, K.M. and Peura, J. (2002), '*Yrittäjäidentiteetti monialaisilla maatiloilla' ('Entrepreneurial Identity among On-Farm Business Diversifiers').* University of Helsinki, Rural Research and Training Centre Mikkeli, Publications 78.

Wärneryd, K. E. (1988), *,The Psychology of Innovative Entrepreneurship'*. In: van Raaij, W. F., van Veldhoven, G. M. and Wärneryd, K. E. (ed.), Handbook of Economic Psychology. Kluwer Academic Publishers. Dordrecht.

Warren, M. (2004), *'Farmers online: drivers and impediments in adoption of Internet in UK agricultural businesses'*. Journal of Small Business and Enterprise Development, Vol. 11 (3), pp. 371-381.

Westhead, P., and Wright, M. (2002), '*Advances in Entrepreneurship'*. Edward Elgar, London.

Wielinga, H.E. (2001), '*Human networks as living tissue. A study on knowledge, leadership and the role of government in Dutch Agriculture since 1945*'. Wageningen University.

Winter M (1997), *'New policies and new skills: Agricultural change and technology transfer, Sociologia Ruralis'*. Vol. 37 (3(, starts p. 363.

Winter, M. (2002), '*Rural Policy: New Directions and New Challenges, Research to identify the policy context on rural issues in the South West'*. Centre for Rural Research Report to South West of England, Regional Development Agency and The Regional Assembly.

Winter, M., and Rushbrook, L. (2003), *'Final report to DEFRA: Literature review of the English rural economy'*. Centre for Rural Research University of Exeter

Wiskerke, J.S.C., Bock, B.B., Stuiver, M. and Renting, H. (2003), *'Environmental co-operatives as a new model of rural governance'*, Rural Sociology Group, Wageningen University.

Wolf, P. L. de, Schoorlemmer, H. B., Smit, A. B., De Lauwere, C. C. (2004), *'Analysis and Development of Entrepreneurship in Agriculture'*. In: Bokelman, W. (2004), Acta Horticulture No. 655, Proceedings of the 15th International Symposium on Horticultural Economics and Management, Berlin, Germany.

Wortman, M. S. (1987), *'Entrepreneurship: An integrating typology and evaluation of the empirical research in the field'*. Journal of Management, 13 pp. 259-279.

Żmija, J. (2001), *'Rozwój przedsiębiorczości w agrobiznesie w Małopolsce wobec integracji z Unią Europejską. Rozwój przedsiębiorczości wiejskiej w perspektywie integracji z Unią Europejską' ('Developing of entrepreneurship of agribusiness in Małopolska region before EU enlargement')*. Międzynarodowa Konferencja Naukowa, Kraków, 11-12 stycznia 2001.

Annex 1 Skills required of managers of SMEs to implement High Performance Management practices effectively. (from FAS/Enterprise Ireland (2005) and based on research by McIver Consulting)

1. The Ability to Manage Quality: The ability to design and implement quality improvement processes.
2. The Ability to Manage Productivity: The knowledge and skills to set up metrics of productivity; the ability to identify areas where productivity improvements can be made.
3. Cost Constrol Skills: The ability to implement cost control measures by the use of measures such as Activity-Based Costing; to identify and eliminate waste; to measure and assess the use of resources.
4. Product and Process Development: The ability to adapt and implement appropriate Total Quality Management systems.
5. Benchmarking: The competence to identify comparative operations and benchmark against key performance indicators.
6. Stock and Materials Management: The ability to implement and monitor Materials Requirement Planning systems.
7. Co-ordination and Control: The ability to co-ordinate activities of the organisation.
8. Training and Skills Enhancement: The ability to identify the skills set required at each stage of the production process and design and implement appropriate training programmes.
9. ICT: The competence to identify improvement opportunities available through ICTs, and to make effective business use of ICT investments.
10. Service and Quality of Service: The ability to deliver customer service and to maintain high levels of service quality.
11. Strategic Management: The ability to develop a long term strategy for the organisation and provide a shared vision of the future.
12. Leadership Skills: The ability to act as a role model for an inclusive approach to delivering change; the ability to motivate others to take ownership of the change process; develop and drive a shared vision of the organisaiton for the long term future.
13. Organisational and Business Awareness: the ability to maintain an evolving understanding of the organisation's internal and external environment.
14. Communications Skills: The capability to ensure that the employees are fully conversant with the strategic objectives; communicate and share information with stakeholders; relate to management and staff the need for agreed objectives and the benefits of mutual gains.
15. Innovative Thinking: The ability to develop innovative approaches to High Performance Management and to recognise innovative solutions presented by others.
16. The Ability to Champion Change: The capability to build consensus with others; recognise those who can influence others and empower people to design new processes and implement change.
17. The Ability to Build and Maintain Relationships: Able to build good working relationships with all employees and managers; the ability to build trust and confidence at all levels; the ability to facilitate cross functional teams in achieving consensus on important issues.

18. The Ability to Influence: The ability to influence others by displaying commitment, credibility and trustworthiness; able to empathise with other viewpoints while presenting a clear case for change.
19. Problems Solving and Decision Making Sills: Able to use creative thinking to solve problems in a team setting.

Annex 2 Detailed contents of the 57th Worshipful Company of Farmers Advanced Course in Agricultural Business Management, Imperial College London (Wye campus), January/February 2007.

Day 1

1. Introduction; the Nature of Management
2. Challenges for UK Agriculture
3. PCs for Financial Decisions
4. Case Study: Cash Flow Management

Day 2

1. Business survival and the Balance Sheet
2. Business Survival and the Balance Sheet
3. Budgeting for Business Adjustment
4. Members' Businesses

Day 3

1. Diversification: Farming but not Agriculture
2. Managing the Media
3. 3-Account Case Study
4. Managing the Intergenerational Transfer of Assets

Day 4

1. Case Study Reports
2. Appraisal of Capital Investments
3. Investment Appraisal and Case Study
4. Members' Case Study 1

Day 5

1. Investment Appraisal Case Round-up
   New Forms of Business Structure
2. Strategic Planning 1
3. Strategic Planning 1
4. Analysing Risky Decisions

Day 6

1. Entrepreneurship
2. Change Management
3. Developments in the Food Industry – A Consumer Perspective
4. Structural Change in the European Food Industry

Day 7

1-3. Communications in Management
4. Members' Case Study (1)

Day 8

1. Agricultural Policy Formation in the EU
2. Briefing for Practical Case Study: *F*ood Retailing and the Implications for Farmers

3. Practical Case Study, continuation
4. Developments in Employment Legislation

Day 9

1. Identification and Management of Teams
2. Styles and Effectiveness of Leadership
3. Review of Prospects for Agricultural Policy
4. Members' Case Study (1) – Presentations

Day 10

1-2. Directors' Responsibilities in Farmer-controlled Businesses
3. Members' Case Study (2)
4. European Agricultural Policy in the 21st Century

Day 11

1. Sustainability and Environmental Policy
2. Visit to Fresh Produce Business
3. Visit to Fresh Produce Business
4. Putting a Value on Nature

Day 12

1-3. Negotiating Skills
4. Members' Case Study (2)

Day 13

1. Group Presentation of Food Retail Case Study findings
2. Building Partnerships between Farmers and Key Customers
3. Agricultural Implications of Climate Change
4. Problems and Possibilities for Biofuels in the UK

Day 14

1-4. The Business Game

Day 15

1. Case Study Presentations (2)
2. Coping with Stress
3. Course Conclusion: Managing for the Future
4. Summary Presentation to WCoF Court

Annex 3 Drivers of change in the environmental and land-based sector, and implications for skills

Source: Lantra (2005) England National Consultation Document - December 2005

Change Factors	Main issues	Impact on skills and business requirements
New approaches to land management and rural stewardship - Changes in Land use and management - Biodiversity - Water Framework Directive	▪ Implementation of CAP reforms, single farm payments and cross compliance ▪ Implementation of new Rural Development Regulations ▪ Alternative, renewable energy sources	▪ Developing skills for environmentally sensitive land management ▪ Increased learning provision in terms of initial and continual professional development ▪ Developing skills for sustainable development ▪ Higher level technical skills for new production methods ▪ Improved business advice and guidance structures to meet need of sector
Changes in business practice - Globalisation - Traceability - Quality - Diversification - New technology - New products - Climate change -Consumer Behaviour	▪ Improved business advice and guidance relevant to micro-businesses ▪ Quality assurance schemes ▪ Customer relationship management ▪ Improved access to and recognition of diverse forms of lifelong learning and CPD	▪ Business advice, guidance and support ▪ Technology transfer ▪ Sales and marketing ▪ ICT ▪ Business development ▪ New technologies ▪ Management and leadership
Rural and urban regeneration - Environmental improvement and management - Conservation of natural heritage - Green Skills - Access to the countryside	▪ Development of regeneration programmes ▪ Lasting legacy in the form of parks and green spaces ▪ Supporting Olympic infrastructure and development of world-class equine competitors	▪ Integrated approach with partners to meet developing skills and business needs ▪ Cross sector working to address specific skills in green space development and Olympic disciplines ▪ Specific skills development in support of equine support staff
Impact of new Animal Health and Welfare legislation	▪ Higher professional standards and duty of care now required of all people handling animals	▪ Development of Integrated CPD across all practitioners ▪ Recognition of competence

Demographic trends	▪ Attracting new entrants of all ages ▪ Providing opportunities for career progression and development ▪ Influencing migration policy and operation of control mechanisms	▪ Effective marketing of careers ▪ Better careers advice and guidance for all ▪ Proper recognition of competence for all ▪ Supporting migrants and meeting specific skills needs ▪ Integrated frameworks to support lifelong learning and CPD
Importance of voluntary organisations and social enterprises	▪ Improving visibility of these businesses within mainstream support programmes ▪ Importance of social enterprises in supporting regeneration and inclusion	▪ Access to mainstream business development and skills support agencies ▪ Funding to support skills acquisition ▪ Appropriate mechanisms for management and development ▪ Volunteer management and development
Health and Safety	▪ Legislative requirements ▪ Safer working environment ▪ Reduction in ill health	▪ Improved learning provision in terms of continual professional development ▪ Awareness raising ▪ Recognition of Health and Safety competence
Modernisation of rural delivery	▪ Establishment of new agencies to support environmental and rural development and deliver Public Service Agreement targets ▪ Devolution of decision making and resources to regional organisations ▪ Streamlining of funding support mechanisms	▪ New methods to ensure compliance and quality enhancement ▪ Regional business support mechanisms meeting the needs of the sector ▪ Wider agency collaboration to support the sector ▪ Regional funding agencies responding to sector needs ▪ Key agencies recognising the importance of skills development
Regionalisation	▪ Delivery of government policies and strategies at regional level ▪ Regional skills development to deliver economic improvement, regeneration, enterprise and innovation ▪ Divergent skills policies	▪ Ensure recognition of the importance of the sector ▪ Integrate rural into mainstream enterprise agendas by 2007 ▪ Develop regional business support mechanisms to meet the needs of the sector ▪ Regional funding agencies responding to sector needs ▪ Learning and business development meets changing priorities of businesses