Agroforestry ELM Test

Thematic analysis of six regional workshops on agroforestry considering "payment" and "advice and guidance" options for ELM

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Introduction

The Agroforestry ELM Test project (https://tinyurl.com/4yzh852e) was initiated late 2021 and concludes mid-2023. Its purpose is to provide objective information and stakeholder opinion to Defra on "payment" and "advice and guidance" issues within ELM as Defra develops policy for the support of agroforestry within the ELM system. The project is formed round 30 or so "cluster farmers" with varying levels of experience of agroforestry who are coordinated by 6 regional "monitor farmers" recognised as leaders in one of 6 areas of agroforestry.

The analysis and accompanying notes from workshops presented here is the third major output from the Agroforestry ELM Test project. A review of incentives and disincentives to the adoption of agroforestry in England, and an analysis of interviews with the monitor and cluster farmers affiliated to the project, have previously been output.

The review (https://tinyurl.com/2njzys6e) used a semi-quantitatve thematic analysis to determine why uptake of agroforestry by farmers in England has been relatively low to date. It was concluded that that economic/financial and farmer knowledge-based factors are most important in holding back agroforestry in England. Grants, subsidy, and funding opportunities for agroforestry or lack thereof are a key incentive/disincentive to agroforestry. Farmers also find: agroforestry establishment costs, capital investments requirements, longer term management and maintenance costs, and loss and profit and yield due to agroforestry, significant disincentives to its adoption.

The analysis of cluster farmer interviews (https://tinyurl.com/4vysnyd2) considered what types of information sources are used by farmers as they learn agroforestry and looked at how agroforestry has been financed to date by English farmers. It was found that as farmers learn agroforestry and progress from novice to expert, they narrow they types of information they use, with more farmer-to-farmer interaction and a focus on "serious study" of books and other long-read information sources. Farmer-to-farmer interaction is a major source of agroforestry learning regardless of the level of agroforestry experience of farmers. It was also found that most agroforestry to date has been self-financed by the farmer him/herself.

In this document we present a formal thematic analysis of six regional discussion workshops on agroforestry that were held late 2021 and early 2022. Notes taken by facilitators that are the source material of the current analysis are also submitted. Each workshop was coordinated by the monitor farmers on the project with help from the project team and was held at the farm of the monitor farmer. Attendees included cluster farmers associated with each monitor farmer and other farmers and rural stakeholders registering to attend through open advertisement. Statements made by attendees during discussion sessions on payment and advice and guidance for agroforestry within ELM are analysed quantitatively by allocating themes to each statement. The popularity of the various themes arising are then determined by summation of their occurrence across workshop session (see methods below). We summarise findings (see start of "Findings" section) as a "building block" framework showing key elements that we recommend should be considered when constructing support options for agroforestry within ELM.

Methods

Six workshops were held late 2021-early 2022. The first five were held in person and the final workshop was held online due to covid concerns on the part of the farmer. The first workshop was silvoarable themed and held at the east of England farm (Whitehall Farm, coordinates: 52.52575712289852, -0.178066582415545) of silvoarable farmer and monitor farmer within the Test, Stephen Briggs, 12th October 2021. The second workshop was upland silvopasture themed and held at the north of England farm (Cannerhaugh Farm, coordinates: 54.76908884781768, -2.6002842728576825) and local Gamblesby village hall of upland silvopasture farmers and monitor

farmer within the Test, Nicola and Paul Renison, 2nd Nov 2021. The third workshop was silvopoultry themed and held at the central England farm (FAI Farms, coordinates: 51.783553696107404, -1.3165153515077062) and local Wytham Woods Chalet of silvopoultry farmers and colleagues of the monitor farmer within the Test (Claire Hill), Murilo Quintiliano and Silas Hedley-Lawrence, 10th November 2021. The fourth workshop was woodland grazing themed and held at the southeast of England farm (Egypt House Farm, coordinates: 50.922512584826066, 0.3219840552007455) of a neighbour farmer of the monitor farmer within the Test, Jason Lavender, 23rd November 2021. The fifth workshop was silvohorticulture themed and held at Dartington Estate (coordinates: 50.452122757833216, -3.6938147991354624), employer estate of silvohorticulture farmer and monitor farmer within the Test, Rafael Pompa, 08th Dec 2021. The last workshop was lowland silvopasture themed and held online 10th February 2022, with the input of monitor farmer Tim Downes who is located at The Farm, Longnor, Shropshire (52.600771152479815, -2.7557659598819337).

In person workshops were inevitably attended by some individuals with interests relevant to the workshop theme and local to the event but here we do not analyse the influence of geographic location of event or event theme: all data are pooled, so the current analysis is a sample of opinion across the whole spectrum of English agroforestry. Excluding facilitators, workshops in the order documented above were attended by 16, 19, 9, 6, 21, and 24 people. Farmers made up around 60% of workshop attendees with the remainder coming from various land-related professions (environmental NGOs, farm advisors, researchers, and others).

Workshops lasted a full working day. The morning session typically involved a farm tour hosted by the relevant monitor farmer. Afternoons involved discussion around the themes of “payments” and “advice and guidance” for agroforestry in ELM. Attendees were split into three groups with a facilitator allocated to each group. One group was asked to discuss what an ideal payment for agroforestry within ELM might look like. Another was asked to discuss what an ideal payment system for agroforestry might look like regardless of its need to fit into the ELM framework (brainstorming or blue skies thinking was encouraged here). The final group was asked to discuss advice and guidance within ELM. These sessions lasted around an hour then an individual from each group fed back discussion to all attendees. This session also typically lasted an hour. Bullet point notes representing each distinct point made by speakers were taken by facilitators during these two sessions and these form the basis of the analysis presented in this document. Finally, a short general discussion of 1/2-3/4 of an hour was held where individuals could cover topics not covered in individual sessions and this discussion was also included in bullet point notes. The final workshop held online essentially followed the same format but a facilitator visited the farm prior to the meeting and recorded a video tour and interview with the farmer and this was shown for 30 minutes prior to discussions in place of the farm tour. A textual description of farm tours and all bullet point notes are submitted in in additional document.

114 bullet points on advice and guidance and 186 on payments (show in full in the “Workshop notes” documents also submitted) were examined and themes contained in each statement made were allocated to each bullet point. One bullet point could contain more than one theme. Themes are shown on the horizontal axis of Figures 1 and 3. The incident of themes across bullet points was then summed (the vertical axis on Figures 1 and 3) to determine how often a theme arose in workshops or how important it was considered to be by attendees. Where themes were represented by a sufficient number of data points (bar 1 of Figure 1 and bars 1 and 2 of Figure 2), the process of theme allocation and summation was repeated within themes to give a set of subthemes and their importance within workshops. Themes with insufficient representation to allow quantitative analyses were analysed non-quantitatively with a simply textual summary of opinion.

We provide a summary of findings as a “building block framework” suggesting how findings can be used to construct payment and advice and guidance support options within ELM.

Findings

Building block summary

Below are the summary conclusions of the workshops expressed as a series of building blocks, covering payments (blue) and advice and guidance (green). Issues highlighted by darker colours are found to be of outstanding importance in our analysis.

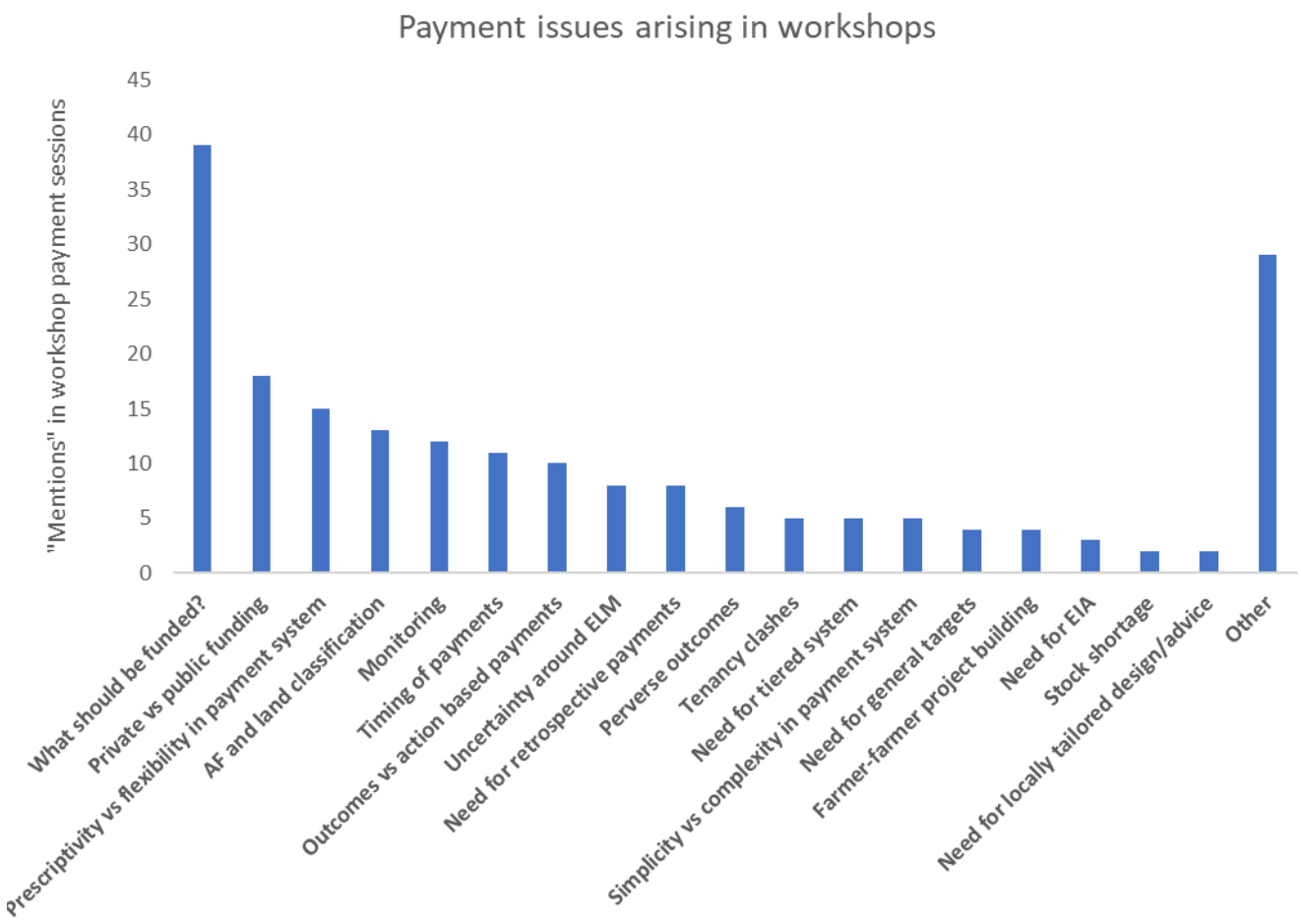
PTO

SUPPORT FOR AGROFORESTRY IN ELM SHOULD:

1: support capital costs and shorter term maintenance costs as this will have the most catalytic effect in terms of achieving widescale uptake of this land management practice. Some funding to facilitate knowledge exchange and research/monitoring would also be instrumental in building an effective community of practice in agroforestry in the farming community.	**2. be enabling** and recognise the longer-term public goods delivery of this land management practice and the possibility of capitalising on carbon and biodiversity markets. Support to the start-up and establishment phase is therefore the main priority of public funding.	**3. be flexible** to reflect (i) the diversity of potential designs for this land management practice, (ii) the need for adaptation to local conditions, (iii) adaptive management over time and (iv) branching options.	**4. not imply or require change of land use**. New trees and wooded areas should be considered as long-term assets on the farm and their longevity is important for the carbon, biodiversity and other public goods benefits, which should be recognised and rewarded. They should not, however, be seen as permanent, closing future options of farmers whether owners or tenants.
5. include monitoring of public goods benefits within its design and implementation. To do this effectively, there needs to be an adequate budget and standardised monitoring protocols, enabling farmers to collect the necessary data but supporting this through coordinated approaches from local to national level.	**6. spread payments over time.** Regular payments across the establishment phase of an agroforestry project should be offered to support maintenance of the system. This is critical for the eventual achievement of the public goods outcomes.	**7. incorporate both outcomes- and action-based payments.** A blended approach reflects the realities of high start-up/establishment costs whilst incentivising the implementation of agroforestry in ways that most effectively delivers public goods.	**8. reward existing practice.** Farmers who already have trees in their fields should not be excluded from being able to receive payments through ELM. One way of rewarding these agroforestry pioneers is by offering payments for being demonstration sites within their localities – see building block 14.
9. make it as easy as possible for tenant farmers and growers to participate directly or indirectly (through landlord schemes).	**10. incorporate a tiered system of support allowing for different levels of ambition.** An uplift in payments would be appropriate when there is evidence of significant public goods outcomes, research and monitoring are embedded in the operation, and/or when there is demonstration of knowledge gained as part of CPD.	**11. recognise the various ways farmers access advice and information on agroforestry.** There is no one-stop-shop for advice provision for agroforestry. A range of advice providers have been and will continue to be important to service the information requirements of farmers adopting agroforestry.	**12. recognise the many different types of information that are relevant to the successful implementation of agroforestry.** This also has implications for how that wide range of knowledge is accessed by farmers, for it is unrealistic that it can all be gained from the same source (e.g. an individual farm advisor).
13. recognise the low baseline of agroforestry know-how and therefore look at how farmers can be sign-posted to the advice and guidance that they need, whilst being facilitated to adopt relatively simple and adaptable approaches.	**14. encourage farmer-to-farmer knowledge exchange** by providing funding for demonstration farms and/or offering learning vouchers or bursaries that flexibly facilitates farmers to choose an information source that suits their needs and preferences.	**15. recognise the importance of locally adapted design** reflecting the climate, edaphic and other environmental characteristics of any participating farm.	**16. recognise the benefits of local collaboration** to achieve cost efficiency, access to required knowledge, and good public goods outcomes.

Analysis of "payments" workshop sessions

Fig 1. What were the main issues discussed in payments workshop sessions?



What should be funded (first bar on Fig 1)

A breakdown of the comments on this question is shown in Figure 2. There was overwhelming support for funding to contribute to the capital costs associated with establishing a new agroforestry operation and the early-year maintenance costs which are important to ensure the survival of the trees in the establishment phase. However, other funding options to unlock the potential of agroforestry were also identified, principally around supporting developing a stronger evidence base for the public goods benefits of agroforestry and helping to disseminate the experience and learnings of pioneering demonstration farms.

BUILDING BLOCK 1: Support for agroforestry in ELM should support capital costs and shorter term maintenance costs as this will have the most catalytic effect in terms of achieving widescale uptake of this land management practice. Some funding to facilitate knowledge exchange and research/monitoring would also be instrumental in building an effective community of practice in agroforestry in the farming community.

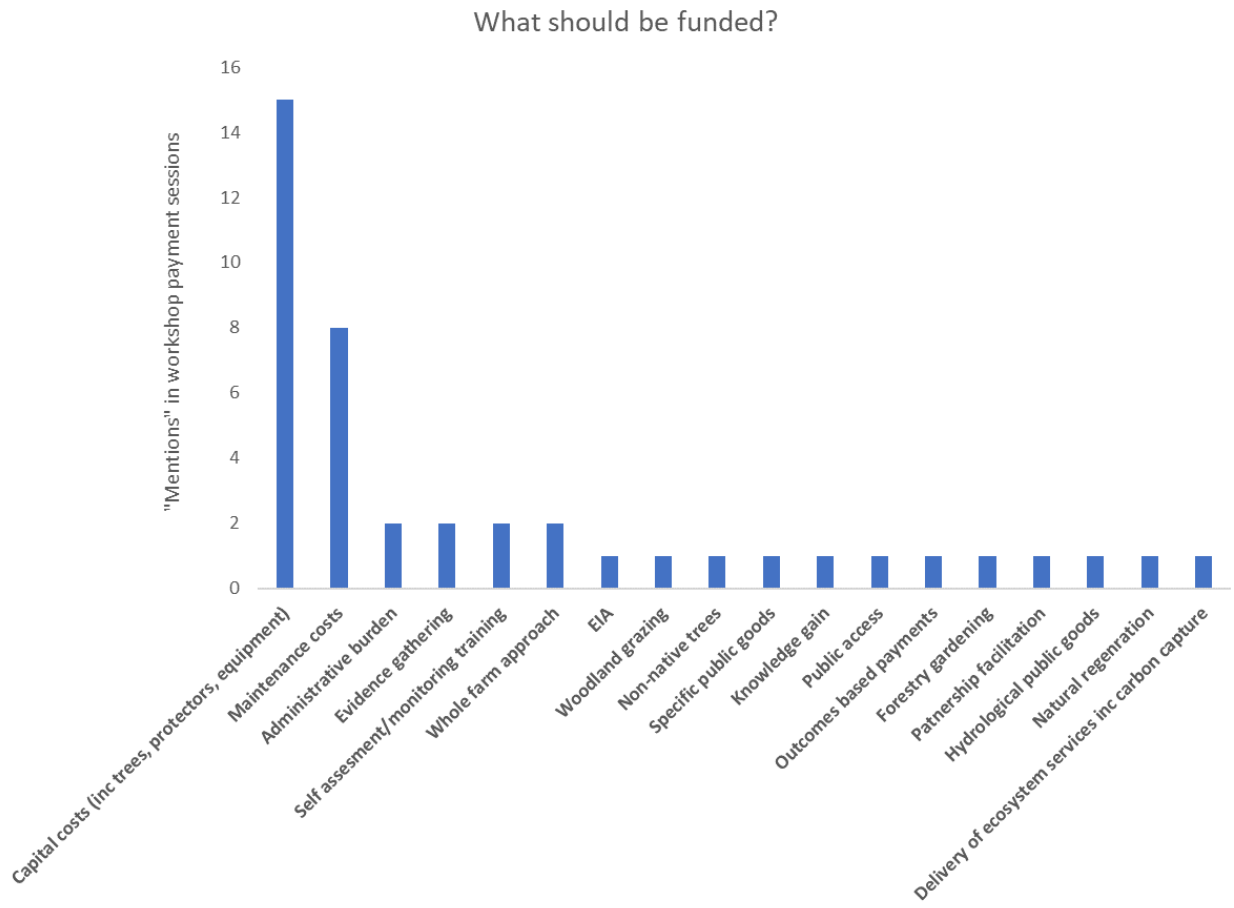


Figure 2: Breakdown of responses on the question of what to fund.

Private vs public funding? (second bar on Fig 1)

Discussion ranged widely on this important question of the appropriate scale and nature of public funding of agroforestry given its obvious benefits to the farmer in terms of commercial returns and improved farm productivity and efficiency. The commercial opportunity is often only realisable in the medium to long term and shorter-term establishment support can therefore be very important. Whatever new market opportunities for agroforestry may arise from a new project, it is right that the climate change mitigation, biodiversity and other public goods delivered by a scheme are recognised either through Government support or participation in the voluntary carbon and biodiversity offsetting markets.

BUILDING BLOCK 2: Support for agroforestry in ELM should be an enabling and recognise the longer-term public goods delivery of this land management practice and the possibility of capitalising on carbon and biodiversity markets. Support to the start-up and establishment phase is therefore the main priority of public funding.

Range of opinion on this issue is shown here:

- How much support do farmers need to produce commercial timber alongside commercial farming operations?

- The status quo is for landowner/occupiers to be the recipient of payments, but another model would be 3rd party entrepreneurs working with a cluster of farmers.
- AF needs to be supported by a blend of public and private funding, with two tiers to cover broad uptake as well as focused high-level (there is evidence that farmers want tiers): Broad tier 1: like an area-based payment system whose aim was to plant and maintain the trees (other outcomes not considered). High level: higher uplift payment based on evidence of better delivery. The broad/basic or entry tier would be activity based, and the high level tier would be outcomes based – requiring effective multi-dimensional measurement and monitoring.
- Private investors could potentially pay farmers for carbon and biodiversity. There are ethical issues to do with biodiversity offsetting. A monoculture of sycamore and diverse tree lines are "chalk and cheese" and their difference in biodiversity terms needs to be reflected in the payment system. There should be a bonus for complexity.
- A hybrid (public-private) payments system is needed for AF as a hybrid farm system.
- Ability to exit government payments when it makes sense to opt for private payments. Five year agreements would allow those opportunities for opt-out.
- Funding could range in the degree to which they cover capital costs, depending on the level of certainty about the marketable products. Public funding mitigated by expectation for private returns. The initial payment amount could also depend on how long it takes for the trees to generate revenue. There should be more gov't payment if revenue isn't expected.
- Carbon trading is considered a risk to farming by many
- With monitoring, the onus is on those benefitting from the deliverables to do the monitoring. This could be the private sector.
- A "Green Fund" was proposed: a loan covering costs of project; particularly relevant if grower will eventually produce high value crops from trees (e.g. walnuts).
- Breakout clause that allows you to come out of public funding to benefit from private funding. Cf Woodland carbon guarantee, where the government guarantees an amount (a safety net).
- Farmers are already finding markets for carbon (example of farm in W Australia selling carbon to Microsoft). But without consistency of measurement, it's currently like the Wild West. There are 62 carbon calculators available. The Woodland Carbon Code is good but not broad enough. A Soil Carbon Code and Hedgerows Carbon Code are under development. In the poultry sector, carbon emissions have to be declared.
- Allow private investment and reward good practice
- Need to link to private environment credits such as the catchment market model of Wessex Water/ WWT. All opportunities need to be left open until the market is developed and more understood.
- Through no net loss in biodiversity, developers could potentially pay landowners to plant trees on their land to offset the impact of their development. Landowners could also claim for carbon credits.
- If you are planting trees to bring benefit to your business, then rewards will come to the farm. Depending on the scale of capital investment, ongoing management cost would not be expected to be paid.
- There is evidence for public benefits in agroforestry and this should be recognised.
- Blended finance was mentioned including selling carbon, though this needs carbon assessment in the round. GHG emissions on-farm are still difficult to measure. The Woodland Carbon Code is currently considered difficult to apply.

Prescriptivity vs flexibility in payment system (third bar on Fig 1)

The opinions expressed in the workshops were universally in favour of a payment system for agroforestry in ELM that is flexible enough to allow farmers to execute the agroforestry system as appropriate to their farm and local conditions. This will encourage a degree of experimentation, which will be important for innovation. A number of people expressed interest in there being branching options at particular milestones in the evolution of an agroforestry system, which might mean withdrawing from funding support in order to capitalise on market opportunities.

BUILDING BLOCK 3: Support for agroforestry in ELM should be flexible to reflect (i) the diversity of potential designs for this land management practice, (ii) the need for adaptation to local conditions, (iii) adaptive management over time and (iv) branching options.

Range of opinion on this issue is shown here:

- If we are focussing on particular outcomes, how they are achieved should be of less concern. An outcomes-based approach gives flexibility. But there's the challenge of how you design a scheme that allows flexibility.
- Need flexibility in ELM to accommodate the large variety of agroforestry systems.
- ELM should not be too prescriptive and should allow farmers to choose from a variety of options.
- Breakout clause that allows you to come out of public funding to benefit from private funding. Cf Woodland carbon guarantee, where the government guarantees an amount (a safety net).
- The perception of smaller farmers is that there is no benefit, in terms of publicity, for adopting environmental options, whilst risk of non-compliance is high. The risks outweigh the rewards. (Goes back to question of needing flexibility.)
- Allow change if system is not working.
- Light touch – allow flexibility.
- In general, there were different opinions on definitions of woodland grazing, wood pasture and silvopasture, and how to define them. It may be more helpful to consider a spectrum of varying tree cover density and arrangement, from woodland with glades to fields with individual trees and small copses. Flexibility to design the system according to local conditions and farmer's objectives would be welcome.
- What payment incentives should there be? Capital costs (including deer fencing), management or maintenance payments (if allowing flexibility in system design and management), outcome-based payments (for surviving trees after 10 years) and allowing public access.
- As well as flexibility, simplicy of whatever payment mechanism is decided would be the most incentivising. New ELM agroforestry options need to fit in with existing (e.g. FC) tree planting schemes.
- Simple and flexible system
- Any payment system needs to be flexible and allow people to try new ideas with few penalties. Mistakes will be made. Perhaps small-scale trial grants could be made available
- The forms that need to be filled in should be basic and simple.
- There is a need for a payment scheme that fits the different forms of AF and is flexible in other regards e.g. farm type.

- An overly prescriptive payment system will be a hindrance to uptake.

Breakdown of "Agroforestry and land classification" (fourth bar on Fig 1)

The introduction of trees into agricultural land and the introduction of grazing into woodlands raises the question of land use classification and associated legislation. Two particular concerns relating to agroforestry concern (1) the potential change of land use from agriculture to woodland, and (2) restrictions on the grazing of woodlands under the SFI. Agroforestry is a multi-functional land use that challenges accepted classes and boundaries.

BUILDING BLOCK 4: Support for agroforestry in ELM should not imply or require change of land use. New trees and wooded areas should be considered as long-term assets on the farm and their longevity is important for the carbon, biodiversity and other public goods benefits of agroforestry, which should be recognised and rewarded. They should not, however, be seen as permanent, closing future options of farmers as owners, future owners or tenants of the land concerned.

Range of opinion on this issue is shown here:

- Question of how agroforestry should be treated from a land use point of view. Agriculture, forestry, a third system type? Creating woodland is a permanent land use change, but farmers often don't want to be committed to permanency.
- Allow land/agreement flexibility to allow multi-functional use.
- There are big questions on permanence of trees – agroforestry support might need to be different to woodland schemes, with different management options, e.g. short-life fruit trees, coppicing.
- Legislative issues round agroforestry. Trees could be ready in 15 years. When do you need felling licenses, EIAs?
- Hopefully we are moving away from agriculture vs forestry to simply "land use".
- Seems wrong that woodland planted under the Woodland Carbon Code cannot be grazed by animals as it is perfect for this.
- Current Woodland Creation Offer excludes livestock.
- I/we bought a woodland planted under a grant with previous owner and we now want to graze it but there are too many trees. How should we remove extra trees? Do we need permissions moving from woodland to grazed woodland? There seems to be no commercial interest in the timber.
- Under the SFI, there is a requirement to restrict livestock grazing under trees. You can graze up to a hedge in an SFI pilot.
- Permanence issue: for inheritance tax purposes there is a need to prove that woodland is being managed.
- Other than woodland for grazing, for AF the land use classification doesn't change and legislation for felling licences doesn't necessarily apply.
- One farmer would like to link his tree planting to urban planting but there are boundary and other issues. Legislation is too prescriptive and not flexible enough.
- In the future, land rates will be more based on natural capital, including presence of trees and species-rich grassland. According to Savilles the most valuable farms are two-thirds farmed land and one third woodland and other environmental features.

Breakdown of “Monitoring” (fifth bar on Fig 1)

There is a lack of evidence for the public goods benefits of agroforestry and an SFI standard represents an important opportunity to build the evidence base through standardised monitoring protocols. Whilst that is clear, exactly what to measure is less so, given the inherent complexity of these systems and the multi-dimensional nature of the ecosystem services themselves.

BUILDING BLOCK 5: Support for agroforestry in ELM should include monitoring of public goods benefits within its design and implementation. To do this effectively, there needs to be an adequate, budget and standardised monitoring protocols, enabling the farmers themselves to collect the necessary data but supporting this through coordinated approaches from local (e.g. farm clusters) to national level.

Range of opinion on this issue is shown here:

- Verification is important but difficult. SMART indicators are important, but the range of variables that are relevant is wide.
- Who will do the monitoring of projects and at what stage of the project?
- Farmers require quite a lot of training to do self-assessment.
- Many of the issues raised by the other groups were reiterated by this group: Tenancy clash issues, monitoring issues (and how monitoring will be paid for)
- I am not an agroforestry practitioner, but I think we need more evidence on public goods delivered by agroforestry and how to measure them. We need mechanisms for monitoring public goods benefits in a simple and standardised way.
- Farm clusters could allocate an accredited advisor to carry out audits of farms within ELM, potentially reducing costs for this function.
- Farmers need guidance on what evidence needs to be gathered for payments so they are not wasting their time. Evidence gathering could be done either by the farmer themselves or an advisor.
- Land manager could be rewarded for gathering information that builds the evidence base for agroforestry and feeding it back to Defra. On the other hand, do farmers have time to do fill in more forms?
- Imagined a payment system that was based on deliverables rather than the system by which they were achieved (e.g. AF or not). Payment would be based on baseline and final survey comparison. Quantifying the deliverables (carbon capture, biodiversity) key – how you get there is less important.
- With monitoring, the onus is on those benefitting from the deliverables to do the monitoring. This could be the private sector.
- Payments should cover the costs of farmers being trained in self-assessment.
- Payment of farmers through entering trials where farmers must provide evidence of what they have done within the trial.
- Do farmers prefer to be assessed (e.g. every five years) or self-verify? Support for the latter option. Farmers and advisors working together can avoid regulatory mishaps. There has been a culture shift in the last ten years, from help/support to regulation.

Breakdown of “Timing of payments” (sixth bar on Fig 1)

Agroforestry represents a challenging business proposition because of the relative slowness of its establishment. For this reason, there is support for payments to be spread over time rather than contingent on the realisation of the public goods benefits, which can take a significant number of years to fully obtain. Both annual and "staggered" payments scenarios were discussed in the course of the workshops, reflecting the costs associated with different stages of agroforestry establishment and the need for annual maintenance.

BUILDING BLOCK 6: Support for agroforestry in ELM should spread payments over time. Regular payments across the establishment phase of an agroforestry project should be offered to support maintenance of the system. This is critical for the eventual achievement of the public goods outcomes.

Range of opinion on this issue is shown here:

- Payment times – turnaround on payments is a significant challenge, particularly given long term return on investment with most tree planting.
- Slow payments.
- Staggered "gateway" payments at different stages of the AF operation would also be helpful. These could be at key milestones, with a branching option at each milestone.
- Payments should be staggered across different stages of the agroforestry project.
- Farmers could be required to follow a 5- or 10-year "plan", and/or be enabled to enter such a plan at any point. It would have to be assessed to ensure the project would provide public benefits. Annual payments would be made through the plan period.
- Annual increments in payments (due to inflation) need to be incorporated. How can different costs across different environments be incorporated? For example, planting on upland fells is a different proposition to planting on Romney Marsh.
- The payment system should reward outcomes – not just when these are realised down the line, but beforehand (i.e. on an annual basis during the transition).
- ELM should avoid the pitfall seen in some other payment schemes of starting at the wrong time of year, and for example missing a winter planting season.
- Staged payments might be needed to reflect costs at different stages of establishment through to harvest, depending on the system/crop.
- Slowness of establishment with trees makes agroforestry problematic from a business and subsidy viewpoint.
- Annual payments should be available for maintenance.

Breakdown of "Outcomes vs action based payments" (seventh bar on Fig 1)

Whilst an income-foregone approach to funding was occasionally mentioned in the workshops, its appropriateness to an agroforestry standard was contested. There was support for both outcomes- and actions-based payments as, on the one hand, farmers recognised that the need for value-for-public-money (delivery of public goods) while, on the other, start-up and establishment costs will require support.

BUILDING BLOCK 7: Support for agroforestry in ELM should incorporate both outcomes- and action-based payments. A blended approach reflects the realities of high start-up/establishment costs whilst incentivising the implementation of agroforestry in ways that most effectively delivers public goods.

Range of opinion on this issue is shown here:

- Imagined a payment system that was based on deliverables rather than the system by which they were achieved (e.g. AF or not). Payment would be based on baseline and final survey comparison. Quantifying the deliverables (carbon capture, biodiversity) key – how you get there is less important.
- Farmers need money for the transition but the end point needs to deliver what was intended by the farmer. Therefore, money should be paid initially with more payments for outcomes. For transition to be attractive it needs to be (1) resilient, (2) economically viable, and (3) loved.
- If we are focusing on particular outcomes, how they are achieved should be of less concern. An outcomes-based approach gives flexibility. But there's the challenge of how you design a scheme that allows flexibility.
- The payment system should reward outcomes – not just when these are realised down the line, but beforehand (i.e. on an annual basis during the transition).
- What payment incentives should there be? Capital costs (including deer fencing), management or maintenance payments (if allowing flexibility in system design and management), outcome-based payments (for surviving trees after 10 years) and allowing public access.
- Compensation for income foregone was more contested: is it too difficult to calculate? Or would it require some threshold minimum density of trees to kick in?
- With regard to biodiversity outcomes, we discussed how the Local Nature Recovery component could be particularly relevant here. Schemes should be focused not just on rare species but aiming to keep more common species common. Ian talked about the environment bank model of gaining credits for, e.g., doubling species diversity on farm. Acoustic recording devices and other modern technologies may help in robust monitoring of biodiversity gains.
- In terms of using numbers of trees as a performance metric, care is needed. Even in improved grasslands and arable land there may be alternative beneficial long-term outcomes to those associated with increasing tree cover.
- Income Foregone is not necessarily appropriate for horticultural agroforestry.
- A management income-foregone approach is one possibility.

Breakdown of "Need for retrospective payments" (ninth bar on Fig 1)

There was a consistent opinion among participants expressing an opinion on this issue that farmers already undertaking agroforestry and displaying good practice should be rewarded and not lose out just because they can show no further improvement in public goods delivery within their system. Rewarding existing projects is also a means to avoid the perverse outcome of "lowering the baseline" see discussion point #2.

BUILDING BLOCK 8: Support for agroforestry in ELM should reward existing practice. Farmers who already have trees in their fields should not be excluded from being able to receive payments through ELM. One way of rewarding these agroforestry pioneers is by offering payments for being demonstration sites within their localities – see building block 14.

Range of opinion on this issue is shown here:

- What about payments for existing plantings? How should public goods being delivered by existing plantings be rewarded?
- The baseline needs back-dating to avoid perverse outcomes. Those already doing good need to be rewarded. Farmers could share expertise to manage risk.
- Strong feeling that ELM needs to be retrospective so that farmers currently delivering public goods are not disadvantaged because they can't improve their land much more when ELM starts.
- Farmers that have already taken nature-friendly action on their land should not be penalised within ELM. Farmers are willing to act now but some are afraid they won't be paid within ELM if they do so.
- As well as flexibility, simplicy of whatever payment mechanism is decided would be the most incentivising. New ELM agroforestry options need to fit in with existing (e.g. FC) tree planting schemes.
- Paying for good practice and outcomes that have already been achieved: need to make sure that farmers don't rip out existing trees to get money for planting new ones.
- Existing agroforesters should be rewarded, not just new entrants.
- It is important that previous responsible land management is not ignored and there should be a baseline maintenance payment for existing ES delivery.

Breakdown of "Tenancy issues" (Eleventh bar on Fig 1)

Agroforestry support is a potential challenge to farmers who have short-term farm tenancies. The standard should be designed in a way as to encourage uptake by this group, whilst tenant farmers also need to be protected from being disadvantaged by schemes benefiting their landlords.

BUILDING BLOCK 9: Support for agroforestry in ELM should make it as easy as possible for tenant farmers and growers to participate either directly or indirectly (through landlord schemes).

Range of opinion on this issue is shown here:

- Agroforestry potentially clashes with the short-term nature of many tenancies. The correct types of agreements are required for different tenancy/ownership arrangements. It is important that farm tenants are not disadvantaged by schemes benefiting their landlords.
- Many of the issues raised by the other groups were reiterated by this group: Tenancy clash issues, monitoring issues (and how monitoring will be paid for).
- Rotational rewards is a particular issue in horticulture where much land is rented. How to reward and encourage planting on shared land?
- The issue of short term tenancy agreements and the long term nature of agroforestry leading to a clash again arose.
- Land tenure (access to scheme by farm tenants).

Breakdown of "Need for a tiered system" (Twelfth bar on Fig 1)

Agroforestry lends itself to a tiered system of support, encouraging both broad-scale uptake of simple systems and also more specialised, complex systems which may represent higher risk and/or greater returns in terms of public goods outcomes.

BUILDING BLOCK 10: Support for agroforestry in ELM should incorporate a tiered system of support allowing for different levels of ambition. An uplift in payments would be appropriate when there is evidence of significant public goods outcomes, research and monitoring are embedded in the operation, and/or when there is demonstration of knowledge gained as part of CPD.

Range of opinion on this issue is shown here:

- AF needs to be supported by a blend of public and private funding, with two tiers to cover broad uptake as well as focussed high-level (there is evidence that farmers want tiers): Broad tier 1: like an area-based payment system whose aim was to plant and maintain the trees (other outcomes not considered). High level: higher uplift payment based on evidence of better delivery. The broad/basic or entry tier would be activity based, and the high level tier would be outcomes based – requiring effective multi-dimensional measurement and monitoring.
- There should be more money for more complex agroforestry: a tiered system is needed.
- Farmers need money for the transition but the end point needs to deliver what was intended by the farmer. Therefore, money should be paid initially with more payments for outcomes. For transition to be attractive it needs to be (1) resilient, (2) economically viable, and (3) loved.
- Have a payment scale that reflects levels of certainty, i.e. higher payments for higher uncertainty.
- Comparison with EWCO (which doesn't include agroforestry): a layered approach with basic grant for planting trees and shelterbelts, etc., plus series of capital payments delivering other benefits (e.g. water, biodiversity, public access).

Other issues raised

Breakdown of "Uncertainty around ELM" (eighth bar on Fig 1)

Discussion point #1: Uncertainty on the funding to be made available for agroforestry through the ELMS is an impediment to farmers adopting agroforestry.

Range of opinion on this issue is shown here:

- Agroforestry projects are being stalled due to uncertainty round ELM.
- Farmers are frustrated by the current lack of clarity around payments in ELM.
- Issue of farmers not planting now because they may get rewarded in the future.
- SOON – FOMO (Fear Of Missing Out) is massive at the moment, lots of farmers sitting on their hands waiting to see whether there will be better/easier support.
- How do I compare current grants and subsidy opportunities with potential future offers?
- The stress caused to tenant farmers currently by the flux in payment mechanisms needs to be recognised.
- Farmers don't want to plant trees currently due to uncertainty around ELM.
- Currently too many unknowns in relation to Agroforestry in ELM.

Breakdown of “Perverse outcomes” (tenth bar on Fig 1)

Discussion point #2: perverse outcomes, such as intentional land degradation to lower the baseline, should be avoided in a payment system for agroforestry.

Range of opinion on this issue is shown here:

- Perverse outcomes need to be avoided, e.g. farmers letting land degrade to create a poor baseline.
- Need to avoid perverse outcome of unscrupulous farmers damaging existing tree assets to create a lower baseline and be paid more.
- ELM should be wary of building disincentives to nature-friendly action into it.
- To avoid perverse outcomes (lowering of baseline), use a regional average.
- Real concern about stacking benefits from a public purse.
- Paying for good practice and outcomes that have already been achieved: need to make sure that farmers don’t rip out existing trees to get money for planting new ones.

Breakdown of “Simplicity vs complexity in a payment system” (Thirteenth bar on Fig 1)

Discussion point #3: simple is beautiful

Range of opinion on this issue is shown here:

- One practicable option would be to focus on the count or density of healthy trees, in the assumption that the local ecology is doing the rest in terms of the benefits that the tree is affording to the system. This would keep it simple, and on a self-declaration basis which is preferable.
- Simple grant funding to pump prime?
- As well as flexibility, simplicy of whatever payment mechanism is decided would be the most incentivising. New ELM agroforestry options need to fit in with existing (e.g. FC) tree planting schemes.
- Simple and flexible system.
- Loans could work but add complication and risk.

Breakdown of “Need for general targets” (Fourteenth bar on Fig 1)

Discussion point #4: The potential of using percentage canopy cover targets for an agroforestry standard.

Range of opinion on this issue is shown here:

- 60% of farmers doing something beneficial on land would be considered a success.
- Could a system such as set-aside be instigated e.g. targeting 15% of land under trees.
- Advice on what is required generally in relation to trees within ELM would be useful to farmers e.g. “We should aim for 30% of land under trees by 2030”.
- Should all payments within ELM require that a certain amount of tree cover be reached?

Breakdown of “Farmer-to-farmer project building” (Fifteenth bar on Fig 1)

Discussion point #5: could an agroforestry standard support joint ventures between different farmers and other local stakeholders?

Range of opinion on this issue is shown here:

- Partnership opportunities – however, money would be needed for advisors and facilitation.
- Complexity of an agroforestry project is not necessarily the problem, but accessing the right partner.
- However, LNR needs collaboration across a number of farms and this may be a problem for small farmers.
- Shropshire Council’s funding is on a Shared Outcomes basis. They are running a pilot on agroforestry and orchards which is intentionally light on advice and guidance to see what happens.

Breakdown of “Need for EIA” (Sixteenth bar on Fig 1)

Discussion point #6: are EIAs necessary for implementing agroforestry?

Range of opinion on this issue is shown here:

- Should AF be accessible to everyone. It needs to be done well, with the right tree in the right place.
- Any type of agroforestry needs an EIA, but who pays? FC or client?
- Legislative issues round agroforestry. Trees could be ready in 15 years. When do you need felling licences, EIAs?

Breakdown of “Stock shortage” (Seventeenth bar on Fig 1)

Discussion point #7: tree stock supply issues

Range of opinion on this issue is shown here:

- The payment system should support natural regeneration of trees; this gets by shortage of tree stock and creates added value.
- Supply of plant stock.

Breakdown of “Other”

Range of opinion on this issue is shown here:

- Janet Hughes has said that Defra does not want to get in the way of the carbon markets. ELM will not pay for carbon, but instead will focus payment on biodiversity and other ecosystem services. However, this approach counters the idea of AF as a whole farm system.
- Many farmers think that trees “steal productive land”. How can we overturn this point of view? Sceptical farmers need to be on board too.
- Woodland Trust are currently cash flowing agroforestry projects as the money from CS isn’t enough or not flexible enough to fund most aspects of agroforestry.

- How close to a hedge can I grow? Weedy edges can compete with crops. In silvohorticultural systems the benefit to farmers may not be so obvious compared to livestock systems.
- What about landscape recovery? Would ongoing payment support be needed where agroforestry is part of such a scheme?
- No Woodland Carbon Code equivalent for agroforestry.
- I am very happy to be part of every research project I am asked to do: flood meadows, M40 air quality. I am very keen to prove agroforestry can work as a system but I can't do it without the funding. My farm is two thirds arable and one third meadow.
- In the old days tree-work such as coppicing would be managed at estate level.
- It should sit in a higher level of ELM and not SFI?
- Payments need to sit within a clear, effective regulatory framework.
- The idea of contractors getting paid directly for tree planting, rather than the farmers, was raised. Though it could help cash flow for some farmers, this didn't receive wide support.
- Payments of £600/hectare are likely to be required and likely higher as basic payments are phased out.
- Farmers and advisors need to think very carefully about all costs involved in the project up front.
- Agroforestry projects need to be accreditable. SFI needs to set a high enough bar.
- Farmers have got used to receiving payments.
- Government changed farming post war and can do it now.
- Cumbria may be a good model for changes as it is a tight-knit community and already runs many schemes. Some schemes in Cumbria have, however, ended due to lack of interest from farmers.
- Farmers want little risk and not to be out-of-pocket. (Yet farmers, like any business, should accept some risk.) With agroforestry, there is the argument of resilience, for example with longer drier springs becoming more common.
- Development of infrastructure to help farmers understand what assets they have?
- [Defra should] mitigate risk for family farms.
- Farmers are not currently prevented from putting animals in woodlands, but woodlands are not economical to manage. Most woods in the High Weald don't offer grazing resources.
- Any support needs to be credible to the public purse.
- Eligibility criteria would need to be considered, e.g., size of holding.
- Could the forestry sector take over farmers land to plant small plantings?
- Having grant aid for our orchard was what made it happen quicker. Two thirds of cost were funded through stewardship and management costs.
- Biochar can help for longer term carbon storage.
- I have a dairy farm and planted walnuts around the houses and a few strips linking woodland. Willow and alder were planted predominantly. In planting these trees I was just interested to see what the cows do.
- There needs to be consistency between different SFI standards.
- Grazing under trees should be encouraged as a means of fire prevention.

Analysis of "advice and guidance" workshop sessions

Fig 3. What were the main issues discussed in advice and guidance workshop sessions?

How should advice on agroforestry be accessed? (first bar on Fig 3)

A breakdown of the comments on this question is shown in Figure 4. It was apparent from the workshop sessions that farmers have different preferences for how they access the advice and information that they need. A wide range of different options were identified, from online resources and webinars to farm visits and face-to-face bespoke advice

BUILDING BLOCK 11: An agroforestry standard should recognise the various ways farmers access advice and information on agroforestry. There is no one-stop-shop for advice provision for agroforestry. A range of advice providers have been and will continue to be important to service the information requirements of farmers adopting agroforestry.

Fig 4. Breakdown of “Who should deliver advice?” (first bar on Fig 3)

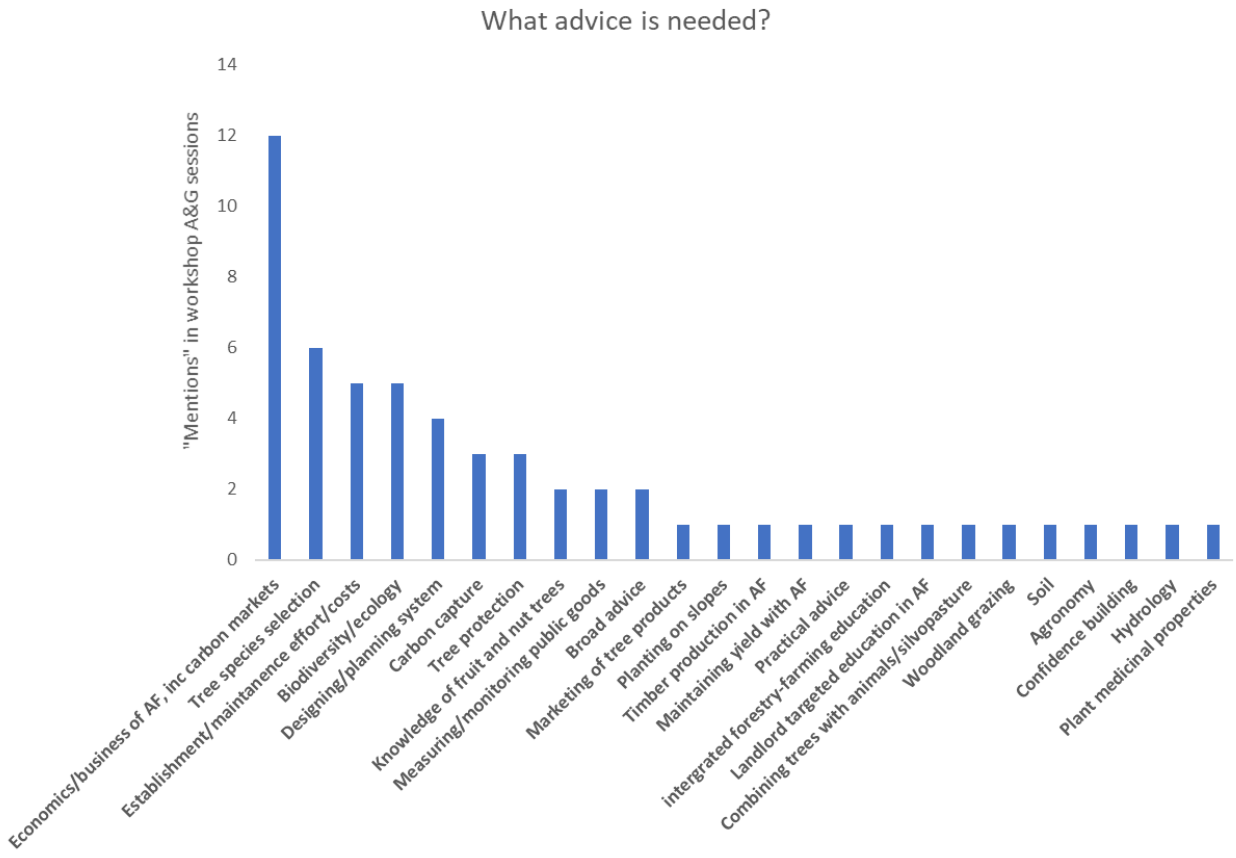
Note: Bar 3 reads: Independent non-farmer advisors (willingness to pay unclear)

What advice is needed?

A breakdown of the comments on this question is shown in Figure 5. It was apparent from the workshop sessions that there are very different areas of knowledge relating to agroforestry, which can be summarised as: economic considerations (the business case for agroforestry), practical considerations (the design and implementation of an agroforestry system that will work on a specific farm), and ecosystem services (how to balance and maximise the public goods delivered by an agroforestry project).

BUILDING BLOCK 12: An agroforestry standard should recognise the many different types of information that are relevant to the successful implementation of agroforestry. This also has implications for how that wide range of knowledge is accessed by farmers, for it is unrealistic that it can all be gained from the same source (e.g. an individual farm advisor).

Fig 5. Breakdown of “What advice is needed?” (second bar on Fig 3)



Breakdown of “Lack of knowledge of agroforestry” (third bar on Fig 3)

The workshop discussions confirmed the finding from the evidence review undertaken at the beginning of the Agroforestry ELM Test project: that the lack of knowledge is the biggest barrier to adopting agroforestry in the UK.

BUILDING BLOCK 13: An agroforestry standard should recognise the low baseline of agroforestry know-how and therefore look at how farmers can be sign-posted to the advice and guidance that they need, whilst being facilitated to adopt relatively simple and adaptable approaches and learn-by-doing towards more sophisticated approaches with increasing knowledge.

Range of opinion on this issue is shown here:

- There isn’t yet a complete knowledge base and further research is needed on a range of AF approaches.
- Not enough is known about agroforestry and carbon capture.
- More info on the economic benefits of agroforestry is needed.
- Actual effort involved in the establishment and management of agroforestry system is not clear at the moment.
- Advice on marketing tree products is needed and how to develop added value
- There is a lack of knowledge about fruit and nut trees which are likely to play a big part in agroforestry.

- There is a lack of information on return-on-investment, i.e. how to make money from agroforestry. In general, quality advice is needed on different aspects (business, carbon, biodiversity…). It needs to be quality-controlled and trusted. The FC are experts in tree planting and an obvious choice for giving that practical advice.
- There is a lack of knowledge about fruit and nut trees which are likely to play a big part in agroforestry.
- Slowness of establishment with trees makes agroforestry problematic from a business and subsidy viewpoint.
- I am not an agroforestry practitioner, but I think we need more evidence on public goods delivered by agroforestry and how to measure them. We need mechanisms for monitoring public goods benefits in a simple and standardised way.
- Re maintenance, evidence on ongoing costs would be helpful to design options. Has this been looked at in detail through research?
- There is a dearth of economic data on agroforestry but many farmers keep detailed records on their agroforestry operation so the lack of economic data is not due to a lack of research material.
- Don't lose sight of food production. Will there be a trade-off with biodiversity?
- Need examples of mature schemes with clear financial rewards in order to drive change. Needs to be evidence that regen and AF makes a difference. However, even with evidence (e.g. on silvopoultry benefits) there is a lack of take-up. They'll do it if told to by the buyer.
- There is a lot of material about planting trees but not so much on combining trees with animals. There are more resources from the US than the UK; UK-relevance is important. It is difficult to distinguish good and bad advice/guidance materials.

Breakdown of "Funding mechanisms" (fourth bar on Fig 3) and "Compensation of demo farmers" (seventh bar on Fig 3)

Whilst in the workshop series we differentiated the question of advice & guidance from that of payment options, it is important to recognise the overlap between these topics. A voucher or bursary system was proposed to facilitate farmers to access the information they need when they want and how they want. A further proposal was to reward existing agroforestry farmers who open up their farms as demonstration sites for the benefits of others exploring agroforestry options.

BUILDING BLOCK 14: An agroforestry standard should encourage farmer-to-farmer knowledge exchange by providing funding for demonstration farms and/or offering learning vouchers or bursaries that flexibly facilitates farmers to choose an information source that suits their needs and preferences.

Range of opinion on this issue is shown here:

- Payment for advice could be handled though a voucher system analogous to extension services overseas.
- One can imagine different levels of advice depending on entry level into AF payments: Basic – attending a webinar, Intermediate – receiving individual advice, Advanced – points/money towards a bursary.
- There was a lot of support for the bursary approach: allowing farmers to select the type of advice they needed at any one time on their AF journey, e.g. design of scheme, pruning/maintenance of trees, monitoring of biodiversity. Farmers would need to provide

proof of how uses and perhaps requires an accreditation system to ensure advice providers are of a satisfactory standard.

- Farmers should be rewarded (potentially paid) for facilitating other farmers to take positive action.
- Should farmers be accredited and paid for delivering advice? Innovators have an important role in encouraging others to consider agroforestry but can only give a limited amount of their time so could be paid to host farm demo visits and or mentoring.
- Advice should be free to start with, perhaps via farm workshops or via NE or NGOs
- Another example of relevance is a cluster of 52 farms in the Cotswolds region supported by a FIPL grant and with a paid facilitator. The objectives of this cluster are mainly environmental and carbon is monitored as a proxy of soil health. The initiative is match-funded by the farmers themselves who pay £1/ha to participate.
- Offer farmers a consultation with their ELM payment, to be used near the start of the project.
- Payment for advice could be handled though a voucher system analogous to extension services overseas.
- Farmers should be rewarded (potentially paid) for facilitating other farmers to take positive action.
- Should farmers be accredited and paid for delivering advice? Innovators have an important role in encouraging others to consider agroforestry but can only give a limited amount of their time so could be paid to host farm demo visits and or mentoring.
- Sources of guidance for farmers include demonstration farms and case studies. Nothing can replace being able to see agroforestry being practiced, not least because every region is different and so local examples are very important. Demonstration farmers need to be compensated.
- As an example, Marina gives advice on agroforestry design. This is a service she charges for. She also receives visitors to the Apricot Centre but often doesn't charge them.
- Workshop costs vary considerably, from £500/2days at FarmED to £120/2days at Dartington. An ORFC in the Field event at Wakelyns attracted a range of stakeholders and costed £140/2 days.

Breakdown of "Locally tailored design/advice" (fifth bar on Fig 3)

The design of an agroforestry project, including the selection of the right tree species, needs to reflect local environmental conditions. For this reason, local or regional advice, demonstration sites and networks can be very important to a farmer planning to adopt agroforestry.

BUILDING BLOCK 15: An agroforestry standard should recognise the importance of locally adapted design reflecting the climate, edaphic and other environmental characteristics of any participating farm.

Range of opinion on this issue is shown here:

- Locally tailored advice and exemplars are required.
- Given how soil/climate conditions vary, local information is required, especially in relation to which trees species are appropriate.

- There is a lot of material about planting trees but not so much on combining trees with animals. There are more resources from the US than the UK; UK-relevance is important. It is difficult to distinguish good and bad advice/guidance materials.
- Regional groups can be important as a mode of implementation. Good examples include Sustainable Agriculture Research and Education (SARE) in the US, and the Farming in Protected Landscapes (FiPL) scheme.
- Sources of guidance for farmers include demonstration farms and case studies. Nothing can replace being able to see agroforestry being practiced, not least because every region is different and so local examples are very important. Demonstration farmers need to be compensated.
- Everyone's farm is different so the advice and guidance required will be different for each farm.

Breakdown of "Farmer-farmer project building" (eleventh bar on Fig 3)

Although only two specific points are listed below on this topic, the importance of local partnerships and knowledge exchange came through clearly in other discussion.

BUILDING BLOCK 16: An agroforestry standard should recognise the benefits of local collaboration to achieve cost efficiency, access to required knowledge, and good public goods outcomes.

Range of opinion on this issue is shown here:

- Neighbour farmers co-designing agroforestry can share the cost of advice and guidance. Such collaboration could also lead to cheaper procurement by increasing volumes.
- LNR is presumably designed to facilitate neighbour interaction on nature recovery projects. Will involve allocating a facilitator to bring people together.

Other issues raised on advice and guidance

Breakdown of "Timing of advice" (sixth bar on Fig 3)

Discussion point #8: advice will be required on different matters at different times

Range of opinion on this issue is shown here:

- Need on-farm examples of agroforestry at different stages of development. Advice is a long-term requirement that evolves through the life cycle of the trees
- Facilitation groups are a good option especially to initiate interest, give confidence and to share lessons learnt.
- Planning is crucial and therefore advice and guidance should be sought on matters such as species, crop cycles, agronomy, soil.
- Early-stage planning should include aspects such as carbon funding, innovation requirements.
- Offer farmers a consultation with their ELM payment, to be used near the start of the project.

Breakdown of “Lack of knowledgeable advisors” (eighth bar on Fig 3)

Discussion point #9: there is a lack of knowledgeable agroforestry advisors.

Range of opinion on this issue is shown here:

- Knowledgeable (of agroforestry) people are difficult to access currently. There is too much trial and error in agroforestry practice at present.
- There is generally not enough good advice around.
- Standardisation of advice: currently it is not clear where to go for good knowledge. There are lots of advisors moving into this area but often not with much expertise.
- How do you know who the experts are? How can you be confident about the advice you are receiving?

Breakdown of “Ensuring relevance of advice” (ninth bar on Fig 3)

Discussion point #10: advice should come from beyond mainstream agriculture and agronomy companies

Range of opinion on this issue is shown here:

- Advice for AF needs to be independent, e.g. not tied to chemical companies as with some agronomy advice.
- Need farmer driven research rather than seed company driven research.
- The advice needs to come from beyond the mainstream agriculture sector, joining up other sectors such as forestry and soft-fruit growing. Is there the case for bringing back ADAS?

Breakdown of “Ensuring relevance of advice” (tenth bar on Fig 3)

Discussion point #11: an important group of farmers are unlikely to be persuaded by agroforestry due to short-termism

Range of opinion on this issue is shown here:

- How can we get farmers to think about trees and their benefits more?
- How do we advise farmers that are disinterested?
- A certain group of farmers are solely interested in yield and therefore locked into their intensive system. If there is no payback in 18 months, they won’t change. If moving from 10 bales (production) to 12 bales involves going through a phase of 4 bales, this is an obstacle. The target audience for AF systems is not them, nor the converted, but rather those who have some interest: the middle band of farmers.

Breakdown of “Other” (thirteenth bar on Fig 3)

Range of opinion on this issue is shown here:

- Option of doing agroforestry outside of ELMs may be preferable if the scheme is too rigid. ELM is currently going down a prescriptive approach.
- AF maybe too bespoke to wrap up into SFI in its current form, except for the simplest levels of practice.

- There is a perception of poor interplay between Defra and the Forestry Commission at present.
- Current punitive inspections are viewed negatively by farmers.
- Perception that there will be no advice and guidance in SFI and this will be supplied in higher level schemes.
- Without advice and guidance in agroforestry in ELM, trees simply won't survive.
- With AF being such a long-term proposition, it would be a good idea for farmers to get a second opinion.
- An application form for an agroforestry SFI standard could include a question on whether the farmer has sought advice.