

## Preparing for a new agri-environment scheme in England: Influences on farmer participation

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### Abstract

This paper describes some preliminary results of research associated with farmer training in agri-environment scheme participation, with emphasis on participation in England's proposed Entry Level Scheme (ELS). Research with farmers explores the influences on farmer participation in the scheme and their likely adoption of individual management options within the scheme. The research is intended to inform the further development of ELS and other agri-environment schemes. The project therefore enables shared learning by farmers, researchers and policy makers. Preliminary results revealed an association between farm size and farmers' attitudes to participation in the existing Countryside Stewardship Scheme, but not in the proposed ELS. There was some evidence that age and environmental values of farmers influenced their potential participation in the ELS, and there was a strong preference for management options that were independent of commercial crops. Design of the ELS should be adapted to accommodate the needs, interests and concerns of farmers in order to ensure their participation in, and commitment to the scheme.

### Introduction

Latest reform of the Common Agricultural Policy (CAP) increases the amount of money available for environmental enhancement on farmland through agri-environment schemes. CAP funding is diverted away from production-linked payments, and towards support for broader Rural Development objectives. The new multidimensional approach to agriculture is intended to improve the diversity of farmers' skills, products and services, while also improving the rural environment. Included in this is the conservation of a wide range of wildlife species which are strongly associated with farmland habitats, and whose populations have declined as a result of several decades of production-led support for intensive agricultural management (Siriwardena et al., 1998).

In England, an agri-environment scheme is being piloted in four regions, with a view to extending the scheme nation-wide in 2005. The scheme is intended to attract farmers who have not previously participated in existing agri-environment schemes. For this reason, it is less ambitious than existing schemes and is intended to provide farmers with an entry into higher level schemes in subsequent years. This 'Entry Level Scheme' (ELS) was launched by the UK government's Department for Environment, Food and Rural Affairs (DEFRA) in a pilot phase in May 2003 (DEFRA, 2003a). A range of habitats on farmland gain farmers points towards a threshold which, if attained, qualifies the farmer for a standard payment per hectare across the farm.

Eligible habitats for field edges include two and six metre wide perennial grass strips in field boundaries, uncultivated field corners, and plants sown especially for wildlife ('Wildlife Seed Mixtures' and 'Pollen and Nectar Mixtures'). Within fields, other options include selectively sprayed crop edges

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(‘Conservation Headlands’), undrilled patches (‘Skylark Plots’), low grassy banks through field centres (‘Beetle Banks’), undersowing of grass leys in spring-sown cereal crops, and undisturbed over-winter crop stubbles. Although there are many other options, these are the ones considered in this paper.

Implementation of agri-environment schemes has been shown to change farmers’ attitudes in favour of wildlife conservation (Battershill & Gilg, 1996). In most cases habitat management requires a change of attitude away from crop production, and the development of new skills and environmental awareness, while other habitat options provide an opportunity for farmers to apply their existing skills to wildlife conservation. For example, wildlife seed mixtures enable farmers to apply their crop management skills to habitat creation, while Conservation Headlands and grass field boundary strips require a change of attitude and development of new skills, as well as the application of existing ones (Stoate et al., 2001a).

An existing scheme, the Countryside Stewardship Scheme (CSS) (DEFRA, 2003b), includes a similar range of habitats but requires farmers to create more new features, additional to those already present, makes greater demands on the farmer, and makes payments for habitat options, rather than across the whole farm area. Studies associated with previous agri-environment schemes in the UK have shown that small farmers are disadvantaged in their ability to participate in such schemes because of the complicated application procedure (Falconer, 2000). Costs incurred by the farmer in the application process include the recruitment of professional advice and the time taken to complete detailed application forms. These costs are more difficult for small farmers to absorb than for larger farmers who may employ staff and have access to better office facilities and other additional resources.

DEFRA administers agri-environment schemes in England. DEFRA awarded a contract to The Allerton Trust in 2003 to provide agri-environment training to small and medium sized farmers in the East Midlands region of England, in an attempt to equip such farmers with relevant information. Initially, the project is taking the form of a one-day event per month at the Allerton Trust’s research and demonstration farm at Loddington, Leicestershire. A separate company has been contracted to recruit small and medium sized farmers from the East Midlands region to attend these days, with up to 20 farmers attending each day. Although the organisers cover the main cost of the course, a charge of £30 has been made to discourage cancellations. The main target group is farmers who manage less than 120 hectares of arable land, and who are not currently participating in an agri-environment scheme. However, in practice, some farmers participating in the training managed larger farms, and some were already involved in the CSS. This relaxation of the pre-conditions for participation sometimes resulted in more informed discussions between participants on training days, improving the participatory learning element of the course.

The days at Loddington comprise mainly training in habitat management options from the ELS, information on Biodiversity Action Plan species that are targeted for conservation, and guidance on the responsible use of pesticides. However, the project also provides an opportunity for researchers and policy makers to learn from farmers about the issues involved in farmers’ participation in agri-environment schemes. This research element of the project is intended to inform the further development of ELS and other agri-environment schemes, both in terms of practical management and policy making. For example, the author is primarily concerned with research into agricultural ecology and the development of practical habitat management options at the Allerton Trust’s research and demonstration farm, and aims to learn from farmers about economic and ecological problems and opportunities associated with these habitats on *other* farms. The project therefore enables shared learning by farmers, researchers and policy makers.

Participating farmers are asked to complete questionnaires on their attitudes to issues relating to agri-environment schemes. The quantitative data collected to date were analysed using standard ‘t’ tests to compare differences between mean values obtained from questionnaire answers, and non-parametric statistical tests (Mann Whitney ‘U’ and Wicoxon ‘Z’) to compare differences between median values (Zar, 1996). Sample sizes are given as ‘N’, degrees of freedom as ‘df’, and the level of statistical significance as ‘P’ values (ns = not significant).

The training days also have interactive components ranging from group discussion to pair-wise comparison of ELS habitat options (Pretty & Scoones, 1989) and this approach is intended to provide more qualitative data that might be missed using questionnaires alone. For the author, this project has provided an opportunity to adopt a participatory approach, previously applied only with farmers in West Africa (Stoate et al., 2001b). This paper presents some early results from the project.

### Recruitment to the project

A total of 79 farmers participated in training events at Loddington across the first five months. Mean farm size ( $\pm$  se) of participants recruited to Pathfinders was 207 hectares ( $\pm$  14), but there was a predominance of farms in the 101-200 hectare size range (Figure 1). Mean farmer age was  $47 \pm 2$  (Figure 2).

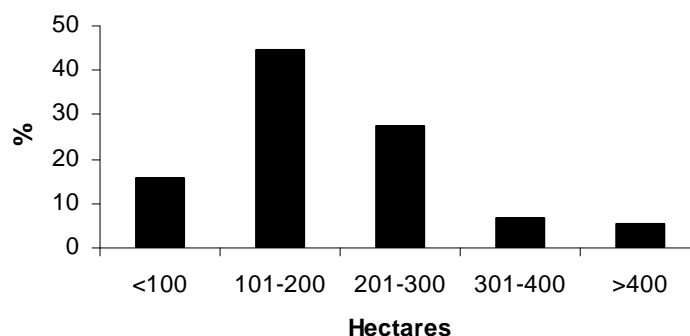


Figure 1. Frequency distribution of farm size for farmers attending Pathfinders events

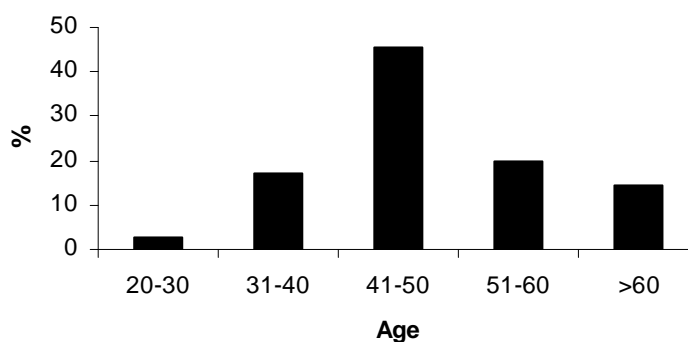
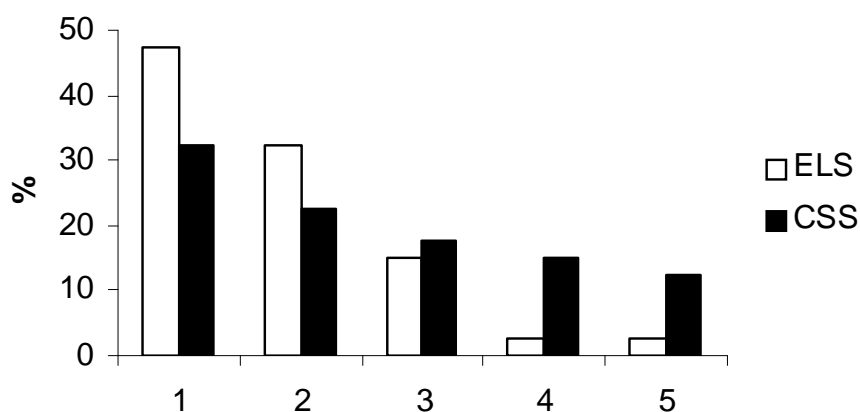


Figure 2. Frequency distribution of age of farmers attending Pathfinders events

## Farmers' attitudes to ELS

Forty (50%) of the farmers attending a training day subsequently completed a questionnaire (based on the design of Davies and Hodge, 2002) which explored attitudinal differences between farmers with highly positive views about ELS with those who had less strongly held views. There was no difference in farm size between those returning the questionnaire and those who did not do so ( $t = 0.998$ ,  $df = 68$ , ns).

For those who returned questionnaires, there was a significant difference in farmers' attitudes towards ELS and CSS (Wilcoxon  $Z = -2.87$ ,  $P = 0.004$ ,  $N = 40$ ) - more farmers saw a role for ELS than for CSS on their farms (Figure 3). Farm size was correlated with the question score representing attitude to CSS, with farmers of larger farms being more positive about the scheme ( $r_s = 0.404$ ,  $P = 0.016$ ,  $n = 35$ ), but there was no effect of farm size on farmers' attitude towards ELS. Farmers with positive attitudes towards ELS were significantly older ( $51 \pm 2$ ) than other farmers ( $42 \pm 3$ ) ( $t = 2.34$ ,  $df = 29$ ,  $P = 0.03$ ).



**Figure 3.** Frequency distribution of responses from 40 farmers to the statements, 'The Entry Level Scheme could provide opportunities for my farm' (ELS) and 'The Countryside Stewardship Scheme provides (or could provide) opportunities for my farm'(CSS). 1 = strongly agree, 5 = strongly disagree.

Significant differences between farmers with and without positive attitudes towards ELS were related to their environmental values (Table 1). Farmers with highly positive views about ELS were also more positive about having rare birds on their land, about the intrinsic and utility values of natural resources, and about the principle of paying for environmental management when this was affordable.

**Table 1.** Comparison of farmers with highly positive attitudes towards ELS with those who had less positive attitudes. Median scores (and interquartile ranges) relate to questionnaire answers provided by 40 farmers. 1 = strongly agree, 5 = strongly disagree

Statement	Median: positive attitude to ELS	Median: less positive attitude to ELS	Mann Whitney test statistic 'U'	P
All the earth's resources such as minerals, fuels, forest, should be used as sparingly as possible	1 (1)	2 (1.5)	83.5	0.001
Rare species can be a chore to look after and you are better off without them	5 (1)	3 (2)	103.5	0.007
The more money you can make from farming, the more you should be willing to spend on enhancing the environment	1 (1)	2 (1.5)	119.0	0.021
Natural things should be respected as valuable in themselves and not just for what humans can get out of them	1 (0)	2 (1)	125.0	0.022

Pair-wise comparisons were used with six groups of farmers to compare attitudes towards some of the individual habitat management options within the ELS. As well as providing feedback of farmers' attitudes, this approach encouraged discussion between participants and was therefore part of the learning process.

The pair-wise comparisons produced percentage scores that allowed ranking of the options considered (Table 2). Overall, the naturally regenerating field corner, 6 metre grass field margin, and wildlife seed mixture were the highest ranking options, followed by 2 metre grass margins and pollen and nectar mixtures. These are all habitats created in field boundaries, outside the cropped area. In addition, one of six 'in-field' habitat options was considered by each of the groups. These 'in-field' options consistently ranked lower than the field boundary habitat options, even though some in-field options were regarded as 'easy to do'. Comments made by farmers at the time suggested that in-field options were ranked low because they interfered with the cropping.

Prevention of pesticide drift into field boundaries and watercourses was identified as a valuable role for field boundary options, including compliance with legislation (Local Environmental Risk Assessment for Pesticides, LERAP). A value for wildlife seed mixtures was identified in providing food and cover for gamebirds for shooting, and for other seed-eating birds that were valued by the farmers. Other options such as field corners and pollen and nectar mixture were favoured because they could be used on unproductive land and encouraged desirable species such as gamebirds and honeybees. Some farmers commented favourably about skylark plots because they simply 'liked skylarks' and the attitudes of farmers to the species being targeted for conservation are likely to have a substantial influence of their behaviour in terms of implementation. More detailed comments from farmers are listed in appendix 1. The results of the pair-wise comparisons are presented to farmers at a follow-up event and their comments are invited. The exercise is therefore iterative and likely to stimulate further comment of relevance to practical implementation and policy development.

**Table 2. Results of pair-wise comparisons of ELS habitat options (carried out by small and medium-sized farmers)**

Habitat option	% score					
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Field corner	21	19	23	25	25	24
Wildlife seed mix	22	21	26	24	21	16
6 Metre margin	24	28	23	14	10	28
2 metre margin	16	15	16	17	14	11
Pollen/nectar mix	13	13	9	14	16	7
Skylark plots*	--	--	--	--	--	15
Winter stubble*	--	--	--	14	--	--
Undersowing*	--	--	--	--	6	--
Beetle Bank*	5	--	--	--	--	--
Conservation Headland*	--	4	--	--	--	--
CH (no fertiliser)*	--	--	4	--	--	--

\* These options were considered by one group of farmers only

## Discussion

The preliminary results presented in this paper suggest that some readily quantifiable, and other more qualitative factors may influence farmer participation in the Entry Level Scheme. This scheme appears to have greater appeal than the Countryside Stewardship Scheme to farmers with small and medium sized farms. There is an indication that there is some resistance to ELS from younger farmers, perhaps because they perceive the scheme as constraining or distracting from plans for future market-led

initiatives they may want to develop. Older farmers may exhibit similar reluctance to participate in the scheme if there is a successor in the family business.

There appears to be genuine interest in, and agreement with ELS objectives amongst potential participants in the scheme, but there is clearly resistance to ELS management options that are perceived to interfere with commercial cropping operations. Learning about such issues is currently enabling policy makers to explore the potential for active management of set-aside to meet the environmental objectives of habitat options that would normally be implemented within the cropped area (e.g. undersowing and conservation headlands). Farmers could be rewarded for creating habitats on set-aside, albeit at a lower level than would be the case if such habitats were within the cropped area. In order to increase adoption of in-field management options, points could also be reallocated so that in-field options receive more points than are currently being awarded in the pilot phase.

The results from this study suggest that there is a need to ensure that the Entry level Scheme is compatible with business plans that may be developed by younger farmers. Some farmers in this study identified a use for the 'wildlife seed mixture' option in contributing to gamebird management for shooting (which could be let to paying guests). Other options may be compatible with added value to commercial crops. For example, 'conservation headlands' at Loddington are part of a selective pesticide use policy that enables wheat and oats to be sold as 'conservation grade' at a 16% premium. Such compatibility with market objectives needs to be explored. Similarly, there is a need for more information on the objectives of the scheme, for example in terms of the identification and conservation of 'rare' birds. The results presented here suggest that some farmers' values are compatible with the objectives of agri-environment schemes and that they are ready to learn and adapt to the new circumstances.

The results presented in Figure 3 suggest that 80% of farmers 'agree' or 'agree strongly' that the ELS could provide opportunities for their farms, suggesting that uptake of the scheme could be considerable. However, farmers accepting the invitation to participate in the Pathfinders project represent only a very small proportion of those originally contacted, and only half of those attending completed the questionnaire. Uptake of the ELS could be considerably lower than these results indicate. This project is enabling researchers and policy makers to learn from farmers about the problems and opportunities associated with ELS habitat options, enabling new schemes to be developed that have demonstrable environmental benefits and meet the needs of all parties.

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### Appendix 1. Farmers' comments arising from pair-wise comparisons of ELS habitat options (carried out by small and medium-sized farmers).

Habitat option	Comments
Field corner	<p>Takes bad corners out            Outside crop            Takes out hardest part of field to work            No establishment cost and little crop area lost            Ease of machinery use            Easier drilling in odd field shapes            Round fields are the way to the future            Field corners even less profitable than field headlands            Very little management</p>
Wildlife seed mixture	<p>Good for game cover            Less risk of weed invasion [than conservation headland]            Outside crop            Helps with shooting            Helping wild birds, shooting etc            Use for game cover as well as songbirds            Can be put in irregular parts of fields            Combines element of recreation with requirement to encourage wild birds</p>
6 metre margin	<p>Ideal for LERAP            Outside the crop            Easier to manage [than 2m margin] and more room            By woodland            Could clean up margins            Preferable to 2m margin to meet LERAP            Removes LERAP requirement and doesn't break up fields            Better for fields bordering watercourses            Easy to manage            Combined with hedge management increases nest sites            Our farm has lots of dykes            Allows hedges to be trimmed in winter</p>
2 metre margin	<p>Helpful in prevention of weed invasion            Better for small fields [than 6 m margin]            Outside crop            2m margin is preferable to Beetle bank as bank cuts fields            More manageable [than 6m margin] in small fields            Less crop area lost            If using correct size nozzles, makes LERAP easier            Protection of hedges from field operations            Useful for enhancing existing feature such as hedge or ditch            Creates corridors for wild gamebirds</p>
Pollen and nectar mixture	<p>Use as LERAP buffer zone            Less husbandry [than wildlife seed mix]            Easily established, lasts for years            Outside the crop            Good for bees            [Create] where poorest crop grows            Would encourage more birds and insects            Increasing insects for chicks to feed            Very suitable for difficult areas of farm            Good nectar source for our hives of honey bees</p>
Skylark Plots	<p>Want to encourage skylarks            Love to see and hear them            Easy to do</p>
Winter stubble	<p>Fits into rotation for spring cropping            Easy management</p>
Undersowing	<p>Useful way of establishing grass leys for livestock farmer            Relevant to small fields</p>
Beetle Bank	<p>Reduced aphicide requirement            For aphid control and grey partridge            Good in some situations – divide large fields</p>
Conservation Headland	<p>Can sell crops            Easy to manage and is rotational</p>
Conservation Headland (no fertiliser)	<p>Allows points to be gained without losing crop area            Good LERAP</p>