

**Restoring traditional downland in the North Wessex  
Downs AONB: Implementing the Chalk Grassland Strategy  
in Hampshire**

**Creating new species-rich grassland:  
Financial implications, opportunities and  
constraints**

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Report to Hampshire Farming and Wildlife Advisory Group  
and Hampshire County Council

**Sue Everett**

**122 Derwent Road  
Thatcham RG19 3UP**

**Tel: 01635 847164**

**Email: [valuingbiodiversity@ntlworld.com](mailto:valuingbiodiversity@ntlworld.com)**

**[www.meadowmaker.co.uk](http://www.meadowmaker.co.uk)**

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## Executive summary

This project sought to investigate the financial implications of converting arable land to species-rich chalk grassland ("traditional downland"), and identify constraints and opportunities associated with chalk grassland restoration. The author reviewed 10 examples of projects completed or underway<sup>1</sup>, and developed two balance sheets to illustrate likely costs and income for in-hand and contract farms carrying out a 15-ha chalk grassland creation project.

What has happened in the past?

- Most arable reversion carried out under agri-environment schemes did not aim to achieve biodiversity objectives; new grasslands created were mainly herb-poor swards sown with grass cultivars
- Projects which achieved species-rich chalk grassland were mainly undertaken by committed individuals who were knowledgeable and willing to subsidise the cost of seed
- The majority of successful projects reviewed have their own livestock; four are organic holdings
- Two farms reviewed are arable, with the created grassland specifically created for landscape/biodiversity and where no livestock are kept (sheep brought in from other farms)
- There are a number of successful projects in or close to the North Wessex Downs Area of Outstanding Natural Beauty which could be available for farm walks and demonstrations
- Some grasslands created since 2000 are suitable for seed harvesting and could provide seed for future projects.

Future financial implications for farmers considering arable reversion to chalk grassland

- Annual management payments of £280 available under the Higher Level Scheme will provide a better income for farmers than arable cropping<sup>2</sup>
- For a contract farm the net income for a 15-ha site receiving the £280/ha management payment over 10 years is significantly better than arable income (estimated at c. £30,000, compared to £10,800 for arable [wheat yield 9.5t/ha])
- For an in-hand farm the net income appears far less (£6,550 over 15 years) because fixed costs (including farmers' salary) remain distributed across the holding (£233/ha)<sup>3</sup>; HLS becomes more profitable than arable cropping if the wheat yield is less than 7.5t/ha
- Farmers' fixed costs are an issue for in-hand farms if the arable area decreases, although machinery wear and tear can be substantially reduced if distant and difficult fields are taken out of arable production
- Created grassland sites are also eligible for ELS Mixed Stocking payment @ £8/ha
- Access options can potentially provide very good additional income (c. £1000/year net for open access, at least £440 net/year for educational access).
- The historic options, available for protecting archaeological features under HLS and ELS, provide a significantly better return (£500 or £460/ha). The substantial financial reward should outweigh perceived business risks associated with taking land out of intensive production.
- Cross-compliance requirements will mean farms will need to withdraw additional land from intensive agricultural production on which it will be especially financially attractive to the farm business to consider HLS grassland options
- There will be high initial costs associated with fencing, and to a lesser extent specialist advice, both of which are not fully covered by grant; this has implications for farm business accounts and cashflow, especially contract farms; projects do not enter "profit" until the fourth year
- Income and expenditure on grazing and livestock cannot be predicted; for the balance sheets it is considered cost-neutral.

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<sup>1</sup> In the North Wessex Downs Area of Outstanding Natural Beauty & adjacent areas

<sup>2</sup> Using current commodity prices, average yields, based on crop rotation for 100-ha: See Annex x

<sup>3</sup> This also assumes farm labour are used to erect fencing; if contractors are used the expense will negate any cost-benefit of undertaking a created grassland scheme

## **Significant constraints**

Not every constraint will apply to all situations. The most significant are associated with income and grazing. Organising grazing may pose a considerable challenge for some farms which have no livestock or associated infrastructure. See 4.1 and Annex 2 for a complete analysis.

### *Financial*

#### Farmers need sufficient income to make projects worthwhile to the farm business

- Fears that future options for arable cropping will be reduced if land is put into permanent grassland under a 10-year agreement
- High costs of infrastructure and associated cost to support livestock grazing
- High initial costs will impact on farm cashflow and profitability
- Consideration of fixed costs for in-hand farms.

### *Livestock*

#### Farmers will need access to livestock, labour and infrastructure to manage livestock

- No livestock on farm or nearby or no desire to have livestock
- No infrastructure, labour or equipment for managing livestock
- Insufficient grant to cover costs of infrastructure for keeping livestock
- Isolated parcels of grassland – no critical mass for a livestock enterprise
- Not commercially viable.

### *Information*

#### Farmers need sufficient information to give them confidence that they can achieve successful projects

- Insufficient knowledge/understanding about native flora and restoration methods among some farmers, professionals and officers who advise farmers
- Messages for chalk grassland restoration swamped by information about other agri-environment options

### *Farmer commitment and confidence*

#### Farmers need commitment, enthusiasm and confidence if they are to undertake successful projects

- Fears and reluctance about taking land out of commercial food production
- Unwillingness or reluctance to enter land into 10-year agreement

### *Seed*

#### Farmers will need access to supplies of suitable seed and information on where to get seed from

- Perceived lack of donor sites for wild-harvested seed

## **What opportunities are there?**

### *Financial*

- Attractive agri-environment payments including proposed payments for supporting livestock under HLS

### *Livestock*

- Development of freelance grazing businesses with own livestock
- Temporary fencing
- Projects on adjacent land on adjacent holdings: opportunity to share resources
- Native and hardy breeds
- Marketing initiatives (e.g. local food groups, farmers' markets)
- Rural Development grants for marketing & diversification

### *Information*

- Training and demonstration events for farmers and advisers utilising existing projects and local experts
- Opportunity to produce and distribute an information leaflet about restoring chalk downland
- Potential to involve agronomists and other advisers in spreading the message.

### *Seed*

- Special seed collections of rarer species
- Cold storage enabling seed to be kept over-winter
- SSSIs where low-key seed harvesting (e.g. using lawnmowers or Rekord pedestrian harvester) could be carried out
- Created sites using wild-seed of known origin: current & future donor sites.

### *Land*

- Opportunity to enhance existing species-poor grasslands (created or otherwise improved) using proven techniques.

## **Recommendations**

The following recommendations (to attain the overall outcome of extending the downland resource) will need to be carefully considered by the agencies involved in promoting the North Wessex Downs Chalk Grassland Strategy. Agencies to implement agreed actions will need to be identified.

### *Financial*

Outcome 1: Encourage fast-track sign-up of farmers in target areas to consolidate the chalk grassland resource across adjacent holdings

Action 1a: Consider offering, for a limited period, a top-up "award" to cover additional/the full cost of specialist input for preparing the grassland management plan, Farm Environment Plan and early-years monitoring

Action 1b: Consider offering, for a limited period, a top-up "award" to support infrastructure costs (e.g. fencing)

### *Information*

Outcome 2: Make the message clear and stand out so it is heard, not swamped by messages about other agri-environment options

Action 2: Produce & distribute an information leaflet to farmers, local farming groups and Women's Institute groups about extending the downland resource: what, why, how, income available, ideal land characteristics

### *Knowledge*

Outcome 3a: Enhance the knowledge-base of farm advisers<sup>4</sup> (about chalk grassland restoration/creation techniques and opportunities) and encourage them to cascade their knowledge and identify opportunities when visiting farmers.

Outcome 3b: Achieve enhanced knowledge and understanding among the target audience of farmers and landowners about downland restoration/creation and associated biodiversity (especially wild-plant communities).

Action 3a: Organise farm walks and informal events to demonstrate successful projects

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<sup>4</sup> Agronomists, land agents, advisers employed by RSPB, Defra, EA, FWAG, etc

*Financial implications, constraints and opportunities: creating new chalk downland*

- Action 3b: Distribute available literature to target audience (e.g. Flora locale leaflets in Bringing Back the Meadows series, Discover Wild Plants and Wild plants and your village green)
- Action 3c: Sponsor illustrated talks & presentations to Womens Institute groups in downland areas

*Seed*

- Outcome 4: Created grasslands that have used wild seed originating from appropriate chalk or limestone character areas that include a good spectrum of wild-plant species associated with semi-natural lowland calcareous grassland
- Action 4a: Encourage/support wild-seed collections including special collections of scarcer species from high quality chalk grasslands
- Action 4b: Encourage adjacent areas<sup>5</sup> to produce registers of suitable seed donor sites

*Land*

- Outcome 5: Enhancement of existing herb-poor swards in target areas and on other suitable sites
- Action 5: Promote and identify opportunities for sward enhancement; develop support packages to enable successful enhancement projects (see 4.2)

*Livestock*

No recommendations: existing organisations are currently considering how challenges related to grazing can be resolved.

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<sup>5</sup> Chalk and limestone Areas of Outstanding Natural Beauty

## **1. Introduction**

### **1.1 Aims and objectives of this report**

This report is the output of a contract issued by the Farming and Wildlife Advisory Group in February 2006.

Its aim is to present information that will:

“assist land managers in the chalk grassland target areas of the North Wessex Downs AONB in making decisions regarding chalk grassland restoration by preparing the business case for arable reversion or sward enhancement, and future management of the resource.”

The aim of this contract was to investigate:

- the likely opportunities and constraints that farmers would face in enhancing and re-creating chalk grassland, particularly financial cost
- whether agri-environment grants offset these costs.

Objectives were to:

1. Produce balance sheets for several contrasting existing arable reversion projects to illustrate costs involved in the past, problems encountered, and restoration methods used
2. Produce illustrative example balance sheets for several idealised arable reversion projects using different restoration methods and conducted under current financial conditions (Environmental Stewardship), incorporating potential costs and income derived.
3. Provide examples of the costs of maintaining and/or managing chalk grassland once initial reversion has been undertaken.
  - a. Ascertain other likely practical and financial opportunities and constraints that farmers may face in managing, enhancing and re-creating chalk grassland.

### **1.2 North Wessex Downs Chalk Grassland Strategy**

Chalk grassland (lowland calcareous grassland) is a key habitat under the UK Biodiversity Programme, and the Hampshire, Wiltshire, Berkshire and Oxfordshire Biodiversity Action Plans (BAPs). According to the Hampshire BAP<sup>6</sup> for example, 98% of chalk grassland has been lost over the last 150 years in Hampshire. The enormous loss of habitat has been accompanied by severe fragmentation.

The draft North Wessex Downs Chalk Grassland Strategy<sup>7</sup> was produced in 2005, and is currently undergoing a final period of consultation before being formally adopted in 2006. This helps to meet Objective 12 in the AONB Management Plan:

“To protect, restore, and appropriately manage all existing areas of semi-natural chalk grassland and achieve a landscape scale increase in the extent of this habitat, focused on expanding and linking existing areas”

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<sup>6</sup> Hampshire Biodiversity Partnership. July 2000. Biodiversity Action Plan for Hampshire Volume II: Lowland Calcareous Grassland. <http://www.hampshirebiodiversity.org.uk/vol-two.html>

<sup>7</sup> North Wessex Downs Area of Outstanding Natural Beauty Chalk Grassland Strategy Report. DRAFT Copy May 2005. Report by Wiltshire and Swindon Biological Records Centre, Devizes.

## **1.3 Methodology**

Created chalk grassland projects completed or underway on 10 holdings in Hampshire, Berkshire and Wiltshire were reviewed by discussion with 8 farmers/landowners and using existing personal knowledge of some of these and the additional two. In many cases comprehensive information on costs or other information was not available. Informal discussions with other farmers, work recently undertaken by Jemma Batten<sup>8</sup> and other personal knowledge was also used to identify constraints and opportunities (see Annex 2).

Detailed costs available for one project (two sites) and indicative arable cropping costs provided by Paul Pickford (Masstock Farm Consultancy) were used to develop two balance sheets to indicate the likely costs and income for a created grassland project of 15 hectares.

The duration of this project was 16 working days (February-March 2006). Sites were not visited.

## **2 Chalk grassland projects in the past**

### **2.1 Introduction**

Created grassland projects across the North Wessex Downs have in the past taken place within two CAP schemes:

- Countryside Stewardship
- Set-aside.

While many farmers may be enthusiastic about improving their farms for biodiversity in the past this enthusiasm has not been translated into many good quality arable reversion to species-rich grassland projects. This is for several reasons:

- Biodiversity was not the prime objective of Countryside Stewardship arable reversion schemes so they were often sown with grass mixes and not managed for biodiversity
- In general, there has been a tendency for farmers to take up measures which have minimised any potential loss of income from intensive/conventional farming and which have caused minimal inconvenience to the farm business
- No access to livestock or infrastructure for grazing stock
- High capital costs of projects (notably fencing and wildflower seed), which were only partially supported by a Defra grant
- Insufficient information/technical guidance available to farmers about techniques to use, e.g. to encourage natural regeneration or enhance swards.

The majority of field-scale arable reversion schemes have created new areas of floristically poor grassland sown with "stewardship" mixtures of mostly agricultural and amenity varieties of grasses. Mixtures have often included a high proportion of unpalatable varieties such as Chewings Fescue and a wiry variety of Crested Dog's-tail.

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<sup>8</sup> Dowland Heritage Initiative: Project Development. J. Batten, March 2005. Report to North Wessex Downs AONB.

## 2.2 Who has undertaken successful projects?

**Table 1. Profile of arable reversion projects reviewed for this report**

Site ref	Seed <sup>9</sup> /restoration method	Scheme	Notes
1*	Seed wild-harvested from Salisbury Plain sown in autumn on prepared ex-arable. Seed paid for by National Trust.	CS	National Trust project covering 4 mixed farms (farm business tenancies) around the Stonehenge World Heritage Site. Individual farmers have their own CS agreements
2*	Crop-grown mix paid for by landowner, sown on prepared ex-arable.	Set aside	Arable. Sheep from another holding owned by same owner. In hand.
3*	Wild-harvested seed sown on prepared ex-arable. Seed cost reimbursed by Defra (100% special project)	CS	Arable. Sheep grazing provided rent free to local shepherd. Contract-farmed. Overseen by land agent.
4*	Grass mix sown on prepared ex-arable; natural regeneration; wild hand collected seed used to inoculate reversion sites over many years	Set-aside CS	Organic mixed. In hand. Landowner has a great interest and motivation to restore biodiversity.
5	Wild-harvested seed sown on prepared ex-arable. Additional seed cost covered by English Nature.	CS	Cattle-grazed. Mixed. In hand. Adjacent to a National Nature Reserve.
6*	Grass mix; green hay; natural regeneration (several sites)	Set-aside	Arable. Reversion managed by topping and occasional grazing with bought in stock bought specially for that purpose (cost incurred.) This year going to get native breed cattle to graze all of it. In hand.
7*	Additional cost of crop-grown mix paid for by landowner. Subsequently there has been some income from sale of seed harvested from the site.	CS	Organic mixed. Riding stables. In hand. Landowner has a great interest and motivation to restore biodiversity and manages his created site with this in mind.
8	Additional costs of crop-grown mix paid for by landowner. Sown on prepared ex-arable.	CS	Organic mixed. In hand. Landowner with considerable desire to restore biodiversity and encourage others to do so. Income from wildflower seed business.
9*	Grass mix/nat regen on steep bank previously fertilised by plane & no longer commercially viable to grow arable crops; adjacent to species-rich grassland	ESA	Grazed much of year; hay taken. Mixed. No info on success. In hand.
10*	Crop-grown mix sown on prepared ex-arable paid for by landowner.	CS	Organic mixed. Meat directly sold through organic farm shop and pub. In hand.

\*Farmers/landowners who carried out these projects were interviewed. Sites in bold are known and have been visited in previous years by the author.

Of the 10 holdings reviewed 9 were farmed in hand, where the farmer had full control of decision-making and operations. The exception (contract-farmed) is owned by a businessman who insisted (against advice from the farm's previous land agent) that the farm be put into a Countryside Stewardship agreement and that traditional downland should be restored on the farm.

*Profile of farmers/landowners/holdings where species-rich chalk grasslands have been successfully created*

- Desire to create/restore traditional downland and this was their priority (6 farms)

<sup>9</sup> A supplement of £250/ha for native seed was available in limited circumstances through the Countryside Stewardship Scheme. This did not cover the full costs of seed mixes, especially the specialist chalk grassland mixes (which retail at >£40/kg).

- Knowledgeable about methods or advised by a specialist who did (5 farms); some farmers/landowners<sup>10</sup> can identify all the chalkland wildflowers; one farmer is particularly interested in entomology.
- Landowners/farmers supported the costs of the project themselves (especially the cost of seed); the management of the created grassland was not driven by commercial objectives (5 farms)
- On one farm the cost of seed was 100% covered under a Special Project Grant.
- Farms converted to organic holdings – the created grassland is an asset to their mixed organic holding and to their grazing enterprise (4 farms).
- The majority of holdings are run as mixed enterprises and have livestock.

## **2.3 Methods used to create grasslands**

The methods used for projects where seed was sown included:

- A combination of spraying and cultivation (discing or ploughing) to destroy the previous vegetation
- Sowing the same autumn following crop harvest off the same field or creating a stale seedbed/bare following the during the summer prior to seedbed preparation
- Grass mix sown with barley cover crop, then wildflowers introduced after three years (in scarified areas)
- Grass mix drilled into stubble.

Wildflower seed mixes were sown using three methods:

- Drilled<sup>11</sup>, using adapted conventional seed drills (crop-grown seed)
- Broadcast using a fertiliser spinner (wild-harvested seed)
- Hand broadcast (small quantities of hand-collected seed)

An increasing number of more recent projects, covering a substantial area, have used wild-harvested seed from Salisbury Plain and Cotswold limestone grasslands. Older projects mainly used crop-grown seed.

Natural regeneration with a view to developing species-rich grassland was promoted on three farms:

- On two farms the land is topped; on one of these grazing is going to be introduced;
- On the third site the land is grazed (mixed cattle/sheep): the landowner here is very keen to restore traditional downland and has also used handfuls of locally collected seed to inoculate set-aside and areas sown with grass mixes. He does not summer-graze.

## **2.4 Costs and problems encountered**

Most farmers interviewed were unable to provide details of costs and income. A detailed analysis produced for one site was used as a basis for the two future financial scenarios (see Tables 3 & 4).

### *Wildflower seed mixes*

Crop-grown wildflower seed mixes containing chalk grassland wild flowers tend to be the most expensive seed mixes. In the cases reviewed, three landowners who bought this seed are not typical conventional farmers; they manage their created sites with biodiversity in mind first and foremost. Three farms were organic holdings. On the other no insecticides are used on the farm and the grassland project was subsidised by other parts of the farm business. On two holdings sale of seed harvested from the created grassland has attracted new income.

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<sup>10</sup> This includes English Nature and the National Trust

<sup>11</sup> Wildflower seed mustn't be buried; it needs to be drilled on to the soil surface

**Table 2. Indicative seed cost (current prices ex VAT)**

Seed type	£/kg	£/ha	£/ha	£/ha
		5kg/ha	10kg/ha	15kg/ha
<b>Wild harvested</b>				
Wild-harvested (purchased by kg) @ £28/kg <sup>12</sup>	28		280	420
Additional seed (late fl spp) crop-grown or hand-coll.			25	25
			<b>305</b>	<b>445</b>
<b>Wild harvested: inoculation @5kg/ha</b>				
	28	<b>140</b>		
<b>Off shelf options wildflower/grasses inc. amenity grass varieties<sup>13</sup></b>				
Off shelf seed: CG Mix 1 EM6 for chalk & limestone soils	42.24		<b>422.4</b>	<b>633.6</b>
Off shelf seed: Basic wf/grass mix	21		<b>210</b>	<b>315</b>
<b>Non wild grass mix examples*</b>				
Agrostis capillaris @ £14.4/kg: 20%	14.4		28.8	43.2
Lolium perenne @ £2.7/kg: 80%	2.7		21.6	32.4
			<b>50.4</b>	<b>75.6</b>
Standard grass mix (timothy, sheep's fescue, meadow fescue, sheep's fescue, smooth meadowgrass [not suitable for chalk grassland restoration])	3.27		<b>32.70</b>	<b>49.05</b>
<b>Hybrid option</b>				
Non wild grass Agrostis capillaris/Lolium perenne @ 10kg/ha			50.4	
Wild seed @ 5kg/ha			140	
Additional seed			25	
			<b>215.4</b>	

\*other mixes of six or more species are also available. Price varies according to the species and proportion of agricultural varieties included.

Suitable crop-grown seed mixes (used in older projects) are expensive. The native seed supplement previously available under Countryside Stewardship (if obtained) of £250/ha covered only 25-30% costs of this seed. The advised sowing rate is 20kg/ha, although lower rates have proved adequate<sup>14</sup>. At current prices for a crop-grown mix sown at 20kg/ha the cost would be £645/ha. Defra now offers up to 100% seed costs for eligible projects.

<sup>12</sup> Wild-harvested seed price can vary depending on the contractor and arrangement. The price can be below £20/kg (or significantly less) for commissioned harvesting where the client provides the harvesting site.

<sup>13</sup> E.g. Varieties of Chewings Fescue, Crested Dog's-tail, Small Timothy

<sup>14</sup> 15kg/ha is an adequate sowing rate. A lower rate has also been successfully used at Heads Farm, Chaddleworth (10kg/ha). Charles Flower has demonstrated that species-rich grasslands can be successfully created using only a very small amount of wildflower seed within a grass seed matrix.

On the holdings which purchased seed wild-harvested seed in one case this cost was offset by 100% grant (special project/Countryside Stewardship). This project was managed by a professional ecologist with expertise in habitat restoration following a brief from the landowner to create traditional downland. Two other projects were supported by conservation organisations, which paid for the additional seed costs.

#### *Sale of wildflower seed*

On two farms, the created grassland (established with crop-grown seed) has been used to harvest seed which has been sold and has provided a useful income.<sup>15</sup>

#### *Specialist advice*

Several farmers who undertook projects that were reviewed were sufficiently clued up and did not need to buy in advice. For others this advice was a significant cost with very little reimbursement available under Countryside Stewardship agreements (£300 for a grassland management plan but no additional grant to cover costs of preparing the Stewardship application).

#### *Fencing*

Grant under Countryside Stewardship aims to cover the cost of materials and is currently about 30% of the total cost. In-hand farms can save on costs by using farm staff to erect stock fencing. One farm uses flexinet to graze created grassland on long-term set-aside. Another farm has spread costs to aid cashflow by carrying out reversion in stages (2003, 2004) and fencing in 2004 & 2005.

#### *Water supply*

The costs of installing a water supply are not necessarily significant (agri-environment grants aim to cover the cost of capital purchases) and were not investigated with the exception of one site. On this site, arable reversion took place on fields which had been grassland before the farm was completely arabilised; the infrastructure remained largely intact so works involved installing a small length of plastic pipe and a new water trough.

#### *Ground preparation & seed sowing*

This cost can be absorbed by in-hand farms which already have fixed costs (labour and machinery). On one site where farming is contracted out ground preparation & sowing cost (2003-2004) was approximately £71 per ha (stubble cultivation), £114 per ha for a bare fallow approach using a combination of spraying and discing to destroy set-aside vegetation during the summer prior to sowing. A risk of stubble cultivation is that Black-grass, other grass weeds and cereal volunteers may germinate after the optimal time for seed sowing, as happened on one site. The stale seedbed approach enables these to be controlled.

#### *Grassland management*

Topping costs around £17.50/ha. Topping was not a significant cost for in-hand farms but was a consideration on the contract farm during the initial establishment years when cashflow (expenditure before receipt of grant) is an issue. Logistics (timing, etc) were also more tricky on the contract farm where operations were directed by people (land agent & ecologist) not living close to the site.

Managing a site for hay, where there is no use for this on the farm, could cost in excess of £50/ha (or up to £25/ha for haylage) so is a management method that was used only intermittently on some of the mixed farms where the hay could be fed to stock.

All of the farms reviewed which had as their objectives the creation of species-rich grassland had access to livestock, essential for managing created grassland from the second year onwards.

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<sup>15</sup> Whole-field harvesting of some created sites will no longer be permitted where agricultural varieties have been sown since 1970 and the seed could be contaminated by these varieties.

For those holdings reviewed that were already mixed farms and especially for the organic holdings, income from the created grasslands are viewed as an integral part of the holding and contribute to the overall farm business. Three of the organic farmers sell their meat directly to the customer. One of these has both an organic farm shop and a pub where the farm produced is used. Several farmers mentioned the fact that animals grazed on the created grasslands had few health problems.

On one site reviewed, the farmer bought in cattle specifically to graze his set-aside land. This was a net cost to him. However, he is now planning to develop a livestock enterprise and welcomed the news of that cattle-grazing and native breeds supplement would be available in the near future.

On one site the created grassland feeds 12 riding school ponies from October-February without any supplementary nutrition, saving on feed bills. Lambs are also said to "fatten well" on this site.

Biennial and perennial weeds can be a problem on created grassland as it can be on other permanent species-rich downland, but this varies from site to site and is worse on pastures that are summer-grazed by cattle. One farmer stressed the importance of not grazing during the summer if invertebrate diversity was an objective. Another farmer outside the project area with considerable experience of grassland restoration, also advises against summer grazing, especially in the early years following establishment. One landowner had to withdraw his created grassland from organic conversion so that the field could be weed-wiped to get rid of creeping thistle.

#### *Income from Countryside Stewardship payments*

On one estate, this amounted to 25% the total farm income (all CS payments). Figures for other holdings were not available.

### **3. Current and future financial implications of converting arable land to species-rich grassland**

#### **3.1 Example balance sheets**

Two scenarios have been produced for creating species-rich grassland on ex-arable land. (See following pages). The first is for a contract-farmed holding, the second for an in-hand one. They are both on the basis that a wildflower seed mix is used and fully covered by HLS payment, that grazing is cost-neutral. They cover a 10-year period for a 15-ha site. Figures for year 1 are based on current prices. For full details see the Excel file for individual balance sheets (Chalk Grassland Balance Sheets). Arable Cropping Costs are given in Annex 4.

#### **3.2 Direct project costs**

The highest costs of undertaking a project are incurred in the first and second years. However, these costs can vary in different situations. Under the in hand scenario profit is not attained until year 4. On contract farms this is year 3.

The most significant costs incurred at the front end of a project and are the purchase of wildflower seed, capital works (e.g. fencing, water supply), specialist consultancy (e.g. ecologist/FWAG advice) and labour for operations where this is contracted out.

#### Wildflower seed

The cost of wildflower seed can now be reimbursed at 100% cost under the Higher Level Scheme or under an extended Countryside Stewardship Agreement, so seed cost is no longer an issue for farms which have an HLS agreement covering creation of species rich grassland.

## Financial scenarios (summary tables)

**All scenarios:** arable income is based on 100ha rotation of wheat (50%), field beans (17%), oilseed rape (25%) and set-aside (8%) with costs apportioned pro-rata. Other rotations with spring barley are likely to be practiced on some holdings and in some years. Income and costs will vary according to the precise rotations practiced and differing annual yields which will vary according to seasonal conditions and variable commodity prices.

Light chalk soils can be extremely good for growing spring barley and the net profitability per ha may be higher than the illustrative scenarios (up to £98/ha).

For details see the file Chalk Grassland Balance Sheets (Excel spreadsheets) [Print out as Annex 4 for hard copy].

**Table 3: Balance sheet for a contract-farmed holding HJ3 (Arable reversion to unfertilised grassland to prevent erosion or runoff) or HK8 (Arable reversion/creation of species rich grassland)**

Item	Cost and income per year										Total £/15 ha
	1	2	3	4	5	6	7	8	9	10	
<b>Net annual cost/income for 15 ha in HLS HJ3 or HK8</b>	<b>-£5,447</b>	£2,913	£3,175	£3,175	£3,825	£4,350	£4,350	£4,350	£4,650	£4,650	<b>£29,991</b>
<b>Annual cost/income per ha in HLS HJ3 or HK8</b>	<b>-£363</b>	£194	£212	£212	£255	£290	£290	£290	£310	£310	<b>£1,999</b>
<b>Comparative average income for a 15ha site from arable cropping rotation revenue @ £72/ha net (wheat yield 9.5t/ha, £70/t)</b>	£1,080	£1,080	£1,080	£1,080	£1,080	£1,080	£1,080	£1,080	£1,080	£1,080	<b>£10,800</b>
<b>Comparative average income for a 15ha site from arable cropping rotation revenue @ -£23/ha net (wheat yield 7t/ha, £70/t)</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£240</b>	<b>-£2,400</b>

**Table 4. In hand holding HJ3 (Arable reversion to unfertilised grassland to prevent erosion or runoff) or HK8 (Arable reversion/creation of species rich grassland) including farmers' fixed costs (labour/machinery) apportioned across the entire holding (£233/ha in year 1).<sup>16</sup>**

Item	Cost and income per year										
	1	2	3	4	5	6	7	8	9	10	Total £/15 ha
Net annual cost/income for 15 ha in HLS HJ3 or HK8	<b>-£75</b>	£370	£370	£370	£870	£870	£870	£870	£1,020	£1,020	£6,555
Annual cost/income per ha in HLS HJ3 or HK8	<b>-£5.00</b>	£24.67	£24.67	£24.67	£58.00	£58.00	£58.00	£58.00	£68.00	£68.00	£43.70
Comparative income for a 15ha site from: arable cropping rotation @ £61/ha net (wheat yield 9.5t/ha, wheat price £70t/ha)	£915	£915	£915	£915	£915	£915	£915	£915	£915	£915	£9,150
Comparative income for a 15ha site from arable cropping rotation @ -£47/ha net (wheat yield @ 7t/ha, wheat price £70t/ ha)	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£405</b>	<b>-£4,050</b>

<sup>16</sup> Costs of management (establishment, topping, fencing other than materials) are therefore not included as it is assumed these will be covered within the apportioned overheads (e.g. farm staff and machinery will be used for these activities). If this is not to be the case, then additional cost will be incurred (for fencing this will be significant – around £7,000 for contractor's costs).

**Table 5. Additional potential income for a 15ha site**

Item	Cost and income per year										
	1	2	3	4	5	6	7	8	9	10	Total £/15 ha
<b>Additional potential income per site: open access</b>	£965	£965	£965	£965	£1,035	£1,035	£1,035	£1,035	£1,090	£1,090	<b>£10,180</b>
<b>Additional potential income per site (educational access)</b>	<b>-£260</b>	£500	£500	£500	£520	£520	£520	£520	£530	£530	<b>£4,380</b>
<b>Mixed stocking option (Entry Level Scheme)</b>	£120	£120	£120	£120	£150	£150	£150	£150	£180	£180	<b>£1,440</b>

**Table 6. Single Payment estimates (illustrative only)**

Item	Cost and income per year										
	1	2	3	4	5	6	7	8	9	10	Total £/15 ha
<b>Single payment</b>	2,814	2,688	2,564	2,442	2,323	2,206	2,206	2,206	2,206	2,206	<b>£19,447.65</b>
<b>Per ha</b>	188	179	171	163	155	147	147	147	147	147	
<b>Year</b>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	

This is illustrative because the Single Payment is now divorced from specific land parcels. The farmers reference amount is also likely to be less than the estimate, which here is based on £241 AAPS. The regional element is based on 100% annual payment of £191.10/ha in 2012. This is the lowland regional element of the Single Payment determined by Defra and announced in February 2006. By 2010 this will be 100% the total payment minus modulation & other deductions (e.g. national reserve). Modulation may increase in the future, i.e. the total SP could be further reduced to pay for rural development schemes. The table includes all known deductions for modulation, national reserve and financial discipline but these could change. Figures beyond 2012 are not known.

For farms that do not wish to enter HLS or put new land into a 10-year agreement, seed cost is likely to be a barrier to creating species-rich grassland unless natural regeneration (perhaps with inoculation of smaller quantities of seed) is used.

#### Fencing

The second highest cost of an arable reversion project is fencing. Fencing does not necessarily have to be completed in year 1 but is usually completed within the first couple of years. The labour costs for fencing (around £7,000 for a 15-ha site) are not covered by grant under CS or HLS. In-hand farms cannot afford to use contractors to erect fencing – if they did the cost would negate any cost-benefit associated with created grassland HLS payments.

#### Specialist advice

The costs of professional advice are not fully covered by grant available under HLS. The financial scenarios have also factored in a support cost for a specialist to assist with monitoring the progress of the project for the first few years. This will be more important for some holdings than for others. On top of the specialist, land agency fees will be additional for contracted farms.

#### Water supply & other infrastructure

This cost will vary considerably between farms but is unlikely to be overly significant.

#### Ground preparation and sowing seed

This is significant where farm operations are contracted out – this is greatest if the stale seedbed method is used (around £1700 contractor's cost for a 15-ha site). This cost may be reimbursable through HLS.

#### Labour costs in hand v contract farms

Externalised costs are greater where farm operations are contracted - holdings farmed in hand can more easily absorb labour costs which are already a fixed cost to the holding.

For contract-farmed holdings, externalised costs will be a continuing issue where ongoing management involves contracting out operations (see below). However, these are not significant in relation to the income expected from the Higher Level Scheme grassland options.

#### Grassland management and livestock

The highest management costs will normally be incurred in the first year after establishment, when regular topping is required to prevent the establishment of undesirable weeds. Topping may also be required in subsequent years, depending on weed burdens and the grazing regime. Livestock will be a net cost if fencing and other infrastructure or equipment are required, animals have to be purchased or grazing paid for.

### **3.3 Income from created grasslands**

#### Income from agri-environment payments

Agri-environment payments under Higher Level Scheme (HLS) for arable reversion to species rich grassland and natural regeneration (historic option) offer assured net cash income and profit.

Net profit appears to be significantly greater for contract farms than for farms in hand, but this does not take into account income generated from livestock enterprise on mixed or organic holdings, and the fact that apportioned fixed costs include the farmers own salary.

**Table 7: Relevant grassland options under Higher and Entry Level Schemes**

Option	Scheme	£ per ha
Creating species-rich grassland	HLS	280
Arable reversion to unfertilised grassland for erosion control	HLS	280
Restoration of species rich grassland	HLS	200
Natural regeneration (historic option)	HLS	500
Permanent grassland with very low inputs	ELS	150
Take archaeological features out of arable	ELS	460
Mixed stocking	ELS	8
Grant for native wildflower/grass seed	HLS	Up to 100%

Under the contract-farming scenario the net profit is around £200/ha net return per year for the created grassland option. Net profit for farms in hand looks a lot lower when fixed costs for arable operations (£233/ha in year 1) continue to be apportioned across the grassland site. Using this scenario the net profit per ha is around £44/ha. However, included in the deductions will be an amount to pay the farmers own salary.

The historic option, available for protecting archaeological features, under HLS provides an attractive return (an additional £250/ha). The substantial financial reward should outweigh perceived business risks associated with taking land out of intensive production.

Based on estimates for a 15-ha site, good additional income is available for access options (c. £1000/year net for open access, £440 net/year for educational access).

An additional £8/ha is available through the Entry Level Stewardship mixed stocking option EK5 (£120 p.a. for a 15-ha site).

The financial scenarios can only be used as a guide. Each farm will need to put in its own figures to work out what is actual return might be. This would be more realistic using known cropping yields from sites identified as having potential for arable reversion. Sites yielding less than 7.5t/ha wheat on all farms, for example, will be losing money, making HLS income worthwhile. For contract farms, the HLS payment is substantially worthwhile, even on high-yielding sites.

Some farmers may be reluctant to enter into the Higher Level Scheme as they do not want to tie their land into a 10-year agreement. The Entry Level Scheme (ELS) is a simpler and five-year agreement and provides an alternative opportunity for farmers to put land into permanent grassland (not necessarily species-rich) and be paid for this. Taking archaeological features out of cultivation is worth 460 points/ha (equivalent to £460), Permanent grassland with very low inputs is worth 150 points/ha. The mixed stocking option (£8/ha) can also be paid on land under a Higher Level Scheme Agreement.

*Income associated with sale of livestock and products*

This cannot be predicted with any certainty. Income from lowland livestock enterprise is predicted to fall by over 6% in 2006.

**3.4 Indirect financial implications and business risks associated with converting arable land to permanent grassland**

Single Payment

The Single Payment is not attached to specific land parcels so must be considered as a separate income stream in relation to what happens (cropping or otherwise) on any particular piece of land.

However, cross-compliance and the requirement for soil management plans in return for receiving the Single Payment will put additional pressure for farmers to withdraw marginal and “difficult” land from intensive arable cropping. This will make ELS and HLS grassland options look particularly attractive on these areas.

#### Spreading fixed costs

Arable holdings farmed in hand have fixed costs that are apportioned across the holding (£233/ha has been used for financial scenarios). Reducing their arable acreage will mean costs are spread across fewer hectares, and profitability per ha will decrease. For this reason there may be a reluctance to decrease the area under arable. This was a concern mentioned by several farmers interviewed for this contract.

Holdings farmed under contract with share farming agreements will also not want to reduce their arable acreage substantially if it risks their contractors’ business.

#### Income from arable cropping

Profitability from arable cropping is uncertain in the future. Net farm income from arable crops is predicted to decline. Several farmers interviewed said that arable cropping in 2004 was at best “break even” and the same was expected for 2005. Without the cushion of AAPS, and with Single Payment providing much reduced baseline cash, arable cropping is a significant business risk.

In the future, there could be a decent income associated with energy crops although the amount of land that can qualify for this subsidy will be restricted. Farmers might wish to “wait and see” what the potential markets and income from this source might be before committing to long-term arrangements which will take arable land out of production. Energy crops can also be grown on set-aside land – which may put pressure on farmers to put marginal areas under set-aside (rather than an ELS/HSL grassland option) to fulfil their set-aside quota

#### Losing flexibility: 10 year whole-farm agreements

A number of farmers expressed concern about entering the whole of their farm into a 10-year agreement (necessary under Higher Level Scheme). This might risk losing good income from arable cropping. There are also some fears that they might not be allowed to cultivate the ground again as other regulations will kick in (e.g. Environment Assessment of uncultivated land, restrictions on ploughing land associated with Scheduled Ancient Monuments).<sup>17</sup>

## **4. Chalk grasslands in the future**

### **4.1 SWOT analysis – constraints and opportunities**

The following bullet points have been extracted from Annex 2 tables which should be referred to for the comprehensive analysis.

#### *Strengths and opportunities: financial*

- Good Higher Level Scheme grants & payments for grassland projects
- Good grants for access options
- Single Payment cross compliance requirements (likely to release marginal land)
- Poor profitability of arable cropping on marginal land
- Agri-environment options for created grassland are more profitable than farming on marginal land

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<sup>17</sup> The EIA regulations are unlikely to pose a restriction following the recent Vixen Tor ruling (landowner permitted to restore land to its previous degree of productivity).

- Historic options will be more profitable than arable cropping on many sites, even higher-yielding sites
- Payment to graziers if new livestock support payments under HLS can be accessed

*Weakness: financial*

- Fencing costs & expert advice not fully covered by agri-environment payments
- High initial expenditure for created grassland projects detrimental to farm cashflow
- Future income from conventional farming is unknown
- Fixed costs spread over smaller area if grassland created

*Opportunities/strengths: livestock and livestock enterprises*

- Freelance graziers with own livestock
- Non permanent fencing
- New HLS payments proposed to support livestock
- Marketing initiatives (e.g. local food groups, farmers' markets)
- Cooperation between adjacent landowners
- Organic conversion
- Native breeds
- Rural Development Programme diversification grants
- Market stimulation by withdrawal of 30-month rule and reinstating live exports

*Weaknesses: livestock and livestock enterprise*

- No livestock on farm or nearby
- No desire to have livestock
- No infrastructure, labour or equipment for managing livestock
- Insufficient grant to cover costs of infrastructure for keeping livestock
- Isolated parcels of grassland – no critical mass for a commercial livestock enterprise
- Not commercially viable.

*Threats: Livestock enterprises and facilities*

- Increasing areas of grassland: competition for graziers?
- Abattoir closures
- Disturbance (dogs, etc) from public access (e.g. adjacent to ridgeway land)

*Weakness: information*

- Insufficient knowledge/understanding about native flora and restoration methods among some farmers, professionals and officers who advise farmers
- Messages for chalk grassland restoration swamped by information about other agri-environment options

*Strength: information*

- Industry sign-up to agri-environment
- Good level of advice and information available (FWAG, other consultants, Defra, Flora locale, etc)
- Existence of successful schemes that can be visited/demonstrated

*Opportunities: information*

- Training and demonstration events for farmers and advisers utilising existing projects and local experts
- Information leaflet about restoring chalk downland

*Strength: farmer/landowner confidence & enthusiasm*

- Farming industry sign-up to agri-environment
- Farmers who have completed successful projects
- Opportunity for pre-application discussion with RDS officers
- FWAG workshops and farm walks

*Weakness: farmer confidence, etc*

- Fears and reluctance about taking land out of commercial food production
- Competitive nature of HLS – applications are not guaranteed success
- Worries about irreversibility of creating “permanent” species-rich grassland (EIA regs, CROW, etc).
- Fears over tying up land for 10 years
- Disinclination to put all farm into an agreement
- Disinclination to sign up to any type of government agreement<sup>18</sup>

*Weakness: seed*

- Insufficient forward planning/ordering for seed
- Rarer species not available off-the-shelf
- Unsuitable grass mixtures (views differ over this)
- Paucity of suitable seed donor sites
- Under-use of existing high quality sites for seed donation.

*Strength: seed*

- Local seed suppliers/contractors are available
- Other suppliers outside the area have suitable seed
- Register of seed donor sites<sup>19</sup>

*Opportunities: seed*

- Natural regeneration
- Special seed collections of rarer species
- Cold storage facility available in North Wessex Downs enabling seed to be kept over-winter
- SSSIs where low-key seed harvesting (e.g. using lawnmower or Rekord pedestrian harvester) could be carried out
- Created sites using wild-seed of known origin: current & future donor sites.

*Weakness: land*

- Suitable land is already designated set-aside
- Period of agri-environment agreements doesn't guarantee survival of a created site in the long term

*Strengths/opportunities: land*

- Marginal land available: transferred out of intensive production due to cross-compliance
- Archaeological features: high HLS payment should release land for grassland restoration
- Land acquisition/management agreements by conservation organisations
- Lots of existing grassland can be enhanced (see 4.2 below).

*Opportunity: public access*

- Good level of support under HLS access options

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<sup>18</sup> One farmer reckoned this applied to about 10% of landowners/farmers

<sup>19</sup> Partially completed for the Downland Heritage Initiative Area (Wiltshire) by Jemma Batten, 2005

## **4.2 Opportunities for enhancing existing swards**

Sward enhancement with wildflower seed has not been widely practised as yet.

Simple methods such as collecting seed from existing grassland and sward inoculation (over a period of years) could be widely practiced at little cost. Seed collection could be by hand or using a standard 2-stroke lawn mower with collection bag. Alternatively small quantities of brush harvested seed or crop-grown seed (source identified) could be purchased and used.

Farmers having existing Countryside Stewardship schemes with poor arable reversions on suitable sites might be willing to undertake enhancement providing the information and possibly assistance from a specialist (e.g. to collect seed) is available.

A "package" of support might be worth considering to provide this kind of "top up" service to existing agreement holders on land they have already under a grassland option. This could be an add-on to an existing stewardship agreement, e.g. paid for under the "Special Projects" category. Payment would need to cover cost of seed collection, ground preparation operations (e.g. knapsack spraying patches on the sward or discing) and sowing. Some farmers would probably undertake this work themselves if they were given suitable guidance. NNRs and county wildlife trust sites could be made available for this type of seed collection under licence at no fee.

A suitable enhancement project would attract an annual management payment from either CS or HLS under the grassland restoration option (£200/ha).

Information on techniques is available in the Flora locale publication *Bringing back the meadows: Enhancing the diversity of semi-improved grassland*.

## **4.3 SSSIs and nature reserves as seed banks for restoration**

The SSSI resource (with a few exceptions) is not being well used in terms of providing seed for habitat expansion.

One way this could change is for a selection of sites, such as Pewsey Downs, to be the focus of concerted seed harvesting operations over the next few years to provide seed for inoculating new sites. This seed harvesting could be cheap and small-scale (i.e. using petrol lawn-mower & collection bag) to focus on suites of species that are not usually available through brush harvesting or as crops<sup>20</sup>. Collected seed could be held in cold store if not used the same year and given to farmers free of charge. The Natural England partnership could be invited to fund this exercise as a special project, perhaps for a period of three years.

Other commercial operations could be encouraged to carry out field-scale harvesting of the few suitable donor sites that are available in order to provide assured supplies (in quantity) of wild-harvested seed (but they will only do so if there is an assured market).

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<sup>20</sup> E.g. Pewsey has Burnt Orchid, Butterfly Orchid, Milkwort & Horseshoe Vetch growing abundantly together.

## **Annex 1: Notes to accompany the financial scenarios**

### **Establishment cost**

Costs are based on the stale seedbed approach which is quite labour intensive and therefore incurs a significant cost for contracted-out farms in year 1. (Scenario 1b) Cost will be lower under this scenario if the post-stubble cultivation method or natural regeneration is used.

### **Seed**

It is assumed that the cost of seed is covered by 100% grant under the Higher Level Scheme.

### **Fencing**

In all scenarios the following parameters were used:

- Fencing done by contractors: a unit cost of £700 per ha and an assumption that for a 15ha field this would be approx 1700 metres (based on an actual cost incurred for one site reviewed in this report)
- Fencing done in hand: labour cost is estimated as nil as labour is a fixed cost spread over the whole holding
- Cost of materials: it is assumed that the HLS capital grant will cover 100% the cost of materials.
- An assumption that sites will be fenced. However, it may be plausible for some sites to be grazed without permanent fencing. As this is a high capital upfront cost if permanent fences are not erected then the annual and 10-yearly profit margins arising from created grassland projects will increase for farms which are contracted out or for in hand farms where fencing is contracted out.

### **In hand scenarios: fixed costs**

A fixed cost apportioned across the whole holding for labour and machinery operation has been estimated for each year, regardless of the labour or machinery input on the restoration site. Labour cost for specific works, such as fencing is therefore calculated as nil as it is covered by the apportioned overhead.

Figures for fixed costs are based on estimates for 2006 and have been provided by Paul Pickford (Masstock Farl Consultancy). These costs will obviously vary according to the size of the holding (increasing with smaller than average holdings, decreasing for larger than average holdings).

This figure will vary from holding to holding and has the potential to be highly variable.

### **Annual payments from Higher Level Scheme**

This assumes an increase in payment rates every four years.

### **Consultancy advice**

Some estimates have been used to include here some figures relevant to the created site for the costs of consultants employed to prepare a Farm Environment Plan and Grassland Management Plan. Similarly, a figure has been estimated to cover grant income under HLS for preparing a FEP based on a holding between 201-500 ha.

For the first few years it is assumed that the consultancy will be required to assist with site monitoring and advice (one day per year @ £350/year)<sup>21</sup>.

### **Land agency – contracted out farms**

Again, this figure could be highly variable from holding to holding and would be lower per ha on larger units. A guesstimate of £10/ha for a farm of 350 ha has been used as a baseline for the contracted-out scenarios.

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<sup>21</sup> This is FWAG's current daily charge

### **Grazing**

There is an assumption of nil income for grazing. However, income from grazing and sale of livestock will be possible for some holdings which already have mixed enterprises or are planning to restore mixed farming enterprise, including those which are considering organic conversion. On some sites it is plausible there will be a net cost of grazing but this cannot be predicted.

### **Loss of arable cropping revenue**

The estimates for cropping revenue and costs were provided by Paul Pickford, Masstock Agricultural Consultancy.

Based on these, some guesstimates have been made based on an arable rotation of beans (17%), wheat (50%), oilseed rape (25%) and set-aside (8%) using estimated cropping costs and income, taking into account in-hand labour and machinery operation costs.

### **Single payment**

This will vary from holding to holding and the figures included are illustrative only based on figures released by Defra in February 2006. However, the % modulated rate could increase in the future to pay for rural development expenditure. This would confer greater advantage to those farms which have entered the Higher Level Scheme, and would further reduce margins on conventional farms.

### **Access options**

The Education Access option assumes a specialist/consultant will supervise the visits but if this is done by farm staff then there will be an extra £100 per visit income to the farm.

Access payments assume an increase to cover inflation every four years.

## **Annex 2: Identification of constraints and opportunities**

The systems approach<sup>22</sup> is basically to identify:

- purpose
- who has needs
- identify how these needs can be met
- what bridges and barriers exist

This section of the report completes these three steps.

I have also included the findings relating to constraints and opportunities detailed in Jemma Batten's report.

Subsequent aspects of the systems approach that need to be informed by consultation with stakeholders are to identify:

- how can bridges be exploited or barriers removed?
- Who will take what actions and when

This needs to be followed by a monitoring/audit process to check that "are we achieving what we intended to achieve?"

### **A.1 Purpose**

To persuade farmers and landowners to undertake projects that will create new species-rich chalk grassland in the North Hampshire target area of the North Wessex Downs.

Objective 12 of the North Wessex Downs AONB Management Plan is:

"To protect, restore, and appropriately manage all existing areas of semi-natural chalk grassland and achieve a landscape scale increase in the extent of this habitat, focused on expanding and linking existing areas".

### **A.2 Who has needs?**

There are two stakeholder groups. Group A (farmers and landowners) has a varied profile; data was not collected to identify the profile spread in the project area. There is likely to be a variety of needs and aspirations within this group.

#### **Group A. Farmers and landowners**

- i. Those who manage their farms "in hand" (i.e. family farm and/or employed labour):
  - Tenant farmers (farms owned by someone else)
  - Landowners who have direct control over the management of their farm/estate
- ii. Farms managed under contract on behalf of a single landowner or trustees of an estate
- iii. Grazing tenants who graze land under annual licence or who have no formal agreement over land which they graze

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<sup>22</sup> See [www.mindworksonline.com](http://www.mindworksonline.com)

Further subsets:

- a. Farmers/landowners committed to wildlife conservation, some of whom are willing to subsidise conservation projects out of their own pockets or from their other business activities. This includes conservation bodies that own land (e.g. National Trust). In the future there may be an increasing number of "new" landowners in this category.
- b. Farmers who are interested in wildlife conservation and delivering other environmental goods but who cannot afford to without subsidy or do not wish to subsidise projects out of their other business activities
- c. Farmers who are not at all interested in wildlife conservation or delivering other environmental goods over and above what they must do in order to receive the Single Payment (cross-compliance) or qualify for Entry Level Stewardship

### **Group B. Agencies having a stake in the North Wessex Downs Chalk Grassland Strategy**

These include:

- Voluntary conservation bodies
- Natural England partnership (English Nature and Defra/RDS)
- Local authorities
- Other organisations represented on the North Wessex Downs Management Board

## **A.3 What are the respective needs and aspirations of each group?**

### **Group A: Farmers and landowners**

If farmers and landowners are going to undertake successful downland creation projects they will need:

- **Information** about how to go about downland creation/enhancement and what sort of land is suitable
- **Commitment, enthusiasm and confidence** to restore downland biodiversity
- **Suitable land**
- Access to supplies of suitable **seed** and information on where to get seed from
- **Access to livestock, labour and infrastructure to manage livestock**
- **Sufficient income** to make projects worthwhile to the farm business
- **Ability to manage public access** (not in all cases)

### **Group B: Conservation groups (Chalk Grassland Strategy)**

The need in relation to the current project (this contract) is:

- Restoration/re-creation of species-rich downland

This is also a means of protecting and restoring the existing downland resource by extending it and buffering it from intensive farming practices.

The needs of this group are:

1. long term: they wish to see the resource of "traditional downland" extended and maintained in the long term. Short term projects with no guarantee that created grassland will be there in the future, will be of no use.
2. driven by Biodiversity Action Plan targets that have been agreed nationally and defined locally through local Biodiversity Action Plans and focused initiatives including the North Wessex Downs AONB Management Plan and Chalk Grassland Strategy.

The need to protect and restore the existing downland SSSI resource is also driven by national government public sector agreement targets that the RDS partnership organisations must deliver by 2010.

**Table A.1 What needs do farmers have in relation to achieving the Chalk Grassland Strategy objectives for extending downland?**

Need	How can the need be met	By who
<p><b>Information</b> about:</p> <ul style="list-style-type: none"> <li>• What outcomes are needed</li> <li>• Why projects are important</li> <li>• What land is suitable: physical characteristics, location, etc.</li> <li>• Methods to use</li> <li>• Seed: species, mixtures, where to get it from</li> <li>• Costs and sources of grant</li> </ul>	<ul style="list-style-type: none"> <li>• Visits to farms where successful projects have been completed</li> <li>• Workshops for farmers (that include site visits)</li> <li>• Provide information (printed and online)</li> <li>• One-to-one visits and advice</li> <li>• Preparation of Farm Environment Plan</li> </ul> <p>Provide signposts to available information and expertise</p>	<p>Specialists and agencies: Farm advisers (agri-environment consultants, FWAG, RDS, RSPB, Environment Agency)</p> <p>North Wessex Downs AONB partnership</p> <p>Flora locale (information &amp; training)</p> <p>Other farmers (who have done successful projects)</p> <p>Farming organisations (NFU, CLA, etc)</p> <p>All the above as well as Agronomists, Land Agents, Farming Organisations and farming press</p>
<p><b>Commitment, enthusiasm, confidence</b></p>	<p>As above</p> <p>Financial incentives (grants)</p> <p>Other financial incentives (management agreements)</p> <p>Disincentives that discourage intensive farming on marginal land: Regulation e.g. Cross-compliance making intensive farming less profitable on marginal land</p>	<p>As above</p> <p>RDS</p> <p>Voluntary conservation bodies: RSPB, local wildlife trust, local authorities</p> <p>Defra, Environment Agency</p>
<p><b>Land</b> suitable and available for arable reversion or sward enhancement, on chalky soil, preferably on sloping ground with a southerly aspect and low fertility.</p>	<ul style="list-style-type: none"> <li>• Convert existing arable land to created grassland</li> <li>• Convert existing set-aside land to species rich grassland (method chosen will depend on vegetation that has developed)</li> <li>• Convert other species-poor permanent grassland or ley to species-rich grassland</li> </ul>	<p>The landowner or farm tenant</p>

<p><b>Seed</b></p>	<ul style="list-style-type: none"> <li>• Purchase by advance order in May: wild-harvested seed</li> <li>• Purchase crop-grown seed</li> <li>• Collect small quantities from existing grasslands by hand or using manually operated machinery (e.g. lawnmower with collection bag, strimmer)</li> </ul>	
<p>Access to <b>livestock, infrastructure for managing livestock, supplementary forage</b></p>	<p><b><u>Access to livestock</u></b>          Use livestock already available on the farm (existing mixed enterprise) and that can be used or the flock/herd increased to graze created grassland.</p> <p>Livestock can be bought in specifically for managing the created grassland and then sold on every year.</p> <p>Use livestock from somewhere else and managed by someone else</p> <p>Set up local grazing project</p> <p><b><u>Infrastructure for managing livestock: fencing</u></b>          Erect permanent (new) fencing: grant needed to support costs          Use temporary fencing          Use a mix of both</p> <p><b><u>Pens/crashes for handling livestock</u></b>          Provide grant          Borrow from (share equipment) with others</p> <p><b><u>Supplementary forage</u></b>          Provide using forage crops/other pasture on farm          Buy in supplementary forage (feed off-site)          Move off-farm</p>	<p>The landowner or farm tenant</p> <p>The landowner or farm tenant</p> <p>Neighbouring farm or freelance shepherd) with his/her own livestock.</p> <p>NWDAONB</p> <p>Grant available from RDS.</p> <p>Grant available via HLS agreement</p>
<p><b>Income</b></p>	<p><b><u>Agri-environment grants</u></b></p> <p><b><u>Sales of livestock (live) and meat</u></b></p> <ul style="list-style-type: none"> <li>• A market for livestock or livestock products</li> <li>• Abattoir to process finished stock: Abattoirs within easy reach, not necessitating long distance travel of animals. Abattoirs that can handle small nos of animals and also large numbers. Abattoirs that fulfil standards for organic produce.</li> </ul>	<p>RDS</p>

<p><b>Ability to manage public access</b> so that it does not interfere with farming or wildlife</p>	<ul style="list-style-type: none"> <li>➤ Maintain public rights of way.</li> <li>➤ Provide managed permissive access (linear, open) and/or educational access</li> <li>➤ Provide information for the public: signs, interpretation</li> <li>➤ Install and maintain infrastructure: stiles, gates, etc.</li> <li>➤ Implement access restrictions at sensitive times</li> <li>➤ Provide teachers packs for educational access.</li> </ul> <p>Information, guidance, grant &amp; other relevant support (e.g. signs) enabling farmers to achieve the above.</p>	<p>Farmer/landowner</p> <p>Specialist advisers</p> <p>RDS; local authorities</p>
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**Table A.2 Barriers and bridges in relation to creating species-rich chalk grassland matched to needs of Group A**

Barrier	Bridge
<b>Information</b>	
<p><b>Lots of other options are being publicised</b>                      Messages relating to creating species-rich grassland are swamped by the plethora of other options available under agri-environment, which are easier for farmers to implement. E.g. stubbles, skylark plots.<sup>23</sup>.</p> <p><b>Insufficient knowledge and understanding</b>                      Among farmers, land agents and agronomists, there is a lack of knowledge and understanding of what a species-rich grassland looks like and how it can be created.</p> <p>There is a concern that there may be insufficient knowledge held by RDS/RDS advisers who visit farmers to advise over HLS.</p>	<p><b>Industry sign-up</b>                      There is encouragement from within industry to support biodiversity initiatives (although this tends to be mainly publicity about arable “add-ons” such as skylark plots which do not involve a major change in land use).</p> <p><b>Information &amp; advice</b>                      There is a lot of good quality information about creating new grasslands available from Flora locale and Defra. <b>This needs to be publicised better within the target areas and to target audiences so that opportunities for grassland projects on the ground are identified and supported.</b></p> <p>There is a good knowledge-base among some specialist consultants and agency staff about species-rich grasslands and how other holdings have successfully integrated them into their livestock enterprises. (There is a need to ensure that all advisers who visit farmers in target areas have the necessary knowledge or know someone to call on who has.)</p> <p><b>There is a potential to produce a specific information leaflet</b> for farmers, land agents, etc about restoring and extending the downland heritage targeted to farmers in key areas – perhaps this could be a leaflet jointly produced by adjoining AONB partnerships.</p> <p><b>New projects</b>                      There are several new projects/initiatives operating in the NWDAONB with the potential for advisers employed by them to be used to promote downland restoration (e.g. EA catchment project officers). <b>There is likely to be a training need among new advisers.</b></p>

<sup>23</sup> This is my perception

<p><b>Training and demonstration</b> There are as yet insufficient training/demonstration events organised so that farmers can see for themselves successful projects and gain understanding of what outcomes can be expected and how they can be achieved.</p>	<p><b>Training and demonstration events</b> There are a number of successful schemes that farmers/land agents/agronomists and Defra/RDS advisers can visit and so enhance their understanding and appreciation of the habitat and how to achieve successful outcomes. <b>There is a need for training and demonstration.</b></p>
<p>There are too many advisers visiting farmers from different organisations</p>	<p><b>Linking up advisers</b> The NWDAONB partnership has recognised the need for different organisations to work together and is developing a communications network to minimise farm visits from different people.</p>
<p><b>Commitment, enthusiasm &amp; confidence</b></p>	
<p><b>Farmer/land agent perceptions</b></p> <ul style="list-style-type: none"> <li>➤ historically, farms good for wildlife have been viewed as not necessarily good for farming</li> <li>➤ major land use change (i.e. conversion of arable to permanent grassland) is viewed by some as threatening livelihoods (e.g. arable contractors)</li> <li>➤ taking land out of arable production may be viewed as contrary to common sense and the perceived need for land to grow food to feed the population</li> </ul> <p>Note: this is likely to be a significant barrier in relation to some holdings but not for others.</p> <p>There is also a legacy of past experiences and disappointments with CS arable reversion projects which have usually used unsuitable grass mixtures.</p>	<p><b>Encouragement from farming groups</b> Farmers are reported as being generally “enthusiastic” about agri-environment schemes (NFU, 2006). Farmers are being encouraged by farming organisations to embrace agri-environment schemes. FWAG &amp; Defra are providing lots of support and information for farmers.</p> <p><b>What other farmers have achieved</b> Experience, enthusiasm and knowledge of others farmers and agencies (e.g. National Trust) who have completed successful species-rich grassland schemes.</p> <p>See “Information” above. <b>There is a particular need to communicate information about optimal grassland management in early years and to ensure that the most appropriate seed is used.</b></p>
<p><b>Insufficient confidence: fear that HLS may be applied for but turned down</b> The scheme is competitive and in the past a proportion of farmers who have applied for CS were refused agreements.</p> <p>Problems in receiving correct maps has precluded some farms from entering schemes to date (some holdings still do not have correct maps).</p>	<p><b>Conservation organisations as landowners</b></p> <p><b>Pre-application discussion opportunities</b> RDS advisers want farmers to talk to them about their ideas prior to completing the FEP. This will help to weed out applications which might be unsuccessful and identify opportunities/farms where HLS will provide most benefits and where applications are likely to be successful.</p>

<b>Seed</b>	
<p>Insufficient knowledge about where to get seed from: a barrier in the past but this should not be an issue in the future.</p> <p>Inadequate supplies of wild-harvested seed? Seed is often ordered late in the summer when stocks are running low or not available. (Wild-harvesting is carried out in July and is often dependent on contractors having prior orders.)</p> <p>Wild-harvested seed mixes contain no late-flowering species.</p> <p>Rarer species are not available. E.g. milkwort, early/autumn gentian, horseshoe vetch, orchids.</p> <p>Commercial grass mixes may contain unpalatable amenity varieties such as Chewings Fescue or other unsuitable species such as Cocksfoot.</p>	<p>Information on suppliers of suitable seed can be provided by farm advisers (FWAG, RDS, etc). Register of seed donor sites is being compiled by North Wessex Downs AONB.</p> <p>Seed-harvesting contractors that have businesses in/close to NWDAONB.</p> <p>Advance planning will enable needs to be identified and planned for and contractors will then be able to know what they need to do. Off-shelf wild-harvested seed is available from Emorsgate Seeds (Cotswold origin – which is suitable for this area).</p> <p>Go for natural regeneration (with inoculation where appropriate) – requires less seed and is cheaper.</p> <p>Availability of cold store @ Flower Farms funded by NWDAONB: should enable surplus seed collected in any year to be stored until a use is found for it.</p> <p>Crop-grown seed of these species (source-identified) is available from Flower Farms and Emorsgate Seeds and can be added in small quantities.</p> <p>Rarer species not usually in crop-grown or wild harvested mixes could be collected as a special project and put into cold store for future use. <b>Potential project.</b></p> <p>Natural regeneration option or using wild-seed is preferred and recommended by Defra under HLS created grassland option (species-rich grassland).</p> <p>Lots of SSSIs/high quality grassland on the Wessex chalk where low-key seed harvesting could be undertaken.</p> <p>Created grasslands that have used wild-harvested seed of known origin: future seed donor sites.</p>

<b>Land</b>	
<p><b>Low yielding land is already in set aside</b> Steepest ground with lowest yields may have already been taken out of production as set-aside. If taken out of set-aside other land must be found on the farm to satisfy the current 8% requirement for set-aside.</p> <p>There is no other suitable land that is available.</p> <p><b>Set-aside land might not be needed in the future</b> The set-aside requirement might be removed in the future – which will increase net profitability per ha for in hand farms by spreading fixed costs.</p> <p>Set-aside entitlements can be transferred, enabling all land on a holding to be put under arable which may increase profitability in a good year and enable spread of fixed costs (but reduce profitability in years of low commodity prices).</p> <p><b>Reducing arable might put contracts at risk</b> For arable holdings farmed under contract with divisible profit agreements it is a risk that contractors will pull out if the area of arable is significantly reduced. [On one case study farm this was a reason given by the managing agent for not including more land in an arable reversion to grassland option.]</p>	<p><b>Cross compliance – required if Single Payment is to be received</b></p> <ul style="list-style-type: none"> <li>• Soil plans will identify land at risk of erosion where cultivation should be avoided and where arable reversion is an economically attractive option: this ought to release to grassland or set-aside on steep ground, other land where soil humic layer has gone and land above spring lines or winterbournes</li> <li>• restrictions on fertiliser use relating to Nitrogen Vulnerable Zones (NVZs) are likely to make arable crop yields lower and hence arable crops less profitable; areas of least profitability may be to be taken out of arable</li> </ul> <p><b>Unprofitability of marginal land for cropping</b> If what yields are 7.5t/ha or less and wheat price &lt;£70/t it will be more profitable not to crop the land. (See “income”).</p> <p><b>Archaeological sites</b> These attract a very high payment, which should release land for grassland restoration.</p> <p><b>Land ownership</b> Future potential for conservation organisations to purchase land for restoring chalk grassland.</p>
<p><b>Fear that created grasslands under a 10-year agreement will be irreversible</b> It is a perception that once arable is put into permanent grassland regulations in force may prohibit its future cultivation. Farmers may wish to keep their options open by continuing to cultivate.</p> <p>The perceived business risk associated with taking land out of arable production for 10 or more years may preclude some farms from entering an HLS agreement, extending their CS agreement or transferring an existing CS agreement into HLS.</p>	<p><b>EIA regs recent ruling</b> A recent ruling at Vixen Tor would suggest the fears are unfounded insofar as areas not affected by historic features are concerned<sup>24</sup>.</p> <p><b>CROW Act and access land: facts</b> Mapping confers no protected status – access land can be ploughed if it is not designated SSSI. Mapping is subject to 10-year review. New land identified as semi-natural will be subject to consultation and appeal and there is no guarantee that created grassland will be</p>

<sup>24</sup> In this case the landowner’s improvement of land mapped as moorland was considered as works that returned the land to a previous state, whereby it had been subject to liming, etc. in the past. This judgement has not been tested by the European Courts however.

Existing CS agreements do not cover the whole farm and existing agreement holders reaching the end of their term may not want their whole farm to be covered by a 10-year agreement.

EIA regulations over uncultivated land: EIA legislation states that any change of use of agricultural land must not be detrimental to the environment.

Historic option under HLS: it is possible that once historic features have been protected from cultivation then re-cultivating may not be allowed in the future. There are restrictions on cultivating land associated with Scheduled Monuments after 6 years. Under the EIA regulations it is possible (but by no means certain) that, once grassed over, any archaeological remains could be cultivated in the future as this would be detrimental to the historic environment.

**CROW Act**

There is a worry that created grassland will be mapped in the future as access land (down) which will in turn restrict what they can do and encourage public access in areas where they do not want to see public access.

described as being semi-natural. Since the CROW Act there is no evidence that more people are coming into the countryside to visit access land. **There is a need for agencies to reassure landowners over this.**

## Livestock and associated resources for grassland management

No desire to have livestock because livestock keeping doesn't fit with the farm business & resources. There may be no infrastructure or labour on the holding for managing livestock. Fencing is too expensive, and only materials are covered by grant (negative affects farm cashflow).

Sites most suitable for arable reversion may be distant from the farm with consequent high costs in terms of labour for daily checking of animals.

Isolation of grassland sites: no critical mass for a commercial enterprise.

The farm has no machinery for grassland management.

There is a shortage of livestock in some areas (situation varies); livestock may not be available when required.

Livestock are unprofitable (see "Income")

### Horses

There is a presumption against horses being the principle grazing livestock although used well they are highly suitable. This was identified as a concern by one farmer interviewed, who currently manages a created species-rich grassland by horse-grazing.

### Public access and disturbance

There may be fears that on sites where there is public access this may be detrimental to livestock.

Existing graziers may increase their flocks/herds to exploit free grazing opportunities.

New supplements (if available) could be passed on (by agreement holders) to freelance graziers to support expanded/new enterprises. If grazing can be found and at no cost to the farmer it is cheaper to graze grassland than to top it. See "Income".

Fencing may be un-necessary. Costs could be spread over the first few years. Sites could be managed by topping in the first two or three years.

Machinery rings.

Proposed Grazing Animals Project. *Is there an opportunity for cooperation between landowners, local authorities and conservation agencies to achieve a landscape-scale downland project and achieve a critical mass of grassland in target areas that would be commercially viable or could attract other financial support? Funding opportunity: Landfill tax Biodiversity (contact Suzanne@naturebureau.co.uk).*

### Flexibility under individual agreements

If it can be shown the site is suitable, and horse-grazing can be appropriately managed, Defra may allow horse-grazing.

### Public access and disturbance

See public access section.

## Income

### Arable farming might be profitable in the future

The future profitability of arable farming is unknown: it might be very lucrative and then again it might not. Support might be introduced for new crops; new markets could appear that will boost commodity prices<sup>25</sup>.

The arable crop yields on a potential arable reversion site might be good (e.g. good years may outweigh the bad); land suitable (light chalky soils) for arable reversion can produce good cereal and oilseed rape yields and are an asset in a good cropping year.

Machinery and labour fixed costs per ha will increase if land is taken out of arable cropping (in hand farms).

### Income from agri-environment agreements

HLS agreements: Cashflow implications of high year 1 costs in establishing species rich grassland, capital works and engaging specialists to produce Farm Environment Plans.

Requirement to subsidise the costs of upfront costs, especially preparation of the Farm Environment Plan (this *might* be a particular barrier where a holding is being invited to transfer into HLS from an existing CS agreement and where specialists have to be contracted in to prepare the FEP).

Problems in receiving correct maps has precluded some farms from entering schemes to date (some holdings still do not have correct maps).

The Higher Level Scheme is too complicated. Will existing agreement holdings be unwilling to transfer early into HLS because of cost and complexity of the FEP?

### Commercial viability/cost of livestock

Lack of profit in livestock: "in real terms this sector will see the biggest drop in

### Arable farming may be unprofitable in the future

2005 profitability from arable cropping was at best break even, and the same is expected in 2006. Net farm income from cereals is expected to fall by 26.5% (real terms) and 16.2% (cash income). Cash income from general cropping is predicted to fall by 7.9%.<sup>28</sup>

Commodity prices are volatile and unpredictable.

The cushion of AAPS has been removed. Single Payment is effectively divorced from each land parcel and will be progressively declining as cash support is transferred to rural development measures. By 2012 the Single Payment equivalent if apportioned per ha will be at most £147 and probably lower if modulation rates increase (compared to £241 for AAPS in 2004). Years of poor commodity prices may no longer be offset by CAP subsidy.

Single Payment rates after 2012 are not known but may be expected to reduce further.

### Income from agri-environment payments

Grassland options under agri-environment agreements (CS or HLS) will provide predictable income and will give a minimum net profit per ha of between £44<sup>29</sup> (in hand) and £200 (contract farm)<sup>30</sup>. This does not take into account any additional income or costs that may be associated with keeping livestock<sup>31</sup>. An additional £250/ha may be available for arable reversion by natural regeneration (historic option).

A 100% grant (HLS) is also available for suitable wild flora seed used in qualifying projects (therefore the cost of seed is not a barrier to enhancing or creating species-rich grassland).

A grant is available for preparation of a Farm Environment Plan and Grassland Management Plan.

HLS cattle grazing and native breeds supplements may be available (details not yet available). New supplements (if available) could be passed on (by agreement holders) to freelance graziers to support expanded/new enterprises.

<sup>25</sup> New markets for wheat to make ethanol are appearing and will ensure a market for a certain amount of wheat plus a cropping subsidy.

<p>incomes (34%) because all costs, apart from feed, will be higher; viewed as cash income the fall will be c. 6.4%<sup>26</sup></p> <p>Farmers within the livestock industry particularly felt that wildlife conservation land will be increasingly unviable for commercial grazing.<sup>27</sup></p> <p>Grazing may have to be provided rent-free.</p> <p>Difficulties associated with marketing and processing, especially abbatoirs (availability of) are an issue. The nearest abbatoir able to take a big throughput of sheep (Lloyd-Maunders) recently closed.</p>	<p>Grant through CS and HLS for linear, open or educational access (between £4,000 and £10,000 for a 15-ha site over 10 years).</p> <p>Grant under Organic Entry Stewardship [Defra]. EK5 Mixed stocking option under ELS is allowed and provides 8 pts/ha. ELS grassland option very low inputs: £150/ha.</p> <p>Defra will permit additional land to be added to existing CS agreements if this will provide significant environmental benefits.</p> <p><b>Other RDP grants</b> Grant through other Rural Development programme budgets (e.g. for product development and marketing, farm diversification) [Defra].</p> <p><b>Support for marketing for livestock &amp; products</b> Help with marketing is available (e.g. through local products directory and other initiatives to support marketing of local food) [North Wessex Downs AONB, Buckinghamshire &amp; Milton Keynes and Oxfordshire (BBO) Food Group]. Farmers Markets. Local food groups. Local products directory.</p> <p><a href="http://www.butchercontacts.co.uk/">http://www.butchercontacts.co.uk/</a> and <a href="http://www.restaurantcontacts.co.uk">www.restaurantcontacts.co.uk</a> have the potential to link primary producers and markets</p> <p>Relaxation of regulations which have depressed the livestock industry and markets: resumption of live exports will boost the livestock trade; withdrawal of 30 month rule for cattle – this will especially make keeping native breeds and slow-growing breeds more attractive.</p>
<p><b>Grassland productivity</b> Concern that created grasslands provide poor grazing, i.e. can't support a commercially viable livestock enterprise. Created grasslands in the past have included</p>	<p><b>Grassland productivity</b> There is anecdotal evidence that herb-rich grasslands on chalk are nutritious, animals fatten and keep well on them for periods without the need for supplementary grazing or</p>

<sup>28</sup> Defra, Net Farm Income Statistics, Feb 2006

<sup>29</sup> This includes apportionment of machinery/labour costs associated with arable cropping across the holding including the arable reversion site.

<sup>30</sup> Based on a single arable reversion site of 15ha.

<sup>31</sup> Grazing costs/income considered cost-neutral

<sup>26</sup> Defra farm Net Farm Income statistics 2005/6

<sup>27</sup> Hampshire County Council: Rural Economy Update Autumn 2005, Single Payment Review Special Edition. Report from the Single Farm Payment Farmer's Discussion, Sparsholt, June 2005.

<p>a high proportion of unpalatable species e.g. Chewings Fescue and a very wiry variety of Crested Dog's Tail. Yellow Rattle is important to achieve sward diversity in the early years but if it persists will dramatically lower the productivity of a sward.</p>	<p>veterinary products.</p> <p>Productivity would be better if Yellow Rattle was removed once the grassland had been successfully established (say, after 5 years). Productivity might be better if wild seed is used although there has been no study on this (the dominant grasses tend to be Upright Brome, Quaking Grass, Red Fescue and Sweet Vernal-grass whereas unpalatable amenity varieties, e.g. Chewings Fescue, tend to predominate in standard crop-grown grass mixes).</p>
<h2>Ability to manage public access</h2>	
<p><b>Farmer/land agent perceptions: CROW Act</b> There is a worry that created grassland will be mapped in the future as access land (down) which will in turn restrict what they can do and encourage public access in areas where they do not want to see public access.</p> <p><b>Public access and disturbance</b> There may be fears that on sites where there is public access this may be detrimental to livestock.</p>	<p><b>CROW Act and access land: facts</b> Mapping confers no protected status – access land can be ploughed if it is not designated SSSI. Mapping is subject to 10-year review. New land identified as semi-natural will be subject to consultation and appeal. Since the CROW Act there is no evidence that more people are coming into the countryside to visit access land. <b>There is a need for agencies to reassure landowners over this.</b></p> <p><b>Public access and disturbance</b> Livestock breeds that are suitable for sites used by the public. Experience learned by other farmers/land managers where grazing and public access take place.</p> <p><b>Agri-environment grants</b> HLS/CS grant for linear, open or educational access provides a significant cash incentive and income for land to be made available for access (between £4,000 and £10,000 per 15 ha site over 10 years. Capital grant for infrastructure is available. [RDS]</p>

**Table A.3 Constraints, opportunities and actions identified for re-creation of chalk grassland (J Batten, 2005)**

Issue:	Constraints:	Opportunities:	Actions:
<p><b>Establishment of chalk grassland on arable land (whole or part fields and grass margins)</b></p>	<ul style="list-style-type: none"> <li>• Specially harvested seed is perceived as being expensive – high initial costs put people off.</li> <li>• There is a lack of known suitable donor sites for specially harvested seeds.</li> <li>• There are misconceptions regarding the CSS prescriptions dealing with cutting, especially during the first growing season following establishment.</li> <li>• Arable farmers don't want to have to manage grassland as they don't have the necessary stock or machinery.</li> <li>• There is a lack of suitable stock in the Project Area – many existing sites are not being grazed properly and the creation of new chalk grassland would exacerbate this problem.</li> <li>• There is a lack of known graziers and fewer young people are learning stock management skills.</li> <li>• Although conservationists see the lack of infrastructure – fencing, water, etc – as being a major constraint, in truth farmers are relatively relaxed about this as long as they can access grants to help fund the necessary work.</li> <li>• Access issues (see below).</li> </ul>	<ul style="list-style-type: none"> <li>• Natural regeneration – no seed costs, resultant vegetation is unquestionably of local provenance.</li> <li>• Specially harvested seed broadcast onto cultivated ground in September/ October of collection year. An autumn sowing provides a better take and more species early on than a spring sowing.</li> <li>• The inclusion of yellow rattle in the seed mix or the introduction of yellow rattle to sites where natural regeneration is being used will enhance sward development even on sites where nutrient levels are high.</li> <li>• Regular topping, with no restrictions on timing, should be carried out during the growing season following establishment. Avoid topping lower than 15 cm if yellow rattle is present.</li> <li>• Stock should graze newly established grass (provided an adequate sward has developed) at the end of the first growing season. Yellow rattle responds well to grazing and treading in.</li> <li>• Different methods of establishment have been developed to suit different locations and farming systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Promote use of specially harvested (rather than commercially available) seed by stressing “lifetime” grant – i.e. later years are cheap but get same annual payment.</li> <li>• Establish (with Wilts GAP?) a database of donor sites for species-rich seed and experienced seed harvesting contractors.</li> <li>• Ensure that land managers establishing chalk grassland on arable land receive adequate, correct and <u>consistent</u> advice about management during the first and subsequent years.</li> <li>• Identify demonstration sites where chalk grassland (both whole fields and grass margins) has been established and managed successfully.</li> <li>• Encourage dissemination of relevant experience and information.</li> <li>• Link land managers who have an interest in the establishment and management of chalk grassland and grass margins.</li> <li>• Identify those sites where chalk grassland re-creation could offer maximum multiple benefits and provide this information to both farmers and advisers.</li> </ul>

Issue:	Constraints:	Opportunities:	Actions:
<p><b>Weed control on newly created grassland and grass margins around arable fields</b></p>	<ul style="list-style-type: none"> <li>• There are misconceptions regarding the CSS prescriptions dealing with weed control by topping.</li> <li>• Topping of weeds on set-aside land cannot generally be carried out until after 1 July.</li> <li>• While sheep grazing in spring will help to control ragwort it may encourage establishment of unpalatable species such as tor grass.</li> </ul>	<ul style="list-style-type: none"> <li>• Under CSS (and, it is expected, ESS) control of injurious weeds (as defined by Weeds Act, 1959) and, in certain cases, stinging nettles may be carried out by topping at appropriate times. There are no restrictions on the timing of topping to control weeds, though cutting for other management objectives (e.g. haymaking, grass margin management) should not be undertaken prior to the date specified in the CSS Agreement.</li> <li>• Sheep grazing during winter/spring can help to control ragwort, though this should be undertaken for at least two years in order to be effective.</li> <li>• Creeping thistle is best controlled by a combination of weed wiping and topping.</li> <li>• Blackgrass, being an annual, will decline with regular topping, but only if this is carried out prior to seeding. If necessary, a derogation can be obtained from Defra to carry out this work.</li> <li>• Under SPS cross-compliance, a derogation can be obtained from Defra to control weeds on set-aside land at any appropriate time.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify demonstration sites where chalk grassland (both whole fields and grass margins) has been established and managed successfully.</li> <li>• Link land managers who have an interest in the establishment and management of chalk grassland and grass margins.</li> <li>• Facilitate the provision (through Wilts GAP/RDS/FWAG/English Nature?) of training days, factsheets, workshops, etc. on weed control on chalk grassland and grass margins.</li> <li>• Encourage dissemination of relevant experience and information.</li> </ul>
<p><b>Sward enhancement</b></p>	<ul style="list-style-type: none"> <li>• Lack of donor sites.</li> <li>• Most farmers aren't aware that this is an option.</li> </ul>	<ul style="list-style-type: none"> <li>• Spreading green hay/haylage from species-rich source. This must be cut and spread green to retain seed until trampled/eaten by livestock on recipient site.</li> </ul>	<ul style="list-style-type: none"> <li>• Establish (with Wilts GAP?) database of donor sites.</li> </ul>

### Annex 3. Arable Cropping Costs

	£ per ha Field Beans 2006	£ per ha Spring barley 2006	£ per ha Oilseed rape 2006	£ per ha Winter wheat 2006	£ per ha Set- aside
<b>Output</b>					
Yield	4.0	6.8	3.6	9.5	
£/tonne	84	80	150	70	
Grain Sales (£/ha)	336	540	540	665	
Protein Supplement	30				
	<b>366</b>	<b>540</b>	<b>540</b>	<b>665</b>	
<b>Variable Costs</b>					
Seed	35	35	30	38	
Fertiliser	30	90	125	125	
Pesticides	80	105	121	159	
	<b>145</b>	<b>230</b>	<b>276</b>	<b>322</b>	
Gross Margins	<b>221</b>	<b>310</b>	<b>264</b>	<b>343</b>	
<b>Direct Overheads (farmers own)</b>					
Labour	79	79	79	79	
Machinery Operating Costs	154	154	154	154	
	<b>233</b>	<b>233</b>	<b>233</b>	<b>233</b>	
<b>Direct Overheads (Contractor)</b>					
Plough	36	36	36	36	36
Cultivate	15		15	15	15
Drill	16		16	16	16
Roll	11	11	11	11	11
Direct Drill	20	20			
Fertiliser	8	8	24	24	32
Spray	8	24	32	40	48
Harvest & Haul to store	78	78	78	78	78
Total	<b>177</b>	<b>212</b>	<b>220</b>	<b>236</b>	

Net profit per ha (Farmer)

(12)	77	31	110
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Net profit per ha  
(Contractor)

44	98	44	107
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<b>100 ha gross margins based on a rotation of beans, wheat, rape &amp; set aside</b>						
		17%		25%	50%	8%
		1768		6600	17150	0
<b>Per ha</b>		<b>255</b>				

<b>In hand profit net for 100 ha rotation</b>						
		17%		25%	50%	8%
		(199)		782.5	5515	0
<b>Per ha</b>		<b>61</b>				

<b>Contracting net profit for rotation on 100 ha</b>						
		17%		25%	50%	8%
		748		1100	5350	0
<b>Per ha</b>		<b>72</b>				

Calculations based on figures for output, variable costs and overheads provided by Paul Pickford, Masstock Farm Consultancy

## **Annex 4a: Balance sheet for a contract farm**

## **Annex 4b: Balance sheet for an in-hand farm**

Note: the spreadsheets can be manipulated to build in different figures for different scenarios, payments, etc. so are best referred to using electronic media