



‘Health and Harmony: the future for food, farming and the environment in a Green Brexit’

1. Summary

The Agricology project represented by the three core partners (the Daylesford Foundation, Organic Research Centre and the Allerton Project of GWCT) welcomes Defra’s ambition for a new agriculture policy that places the environmental and other public goods very much centre stage. In our view it is very important to support farmers in helping themselves to become more sustainable and work within the ecological limits of our soils and other non-renewable resources. We believe that agro-ecological approaches have the potential to improve farm business efficiency and deliver favourable environmental outcomes. Supporting this can be achieved through more and better Knowledge Exchange, more farmer focused Research & Development and standardised monitoring of sustainability outcomes.

Agricology arose from seed funding from Defra in 2014/15¹ and has grown into a collaboration of 25 leading organisations engaged in making British agriculture more sustainable (see partners in appendix). A broad range of perspectives are represented on the platform coming from more than 120 different institutions. We champion sustainable farming systems, including practices based on agroecology, and whole-farm system-based solutions including organic farming, integrated and conservation farming, agroforestry and permaculture, regardless of labels. Agricology is a valuable resource for farmers, food industry practitioners, researchers, related professionals, educators and students, who can access and share research, demonstrate success, engage in knowledge sharing and develop skills leading to a more sustainable future of farming.

Agricology is for all UK farmers and growers who want to:

- Improve soil structure, quality and health;
- Minimise pressures of pests, diseases and weeds;
- Reduce reliance on inputs for crops and livestock;
- Utilise grassland and home-grown feeds for livestock;
- Reduce antibiotic use;
- Encourage biodiversity, notably pollinators and other critical ecosystem services;
- Maintain productivity and profitability

We support knowledge exchange and experience sharing online and offline through organising our own and engaging with agricultural events and workshops hosted by the project partners. Our aim is to stimulate and encourage farmer-led innovation.

¹ Contract for the Establishment of an Organic Farming Information Hub, OF 0399

We believe that Agricology can support Defra in achieving its aims and are looking forward to working with Defra on making UK agriculture more sustainable. The following key actions can support UK farmers in becoming more sustainable.

Inspiration: Our farmer and grower profiles on Agricology feature inspirational examples of sustainable agriculture in practice (<https://www.agricology.co.uk/field/farmer-profiles>). Inspiration is particularly important for system-based approaches, like integrated and conservation agriculture, organic farming and pasture-based livestock farming and deliver a range of public benefits simultaneously reducing the need to prioritise one public good over others.

We would welcome the opportunity to work with these profiled farmers in organising more face-to-face events and to provide funding to reward farmers for their engagement.

Innovation: We support the model that describes innovation as an interactive evolutionary process from invention to successful adoption by the target group with different participants involved at various stages (Smits et al., 2010)². In supporting innovation the following should be considered.

- **Agroecology in research and innovation:** We believe that government should be more ambitious in supporting ecological innovation in making agriculture more sustainable.³ Many problems that agriculture faces today need to be addressed at the systems level rather than at the level of specific inputs or technologies alone.
- In **supporting ecological innovation**, it is important to be aware of the **social processes** that accompany the transition to more sustainable and ecological farming. In a recent study for the Land Use Policy Group on farmers' experience we highlighted the crucial importance of social networks (Padel *et al*, 2018)⁴. The majority of the farmers we interviewed were motivated to engage with agroecological approaches through seeing practical examples and meeting inspirational people, in the UK and abroad. Such peer-to-peer contact opportunities with experienced practitioners of agriculture are valued but scarce.
- A clear **sustainability assessment framework** to measure impact, in particular regarding sustainability or public good outcomes. In our view it is important that farmers are consulted in developing the metrics and approaches used in policy development. This will enable farmers to monitor for themselves whether or not their farming is developing in the right direction as well as providing a framework for policy development, verification and communication.

Information: Agricology is a one-stop shop for practical information about sustainable farming that provides unrivalled access to world class information resources, enabling farmers and growers to make informed choices. Agricology champions sustainable farming systems and practises, based on agroecology regardless of labels. We fully recognise that not all farmers will want to farm organically, but many more farmers are interested in taking up some practises that organic farmers use. That is why Agricology supports the sharing of knowledge about practices used by organic and other sustainable

² Smits, R., Kuhlmann, S., and Shapira, P., (eds) *The Theory and Practice of Innovation Policy: An International Research Handbook*, Edward Elgar, Northampton, MA (USA) and Cheltenham (UK), 2010

³ Lampkin NH, Pearce BD, Leake AR, Creissen H, Gerrard CL, Girling R, Lloyd S, Padel S, Smith J, Smith LG, Vieweger A, Wolfe MS (2015) *The role of agroecology in sustainable intensification. A Report for the Land Use Policy Group Organic Research Centre, Elm Farm and Game & Wildlife Conservation Trust. Newbury and Fordingbride.* <https://www.snh.gov.uk/docs/A1652615.pdf>

⁴ Padel S, Rubinstein O, Woolford A, Egan J, Leake A, Levidow L, Pearce B, Lampkin N (2018) *Transitions to Agroecological Systems: Farmers' Viewpoints. A Report for the LandUse Policy Group. Organic Research Centre and Game & Wildlife Conservation Trust. Newbury and Fordingbride.* <https://www.nature.scot/transitions-agroecological-systems-farmers-experience>

farmers, regardless of labels and will engage in disseminating the findings of the study recently commissioned by Defra about the sharing of organic practices to make conventional farming more sustainable.

Please find below our response to the consultation questions. If relevant chosen options are highlighted in green.

2. Reform within the CAP

General comments:

- The simplified schemes that have been introduced are welcome. Further simplification should be based on a review of how the recently developed packages are being received by farmers, especially those farmers that are engaging with systems-level changes, such as organic or integrated farmers.
- We also welcome reduced bureaucracy, but the possibility of existing data for verification should be explored.

Please rank the following ideas for simplification of the current CAP, indicating the three options which are most appealing to you:

a) Develop further simplified packages - 2

b) Simplify the application form - 1

c) Expand the online offer

d) Reduce evidence requirements in the rest of the scheme

How can we improve the delivery of the current Countryside Stewardship Scheme and increase uptake by farmers and land managers to help achieve valuable environmental outcomes?

- Provide more advice about the likely implications of taking up CSS options.
- For farmers to adapt to any new regime there is a need to provide greater promotion and advice including support for the application process itself, illustrated with examples of farms who have used specific options, how they have met the scheme requirements and how they have benefited from participation.
- It is important to maintain what is working well in the current CSS scheme. We would like in particular to draw your attention to whole farm systems options, like the Organic Conversion and Maintenance Support in the current CSS. Such systems approach tend to deliver on several objectives simultaneously and have an important role to play in making UK agriculture more sustainable.
- Some farmers that are aiming to farm more sustainable are working outside “the box” and this must be recognised, when designing schemes. Examples include supporting agroforestry and making available simplified CSS options available to organic farmers where relevant.

3. An 'agricultural transition'

General comments:

- The consultation document refers to reducing direct payments from 2020 in favour of replacing it with a system based on public goods. We welcome making more money available to support farms in making active steps towards more sustainable systems, wherever they are on that journey. Farmers who have already made big steps voluntarily should continue to be rewarded in addition to encouraging many more to transition and not feel that they are losing out.
- The most important emphasis of the transition period for agriculture is to give farmers time to adjust their businesses to the new framework.
- We believe that progressive reductions to payments (e.g. through modulation) could help to ensure that this transition is fair and as smooth as possible along with providing time to learn about sustainable farming.
- Until new schemes more oriented towards rewarding farmer that provide public goods are in place, some checks (such as adjusted cross compliance and greening requirements) that farmers receiving public money are not damaging the environment need to stay in place. Farmers would also welcome more certainty as to what the future budget for the agricultural policy (beyond promises already made) is likely to be.
- Opportunities to align verification of scheme requirements with existing certification schemes should be explored. The organic farming option in CSS has shown for many years how third-party certification according to a legally defined standard can be used. This approach could be broadened to other whole farm approaches. However, there is need for careful assessment of other certification requirements so that schemes that are mainly based on Business as Usual are not considered in the same way as schemes that encourage farmers to change and improve their practices.
- Policy during the transition and in particular the future agricultural policy of England should ensure that smaller farm businesses can access relevant schemes and consider providing some payment for application process for smaller businesses, as this may be a real barrier for entry. Small scale farmers and growers can be highly productive and in particular contribute to the provision of fresh fruit and vegetables for local markets ⁵
- Horticulture is highly important in delivering produce for a healthier diet and there are arguments to have it fresh and to reduce transport which implies growing it closely to home. Horticulture can also offer additional income for farmers. Where-ever possible support payments could make special allowance for horticulture.

What is the best way of applying reductions to Direct Payments? Please select your preferred option from the following:

a. Apply progressive reductions, with higher percentage reductions applied to amounts in higher payment bands

b. Apply a cap to the largest payments

c. Other (please specify)

⁵ Laughton R (2017) A Matter of Scale: A study of the productivity, financial viability and multifunctional benefits of small farms (20 ha and less). Landworkers' Alliance and Centre for Agroecology, Coventry University. Coventry. <https://landworkersalliance.org.uk/2017/07/small-scale-agroecological-farms-attract-uk-workers-produce-high-yields-of-vegetables-and-deliver-multiple-environmental-and-social-benefits/>

What conditions should be attached to Direct Payments during the ‘agricultural transition’?

Please select your preferred options from the following:

- a. Retain and simplify the current requirements by removing all of the greening rules
- b. Retain and simplify cross compliance rules and their enforcement
- c. Make payments to current recipients, who are allowed to leave the land, using the payment to help them do so,

d. Other

No clear preference - incentives to support learning and transition to agroecological practices to make the move to the new system easier for farming businesses.

What are the factors that should drive the profile for reducing Direct Payments during the ‘agricultural transition’?

- Rural employment generation and creating employment in rural areas.
- Soil improvement measures (such as including leys and break crops in the rotation that help restore soils and increase soil organic matter)

4. A successful future for farming Implementing our new agricultural policy in England

Farming excellence and profitability

General comments:

- There is opportunity to further improve productivity, profitability and performance through research and adoption of best practice, with an emphasis on **agroecological innovation**.
- A new agricultural policy for England should **support all farmers in a transition to more sustainable farming systems**, supporting ecological processes to reduce dependency on chemical inputs, reducing costs and impact on the environment. Building more resilient, profitable and resource efficient farming systems.
- **Encourage productivity measures which manage risk through diversity**, build agroecological functions to support productive farming systems and provide public goods.
- **Encourage farmers to reflect on farm design**, redesign, in particular adding fertility building leys (e.g. clover/grass) into more arable rotations as well as engaging with diversification and direct sales
- We propose that the definition of productivity (Government uses Total Factor Productivity) should be more in line with ideas about the circular economy and green economics.
- Equally the **definition of efficiency should consider how the reduction in farm inputs could result in more favourable whole farm margins** (e.g. through the introduction of fertility buildings crops) and a reduction in externalities, through reducing negative impact on the environment and on public health. Negative externalities can be better understood by consideration for True Cost Accounting⁶ in our food system

⁶ Fitzpatrick I, Young R (2017) The hidden Cost of UK Food. Sustainable Food Trust, Bristol

How can we improve the take-up of knowledge and advice by farmers and land managers?

- Agroecological innovation is primarily knowledge based and as such emphasis should be placed on **creating and sharing of knowledge on agroecological practices**, soil, crop and animal health (over the development and testing of products and inputs.)
- **Government backed research** should be encouraged to produce material for **practical application** in a language and detail suitable to the practitioners via the information sharing platform Agricology. We are happy to share our knowledge of what materials and formats have received positive feedback.
- Provide farmers with information and inspiration on **the latest tools and technologies for agroecological innovation** (for example non-chemical weed control; apps for recording for example soil structure; intercropping; strips for beneficial insects; technology to encourage direct selling and short supply chains) to encourage adoption.
- A wealth of knowledge to support a transition to more sustainable farming systems already exists. There is a need to **compile research outcomes into practical implications** and communicate with a wide farming audience, providing a space for farmer-to-farmer / researcher-farmer knowledge exchange.
- **Taking knowledge exchange online** – There is opportunity to further enhance online knowledge exchange. Recent research suggests that farmers place particular value on visual information, details of the context and farmer experience (see Bliss *et al*, 2018 – submitted for publication)⁷. This can be realised through the medium of videos, developing decision support tools with farmers and supporting the interaction between farmers and researchers on existing social media channels such as twitter, YouTube, facebook, instagram or whatsapp. Agricology.co.uk has built a vibrant an online community of farmers and researchers.
- **Encourage more on-farm events** – Despite the opportunities for online knowledge exchange there is an important role in face to face and in the field events. Payments to farmers to host farm walks and demonstrations similar to the Education Open Access payments that existed in previous versions of Countryside Stewardship could be considered. Agricology is happy to promote all events that align with our mission of championing practical sustainable farming, regardless of labels.
- **Encourage benchmarking and farmer to farmer learning**– It is likely that the uptake of benchmarking could be encouraged if the necessary data can be captured from existing farm account packages rather than requiring separate data entry. Realising this could also enable the implementation and monitoring of some sustainability assessment criteria (as per an agreed Framework discussed below). The AHDB Benchmarking effort with its international links (e.g. Agri Benchmark) appears to be a good basis to develop a common national benchmarking tool. We in particular welcome efforts to use this tool to benchmark groups that have adopted systems approaches (such as pasture-bed livestock, organic farming, conservation agriculture)
- **Support more CPD and training offers in agroecology**, organic farming and conservation agriculture including setting out the financial risk and rewards of such schemes and in marketing for farmers and rural businesses.
- **Build on public funded on-farm independent advisory service** (such as the Farm Advice Service) aimed at supporting farmers to increase productivity, focused on whole farm management rather than the use of certain inputs. The majority of UK farmers currently receive advice from representatives of chemical sales companies - e.g. Agrii, Frontier. They value this advice as reps walk the fields, know the context and build a relationship overtime. There is a

⁷ Bliss K, Padel S, Ducottet C, Cullen B, Mullender S, Rasmussen I, Moeskops B (2018) From farm to forum: Exploring opportunities to develop on-line knowledge exchange for organic arable farming D 2.3 of OK- Net Arable. Organic Research Centre. Newbury (submitted for publication).

desperate need for **independent advice** to replace this if we are truly to work towards a public goods model, in particular in relation to promoting practices which enhance soil, animal and crop health, sharing knowledge from state of the art research and on-farm experience. Our experience suggests there is a willingness to contribute to the costs of this advice. As suggested by Minister George Eustice at the 23rd April meeting, this could potentially take the form of an individual who supports the planning, implementation and monitoring of the new Environmental Land Management, providing ongoing support and advice to individual farmers. Look at best practice examples from Denmark and France where there is significant Government investment in independent research and advice / extension and agricultural education. We recommend moving from a culture of enforcement to a culture of nurturing change.

- **Support opportunities for multi-stakeholder co-innovation processes** – including farmer led research with engagement of researchers, advisors and other industry practitioners.

Please rank your top three options by order of preference (from 1 as your most preferred to 3 as your least preferred):

a. Encouraging benchmarking and farmer-to-farmer learning -2 (see notes above)

It is likely that the uptake of benchmarking could be encouraged if the necessary data can be captured from farm accounts packages rather than requiring separate data entry. Realising this could also allow to implement some sustainability assessment criteria.

b. Working with industry to improve standards and coordination

c. Better access to skills providers and resources - 3

d. Developing formal incentives to encourage training and career development

e. Making Continuing Professional Development (CPD) a condition of any future grants or loans

f. Other (please specify) - 1 - support more CPD and training offers in agroecology, organic farming and conservation agriculture including the financial risk and rewards of such schemes and in marketing for farmers and rural businesses.

What are the main barriers to new capital investment that can boost profitability and improve animal and plant health on-farm?

a. Insufficient access to independent support and advice -1 (see notes above)

b. Uncertainty about the future and where to target new investment

c. Difficulties with securing finance from private lenders

d. Investments in buildings, innovation or new equipment, are prohibitively expensive -2 (There should be options for small / medium sized farms to access capital grants in collaboration – e.g. to purchase machinery such as mechanical weeders, direct drills and on-farm abattoirs as a group to support access).

f. 'Social' issues (such as lack of succession or security of tenure)

g. Other (please specify)-3

- **Underlying profitability of the business** – low price points needed to compete with cheap imports and larger farm enterprises means that smaller businesses are often not able to invest in the longer-term sustainability of the farm or have time to learn about new ways of farming to enhance animal and plant health.
- **A culture which over emphasizes yield as the main indicator of success** – change in culture needed which places greater value on gross margins, quality, animal and plant health, and the environment.
- **Whilst new capital investment is important, valuing and looking after the holding's existing assets must take greater priority.** Depreciation in farm natural assets – such as

soils, water and pollinators – are not factored during the single-minded emphasis on yield, ultimately at a cost to the long-term resilience and value of the farm.

What are the most effective ways to support new entrants and encourage more young people into a career in farming and land management?

- **Land partnership schemes** - eg Freshstart - access to land / support and mentoring
- **Make it profitable!** Support them to compete with cheap imports and larger farms, encourage alternative food networks and short value chains that connect them directly to consumers
- **Sensible regulations** that enable new entrepreneurs to set up – separate scaled down regulations for smaller scale operations and start-ups.

Does existing tenancy law present barriers to new entrants, productivity and investment?

- Yes - impacts active farmer status for land owner and thus reluctant to provide a tenancy and risk losing payments hence why share farming / crop license agreements tend to be set up
- Short- term Farm Business Tenancies (FBT) that encourage unsustainable crop sequences which damage soil health. In future landlords should be required to ensure sustainable rotations are observed on rented land. Learnings can be taken from landlords (such as Crown Estates) that obligate tenants to maintain soil health for the duration of tenancy, and reward improvements.

Agricultural technology and research

General comments:

Ecosystem services that deliver healthy soils, pollination, nitrogen fixation, carbon sequestration, clean water (and much more) are all dependent on natural processes that are generally not traded or sold, therefore there is no revenue generated and reinvested into technology Research and Development (R&D). Conversely, crop inputs, medicines and patented seeds all generate substantial revenue that can be reinvested to R&D. Public money should prioritise R&D where there is no market to self-fund – e.g. in the delivery of ecosystem services that increase the sustainability and productivity of farming systems.

- **Public research for public goods** - A move towards supporting public goods in farming systems will be dependent on investment in independent research on agroecosystem components (soil, crops, livestock, pest, weeds and diseases), agroecological practices and systems approaches. Successful models in France and Denmark demonstrate how this is key to encouraging a transition to more sustainable farming, linked to regional farm advice networks .
- We would like to see the LINK system of **public /private investment** of Defra re-introduced, which encourages industry participating but respects the particular aspects of the farming industry and food sector.
- We support an **Agroecology mission in R&D**, recognising the importance of ecology and ecological innovation to farming and supporting the dissemination of practical information via networks such as Agricollogy.
- **Technology for agroecology** - building knowledge and experience of agroecological innovations such as mechanical weed control, reduced tillage and intercropping - both in scientific trials and in practice. Opportunity for testing in different contexts, regions of the country and farming systems to give practical reliable information to farmers on what works where.

- **Maintain valuable links to European research initiatives** - to share knowledge between researchers and farmers on the practical application of sustainable farming practices. In the most recent past European funding (under H2020 and previous programmes including thematic networks (e.g. Hennovation, OK-net arable, AFINET, EuroDairy, AgriSPIN⁸) and multi-actor networks) have been fundamental to maintain engagement with agroecological and organic farming practices in research in the UK. There is a need to maintain these funding opportunities and the links to European Institutions as well as complementing it with UK funding opportunities for agroecology
- **Recognising a diversity of approaches** in addressing current challenges, including agroecology and whole farm approaches like organic farming, small scale horticulture, conservation agriculture, pasture-based livestock management. Both in research and practice.
- **Farmer-led innovation** in a practical way (simplified admin, fostering real collaboration between farmers and researchers)

What are the priority research topics that industry and government should focus on to drive improvements in productivity and resource efficiency?

- Plant and animal breeding and genetics
- Crop and livestock health and animal welfare
- Data driven smart and precision agriculture

d. Managing resources sustainably, including agro-chemicals - 3

e. Improving environmental performance, including soil health - 2

f. Safety and trust in the supply chain

g. Other (please specify) - 1 -

- **All of the above topics!** – We need great diversity in research with a leaning towards agroecology, which requires more funding to be ring-fenced. Many answers to today's challenges of farming are systems-based and cannot be pigeon holed by trouble shooting individual issues; agricultural health should take head of the issues in public health crisis; address the cause rather than getting wrapped up in the solution.
- **Focus on agroecological practices** that support more resource efficient, productive farming and the provision of public goods. See www.agricology.co.uk for examples of agroecology in practice. There is need for more investment in research to consider how productivity, resilience and efficiency of farming systems can be enhanced using ecology in different local contexts.
- **Plant breeding for lower input / organic farming systems** (there is no testing so far and no UK bred organic varieties with the exception of the ORC Wakelyns population); minor crops and smaller sector are likely to require public breeding.
- **Standardising practical sustainability indicators** for use in farmer decision-making, which links to an overall **framework** for on-farm sustainability assessment, which is duly rewarded by public payments.
- **Need to look at N max levels** with a view to reducing them but providing incentives for N conserving / enhancing measures

How can industry and government put farmers in the driving seat to ensure that agricultural R&D delivers what they need? Please rank your top three options by order of importance (from 1 as your most important to 3 as your least important):

- Encouraging a stronger focus on near-market applied agricultural R&D

⁸ https://ec.europa.eu/eip/agriculture/sites/agri-eip/files/eip-agri_brochure_thematic_networks_2016_en_web.pdf

- b. Bringing groups of farms together in research syndicates to deliver practical solutions- 1
- c. Accelerating the 'proof of concept' testing of novel approaches to agricultural constraints - 3
- d. Giving the farming industry a greater say in setting the strategic direction for research funding
- e. Other (please specify) - 2

All of the above are important and can be interlinked in a successful model.

- **Offering a continuation of operational group grants** (currently under EIP-AGRI) but reducing bureaucratic requirements and permitting more flexibility to respond to unforeseen circumstances, It is in the nature of innovation that something new is explore and unforeseen consequences occur.
- **Farmer-led research and on farm trials.** Proof of concept on farm is important to ensure that practices work in the complexity of real life whole farming systems, not just focusing on individual issues; not all issues can be addressed with technology therefore ecology needs equal attention.
- **Increased financial support for farmer innovation group models** (e.g. Innovative Farmer Field labs, OK-NetArable (H2020 thematic network) and BASE UK), which have proven the value of bringing farmers, advisors and researchers together to address key issues or test new practices. Providing opportunities for farmer to farmer learning and knowledge exchange. Co-innovation processes and participatory research have costs to facilitate engagement, farmer and researcher time and travel costs to enable on-farm measurements.
- **Support for research that has knowledge-based outcomes rather than product outputs.** Research objectives in private-public partnerships tend to be driven by product outcomes rather than the fundamental needs of farmers. It is easier to find industry support for something that can be traded – an agri-chemical, piece of machinery or seed. There is currently only limited market for ecological services and knowledge, yet it delivers most of the public benefit, therefore public money is required to invest in agroecology research.
- **Citizen science.** Replacing Direct Payments and a future Environmental Land Management Schemes should reward farms that actively participate in research and knowledge exchange; such as assessment and submission of farmland birds, pollinators, freshwater invertebrates or soil microbiology. Equally, a reward for hosting knowledge exchange events such as farm walks would facilitate successful creation and delivery of R&D. These collective small actions can not only yield powerful data but also act as a first-step for farmers to engage in research.

What are the main barriers to adopting new technology and ideas on-farm, and how can we overcome them?

- **Risk:** Support to take away some of the risk of experimentation. Interest free loans for practices which take time for return on investment, such as building soil health.
- **Confidence in the technology:** farmers need to see that someone else has made it work in practice and value the opinion of their peers. On-farm demonstration (e.g. payments to farmers for hosting open days) and follow up with communications campaign speaking the right language, e.g through Agricology.
- **Access to knowledge and information on best practice:** Informal links between researchers and farmers need to be encouraged and the dissemination of information on via networks such as Agricology needs to be supported.
- **Greater share of R&D investment for research translation for farmers.** There is a great need for bridging the divide between research and practice to make sure that research outcomes feed into practice, providing information about the context and the likely implications on enterprise and whole farm profitability.

- **Breaking the mould / Working in isolation:** There is a culture which is resistant to change, particularly among the older generation who desire clean fields (rather than working with weed and pest thresholds), focusing on yield vs net margins and a dependency on agri-chemical company reps for advice. The opportunity to share ideas and experiences with other farmers breaking the mould could help to build confidence; a sense of learning from mistakes.
- **Time constraints** - Farmers are time scarce this can limit their capacity to access and share information, trial new practices and evaluate the results. One solution could be to award points/credits for participation in research/citizen science (such as Innovative Farmers, the GWCT Big Farmland Bird Count or even Bee Counts etc) and sharing their experiences with others. Being on this database would provide a broad base of engaged farmers that can facilitate in larger studies.
- **Markets** - the majority of value chains are set up for managing large volumes of standardised monocultures which is a barrier to access for diversified cropping systems. A move to greater diversity in cropping systems can be supported by businesses built on shorter local value chains e.g. Hodmedods.co.uk and the smallfoodbakery.com

Labour: Skilled workforce

General comments:

- There is a need to focus on the importance of **rural employment** for rural development in designing any support for the future food and farming system
- **Agroecology** and other systems approaches (such as organic farming, conservation agriculture, pasture-based farming), are a priority skills gap at all levels of education, this should include an emphasis on system redesign
- **Agricultural marketing** also including through shorter supply chain (e.g. there is no UK textbook for agricultural marketing for use in colleges and universities)
- **Support farmer-to-farmer and researcher-to-farmer information sharing/learning**
- **Skills framework** or skills sector programme that allows entrants to see clear opportunities for career progression.

What are the priority skills gaps across UK agriculture?

a. Business/financial -3

- Risk management
- Leadership
- Engineering
- Manufacturing

f. Research - 2

g. Other (please specify) 1: 'Agroecologists' or ecologists working in agriculture

Ecology is required in health & harmony but unlike chemistry and machinery, there are seldom back-of-packs or manuals. It requires experience, knowledge exchange and research to re-skill two generations that have prized agriculture from the natural environment. For instance, not just identifying pests, but understanding lifecycles and wider ecology. This will facilitate shifts in management systems for lower inputs and greater health and productivity.

What can industry do to help make agriculture and land management a great career choice?

- Inspire – for example through Agricology which profiles farming systems that are doing it right and demonstrate success
- Demonstrate a path to ownership and / or long-term reliable incomes.

How can government support industry to build the resilience of the agricultural sector to meet labour demand?

The next generation need to be inspired; the government needs to support the profiles of best practice farmers and case studies, such as those on Agricology.co.uk.

5. Public money for public goods

General comments:

- We believe that an integrated systems approach (such as illustrated by agroecology, organic farming and integrated farming) will deliver a range of public goods rather than emphasising one over the other and reduces the need for prioritisation. Systems approaches, and associated ecosystem services will add more than individual practices.
- The delivery of the public goods listed should be integrated and reconciled with the desire to support a sustainable food system in the UK that supports public health. This implies that not only the public goods, but also the ‘public bads’ need to be taken into account in a systemic way⁹
- A clear **framework for sustainability assessment**, quantifying progress on the broad suite of public goods from agriculture, for the UK should be developed, aiming for convergence of the many existing tools and metrics. Such a uniformed sustainability assessment scheme has the potential to be used by government agencies (including Defra, NE and the RPA), food companies, certifiers and auditors. Such a scheme would also provide clear information to farmers that can be used for self-improvement, replacing binary pass/fail criteria with a more a progressive move towards sustainable agriculture.¹⁰
- Part of the focus in convergence should be in **harmonizing the data-gathering** on-farm to create efficiencies in data management, notably for assurance schemes and government support. Common data could also be used to help improve transparency in the market place and empower consumers to use their buying power to support the farming systems.
- **Sustainability assessment** can support agricultural policy making in many different ways such as designing and targeting agricultural policy, monitoring the sustainability performance of farms, allocating payments according to the degree of achieving sustainability goals (i.e. bridging the gap between action-based and results-based payments) and in enabling farmers to develop farm specific sustainability strategies (becoming sustainability entrepreneurs) in line with policy goals.¹¹

⁹ See OF&G policy paper at http://352eav31w90gupjz2lyw711.wpengine.netdna-cdn.com/wp-content/uploads/2018/01/OFG-Policy-ePaper-Dec17_Systems-and-Public-Goods.pdf

¹⁰ Samantha Mullender S, Smith L and Padel S (2017). Sustainability Assessment: The case for convergence. A report for the Sustainable Food Trust, Bristol by the Organic Research Centre, Newbury. <https://sustainablefoodtrust.org/articles/sustainability-assessment-the-case-for-convergence/>

¹¹ See also Schader C, Grovermann C, Frick R, Grenz J, Stolze M (2017) Towards a new public goods payment model for remunerating farmers under the CAP Post-2020 Potential of sustainability assessment tools for improving the effectiveness, efficiency, and acceptance of the CAP. FiBL Research Institute for Organic Agriculture Frick. http://www.ifoam-eu.org/sites/default/files/towards_a_new_public_goods_payment_model_for_remunerating_farmers_under_the_cap_post-2020_report_by_fibl.pdf

Which of the environmental outcomes listed below do you consider to be the most important public goods that government should support?

- a. Improved soil health - 1
- b. Improved water quality - 1
- c. Better air quality -1
- d. Increased biodiversity - 1
- e. Climate change mitigation - 1
- f. Enhanced beauty, heritage and engagement with the natural environment - 1

All! It is not possible to separate, they are integrated and influence each other. This is like asking which one of your children you love the most!

Of the other options listed below, which do you consider to be the most important public goods that government should support?

- a. World-class animal welfare - 1
- b. High animal health standards - 1
- c. Protection of crops, tree, plant and bee health - 1
- d. Improved productivity and competitiveness - 1
- e. Preserving rural resilience and traditional farming and landscapes in the uplands - 1
- f. Public access to the countryside - 1

None of these are mutually exclusive. By adopting a common framework for long-term the emphasis can be shifted in time (as priorities change) or in space (as regions address different issues)

Are there any other public goods which you think the government should support?

- Maintaining viable rural communities, including opportunities for new entrants.
- Ecosystem services which are valuable to the internal functioning of the farming system – such as the maintenance of pollinator populations, water quality etc.

6. Enhancing our environment

- **The environment and production are intrinsically linked.** The opportunity for the new Environmental Land Management scheme is to provide options which are integrated into the improved functioning of the agroecosystem. Practices which support wildlife, pollinators and beneficial insects, air and water quality, soil health and other public goods that also provide valuable services for resource efficient, profitable and resilient farming systems. Supporting systems approaches in the land management schemes and internal ecosystem services and recognising how they add more than individual practices.

From the list below, please select which outcomes would be best achieved by incentivising action across a number of farms or other land parcels in a future environmental land management system:

- a. Recreation **b. Water quality c. Flood mitigation d. Habitat restoration e. Species recovery f. Soil quality** g. Cultural heritage h. Carbon sequestration and greenhouse gas reduction i. Air quality j. Woodlands and forestry k. Other (please specify)

It varies depending on geography, and all outcomes are interlinked. A sustainability assessment framework would allow different emphasis to be put on joining up farmer clusters, in different areas setting out with different objectives. Scheme design needs to be flexible to allow for individual farmer preferences, to facilitate innovation and cooperation. Soil quality is best dealt with through a National Strategy and England has the opportunity to be a global leader in establishing a framework to achieve this. Likewise, there is a need to re-visit our approach to planting trees, particularly the incentives for small mixed species planting on farms and agro-forestry schemes.

What role should outcome-based payments have in a new environmental land management system?

A strong role but not exclusively; some proxies will be needed and there should be some caution on how effectively all outcomes can be measured. For example, assessment methodologies for species monitoring can be specialist (and difficult to simplify for qualitative self-assessment) and the factors that govern species success are more fluid and vulnerable to un-controllable events such as the weather at nesting or on migration. Other measures, such as reductions in artificial inputs or increases in soil carbon would be more straight forward to measure.

Moreover, the process of measuring outcomes should be a catalyst for farmer learning and inspiration - for example in the monitoring of soils or the presence of wildlife. Moving from a culture of enforcement to one of nurturing a transition to more sustainable farming. A support network to promote ongoing learning and training will be key to ensure effective delivery of the “outcomes” such as improved soil health and biodiversity. Payments should be tiered to reflect outcomes, but there is a need further bridge the gap between action-based and results-based payments and to consider transaction costs of any outcome verification. This need not be complex – a simple scheme of “poor”, “good” and “excellent” would suffice, with “poor” simply attracting a payment of income foregone and costs incurred, whilst excellent would be rewarded more highly. Introducing such a competitive element has been shown (for example in the payment results pilot by Natural England) to act as a driver for success and be a source of pride to farmers in a way that crop yield or quality is currently.

It will be important to understand the drivers of success. The current Results Based Agri-Environment Payment Schemes in Yorkshire and East Anglia will be important to understanding how such schemes might operate in the future. Although some farmers and landowners are skilled and motivated in the management of species and habitats we think that some form of simple verification and payment scheme would be highly beneficial. Consideration should also be given to how such systems fit in with existing regulatory schemes. For example, organic certification will guarantee a number of outcomes and is independently verified so can make assessment more efficient, but not all certification schemes are comparable in their requirements and outcomes.

How can an approach to a new environmental land management system be developed that balances national and local priorities for environmental outcomes?

Sustainability Assessment Metrics would enable different priorities to be weighted across regions and across time. Greater rewards for higher performances in certain areas of the environmental assessment would incentivise uptake of necessary management changes.

One possibility is a tiered system of support with an ‘entry level’ voluntary Foundation Scheme open to all farmers and land managers. It is envisaged that such a scheme would deliver key environmental criteria

such as currently included in the statutory management requirements and good agricultural practice. Such a scheme could therefore deliver the national priorities. Attracting higher levels of financial support we envisage a Universally Accessible Scheme to support the delivery of species, biodiversity and other public goods based on personalised or predetermined packages. Such a scheme could be based on identified localised priorities (based on the existing 14 delivery areas or the use of Natural Character Areas) which would stem from the national objectives established by the need to comply with international directives.

How can farmers and land managers work together or with third parties to deliver environmental outcomes?

By gaining credits that ultimately scores them higher in their sustainability assessment. Funds based on this scoring could replace basic payments. Experience of successful collaborative schemes already exists such as Farmer Clusters and the results from these should be used to underpin future policy in this area.

There could also be opportunities to explore the potential for farmers to receive carbon credits. There is interest from water companies to invest in supporting farmers to find new and innovative ways to reduce water pollution including practices such as cover cropping and intercropping.

A number of “third-party” certification schemes operate in farming, such as organic farming, pasture-fed livestock and LEAF.

7. Fulfilling our responsibility to animals

- Ensure future policy is geared to encourage livestock from sustainable, high welfare and organic sources with public benefits in
 - **Public nutrition** (e.g. 53% higher levels of Omega 3 fatty Acids in beef fed on grass-based diets, such as pasture-fed and organic)
 - **Biodiversity** (e.g. the role of grazing livestock in maintaining flower rich pastures and reliant ecosystems)
 - **Culture and landscape heritage** (e.g. the importance of rare & native breeds for flavour, regional identity, giving a purpose to drystone walls and hedgerows)
 - **Soil carbon** (e.g. the role of ruminants and grasslands in accumulating soil carbon)
 - **Reduced reliance on antibiotics** (e.g. the importance of natural immunity - a sterile environment does not automatically result in a healthy environment and the importance of building natural resistance; eliminate the reliance on prophylactic treatments and build a culture of prevention rather than cure)
 - **Flood mitigation and storage** (e.g. the value of sacrificial winter pastures for flood storage; the utilisation of grasslands, trees & hedgerows in livestock & flooding)
 - **Offsetting carbon emissions** (e.g. from nitrogen fertilisers through the utilisation of fertility building leys for crop production)
 - **Animal welfare** (e.g. ability to express natural behaviours to reduce stress, thus maintaining higher health status)
- **Depolarise the emerging vegan versus cheap, intensive meat production** debate by demonstrating greater transparency and education of all production techniques and enabling an informed decision at point of sale. A sustainability assessment framework would facilitate this,

which can then be translated into existing market channels such as red tractor, leaf marque, pasture-fed and organic.

- **Engage with the rising wave of veganism** and scrutiny of animal welfare to distinguish intensive livestock from sustainable and functional livestock systems that make use of feed resources not suitable for humans, such as permanent and temporary grasslands. Stockless farming systems need further evaluation and support, particularly in devising appropriate fertility building mixtures and their management.

Do you think there is a strong case for government funding pilots and other schemes which incentivise and deliver improved welfare?

Yes

No

Other (please specify)

There is a strong case to ensure that any new scheme builds on practice-led innovation supported by science and market-driven actors the respective livestock sectors. For examples how this could be done, please take a look at the AssureWel project (<http://www.assurewel.org/>) and the Hennovation Network (<http://www.hennovation.eu/>). New schemes should also be developed in close collaboration with farmers who are already practicing high animal welfare (such as organic farmers, pasture fed livestock and RSCA Assured),

Should government set further standards to ensure greater consistency and understanding of welfare information at the point of purchase? Please indicate a single preference from the below options:

- a. Yes
- b. Yes, as long as it does not present an unreasonable burden to farmers
- c. Perhaps in some areas
- d. No, it should be up to retailers and consumers
- e. Other - Government Initiatives should work with existing schemes, such as organic farming, pasture fed livestock.**

What type of action do you feel is most likely to have the biggest impact on improving animal health on farms?

- a. Use of regulation to ensure action is taken
- b. Use of financial incentives to support action - 2**
- c. Supporting vets to provide targeted animal health advice on farm
- d. Making it easier for retailers and other parts of the supply chain to recognise and reward higher standards of animal health - 3**
- e. An industry body with responsibility for promoting animal health
- f. Research and knowledge exchange - 1**
- g. Transparent and easily accessible data
- h. An understanding of animal health standards on comparable farms

How can the government best support industry to develop an ambitious plan to tackle endemic diseases and drive up animal health standards?

Supporting knowledge exchange among peers, for vets, farmers but also for herdsmen, based on evidence of proven schemes for prevention and treatment.

10. Risk management and resilience

- **Diversity is an important strategy to build resilience** into farming systems by reducing market, climatic and agronomic risks.
- **IPM approaches to build pest resilient systems** - information about existing alternatives to chemicals, for example creating habitat for beneficial insects, using crop rotations and managing the weed seed bank to reduce weed burden. Making existing knowledge more available to support farmers to make their businesses more resilient.

11. Protecting crop, tree, plant and bee health

General comments:

- **Agricology support a transition for all farmers** from relying on chemistry to protect crop, tree, plant health to working with biology. Sharing learnings between organic, agro-ecological, integrated and conservation agriculture.
- **Integrated approaches** to protecting crop health including creating habitat to provide food and shelter for beneficial insects integrated into the cropping system.
- Deepen knowledge and understanding to **design pest and weed suppressive systems**. Enhancing farmer knowledge on the biology of troublesome pests and weeds, understanding of critical weak points in the lifecycle and management of thresholds.
- **Exercise the polluter pays principle** and take drawings from insecticide use to invest in diverse, lower input land management systems such as organic and integrated pest management techniques that negate the need for insecticides.
- **Bee Health must not focus solely on parasites and disease:**
 - Bee Health must first ensure there is ample supply of diverse pollen and nectar sources in the landscape through diverse farming system
 - Consider the implications of overly manipulating and simplifying the gene pool of honey bees by excluding the natural phenomena of swarming. Consider the value of hefting populations to the local landscape and lean towards more natural beekeeping methods
 - Invest in research to understand the cocktail effect of mixing plant protection products (insecticides, fungicides, herbicides and other pesticides) on non-target species such as honey bees; particularly the impact of sub-lethal toxicity, e.g. on navigation, immunity.

This consultation response was prepared by the Agricology Executive Board: Katie Bliss, Susanne Padel, Tim Field and Alastair Leake. The views presented here to do not necessarily reflect the views of all partner organisations who contribute to the Agricology platform.

Agricology Partners

