



Umborne Valley Test and Trial Report

Exploring the potential for ELMs to support family farms and High Nature Value Farmland

East Devon AONB Partnership

Authors: Chris Woodruff & Pete Youngman

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TITLE PAGE

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Author (organisation):	East Devon AONB Partnership
Author (individual):	Chris Woodruff & Pete Youngman
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EXECUTIVE SUMMARY

A brief introduction

This Test and Trial was targeted on the Umborne Valley, the majority of which is in the East Devon AONB with the northern section in the Blackdown Hills AONB. We focussed on this area as we have previously undertaken survey and assessment work in the valley. Our key aim was to explore how the traditionally family farmed fragmented nature rich valley could be collaboratively managed under a new scheme and what incentives, systems, data and processes were needed to enable this.



Farming for the Nation: themes and detailed research questions addressed

Collaboration and co-ordinated activity by farmers

- What types of collaborative activities are most effective for engaging land managers?
- In what ways, if at all, have collaborative activities fostered change in attitudes, behaviours and practices?

Payments for delivering ELM public goods

- What has the response been from farmers/land managers to different types of payments
- What have you learned about the economic impacts on businesses of the likely transition from BPS/CS to ELM?

Self-assessment indicators of success

- What role should self-assessment by farmers/land managers play in monitoring the success of LMPs?
- Are some types of actions or outcomes more suitable for self-assessment than others?

Advice and Guidance

- What formats for providing advice and guidance will farmers/land managers find most helpful (e.g. online guides, demonstration event, one-to-one advice)?
- What are the views of farmers/land managers on how advisers should be paid?

Top 5 Learning Points

- **An incentive** should be a positive inducement to encourage adoption of new ways of working. These should leave the farmer better off financially and payments should reflect the value of an action for the 'public good' rather than forgone income.
- **National data** sets do not accurately reflect the reality of natural capital present within a small catchment that has little history of conservation or agri-environment uptake.
- **Advisors** need to be trusted and understand local farming. Building trust within the farming community takes time.
- **One to one advice** is preferred, being directly relevant to their holding and farm business.
- **Collaborative working** needs to be financially incentivised and facilitated by trusted advisors.

DEFINITIONS AND ACRONYMS

Word or Acronym	Description or Definition
T&T	Test and Trial
AONB	Area of Outstanding Natural Beauty
ELM(S)	Environmental Land Management (Scheme)
BPS	Basic Payment Scheme
AES	Agri-Environment Scheme

INTRODUCTION

The Umborne Test and Trial was set up to explore the following themes that were identified as part of the Farming for the Nation Test and Trial.

- Collaboration and co-ordinated activity by farmers
- Payments for delivering ELM public goods
- Self-assessment indicators of success
- Advice and Guidance

Within each of these themes we have addressed, with our farmer participants, more detailed research questions. Our approach has been based partially on our experience working with our East Devon Farmers Group Facilitation Fund using our acquired knowledge of farmer expectations and aspirations and the cumulative experience of the AONB Team working with the farming community in the AONB in excess of 45 years.

Within these themes specific research questions were posed within Farming for the Nation the following our relevant to this Trail.

Collaboration and co-ordinated activity by farmers

- What types of collaborative activities are most effective for engaging land managers?
- In what ways, if at all, have collaborative activities fostered change in attitudes, behaviours and practices?

[As our T&T was looking at collaboration opportunities, social distancing under COVID19 had a significant restrictive impact on our ability to develop this aspect].

Payments for delivering ELM public goods

- What has the response been from farmers/land managers to different types of payments
- What have you learned about the economic impacts on businesses of the likely transition from BPS/CS to ELM?

Self-assessment indicators of success

- What role should self-assessment by farmers/land managers play in monitoring the success of LMPs?
 - Are some types of actions or outcomes more suitable for self-assessment than others?
- Collaboration and co-ordinated activity by farmers and land managers by farmers and land manager
Collaboration and co-ordinated activity by farmers

Advice and Guidance

- What formats for providing advice and guidance will farmers/land managers find most helpful (e.g. online guides, demonstration event, one-to-one advice)?
- What are the views of farmers/land managers on how advisers should be paid?

Background

Small family farms often support important natural heritage features (such as species rich grasslands) as well as historic and cultural heritage features. As a result of this synergy of heritage value, the farms all host natural capital potential with tangible benefits to society, such as a rich and varied landscape, improved water quality, healthy soils, public access and pollinator services. This in part is because

many have remained unchanged for many years and the rate of change is slower than on larger and more agriculturally productive farms. They experience difficulties accessing agri-environment and rural development schemes due to their small size, scale, or capacity to expand business operations. This can impact on farm resilience and viability.

Collective outcomes require co-operative and collective working to ensure that outcomes are delivered, and individual group members endeavours are appropriately awarded. We have explored the difficulties of collective working and inter-dependency of outcomes on the activity of different farm holdings. Many of these holdings have previously been excluded from higher level agri-environmental schemes in their own right as they did not contain sufficient BAP habitat to encourage NE to invest the officer time to draw up an agreement.

METHODOLOGY

The Test and Trial recruited 16 farms within this small river valley an on-farm survey was carried out on each holding. Unfortunately, as COVID19 restrictions set in, 3 farmers opted out of continuing with the Trial. This was an understandable response on small farms where illness would have a serious effect on their farm enterprise and animals' welfare.

On farm survey - comparing known data with on-the-ground reality

All participants farms were surveyed by very experienced land advisors with a long track record of working with farmers in East Devon. Various methodologies were considered but in consultation with the consultants it was decided that HLS Farm Environment Plan methodology for survey and subsequent mapping would be adopted. These were then compared with various national and local data sets listed in Appendix 1. The surveyors recorded potential public benefits however this did raise the issue of competing and exclusive actions that could provide alternate benefits and determining the relative value of such benefits.

Public benefits and appropriate actions.

Through facilitated discussion the concept of Public Benefits was explained to our farmers, this was quite an unfamiliar concept to some. On farm activity that would produce the required benefit was also discussed. The farmers were then asked to consider what actions they might undertake on their farm, taking into consideration their farm enterprise and their understanding of their land. These were then ranked, and the results pooled to identify those actions most likely to be undertaken within the valley. The ranking form and the pooled results are in Appendix 2

For these actions potential indicators of success were devised and presented to the farmers for their deliberation and comment Appendix 3. Payment rates were also considered and proposed to the group these were supported with a justification for the suggested rate and linked to the public benefits that would accrue. These were reviewed and commented upon by the group.

Cooperative working

When the Test and Trial was originally conceived it was on the basis that small farms had been excluded from agri-environment schemes in Devon because the administrative costs for small agreements did not represent good use of NE Officer time. However, the detail of the ELM scheme has become clearer during the period of the Test and Trial with DEFRA now saying the scheme will be open to all farmers. This has required a re-evaluation of the co-operative working models that might be appropriate. A number of models were proposed by our consultants, but it was thought that two would be most appropriate following our earlier discussions with the group.

Limitations

Whilst it was intended that all discussions and considerations of proposals would be carried out as a

group dynamic, to encourage discussion and cross fertilisation of ideas, COVID19 restrictions seriously hampered the fluidity of discussions. Our farmers were in the main reluctant to use virtual meetings, only 4 agreeing to participate in such meetings and these were found generally not to engender open discussion, possibly because the participants had not really got to know each other and feel comfortable in each other's company. Whilst we did hold some group discussions whilst in Tier2 restrictions, these were in a hall in December with all the windows open so perhaps not completely conducive to open discussions.

RESULTS

Collaboration and co-ordinated activity by farmers

- **What types of collaborative activities are most effective for engaging land managers?**

The most effective way of engaging with farmers has been demonstrated through our Facilitation Group work to be on-farm walks where options can be demonstrated. However, COVID19 restrictions did not permit this mechanism to be used for our Test and Trial. It is true that farmers have become more used to virtual meetings in the past year, but as a mechanism for joint decision making this is far from ideal. In addition, poor broadband provision prevails in rural Devon and this did not facilitate this method of engagement.

- **In what ways, if at all, have collaborative activities fostered change in attitudes, behaviours and practices?**

This Test and Trial has not demonstrated any change in attitudes, it has been more about providing information and recording responses to suggested approaches. However, with our Facilitation Fund group it is apparent that seeing peers adopting practices, sharing experiences and solutions does have a positive effect on uptake of Mid-tier Stewardship which would translate to ELM.

We discussed with the T and T group mechanisms and ways of encouraging collective working within the valley. They were strongly opposed to any mechanism that might make them responsible to ensure that other members of the group had delivered as per agreement. They were however happy to work together selecting from a list of potential actions and ensuring that there was connectivity between landholdings. It was recognised that some form of facilitator would be needed for this. There was no strong preference as to whether the list of actions should be generated by themselves or selected on their behalf. A financial incentive for co-operative working was however felt a necessary inducement.

Payments for delivering ELM public goods

- **What has the response been from farmers/land managers to different types of payments?**

Our farmers were clear that financial benefit is needed to alter patterns of behaviour; this is more than income foregone. Payment suggestions were made to the group that either reflected the rarity of habitat and therefore the relative value to the public or comparative payments to the productivity of alternative land management practices. A typical response form is in Appendix 3.

Payments for hedge management were an anomaly where a considerable increased payment from the current 8p/metre to 50p/metre was not sufficient to entice farmers from annual hedge cutting to a 1 in 3 Year cutting regime. One response was *‘I think that payment sounds nice, but when I cut it in Year 3 I would want to give the money back’*. An incremental raising of hedges over a number of years was found to be more acceptable.

In respect of un-improved grassland conservation, the point was made that *‘Bearing in mind areas of unimproved grass are likely to be relatively small. You could consider something like £1000 for the first ha (or pro-rata if less than 1ha) and £500/ha beyond 1ha to encourage retention of smaller areas’*.

[It is worth noting the significance of retaining such small pockets/stepping stones in an already very small scale and fragmented farmed landscape such as East Devon].

The relationship between payments is also important as one farmer observed that he might *‘choose to sow an alternative forage crop rather than maintain his low input grassland as this would offer more production and was a more attractive payment’*

Our farmers viewpoint is neatly summarised in this comment by one of our participants *‘I think the arguments about forgone income as well as cost are very good and important to explain why farmers should be equally incentivised to retain and maintain existing features (trees, hedges, wildlife friendly pasture) as well as enhancing and creating new ones. As a general point I believe this is important to create a long-term profile of well managed environmentally sensitive farms (“delivering public goods for public money”) as well as encouraging continuity under changes of farm management and ownership. I think this long-term view should be at the core of the approach, as opposed to one which encourages a continual cycle of chasing after short-term subsidies’*.

Our farmers were very receptive to payment based on outcome rather than restrictive prescriptions. Flexibility was welcomed allowing outcomes to be judged on unusual seasonal variations in weather patterns.

Action	Agreed payment range
<p>Put in Herbal leys Proposed payment recognised that herbal leys are an alternative to maize growing in terms of productivity but do not require annual sowing or applications of fertilisers.</p>	£400/ha
<p>Allow hedges to grow taller in stages Taller but sided hedges will significantly increase carbon capture on the farm, be beneficial to wildlife and increase shelter and shade to grazing animals. By allowing the hedge to grow 4 inches a year for 3 years this incremental growth but not be detrimental to the stockproof nature of the hedge. The payment reflects the environmental benefit of this action whilst offering an incentive to overcome farmer reluctance to alter hedge trimming regimes.</p>	£25/side/100m
<p>One in two year hedge cut Significantly increase carbon capture on the farm, be beneficial to wildlife and increase shelter and shade to grazing animals. The payment reflects the enhanced environmental benefit of this action whilst offering an incentive to overcome farmer reluctance to alter hedge trimming regimes.</p>	£35-40/side/100m

Action	Agreed payment range
<p>One in three year cut Significantly increase carbon capture on the farm, be beneficial to wildlife and increase shelter and shade to grazing animals. The payment reflects the enhanced environmental benefit of this action whilst offering an incentive to overcome farmer reluctance to alter hedge trimming. This is likely to be used in limited circumstances to improve connectivity between woodland/copses on different farms</p>	<p>£50-60/side/100m</p>
<p>Hedgerow trees Hedgerow trees are good for carbon storage, biodiversity, landscape and stock shelter. To include mature trees and recruits to ensure long term landscape feature</p>	<p>£20/tree/yr</p>
<p>Maintain semi-improved grassland or enhance botanical interest Low input grassland is important for soil carbon and health and infiltration of rainwater and low levels of soil loss. Enhancing diversity of sward would improve value for pollinators and pollinator prey species. Improving diversity through heavy grazing and green hay spreading could increase plant diversity and so attract an additional payment.</p>	<p>£300/ha £350/ha (For enhanced management)</p>
<p>Maintain unimproved grassland Unimproved grassland is a very rare habitat in need of conserving. The payment attempts to value this grassland as being comparable to a ha of maize, to emphasise this. Unimproved grassland is important for biodiversity ,soil carbon and health and infiltration of rainwater and low levels of soil loss</p>	<p>£500/ha</p>
<p>Plant woodland Woodland planting is good for carbon storage, biodiversity, landscape and flood management. The payment recognises that woodland devalues land and limits future income potential. This is intended for small packages of land.</p>	<p>£500/ha</p>
<p>Retention of Copses Existing copses and small woodlands create diversity in the landscape, contribute to flood management, carbon storage and biodiversity. They are inherently valuable and need to be maintained and valued</p>	<p>£220/ha</p>
<p>Covering all stock yards Permits separation of clean and dirty water enhancing water quality and reducing volumes of slurry to be spread.</p>	<p>Current arrangements under Water Capital grants</p>
<p>Minimum tillage Reduces soil losses, improves soil structure, saves diesel from ploughing so reduced carbon footprint. Payment reflects some additional costs of spraying may be required</p>	<p>£200/ha</p>

Increasing carbon content of soils and reducing compaction rates were considered by the group to be actions that would be undertaken as part of an ELM agreement, but it was felt that the complexity of measuring carbon soil content was beyond the capacity of this Test and Trial. Similarly, the question of whether payment should be received for operations improving infiltration rates should be considered rather than incentivising the removal of the initial causes of any compaction.

- **What have you learned about the economic impacts on businesses of the likely transition from BPS/CS to ELM?**

It is apparent that few farmers have really got to grips with the reduction in BPS, they are unaware how it will be tapered off and have not considered how they might make up that income. This is anecdotal evidence gained through open discussions with them.

It has not helped that the potential income from ELM cannot yet be assessed accurately to be used as a basis for decision making.

Self-assessment indicators of success

- **What role should self-assessment by farmers/land managers play in monitoring the success of LMPs?**

Farmers are able to assess outcomes from potential actions on their farm, as they understand their land and as long as the outcome is apparent can make assessments as to whether these have been achieved. However, to take a wider viewpoint and consider the success of a wider LMP for a valley for instance would stretch their motivation and expertise.

Ultimately there will need to be some form of verification of success. Our farmers were in favour of a local trusted person carrying out that verification, someone who is aware of seasonal difficulties and is familiar with local agricultural practices. Such external verification would need to be requested and paid for by DEFRA.

- **Are some types of actions or outcomes more suitable for self-assessment than others?**

We considered indicators of success for the top actions as determined by the group. Some of these were simple records such as photographic evidence for hedge management or records of in-field operations for minimum tillage (Appendix 3). However, where a level of expertise might be required, such as botanical survey to determine diversity in a meadow, they would sooner have someone come on farm and advise, just like they would employ an agronomist or a soil sampler. The cost of such experts should be included within the annual incentive payment.

Advice and Guidance

- **What formats for providing advice and guidance will farmers/land managers find most helpful (e.g. on line guides, demonstration event, one-to-one advice)?**

Most farmers have relied upon one-to-one advice to make their Stewardship applications. They find the guidance manuals far too complex and do not have the capacity to get to grips with the detail required. There is a strong desire to see the re-instatement of an application fee as was available in earlier schemes. This overcomes one of the barriers to applying, the risk that you make an application and are then unsuccessful and out of pocket. It also prevents Year 1 income being seriously eroded by having to cover the expert fees paid for the application.

A rolling agreement was felt to be desirable; this creates certainty knowing that if you change a practice that the financial benefits and the public benefits would be long term. Allowing additional public access when funding is only assured for 5 years would be a real risk as once a pattern of usage is established it is very difficult to stop. Enhancing semi-improved grassland would be a long-term goal not something that can be completely achieved within a 5-year agreement; it would be in later years that the full public benefits would accrue.

A 5 year break clause would be needed, but as BPS was assured year on year, ELM could also be set up in a similar fashion.

CONCLUSION

Collaboration and co-ordinated activity by farmers

What types of collaborative activities are most effective for engaging land managers?

Being able to see what others have undertaken on their farm's aids understanding. If this is done as a group activity it enables peer to peer discussion and sharing of experiences. Such activities need to be facilitated by someone the farming community trust and demonstrates a clear understanding of farming in the area.

In what ways, if at all, have collaborative activities fostered change in attitudes, behaviours and practices?

COVID19 restrictions have not allowed us to develop this fully within this Test and Trial, however our wider experience of working with a Farm Facilitation Group has shown that sharing experiences, both good and bad, aids understanding.

Payments for delivering ELM public goods

What has the response been from farmers/land managers to different types of payments?

In order to change on farm practices to adopt the delivery of public goods, farmers need to be financially incentivised. These payments need to be considerably more than the income foregone model of earlier schemes and should reflect the relative value of a public good or the rarity of a particular habitat.

What have you learned about the economic impacts on businesses of the likely transition from BPS/CS to ELM?

Most farmers have not given much thought as to how they might deal with the tapering off of their BPS. They are unable to assess whether ELM might be a mechanism to maintain farm incomes as there is no information on payment rates to assist in their decision-making process.

Self-assessment indicators of success

What role should self-assessment by farmers/land managers play in monitoring the success of LMPs?

There is a place for this, but farmer expertise and motivation are likely to be limiting factors and will need complimenting with professional expertise.

Are some types of actions or outcomes more suitable for self-assessment than others?

Where indicators of success are able to be photographed or records of in-field operations made, then farmers are comfortable with these. Where a degree of expertise is required, such as botanical survey, they are not inclined to develop these skills and would look for external consultants to undertake this.

Advice and Guidance

What formats for providing advice and guidance will farmers/land managers find most helpful (e.g. online guides, demonstration event, one-to-one advice)?

One-to-One advice is the preferred option. They do not have time or inclination to study complex guidance and prefer to bring in expertise.

What are the views of farmers/land managers on how advisers should be paid?

The application fee from earlier AES should be re-instated. It overcomes a barrier to applying by reducing the risk of paying for an application and then being unsuccessful. For options where self-assessment indicators of success are not relevant then the option payment should incorporate an element for professional assessment.

APPENDICES

Appendix 1

Example survey and survey maps and data sets (redacted)

Survey template

Name		
Farm name		
SBI and CPH		10/006/0012
Holding Size Ha	46Ha	
Survey Date	23 rd March 2020	
Main Farm Business	38 cow dairy with followers and beef bull finishing. 100 total	
Organic or Non Organic	Non organic	
ES or CS Agreement Reference	Previously in ELS but not in an agreement now	
Email and Phone		

Potential public benefits

Clean water		
Signs of soil loss (details)	Two stubble maize fields (5Ha) with some soil loss to tributary of the Umborne. Only maize because of a major 2019 slurry spill incident from neighbour in 2019	
Yards covered	Some covered but cattle feeding area still uncovered	No
Slurry pits covered	Yes.	No. Slurry put straight into open dung spreader
Potential causes	Yes.	No

of pollution			
If yes details	Possibly dirty water from un-covered yards in wet winter. Seepage from uncovered manure heaps		
Scope for enhancements	Yes. Covered feeding areas and manure stores		
Stock fenced out of water courses	Yes	No, some fenced others not	
Natural flood management			
Scope for leaky dams	Yes	Not without flooding of adjacent fields as streams/ditches not in deep goyles	
Ponds	Yes	No	
Potential for tree planting	Yes	No	
Opportunities for enhancements	Opportunity for tree planting in steep pit in maize field to incorporate small steep bank in adjacent field. Good pond in same area. Suggest opening up south aspect and leaving glade to the south of pond if trees planted.		
Carbon storage			
Maintenance of soil carbon	Do they operate zero tillage	Yes	No
	Actively reduce soil loss	Yes	No
	Details	Majority of farm permanent pasture with only infrequent re-seeds.	
Enhancement of carbon in soil or on farm	Additional tree planting	Yes	No
	Incorporate additional organic matter into soil.	Yes slurry and FYM on maize stubble will be ploughed in spring 2020 but grassland receives top dressing of FYM/slurry when	No

		conditions allow.	
	Buffer strips around arable crops	Yes	No
Wildlife/ Habitat			
Grassland	Permanent grass	High floristic value	3ha of Priority Habitat grazed at [REDACTED]
		Un-improved	3Ha steep bank on land at [REDACTED] good neutral grassland
		Semi-improved	Majority of fields semi-improved/improved.
	Alternative forage crops	5Ha maize grown in 2019 due to slurry spill. Spring barley this spring followed by autumn grass re-seed.	
	Rotational ley	Majority of farm permanent pasture with only infrequent re-seeds.	
Orchard	Yes	No	
	Recent planting	Yes	No
	Gaps for new trees	Yes	No
	Under-grazed	Yes	No
Woodland.. No woodland	Deciduous semi-natural	Coniferous	
	Fenced	Yes	No
	Managed	Yes	No
	Potential ancient woodland	Yes	No
Hedges	Cut in rotation	Yes majority kept short on a one/two year rotation. [REDACTED] open to discussion re less frequent cutting of some hedges	No
	Gaps	Yes	No

	Protected from stock	Partially fenced from stock with some electric	No
	Potential for bank restoration.	Yes in a few places where stock have walked through	No
	Hedgerow and veteran trees	Occasional	Frequent
Clean air			
Slurry pit has airtight cover	Yes	No	
Method of FYM/slurry spreading	Slurry swept into open dung spreader daily. Manure heap for FYM from sheds spread when conditions allow. No slurry pit storage.		
Heritage			
Historic farm buildings	Yes	No	
If yes	Generally good repair	In need of maintenance	
Obvious archaeological remains	Yes	No	
Details (if yes)			
Management arrangements			
Land owned and managed as part of farm	48Ha		
Farm tenancy			
Grass keep bought/sold	3Ha at. [REDACTED]		
Let out to neighbour / gentleman's agreement			
Details of interview with farmer/landowner.			

Barriers to uptake of agri-env schemes

Complexity of schemes. General uncertainty about the future viability of small dairy farms puts a brake on making farm infrastructure investments. See opportunities.

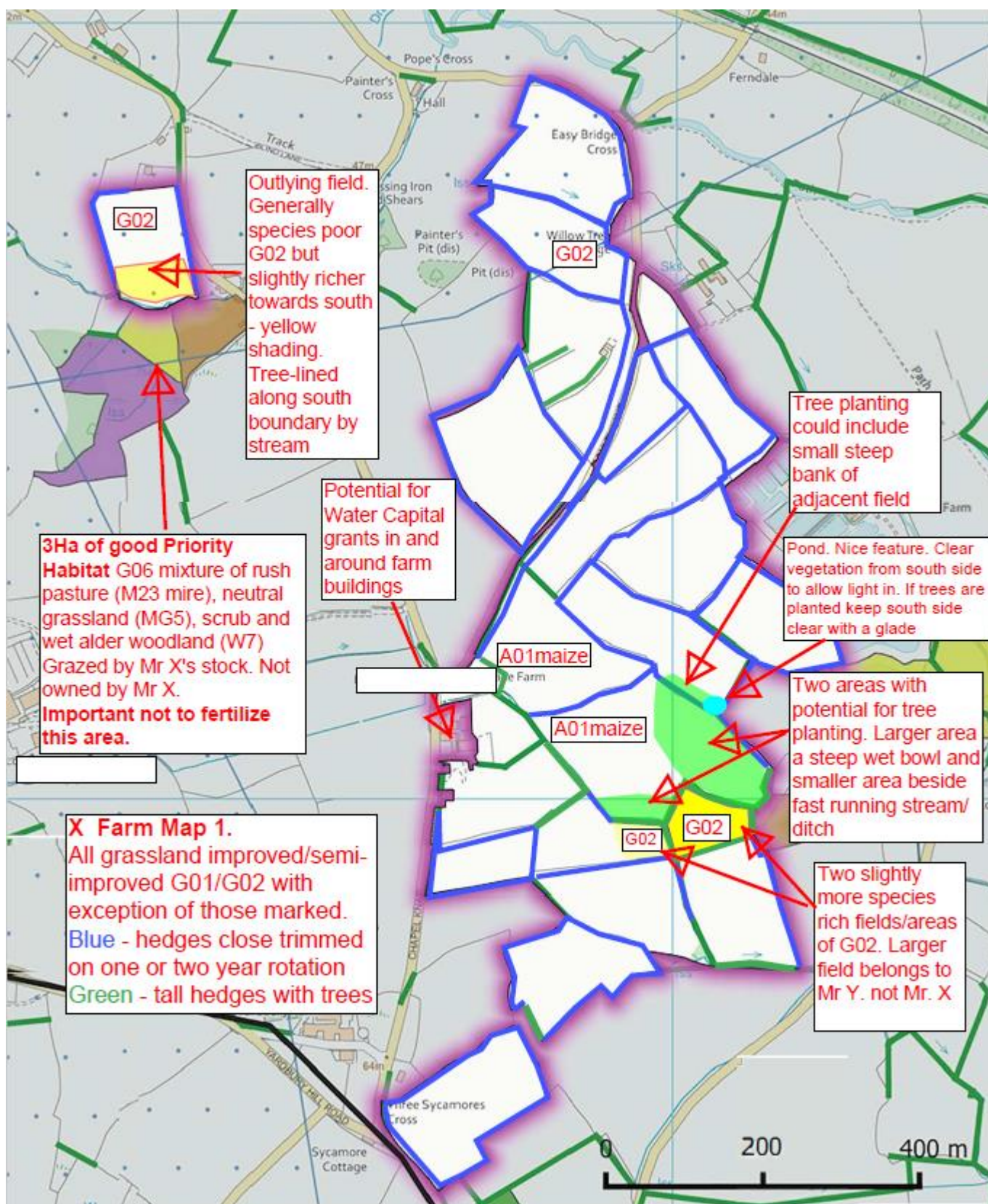
Attitude to exploring collective working

Good attitude shown by taking part in the trial project and happy to work with neighbours for a common goal.

Other opportunities

1. Should [redacted] decide to apply for Mid Tier there are plenty of suitable Water Capital Grants available eg. Roofing cattle feeding area, watercourse and hedgerow fencing, separating clean water from dirty water, low input grassland.
2. [redacted] cattle graze some interesting species rich grassland at [redacted]. These areas could form the biodiversity basis of a Mid Tier scheme which could also include farm infrastructure Water Capital Grants for farm building complex. [redacted] grassland best on the farm and for Mid Tier [redacted] would require a 5 year management agreement with the owner.
3. Mid Tier could also fund fencing of stream at [redacted] and provision of cattle drinking facility. Also fencing of hedges generally across the holding.
4. Some opportunity for planting woodland in the pit (possibly old marl pit) in maize field and beside small stream flowing to the Umborne. Together with the pond, tree planting good provide good biodiversity and water quality benefits. Funding for tree planting and fencing potentially from Woods4Water project

Example On-farm Survey map (redacted)



Data sets referred to before survey

National

Priority Habitat Inventory

National Forest Inventory

AONB generated

Interesting grassland survey based on survey in 2012

Appendix 2

Possible actions to deliver public benefits sheet

Name:		Tick those you might do on your farm	Now rank those you would most readily do 1 st to 10 th
Outcome	Action		
Wildlife better accommodated on farm	Maintain unimproved grassland		
	Change management of semi-improved grassland to enhance botanical interest		
	Put in Herbal leys		
	Plant woodland		
	Plant trees in hedgerows		
	Allow hedges to grow taller and wider		
	Ponds/ wet area		
	Improving linkages between flower rich grassland or woodlands		
Water leaving farm slower and cleaner	Covering all stock yards		
	Keeping stock out of streams/ditches		
	Timing of FYM / slurry spreading		
	Reducing compaction/ improving infiltration rates		
	Zero tillage		
	Right crop right place.		
	Put in buffer strips		
	Tree planting		
	Leaky dams in watercourses		
	Grass buffer strips to slow down run-off		
	Tree planting in floodplain		
Increased carbon stored on farm	Zero tillage		
	Adding organic matter to soil		
	Increase area of permanent grassland		

	Planting trees in hedges		
	Planting woodland		
	Allow hedges to grow taller and wider		
Increased public access	Concessionary paths linking existing paths		

Pooled results sheet

Action	Preferred possible actions	Frequency in top 10	Most popular	Develop indicators of success	Propose value of incentive
Maintain unimproved grassland	9	6	Yes	Needed	Yes
Change management of semi-improved grassland to enhance botanical interest	9	5	Yes	Needed	Yes
Put in Herbal leys	8	5	Yes	Evidence of planting	Yes
Plant woodland	7	5	Yes	Evidence of planting	Yes
Plant trees in hedgerows	6	3			
Allow hedges to grow taller	8	6	Yes	Needed	Yes
Ponds/ wet area	4	2			
Improving linkages between flower rich grassland or woodlands	7	2			
Covering all stock yards	6	5	Yes	Needed	Yes
Keeping stock out of streams/ditches	7	4			
Timing of FYM / slurry spreading	4	1			
Reducing compaction/ improving infiltration rates	8	5	Yes		
Zero tillage	5	5	Yes	Needed	Yes
Right crop right place.	4	2			
Put in buffer strips	1	1			
Leaky dams in watercourses	5	4			
Grass buffer strips to slow down run-off	2	2			
Tree planting in floodplain	1				
Adding organic matter to soil	8	5	Yes		

Increase area of permanent grassland	3	3			
Concessionary paths linking existing paths	1				

Appendix 3

Typical payment response form

Umborne Test and Trial

Name: [REDACTED].

Farm: [REDACTED]

Date: 11/4/21

Action	Suggested Payment	Acceptable payment	Comments
Put in Herbal leys	£400/ha	OK	Sounds very good to encourage a switch to a herbal ley. Should there then be a requirement on retention of it for x years, use within a rotation, use of fertilisers, etc? Would it then be better spread out as an annual payment (e.g. £100/ha per year whilst under herbal ley)?
Allow hedges to grow taller in stages	£25/side/100 m	OK	I think this one is very attractive at this level. Would need to consider the bounds though, e.g. how many years can it be claimed for? Do you want to maintain a permanently taller hedge? Or is it ok to have a cycle of letting it grow up then cutting down? Could be linked to hedge-laying on long cycle?
One in two year hedge cut	£35/side/100 m	£40	You put £40 in the document... I think this may be a reasonable amount to prevent people being put off by the requirements of an aggregate package like when you enter a CS mid-tier agreement but taken as an individual incentive, it may not be enough to significantly change farmer behaviour as it can be significantly harder to cut two-

			year growth and needs good kit as opposed to a quick annual trim.
One in three year cut	£50/side/100 m	£60	Three-year growth can be very difficult to cut, you would need to make it a significant step up from the two-year.
Hedgerow trees	£20/tree	£x/year + capital grant for new trees.	Is this £20 per year? (reflecting making it more hassle to cut the hedge and eventual thinning of hedge / grass due to roots and canopy) If so, it sounds like a lot! Otherwise might not get much take up if it was only a one-off capital payment. Should apply equally then to retention of existing trees as well as planting new trees.
Maintain semi-improved grassland or enhance botanical interest	£300/ha £350/ha	OK	Along with the unimproved, need to consider the criteria to qualify and restrictions, which are key to the take-up. For example, in my CS mid-tier I've got some GS6 and some GS2. I had a couple of fields that could have qualified for GS6 but I put them as GS2 because the restrictions of GS6 were too tight. The payment should really be based on results, i.e. does it stay as GS6 quality or GS2 quality? Also with regard to "enhancing botanical interest" would there be some success criteria? (e.g. n species per sq. m) Could sufficient enhancement then eventually make it equivalent to unimproved? Perhaps another alternative could be instead of having improved / herbal leys / semi-improved / unimproved, you could have everything on a "permanent pasture grade" (e.g. 0-3).
Maintain unimproved grassland	£500/ha	OK + see suggestion for small areas. Cost of surveys could be important consideration.	Works as long as the costs in time and money of meeting the requirements aren't too high (soil samples, surveys, etc.), bearing in mind areas of unimproved are likely to be relatively small. You could consider something like £1000 for the first ha (or pro-rata

			if less than 1ha) and £500/ha beyond 1ha to encourage retention of smaller areas.
Plant woodland	£500/ha	£500 + capital grant for new planting.	This is probably one of the most important payments – the current incentives to maintain small areas of woodland are way too low leading to them being progressively felled. I think that the foregone income argument is good and applies equally to existing woodland and new planting.
Covering all stock yards	50% of cost		Current incentives are a bit higher than this but it still sounds attractive. If you pay a contractor to do a job like this it seems usually to cost double the materials costs (i.e. 50% materials + 50% labour.) One way then to potentially make it more attractive at similar cost is to rebalance it as 100% of materials cost only, so farmers have the option of using their own labour to save money.
Minimum tillage	£200/ha	?	No experience of the cost or benefits of this!

Appendix 4.

Agreed Indicators of Success.

1. Herbal Leys

Indicator of success is straight forward, successful sowing of approved herbal ley mix appropriate for soil type. And keeping record of purchase of seed and application rate.

2. Allow hedges to grow taller in stages.

Indicator of success. Annual photographs of trimmed hedge showing growth beyond the knuckle of normal hedge cutting level

3. One in two year hedge cut

Indicator of success. Annual photographs

4. One in three year hedge cut.

Indicator of success. Annual photographs

5. Hedgerow trees

Indicator of success. Annual photographs

6. Change management of semi-improved grassland to maintain or enhance botanical interest

Indicator of success. Record of field management practices , maintenance of diversity or enhancement. Initial survey for diversity.

7. Maintain unimproved grassland

Indicator of success. Record of field management practices, Initial survey for diversity with repeat survey in Yr5.

8. Woodland planting

Indicator of success. Photograph of plantings.

9. Reducing compaction/ improving infiltration rates

This option is too complex to give detailed consideration within the capacity of the Test and Trail.

10. Minimum Tillage

Indicator of success. Records of in-field operations, photo of power harrowing.in action.

11. Adding carbon to the soil

Methodology for verifying carbon content of soils is being developed and is beyond the scope of this Test and Trial