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News in brief

Our work in 2021 - Changing the future of food and farming

Our 2021 Annual Review has just been published, highlighting our achievements in our 40th anniversary year. During 2021 we had 20 ongoing projects in our research portfolio, which we worked on in partnership with over 150 other organisations and conveyed our findings at 35 conferences. In addition, when in-person collaboration and learning were difficult, our Agricolgy online programme filled the gap – with use of the website doubling on the previous year. We also worked hard improving our governance and fundraising capabilities to ensure ORC can continue to prosper over the next 40 years and beyond.



DiverIMPACTS practice abstracts

Four short summaries of research conducted by ORC have been collated as the 5-year Horizon 2020 project DiverIMPACTS (Diversification through Rotation, Intercropping, Multiple Cropping, Promoted with Actors and value-Chains towards Sustainability) comes to a close. The practice abstracts are based around the three case studies that ORC led in the UK and cover the following topics: Including diverse leys in arable rotations; Building successful value chains for diversified cropping systems, using Hodmedod's as an example; Integrating flowers for attracting beneficial insects in protected cropping, and; The potential of biofumigation to control soil borne pests, pathogens and weeds. Practice abstracts can be downloaded from Zenodo via www.diverimpacts.net/service/publications.html and case study overviews can be read at: www.diverimpacts.net/case-studies.html.

ORC also coordinated work on strategies, methods and tools to sustain crop diversification all along the value chain – we will be sharing outcomes and reports under the Resources section of our website in coming months!

OF&G launch organic manifesto

OF&G (Organic Farmers & Growers) has published its manifesto 'Championing organic within agricultural policy' to highlight the key advantages of the organic approach in response to the unprecedented transitional upheaval in the farming sector. OF&G chief executive and ORC Board member, Roger Kerr, believes that terms like regenerative and agroecological, which lack legally defined, whole-system standards, create increasing confusion. "We are asking that organic, with its proven 'real world' evidence of delivery, is given clear and unambiguous recognition," says Mr Kerr. "Policymakers must acknowledge organic's potential to contribute positively to the challenges we all face, in alleviating the social and environmental impacts of our farming and food system." Establishing ten core reasons why organic deserves to be acknowledged, the manifesto covers key issues such as globally recognised standards, transformative farming practices, food supply

chain, carbon sequestration, biodiversity enhancements and market opportunities. The manifesto also features a case study based on one of Defra's Test and Trials, run on the organically managed Cholderton Estate in Wiltshire.

<https://ofgorganic.org/news/of-g-manifesto-championing-organic-within-agricultural-policy>

EU organic movement calls for a systemic approach to carbon farming

As carbon farming is a current priority on the EU agenda when it comes to climate change mitigation in agriculture, IFOAM Organics Europe urges in their new position paper the need for a holistic and multi-dimensional approach to carbon farming focusing not only on the amount of carbon stored in soils but also on biodiversity protection and the systemic transition of farming systems towards agroecology. Organic farming has multiple benefits for the climate and biodiversity, including increased carbon sequestration in soils, a lower energy input, 30% more biodiversity on the farm and an increased resilience of the farming system.

<https://tinyurl.com/IFOAM-OE-Carbon>

Westminster bill aims to impose new GMOs

Commenting on the the UK Government's Genetic Technology Bill – and the news that Environment Minister George Eustice does not believe that genetically modified organisms created with newer GM techniques should be declared on food labels, GM Freeze Director Liz O'Neill said: "Gene editing is GM with better PR and this bill aims to impose new GMOs on UK citizens by removing public protections and the labels that allow us to choose what we are buying and eating. All genetic engineering techniques can go wrong and that's why we need the kind of safety checks that this bill will throw on the scrap heap. George Eustice may be content with allowing GM developers to check their own homework, but consumers are not – as they told him in last year's public consultation."

UK Government's Food Strategy published

Defra have published the Food Strategy White Paper, which follows the independent review of the food system by Henry Dimbleby last year and set out an analysis of the challenges facing the food system. Prime Minister Boris Johnson said: "Our Food Strategy sets out a blueprint for how we will back farmers, boost British industry and help protect people against the impacts of future economic shocks by safeguarding our food security."

However, the White Paper fails to acknowledge or address the breadth of issues facing the food system. The Government needs to set out a plan for how UK farming will move toward systems that restore nature, reduce greenhouse gas emissions and sequester carbon, such as agroecological systems that include animals and rely less on imported external inputs. The Government must also set out a clear process and timetable for introducing legally binding targets to reduce the impact of our food system on public health, animal welfare and the environment, and to reduce levels of food insecurity.



Editorial: Hello from ORC's fundraising team!

About us



Welcome to the Summer 2022 Bulletin

Welcome to the Summer edition of the 2022 bulletin – can you believe that we're halfway through the year already?

As a charity, ORC is reliant on donations to fund our work. Over the past two years we have been striving to increase our fundraising capacity and we thought the bulletin would be a great opportunity to update you on some of the successful grant applications and appeals we have run, as well as thanking you for your ongoing support.

In July 2020 ORC secured a three-year grant from the John Ellerman Foundation that enabled us to invest in fundraising capabilities. This investment has borne fruit as we subsequently obtained a grant over three years from the Esmée Fairbairn Foundation to help fund the Agricolgy platform. Agricolgy is managed by the ORC so that we can share our work across the whole farming community. It is a collaborative hub and has a broad scope covering all aspects of practical sustainable agriculture, but we have also been successful in securing funding for some very specific projects by carefully matching a funder's interest or locality to our work. The Dulverton Trust is supporting a project looking at optimum shelter belts in the Cotswolds and the Ernest Kleinwort Charitable Trust together with the Lawson Trust are supporting a project concerning the conservation of farmland birds in Sussex.

Not all the support has come in monetary form and earlier this year we also successfully applied for a place on the Garfield Weston Foundation's Communicating Climate Change programme. Through the programme charities like ORC are given pro-bono training on all aspects of PR and marketing by the Media Trust.

Such training proved to be very useful when we pitched for and won a place on the Big Give's Green Match Challenge. A more public facing campaign than anything ORC normally does – this gave us the chance to broaden our appeal to a much wider audience with help from some of our sector partners. We raised over £30,000 – including two donations of £10,000 – making our campaign the 16th most successful of the 146 charities taking part! A massive thank you to everyone who supported our campaign – we couldn't have done it without you.

Equally important as appeal income are the regular donations we continue to receive from supporters, as they provide a degree of certainty to the charity's financial and operational planning. Excitingly, we are planning to introduce a new regular giving programme, ORC Guardians, which will be announced later this year.

In this edition of the Bulletin we are pleased to share an article written by Marianne Landzettel on the value of British wool (pages 4-8), as well as an update on the Living Mulches trial (p12) and an article written by Andrew Trump (Organic Arable) on impact of the war against Ukraine on the UK organic sector (p10).

We were also greatly saddened to hear of the recent passing of Caroline Drummond (LEAF) and Bill Acworth (Little Hidden Farm) earlier this year. Both Caroline and Bill had huge impact on organic and agroecological farming and the ORC would like to pass on our condolences to their friends and family.

A big thank you again for your continued and ongoing support in helping us to work towards our vision. Together we'll deliver the transition to naturally healthy and resilient farming systems. We hope you enjoy this Bulletin.

Sarah Barrett, Fundraising Officer, and the Fundraising Team

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Bulletin editor
Phil Sumption

The Organic Research Centre is a leading, independent, research charity working for better farming, food and health, promoting environmental sustainability, quality food and health and wellbeing for all. We work in the UK and internationally to: research and develop practical, sustainable land management and food production systems based on organic and agro-ecological principles; foster knowledge exchange with and between current and future producers, food businesses and related professionals; and influence policy and public debates on the future of food and farming based on sound evidence.

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Cover photo:

Photo: Sheep awaiting shearing. See wool feature pp4-8 (Credit: Martin Kunz)



Sustainable, versatile and unique: reassessing the value of British wool

In this special feature; food, farming and agricultural policies journalist, *Marianne Landzettel*, focuses on wool. How can this unique resource become an asset again, rather than a problem? Photos by *Martin Kunz*.



“We will start shearing in a matter of days,” says John Pawsey when I catch up with him on the phone at the end of April. His 650 ha arable farm near Bury St Edmunds has been fully certified organic since 2007. Pawsey always thought that livestock is beneficial to an



organic system and in 2012 he bought his first New Zealand Romneys. Since then the flock has grown to a thousand ewes. He raises them for meat - “the wool is fantastic” he says “but when I give talks, I always say I wish they didn’t have so much of it.” The sheep are being sheared in spring and in autumn. Just under five tonnes of organic wool are packed into green sacks (conventional wool goes into white ones) and sent to a British Wool collection point. Over the past few years, wool prices have gone down continuously, says Pawsey, and for the wool season 2020 the wool cheque didn’t even cover half the cost of shearing. “It has an effect on you. Mentally you don’t focus on wool because you see it as a problem, not an asset.”

Unique and undervalued

“We have 63 native sheep breeds in this country,” says Phil Stocker, the CEO of the National Sheep Association (NSA), 82 breeds if you include imported, half breeds and mules. Overall, Britain has 15 million sheep and produces 28,000 tonnes of wool a year and adds 300 million pounds to the economy¹. Only 1% of all this wool is certified organic. Why do farmers not make any money from wool? The main reason is the success of synthetic fibres, says Stocker. They are a fossil fuel based product, but because the environmental costs are not factored into the price, plastic fibres are cheap. There would be no ‘fast fashion’ and no ‘fast home textiles’ without synthetic materials. As a result, only one quarter of the global fibre market consists of natural fibres; wool accounts for just 0.9%. More than half of British wool is used to produce carpets, 25% goes into knitwear, 14% into bedding, and 7% into mattresses and bedding². If the situation was dire in 2019, the pandemic made things even worse. “The whole wool trade was so reliant on global supply chains, and when any part of that

chain fell apart, the whole thing collapsed,” says Stocker. It wasn’t just the lack of containers and other transport issues, the wool market was hit hard when restaurants, hotels and cruise ships shut down: without customers such venues don’t get refurbished, and the demand for wool carpets and fabrics, for curtains and upholstery dropped off a cliff.

Unique and changing – from Wool Board to British Wool

Farmers were reeling from the direct impact of the pandemic on food supplies and had little time to think about what happened on the wool market. Collecting and selling wool is the job of British Wool (BW), formerly the Wool Board, Britain’s last remaining statutory marketing board. It gives every farmer access to the wool market, says Phil Stocker, because BW has to market all wool that is delivered to it, though farmers can sell fleeces to independent traders if they choose to do so.



Shearing time at Blackhill Organic Livestock, Wiltshire



35,000 farmers deliver just over 23,000 tonnes of wool annually to the collection points, says Haldi Kranich-Wood, Business Development Manager at British Wool (BW). “Our farms are small, mixed and very traditional, and our farmers don’t choose the animals they keep on their land on the basis of what is commercially the most efficient breed, but based on traditions and animals’ suitability to a certain landscape,” she says. With an average of 350 sheep, the flock size is small compared to New Zealand (with an average flock size of 3,000) or Australia (with 5-10,000/flock). BW deals only with so-called ‘greasy wool’ (i.e. raw fleece). Farmers deliver to intermediate collection points, where the wool is compressed and transported to one of eight BW grading depots, where it springs back to full volume once it is unpacked. Sorting the wool into 120 grades based among others on colour, staple length, fineness, lustre, and occasionally breed needs a lot of training and experience. BW keeps a record for deliveries from every farm: it specifies the amount of wool delivered and, after grading, the amount per category. The wool is then packed into 350kg bales and grouped into 8 tonne lots which are sold at auction. Wool auctions usually take place every fortnight and BW tries to make sure that buyers have a choice between a wide range of wool qualities. The grading ‘season’ begins when the new wool starts to come in May and ends in April. And that’s the time when farmers receive their wool cheques: because the wool is sold at auction, the prices for wool of the same quality may vary and the average for each category can only be calculated at the end of the season. The lustre wool from breeds such as Wensleydales, Teeswaters and Bluefaced Leicesters achieves the highest price of ca. £5/kg. At the other end is the coarser wool for which there is less demand, such as Swaledale, Blackface or Welsh Mountain sheep, where the price can be as low as 40p/kg. (In the 2021 season prices were a little higher at 50-55p/kg.) Every farmer pays a levy of about 40p/kg for BW’s services (collecting, grading and selling the wool), and that means some farmers will make no money at all from their wool. It really shouldn’t be that way.

The world’s best wool

“It is a massive misconception around British wool that it is coarse and only suitable for carpets and socks. The lion’s share of the wool we are producing is actually in the medium type to cross type wool. It’s very versatile wool, suitable for apparel and upholstery; cross type wool goes into tweed and sometimes into premium carpets,” says Haldi Kranich-Wood. Because it is considered coarse, about half of the wool does go into carpets even though it could be used for many other things, too.

Wool is a natural high-tech superfibre; renewable and biodegradable, it can be warming and cooling. Other characteristics include: “durability, flexibility, pest resistance (including slugs and snails), and flame and water resistance. It also has potentially useful hygroscopic (water-holding) qualities, and even within medicine it has the ability to help blood to clot. It also has bacteriological properties (...). Wool has the unique ability to arrange its fibres into felt, offering its use as a natural fabric. Its production is very low in carbon terms compared with alternative man-made fibres, and has a low fertiliser requirement compared with plant-based



Raw fleece is fed into the scouring unit at Curtis Wool, Bradford



During scouring grease and dirt are removed from the wool



Carded wool - the fibres have been untangled and are aligned

fibres, as sheep can convert low quality pastures into useful fibre crops with little external input³. As yet, no synthetic fibre combines all of the properties that wool has. And, “not all wool is created equal,” says Haldi Kranich-Wood, “British wool is soft, hard wearing and it has bulk, it keeps the shape and is not likely to pill.” The reason for that lies in geography and the British climate, says John Atkinson, who farms in the Lake District and is the CEO of the Rare Breeds Survival Trust, RBST. The British Isles have a moderate climate and, unlike the Middle East or Australia, no extreme periods of drought. The wool of sheep living in a hot, dry climate will get brittle and snap; the fibre reflects the weather conditions. In a temperate climate sheep of the same breed will have a more uniform fleece, the wool grows continuously and evenly, the fibre does not break easily. “Spinners and weavers find many types of British wool to be better than Merino,” says Atkinson. “We have the best wool in the world because we have all these different breeds.”



History, heritage and farm traceability

BW is still about big volumes, 85% of all wool is sold through the auction, but Kranich-Wood and her colleagues do their best to promote British wool and its unique qualities. They have their work cut out. Wool from other countries is “aggressively pushed into the UK” says Kranich-Wood; many British companies work with wool from Iceland, Syria, continental Europe, Turkey or Saudi Arabia because it is cheaper. Even on agricultural shows you can find wool products manufactured by British companies, a British made tweed jacket for example, where customers naturally assume that they are made from British wool but they are not. “Or a blanket sold in heritage gift shops, a beautiful blanket, made to look like British wool but it actually is not.” The only guarantee that a product is made from British wool is the BW Shepherds Crook Mark logo. “At present you have to go out with a magnifying glass to find things that are truly made out of British wool”, says Kranich-Wood. That’s why BW last autumn added a shop to its website⁴ which links to products made from British wool. At present there are 78 licensees; Kranich-Wood hopes there will eventually be as many as 300.

Demand for British wool is increasing. “The tide is turning,” says Kranich-Wood. The pandemic has raised the awareness of farming, she says; first people started to care about where their food comes from and now the same seems to be happening with wool. One of her colleagues who has been working on the auction side for 27 years says he has never seen as big an interest in British wool fibres as right now. There is also growing demand for organic wool and for wool from individual and rare breeds, all of which are extremely limited commodities and should fetch very good prices, but it’s hard to say how fast the market is going to expand, in particular in the current climate.

“It’s about the history, the heritage and the story telling,” says John Atkinson from RBST. He believes that a small but growing number of people will treat wool and the products made from it like wine, where not only the type of grape matters, but the vintage, the vineyard, the terroir. After the success of his books, fell farmer James Rebanks gets excellent prices for the wool from his Herdwick sheep, and owning a Herdwick carpet has become Instagrammable. Only Prince Charles’ sheep and wool products from Dumfries House enjoy similar popularity and prices. Of course, only a small number of farms will achieve such fame, but Atkinson thinks farmers could cooperate to promote wool from a particular breed or region.

At the wool auction, wool is traded in tonnes, quantities that are far too big for small and artisanal producers, who need much smaller amounts. The RBST has been working with BW to change that. Anyone who has ever taken a look at a ‘wool cheque’ knows how detailed the information is: even one or two kilograms of wool in any particular category are recorded. In order to put together lots for the auction, BW often needed to combine the clip from dozens of farmers and from that point onwards, the wool remained traceable to a region but no longer to a particular farm. Today, it is clear that farm traceability really adds value, and BW has invested into staff and technology to make that work. From this season, two thirds of the wool will be traceable back to the farm, certified by the newly created ‘authentic traceable British Wool’ label. Companies can draw upon the expertise at BW in other ways.



From Wool List to Library

While BW focuses mostly on wool from a particular region, ‘The Wool Library’ deals with supply chains for rare breeds. Zoe Fletcher trained as a knitwear designer and was always passionate about natural fibres, wool in particular. ‘From sheep to catwalk’ was the topic of her MA, the sheep in question being some Derbyshire Gritstone sheep living right behind her parents’ house in Bolton. It was hard work to trace the wool from those sheep right through to a designer collection at the London graduate fashion week but through the process it became clear to her that designers and manufacturers need much better and more detailed information about the wool of different breeds, its qualities, how it can be spun and dyed, why it does or doesn’t pill: “if we don’t have that information, people will be turned off by wool and choose synthetics.” For her PhD she decided to create a tool kit for everyone using, wearing or working with wool to help understand the history and different qualities. The result was The Woollist⁵. She assessed the wool of different breeds for their commercial qualities such as micron count, staple length, the feltability, the average fleece weight, all of which makes it possible to compare different breeds. She gathered information on local availability of wool from specific breeds and even went to the microscopic level to look at the differences in scale structure. For Fletcher, BW proved to be an invaluable source of information and knowledge about wool, grading, availability, distribution of breeds across the UK and more. The latter is important because it is linked to genetic diversity in British sheep. “In the UK we have breeds that are resistant to disease, that are acclimatised to very different locations and climates, from the Scottish Islands to southern England. In New Zealand, 89% of the flock are Merinos; if they were ever hit by a disease, the flock would be gone.”

The Woollist is ‘work in progress,’ says Fletcher; she would like to integrate farmer stories and historical knowledge.



What about organic wool?

Organic wool is scarce the world over. In Britain, only 1% of wool is certified organic. So, if you are an organic farm and keep sheep, you potentially have a high value commodity to sell. Demand for wool in general is increasing, and in future, organic wool might fetch some very good prices. To make the most from your wool, try to reduce the vegetal matter in the fleeces as best as you can. John Atkinson from the RBST shears his sheep when they come from the winter pasture (which is basically managed grassland) and before they go onto the moors where they are certain to pick up lots of vegetal matter. And being extra careful with crayons and sprays for marking is a good idea, too.

British Wool provides green bags for the collection of organic wool (as opposed to white ones for conventional). The wool of some breeds can have very high value. If you have different breeds in your flock it may be worth keeping the wool separate according to breed. More information is available through British Wool (<https://www.britishwool.org.uk/organic-wool>).

The number of wool processing companies, in particular those which scour wool, is limited. Processors handling organic wool need to be certified organic (GOTS), too. Processing small batches is more expensive in any case, and organic certification will add further to the costs: machines have to be thoroughly cleaned to prevent contamination from conventional wool. For individual farmers to have their wool processed and then direct market it may therefore not be a worthwhile option. But British Wool and The Wool Library help companies to source wool, and the farm traceability programme together with organic certification will add value. Even the scrap wool of an organic fleece has worth: one company now uses it to produce organic compost.

“Farmers are used to shearing the fleece and sending it to the depot, they don’t know what becomes of the wool, what value it has. We need to bring them back into the process.” She works closely with John Atkinson and his partner Maria Benjamin and together they came up with the idea for the Wool Library⁶. The purpose is to build a platform for sourcing which facilitates the creation of yarn and knitwear with breed specific British wool. Fletcher works with BW’s traceability programme and the Wool Library acts as “a radical wool merchant.” As with food, locality and traceability right to the farm level is proving to be really important. Atkinson tells me about demand for knitting wool of rare breeds in the US, and of Japanese companies paying very good prices for Shetland wool that can be linked to the specific location of a particular farm. Fletcher has worked in the fashion industry for several years and with her expertise in knitwear she can advise processors and brands. “Not all British wool is suited for garments, but good fibres should not go straight into insulation,” she says. Like Haldi Kranich-Wood she wants to find the best, most high value use for the wool so that it once more becomes profitable for farmers.

So far, the Wool Library has stock yarns which are sold in small quantities to end-users and wholesale to small designers.

Fletcher is also working on new blends. In co-operation with a Scottish farmer who breeds Cheviots for their colour she is experimenting with blending: 70% Cheviot wool with 30% vegetable fibres, which gives the yarn higher stability. If it is used to make socks, there is no



Carded wool ready for further processing, e.g., spinning into yarn

need to add synthetic fibres such as acrylic or nylon for durability. She is also working on blending 30% wool from Blueface Leicesters with a 70% base of Cheviot or similar. She says the result is a very nice, silky, soft yarn which could make the limited supply of the expensive Blueface Leicester wool last longer.

How does the Wool Library work financially? Fletcher is still working that out, but she is optimistic that a flexible model will work: brands pay a consultancy fee to get the expertise of a knitwear specialist, help with sourcing and the story of the wool. There would be a commission from wool sales and farmers should get a percentage from their wool when it is made into garments. At present the Wool Library works with farmers she knows and wool from Cheviots, Teeswater and Moorits, but the more different yarns she can showcase and experiment with, the better the service she can offer to brands.

The Wool Library continues to work closely with BW, where the wool is graded according to their specification and stored. At present farmers get the auction base price for their wool, plus an extra 30p to 1£/kg.

The bottleneck: processing infrastructure

During the pandemic, an increasing number of farmers started selling their produce directly, through farm shops or online. This does not seem to be an option for wool. There is little use for greasy, unsorted wool. For most products, the wool needs to be graded, scoured and then processed – carded, spun into yarn or felted – before it can be woven or knit, made into insulation or bedding. In the area around Bradford and Leeds there are still a number of highly specialised scouring and processing companies which do this efficiently and cost effectively, but usually they do not deal with charges of less than 500kg. If traceability is the way forward, then infrastructure is needed to deal with smaller volumes. “At present, if you find a company that accepts small volumes and processes it to a high standard, the lead time can be extremely long and the costs prohibitive,” says Haldi Kranich-Wood. And this is a particular problem for organic wool, because the processor has to have organic certification, the volumes are small, and the additional costs high. The hope is that the industry will react to the changing demand and adapt.

What can farmers do?

Sue Seymour farms in Northumberland. The shearing costs for her flock of 200 Swaledales and 200 mules are way higher than what she gets for the wool. The climate in this part of England is rough, she says, she needs hardy, sturdy sheep. In order to add value to the wool, she bought two Blueface



Leicester tups and she finds that the fleece of the Swaledale Blueface Leicester crosses is softer, but the price does not merit the extra effort. It's hard to keep the Blueface Leicester tups alive here, she says. She bought the Swaledale flock with the farm, but she is now thinking about switching to Cheviots: the lambs and the wool would be worth more. She thinks it would be great to have locally branded wool products such as such as wadded (insulated) meat boxes. But it would need someone to set up and run such a project; like most farmers Seymour does not have the time to do it herself. At BW, Haldi Kranich-Wood would love to help a start-up with such a product idea, but "we need people to come to us," she says.

John Atkinson from the RBST has some practical advice for farmers that would increase the value of the wool. In particular: keep vegetative matter out of the fleece. He has seen fleeces at the British Wool grading depots that were ruined because the sheep had been sheared on a bed of straw. The fleeces were so full of vegetative matter that they could only be composted. In particular barley straw is impossible to get out. One farmer could have received £1.50/kg had he not blown straw on the sheep for bedding; because of that the wool value dropped to 5p/kg.

The other big issue is the spray marks and numbers that need to be washed out. This can be done during scouring but often the wool has to be washed more than once and that increases costs. BW works with manufacturers of crayons and sprays and has approved a number of products that wash out relatively easily⁷. But John Atkinson says the whole issue can be avoided when farmers place numbers and markings not on the back of the sheep where the wool has most value, but on the neck or the shoulders; those parts of the fleece have low value or will be thrown out anyway. And careful shearing helps too; double cutting the fleece reduces the value.

True cost accounting

Sheep wool truly is a super fibre, versatile, environmentally friendly and recyclable. But it cannot compete with synthetic fibres on price - as long as there is no true cost accounting. At present, neither the carbon footprint of these fossil fuel based products, nor the environmental damage they cause, are reflected in the price.

We know now, that microplastics can be found in our food and in our bodies. The full effects on our health are not yet known⁸. At the same time, the environmental benefits of sheep are neither measured nor compensated: "In sustainable grass management systems, cattle and other grazing animals have the potential to encourage root growth which, in turn, promotes humus building and contributes to carbon storage. This correlation is inextricably linked to climate mitigation⁹," says a recent EU study. Increasingly though, the argument for wool is being made: Leeds University is working on a new, comprehensive life cycle analysis for wool. At the end of April, the Knowledge Transfer Network UK KTN launched a Circular Economy Network with a focus on wool¹⁰. Targets in public procurement for the inclusion of wool fibres would really open new markets for wool - BW is working on it, says Kranich-Wood. More companies are inquiring about wool in an effort to reduce their carbon footprint. If Britain is to reach the goal of net zero emissions by 2050, wool must be part of the strategy.

1. <https://ktn-uk.org/events/circular-economy-innovation-network-launch-event/ breakout session four focused on wool>.
2. NSA statistic
3. Feasibility Study: Sustainable Uses of Bracken & Wool in the Black Mountains Area October 2020 Bob Kennard BSc(Agric) Hons FRAgS MIAgM Graig Farm, Dolau, Llandrindod Wells, Powys
4. <https://shop.britishwool.org.uk/>
5. <https://thewoolist.co.uk/>
6. thewoollibrary.uk will go live soon Instagram: @the.wool.library
7. <https://www.britishwool.org.uk/ksupload/userfiles/Licensed%20marking%20fluids%20rev%203.pdf>
8. <https://www.plasticsoupfoundation.org/en/>
9. https://www.martin-haeusling.eu/images/publikationen/Klimawandel2020_EnglischeVersion_final.pdf
10. <https://ktn-uk.org/events/circular-economy-innovation-network-launch-event/>

Memories of Caroline Drummond: an inspirational woman

It was through an Elm Farm colleague, Hugh Bulson, that I first meet Caroline. Hugh and Caroline were both graduates of Seale Hayne College of Agriculture. In fact, that particular cohort produced a number of graduates that I have worked with over the years.



Photo: LEAF

At first the relationship between LEAF and the organic family could be a little strained. The main bone of contention was integrated pest management, the use of chemical plant protection products, that LEAF advocated. But through Caroline's steadfast and calm belief in LEAF, the relationship grew with the realisation that we were all on the same side and trying to find away to produce food with the environment in mind.

Much as been written since Caroline's untimely death of all that she has achieved. In my mind Open Farm Sunday has to be Caroline's biggest legacy. Bringing people on to farms and supporting farmers to host these events through a network of demonstration farms and training programmes. I am not sure who learnt from who, as we at Elm Farm had very similar activities, but nothing that could compare with Open Farm Sunday. Which lead on to participatory research activities which brought LEAF and the organic sector closer together. More recently the links have become closer through the collaboration with the Agricolgy knowledge platform, Innovative Farmers, DIVERSify and DiverIMPACTS.

I have lost count as to how many times I have seen Caroline speak at conferences, in a tent, from the back of a trailer or in a farmyard. Always happy to share knowledge or the latest news or policy development. I have sought her advice and council on numerous occasions. As a colleague, mentor, and a friend I, like the rest of agriculture, am going to miss her enormously. And in closing we must also remember that she was a farmers wife and mother and we pass on our sincerest condolences to her family.

Rest in Peace, Caroline.

Lois Philipps



Research projects and staff/trustee news

Four new European projects launch in 2022

European collaborative projects funded through the EU's Horizon 2020 programme have been a core strand of ORC's work over the last decades. As Horizon 2020 projects such as LIVESEED, DiverIMPACTS and Organic-PLUS reach their end in recent or the upcoming few months, ORC's bidding in the summer and autumn of 2021 has borne fruit in terms of four new projects starting in 2022 as part of the new Horizon Europe programme. In the post-Brexit landscape ORC will be an Associated Partner in these projects, with funding underwritten by the UK Research Councils, but this in no way impacts on the full involvement of our organisation in these exciting collaborative ventures.

The first to get off the ground, starting in July 2022, will be RE-FOREST: Agroforestry at the forefront of farming sustainability in multifunctional landscapes in Europe. This project responds to the Horizon programme's call on agroforestry to meet climate, biodiversity and farming sustainability goals. It is led by the Czech University of Life Sciences and has 12 other partners in 10 countries, including ORC and the University of Reading in the UK. Building on previous projects to identify the barriers and benefits of agroforestry in Europe, including the current work of AGROMIX to which ORC is also contributing, RE-FOREST will be seeking to fully unlock the potential of this land management approach through a combination of innovative modelling approaches and tool development, aiming to internalise the value of carbon and biodiversity in farming business models. At the heart will be the development of living laboratories, one in each country, an approach which brings researchers together with farmers, other land managers and stakeholders within defined territories. As the name of this concept suggests, it is about experimentation and learning in a real-life context.

The other projects include: LIVESEEDING – to continue our work on organic seed production and breeding with a focus on collective on-farm experiments and decision-support tools; Oper8 – a thematic network on non-chemical weed control; and ReLivestock – which aims to reduce greenhouse gas emissions from livestock farming systems and increase their capacity to deal with potential climate change impacts.

A new era for organic research

ORC is also delighted to announce a new three-year privately funded programme of consumer-focused research. The introduction of environmental land management schemes (ELMs) and current pressures from rising inflation and widespread labour shortages are pushing many businesses to continue minimising input costs and engage in environmentally sympathetic farming practices. The new programme, due to start this summer, will seek to investigate the main barriers and opportunities to grow the UK organic market.

The three-year programme has been generously funded by Mr John Pain, a global marketing expert with a significant personal interest in organic food marketing. Commenting on the new project, Mr Pain said: "Organic agriculture has been at the forefront of reducing artificial inputs with research

in this area pushing the boundaries of possibility and identifying lessons that can be applied across all farming systems. However, consumer acceptance of organic products remains limited to certain perishable categories, whilst in Europe there is a thriving organic segment in categories such as biscuits, snacks and baked products.

"ORC has an outstanding reputation and hence I am delighted to initiate a research programme to explore marketing of organic products in new categories in the UK. Ultimately, expansion of zero input agriculture will only happen if there is commensurate growth in consumer demand."

Lucy MacLennan, CEO at ORC, added: "Organic research has never been more relevant. Significant inflation, labour shortages and the introduction of environmental land management schemes (ELMs) are all collectively forcing agricultural businesses to minimise input costs and engage in environmentally sympathetic farming practices. We have a wealth of knowledge and experience which can help to support the industry through these changes. We are excited to embark on our new programme of research and would like to thank our funders such as the Esmée Fairbairn Foundation and John Pain for their ongoing support."

Welcome back Nicola Noble

Nicola returns to ORC as (interim) Livestock and Sustainability Researcher, having previously worked on the EU Horizon 2020 funded project 'Innovation for sustainable sheep and goat production in Europe' (iSAGE). Her main role is in adapting and developing ORC's Public Goods (PG) Tool for a targeted focus in organic ecosystem services indicators as part of the FoodLevers project. It is a role she combines with her work at the National Sheep Association, as Project Manager.



Janet Dwyer awarded OBE

Congratulations to ORC Trustee Professor Janet Dwyer, who has been awarded an OBE in the Queen's Birthday Honours List 2022. Janet, Professor of Rural Policy and former Director of the Countryside and Community Research Institute (CCRI) at the University of Gloucestershire, has received the award – announced during the Queen's Platinum Jubilee celebrations – for her services to rural research over more than three decades. Commenting on the OBE award, Professor Dwyer said: "Whilst this news has come as a complete surprise to me as I just do a job that I very much enjoy and believe in, I know my family, friends and colleagues are absolutely thrilled that my research has been recognised by the award of an OBE. I hope my award helps to inspire other researchers, particularly younger colleagues, to understand and recognise the impact and significance that their work can have."





Impact of the war against Ukraine



Burnt out Russian tank next to organic field in Ukraine

We asked Organic Arable's Andrew Trump to discuss the impact of Russia's war against Ukraine on the UK organic sector

It is worth putting the UK's reliance upon organic grains into some sort of historical context. Organic Arable was set up in 1999 and been operating as an independent grain marketing business since 2008. I have been running Organic Arable since then, and was previously working for Grainfarmers (now Openfield) and before that the Organic Advisory Service at Organic Research Centre (Organic Arable was a client), so I have been in or around the organic cereals sector for about 20 years.

Through the mid noughties the organic sector remained about 50-60% self-sufficient in organic grain but at about this time the monogastric market started to become better established with some large integrated poultry and pig businesses entering the market and the demand for organic wheat grew strongly. In 2006 values spiked as Ukrainian supplies ran low, due to drought conditions, and it became clear that there was insufficient domestic production to meet demand. It was then that a consignment of in-conversion grain from Kazakhstan rescued a panicking organic feed sector.

Kazakh supplies continued and the Black Sea became established as an increasingly important supplier into the UK. The protein levels were high and prices generally undercut those sought by domestic producers. As the sector contracted following the fallout of the credit crunch there was a cheap, reliable source of grain from the region that fulfilled the needs of the organic feed market and even the genuine concerns surrounding the probity of some supplies did little to halt the flow of grain. Black Sea grain established a stranglehold on the market that has remained until the war started.

UK producers were told their wheat was too low in protein and their prices too high to be of interest to the organic feed market and provenance of insufficient value lessen the rate of import; "as long as it has a certificate I don't care" I was told by one, now retired, feed manufacturer. The organic wheat area fell by over 60% from 2011 to 2018 to just 8200 ha. Although we have no detailed figures the general consensus is the UK moved from being about 60% to about 20% self-sufficient through this period. The premium for organic feed wheat seemed to be capped at £80 - £100 per tonne over conventional prices and there seemed little appetite from feed companies or the livestock sector to seek to stop this decline in domestic supply as the Black Sea grain continued to arrive. A senior figure from an organic certifier told me that the UK had little future as a grain producer and at times through the last 10 years they seemed to be correct in their analysis.

Fortunately the organic oat sector recognised that organic consumers value provenance and started to buy increasingly

significant volumes of organic milling oats and the acreage of this crop grew by 31% from 2015 to 2020 to 15,000 ha, making it the largest single organic crop grown in the UK. Growers focused on crops for human consumption.

The reason for this long introduction is to explain how the organic sector has been too reliant upon imported grain supplies for too long. As a business we have been highlighting the structural weakness this creates for years and in three weeks in February/March 2022 this has become exposed all too clearly.

Anecdotally it is thought that approximately 50% of the organic wheat we import is of Black Sea origin with as much as 75% of the organic maize coming from the region. Other significant exporters being Baltic States, Moldova and Romania. However these large amounts will be difficult to replace especially from the low base we from which we start.

Huge uncertainty surrounding the Ukraine

If we assume that the wheat is predominantly winter wheat and drilled we then turn to the maize and sunflowers and increasingly soya that is grown. This is spring-drilled and there is uncertainty as to how much was drilled. Even if drilled, will there be fuel to run combines and how well might war-damaged infrastructure manage to export grain?

Apparently the use of trains into Poland is being established, which may offer some possibilities but for the UK this grain would require trans-shipment from Europe which will add to cost. There is further uncertainty about the storage of the 2022 harvest as grain remains in store from the 2021 harvest. It is unclear how the 2022 harvest will be stored with so much still unmoved.

The general impression from shippers and importers is there are plenty of offers of organic grain but once existing contracts end the picture is far less certain and the origin of new crop supplies is unknown.

The advantage the conventional sector enjoys is a greater diversity in potential suppliers and so it is more a case of trade flows and cost rather than physical impediments to access to export grain from the region. This is reflected in the forward values we are seeing. Conventional values have fallen back through June with November LIFFE (London International Financial Futures and Options Exchange) back to about £310 from a high of £355 in mid-May. Meanwhile organic values for new crop have continued to firm, showing less certainty about new crop availability.



The UK response

One seed company recently reported their spring wheat seed sales up 100t this season but at 200 kg per ha this represents an increase in plantings of just 500 ha or perhaps 22,000 tonnes of wheat – a drop in the ocean even if the other seed companies had seen similar increases (which they haven't) we'd still only replace a fraction of what will be lost. Dairy farmers are reducing numbers and growing grain to buffer themselves against shortage and high prices. We must hope that French, German and other European producers have seen a similar intent to increase their organic cereal production. Supportive government policy in many EU states means their organic sector is larger than the UK's and certainly less reliant on imported feed grains. If they have increased production they may have exports we can benefit from.

Supplies from other regions?

We have previously imported from Canada and Australia but the massive growth the US organic market has seen in recent years is likely to account for the Canadian grain and the cost of freight from Australia must be untenable.

The issue is not simply a supply side issue. With prices increasing we have no idea what effect the increase in cost of both animal feeds and food products will have on demand. Mills are currently running on supplies that were bought 6 months ago and priced at values £100+ less than today's prices and new crop values. These higher grain prices will feed through to livestock farmers, flour millers and bakers, oat millers and maltsters and so the cost of organic food will need to increase and it is how the consumer responds to these increases and the impact this has on demand that will be critical. Grain is only one element of the costs of food manufacture; with energy and labour costs also increasing the inflation seen in the organic sector will be significant especially as we are generally working with smaller scale processing which is inherently more expensive.

Looking further ahead. If the Ukraine plants and harvests its 2022 crop but is limited in its ability to export this it will sit on large stocks of grain that will need to be sold. A country devastated by war may seek to realise this stock at a level that ensures it sells which could crash the future value of organic grain as Ukraine empties its stores.

How do organic farmers respond?

It has been interesting talking to farmers about their attitude to values far above their wildest expectation. Whilst concerns around fuel costs abound they are not exposed to fertiliser or other input shocks and so good profits seem likely but several are questioning the benefits of these if demand is lost and ultimately the sector contracts. It is a challenge for the organic sector to consider how it might put into practice the value of resilience it espouses. Can we find the mechanisms to reduce the influence of speculation in the market and deliver product to processors at prices that allow all within the supply chain to remain profitable? If we were to do so would those customers remain loyal to the UK producer once cheap organic grain starts to find its way back onto the market from the Black Sea Region?

The Organic Initiative



As with every area of life in the country, the organic sector in Ukraine (one of the most active in Europe) has been dramatically impacted by the Russian invasion. The Organic Initiative is a platform for organic stakeholders in the country and during the war has been working tirelessly to support the urgent needs of organic operators and provide all possible support.

Olena Deneiko, coordinator of the Organic Initiative, reported on the situation:

“Since the beginning of Russia’s full-scale invasion of Ukraine the organic sector, as well as the entire agrarian industry, has been suffering from this aggression.

“The results of the survey of the Ukrainian organic business, carried out by the Organic Ukraine NGO on March 2022, shows the current situation as follows: 30% of operators claimed to have suspended their business with 15% being on the verge of it, 32% operate partially, 15% of operators are giving their organic products to support the Ukrainian army and population. Only 7% have [experienced] no changes.

“The data shows that Ukraine’s organic sector is severely affected by the war. There is a risk of a large share of operators leaving the market of organic certificated production in Ukraine.

“Organic farms have experienced direct rocket strikes, deteriorating health and welfare of their animals (e.g. from feed and medicine shortages and stress due to bombing), labour shortages and disrupted supply chains (e.g. from destroyed bridges and roads) amongst other direct impacts.

“Given the importance of the organic sector to the economy, society and environment of the country, it is essential that it survives and recovers from the current disaster. As a response, the Organic Initiative has initiated a Grant Programme to support the organic producers to overcome the current crisis and look ahead to a better mid- and long-term future once again.”

Olena and the Organic Initiative team welcome support during this time and are happy to meet online to discuss the form that this could take. Details of the Grant Programme, including contacts, can be found online:

www.dossier.org.ua/en/projects/organic-sector-support/

Will Simonson



Living mulches: the (under) story so far



This Innovative Farmers field lab trials a (semi) permanent clover understorey – a forage legume used as an understorey to cash crop production – also known as a living mulch. The aim of the living mulch is to suppress weeds, cycle nutrients and protect and enhance soil health. ORC Field Crops Researcher *Henny Lowth* brings us up to date.

Oats with living mulch (left) and control (bare ground) right

Photo: Henny Lowth

Results so far...

The trials show a significant and large (40%) yield reduction of the cash crop in the living mulch compared to the control. The inclusion of a direct drill comparison showed that competition from the clover accounts for around half the yield penalty. Bushel weight in the living mulch was also reduced compared to the control. The trials show a significant and large increase in weed cover in the living mulch. Total weed cover is not the whole picture; the living mulch showed a greater percentage of perennials compared to annuals and of grasses compared to broadleaved. This suggests the system (at least organically) can only be applied for one or two years before remedial action is required.

Research questions

Whilst the results so far show a yield loss with the clover living mulch there are still some important practical research areas that can be implemented to fine tune the system and potentially reduce the yield loss. Following discussions with farmers and stakeholders, the following questions were considered.

What clover variety is best to use?

There are many options when considering which variety of clover to use for the living mulch. The trials in 2021 used a mix of regular leaf and micro leaf clover (70:30). The regular leaf clover generally provides greater ground coverage and vigour to suppress weeds, whilst the micro leaf clover offers less competition with the cereal crop. Previous trials showed a lack of growth from the micro leaf clover. The ratio between the regular leaf and micro leaf clover could be adjusted and tested to find the best mix. This year there is a trial using just a micro clover, Dura. This provides an excellent opportunity to see the competitive ability of the micro clover in isolation. The use of micro clover could reduce the competition between the crops and the clover and therefore reduces the need for clover management.

In addition, there is the option to use red (*Trifolium pratense*) and/or white (*Trifolium repens*) clovers in the living mulch mix. Red clover is decidedly more aggressive with an upright growth habit, more above ground biomass and long taproots, compared to white clover varieties which are more prostrate with dense shallow roots.

Previous trials have found that white clover retains water to a greater extent, and has potential to reduce the risk of leaching but, due to the dense root structure, makes cultivation much harder, which reduces profitability. Red clover, with high above ground biomass, might compete with the cereal crop too much and prevent tillering whilst effecting all yield components. However, red clover, with a long taproot, may be better suited to spring establishment, where drought tolerance is important.

The use of subterranean clover (*Trifolium subterraneum*) has been discussed. It is an annual crop that re-seeds due to underground seed development. This clover provides windows of competition but also windows when the cash crop can be put in. It forms a dense cover with a low growth habit, for good weed suppression but less crop competition.

The seed rate used for the clover is another area to be explored; Sam Lane from Cotswold Seeds believes this is an aspect that can be easily trialled. Mike Radford, Burwash Manor Farm, applied Dura micro clover at 6-7kg/ha whereas Mark Lea, Green Acres Farm, opted for more than 7.5kg/ha, which for the first year provided a strong mat of clover cover whereas this year, in a different field, appeared slightly thinner. A comparison of these two approaches can be assessed this year.

What cash crop is best to use?

Cash crops with early vigour and increased overall height and vigour would be well suited to the system, to overcome the clover competition early on. The best species and cultivars are yet to be found. However, heritage wheat varieties and beans contain traits that are beneficial in a competitive system, with better overall height and good canopy cover. In conventional systems, winter wheat crops have been too dense for the clover.

Mike Radford is using a novel approach with beans and Mulika sown as a bi-crop with Dura clover sown on top, using 100% rate beans and 75% rate wheat. Beans will carry out soil conditioning under the clover. One of the challenges with this approach is the requirement to separate the grains and beans after harvest. This has been attempted with varying success.

Increasing the drilling depth of the cereal could put the cereal roots deeper than the clover to reduce below ground competition, but this raises the challenge of seed vigour and the ability to compete effectively above ground.



Farmer motivations for using living mulches

Jamie Stephens (Grange Farm, Worcs - Organic):

- Reduce cultivations
- Weed control
- Extending rotation and free constant Nitrogen
- Economically getting more from the ground

Jamie is a sheep and arable farmer. The first year of attempting clover establishment was hindered by drought. The latest trials were not viable for drilling due to wet soil conditions; however, Jamie has established an excellent clover cover. Future trials will involve an oat cash crop into the clover.

Paul Hill (South East - Conventional):

- Extend rotation
- Established Nitrogen & reduce compound fertilisers
- Fits heavily in future and where we have got to go
- Herbicide reduction
- Improve soils
- Need to be more self-sufficient & get off external inputs

Paul is an arable and livestock farmer. This year Paul has established a clover understorey and hopes to drill a cash crop into the clover soon

Rob Waterston (Welford Park Estate, Newbury - Conventional):

- Cover crops have a feel-good factor
- Improving soil health and trim the amount of fertiliser required.
- Needs a mindset change in conventional systems

Rob is an arable farm manager. This is the first year that Rob is trialling the living mulch system. Rob has drilled winter wheat into a clover understorey. The clover has been managed with herbicide.

Mark Lea (Green Acres Farm, Shropshire - Organic):

- Use living mulch to replace grain legumes that have been unreliable
- Growing straight cereals, market is staggering, making it a better option than before, brilliant in theory but also unreliable
- Hoping to increase cereal output from the location
- Movement away from a single fertility building ley
- Extended cropping and reducing ploughing

Mark is a mixed farmer and has been involved in the living mulches trial for the past 2 years. Last year Mark successfully drilled rye and oats into the clover. This year Mark will be trialling oats and winter wheat in the living mulch.

Sam Wade (Eastleach Downs Estate, Gloucestershire - Organic):

- Weed control
- Move away from so much ploughing. Brash soil means machinery is damaged easily.
- Soil health

Sam Wade is a pig and arable farmer and plans to establish a clover understorey in 2022 to start his living mulch trial.



Photo: Henny Lowth

Farmers and stakeholders looking at the living mulch and future control strip at a workshop at Jamie Steven's farm in March.

Spring oats and spring wheat could be used; however there is the increased risk of drought as the clover will compete for water. Earlier drilling may alleviate this problem.

When to establish the clover?

Spring establishment means the clover will compete with the crop for water. Dominic Amos from the Organic Research Centre suggests that clover could be established in the winter, but spring establishment would be better for weed control. If using spring establishment, moving away from conventional timings, and drilling earlier in March or April would be beneficial.

If the clover was established in the autumn, it may be possible to plant a nurse crop with it or plant quickly after harvest. Establishment date is very soil temperature dependent and there is a need for water. In autumn, the soil temperature is warmer as it has been warmed over the summer.

How to manage the clover understorey?

There have been several suggestions for how best to manage the clover understorey to ensure that it provides weed competition at the optimum time in the growing season as well as releasing nitrogen at the optimum time to supply the cash crop. It is important to manage the competition over the winter as this is when the tillering and yield components are most affected. The clover is strongest in the winter and so could be knocked back then without the risk of removing the clover cover completely. Competition with the crop is happening before the spring. The clover is weakest in spring after it has used up all resources.

Grazing with livestock is a popular method for disturbing the clover. Mark Lea, Green Acres Farm, has provided an important grazed versus non-grazed living mulch trial that will be assessed this year. Grazing has been used to promote cash crop biomass. After grazing, the clover proved to be resilient and has been knocked back to 50% of its biomass. Grazing also has the benefit of removing diseased foliage and encouraging tillering. The stocking density of grazing could be altered to control the pressure placed on the clover. Mark has narrow rows so inter-row mowing is not an option for clover management.

In conventional systems, the clover can be knocked back with glyphosate. This is the method adopted by Rob Waterston, who experiences high weed pressure from blackgrass and therefore did not feel confident the clover



would compete with such an aggressive grass weed. Where the clover has been knocked back there were very few green leaves visible early in the year but there did seem to be root nodules. In addition, the field was grazed by sheep.

Established clover may be able to control blackgrass; however, if it is not established perfectly then the blackgrass may be able to establish in gaps. By actively using less nitrogen inputs, the blackgrass should be less competitive.

In organic systems, there has been a build-up of perennials such as thistles and docks, which is the main reason that the clover cannot be used as permanent ground cover and ploughing may have to be used occasionally. In conventional systems this is not an issue as chemicals can keep on top of these weeds.

There have previously been some problems with volunteers when it comes to harvest, with clover seed affecting the quality of grain samples. This highlights the importance of managing the clover effectively.

Jamie Stevens, Worcestershire, has been grazing his established clover. Jamie plans to use a strip till system which will ease the work of the grain during initial establishment. Jamie also has the use of an inter-row mower which will allow management of the clover throughout the growing season. The mower will allow for specifically timed clover disturbance, meaning the effect of clover disturbance on the release of nitrogen can be assessed in a trial setting. Crimping the clover has been trialled and works well in Sweden; however it needs the right system and specific machinery.

The research questions have raised the importance of choosing the right field for a living mulch. Fields with already high perennial weed pressure or resistant blackgrass may not be suitable. Additionally, particularly wet fields may also not be suitable as the clover mat does appear to hold moisture and make drilling particularly difficult in wet conditions. Wet channels can mean increased slug pressure.

How does a living mulch affect soil health?

Probes supplied by TERA have been put in the ground to monitor the soil differences in the control and living mulch on a trial farm in Oxfordshire. The living mulch protects the soil from the elements such as sun and wind. The monitors are showing the living mulch bulk density is higher than the control, sitting wettest and not draining well. The living mulch also appears to be sitting colder over the winter.

In a trial from last year, a soil sample was taken from the previous living mulch area as well as the control area.



Jamie Stevens looking at the early establishment of his clover mulch.



Oats and clover living mulch at Mark Lea's Green Acres Farm.

The soil sample showed the soil nitrogen had doubled after just a year of clover cover. In trials in Sweden, the second cereal following a clover understorey showed a yield improvement. At Mark Lea's farm, there is spring wheat where the clover understorey used to be. This will be assessed this year to determine if there is a yield improvement in the field this year.

Jake Freestone, Overbury Farm, has established a Rivendale clover understorey, which is a micro-clover. The clover has been knocked back with Roundup and has also been grazed. Previous clover trials, using comparable fields, found the field with clover had 25% more nitrogen than the field without.

Other areas to explore...

Aside from the practical research-based questions regarding living mulches, it is also important to highlight other avenues of interest. Firstly, there may be an avenue for living mulches to be included in future environmental grant schemes, for example the SFI. The Environment Agency and Thames Water may be interested in the role of living mulches in preventing run off into water systems. Several farmers expressed the desire for other payments related to living mulch to balance the risk taken with employing this system.

The environmental benefits of using living mulches should also not be ignored: increased ground cover, reduced leaching, increased food for pollinators, increased biodiversity, and improved resilience.

The role of agriculture in environmental health is under constant public scrutiny. The presence of living mulches in a farm system provides an opportunity for positive public interaction and a re-connection with where food our comes from. Even the presence of cover crops in a public facing field can attract interest. Consumers and suppliers are becoming more interested in produce from sustainable sources.

The nutritional value of a cash crop produced using a living mulch system is an area that has not been fully explored. The nutritional content of the grain can be obtained and compared to the control. The potential nutritional benefits may increase the value of crops grown using living mulch systems.

Conclusions...

Whilst the discussions with farmers have highlighted some important research areas to be explored, there will always be an importance of finding the living mulch system that works best in individual farms systems. The clover variety, cash crop variety and clover management will all be affected by soil type, weed pressures, climate, and machinery availability. Therefore, whilst the future living mulch trials aim to fine tune the approach, it is important to apply these pragmatically to each farm system.

Photo: Dominic Amos

Photo: Henny Lowth



Remembering Bill Acworth

In memory of agroforestry pioneer Bill Acworth of Little Hidden Farm, Hungerford, who passed away on February 21st, aged 87.

Bill chipping wood at Little Hidden Farm in 2013



Bill Acworth with Jo Smith at Elm Farm in 2017

Bill hosted several of our agroforestry events including one of the Farm Woodland Forum annual meetings, the AFINET partner meeting and various workshops.

Jo Smith

Bill was such a special person and a great friend and support throughout my ten years as farm conservation adviser in Berkshire and Oxfordshire, patiently and enthusiastically chairing and leading our dedicated local FWAG committee. His was the first whole farm I surveyed, ready to prepare a conservation management plan which we devised together on the all important kitchen table. This was in 1984, when such things were a very new idea, closely followed by a similar one for Elm Farm Research Centre and my introduction to organic farming.

Bill was always a progressive and pioneering farmer, continually exploring new ways to maintain his small family farm with its rich nature conservation interest, while surrounded by ever-expanding agribusiness. These included successful growing of wild flowers as plugs, harvesting seed from myriads of species and advising on and doing the establishment work to create new wildflower meadows for other landowners.

EFRC (now ORC) held regular after work staff discussion evenings with invited guests, several of which Bill participated in as a local farmer, and I remember him always contributing in thoughtful and wise ways. In 1993 he was, I believe, the first farmer in the country to persuade the Forestry Commission to grant aid tree planting in widely spaced rows and not at their usual required high density, so that he could establish an experimental agroforestry field, with trees far enough apart to grow a cereal crop beneath. This with a wide range of tree species for timber and biodiversity and some to be lifted with root balls in future years for landscape schemes.

An open day at Little Hidden Farm was the first time I came across agroforestry, and I remember going to see Bill the evening before my interview at ORC to find out more, and coming away inspired (and subsequently got the job!). He hosted several of our agroforestry

This May the whole Acworth family arranged a wonderful celebration day to give thanks for his life in the beautiful surroundings of their farm, where it was a real privilege to be able to walk through these now mature trees, alive with birdsong and still with grazable grass corridors between. As Jo Smith has written, since his first planting nearly 30 years ago, Bill hosted several agroforestry events at Little Hidden and so helped to pave the way for what is now seen as an increasingly relevant part of viable, sustainable agriculture.

Despite all my years spent working with Bill and many hours enjoyed with Sue and family on farm where I was always made so welcome, it was not until the thanksgiving service that I learnt that his father had been an organic farmer. Bill, like many next generation sons, didn't follow suit in his younger years, but after continuing efforts throughout his farming life to conserve the nature he cared about so much, organic conversion began at Little Hidden and I recall him saying to Mark and myself, you have got us at last!

Bill was a great mentor and friend to so many young people who started their environmental and farming careers inspired and encouraged by time spent with him in his day to day farming work. Many of them gathered together on the brilliantly sunny day last month to mark his passing, enjoying a very special picnic and walks on the farm that he loved. We were so privileged to visit the sheltered sunny glade, alive with rare Duke of Burgundy fritillary butterflies, the successful result of his special conservation project over many years and a secluded resting place.

Peace be with you Bill and thank you. You meant so much to so many and gave such a great deal to our precious world.

Joy Measures



Bill hosting an agroforestry event at Little Hidden Farm in 2015

Events and announcements - details at www.organicresearchcentre.com

Events

29 June 2022: Green Manures for no-till market gardens webinar. OGA webinar: 19:00 to 20:30
<https://tinyurl.com/notill-green>

5 July 2022: National Organic Combinable Crops. OF&G event hosted by the Cholderton Estate in Wiltshire <https://ofgorganic.org/>

19 July 2022: Innovative Farmers network day 2022. Trefranck Farm, near Launceston, Cornwall. Come celebrate 10 years of making on-farm research a reality. <https://tinyurl.com/yyyyuvu4>

21-24 July 2022: The Land Skills Fair 2022. A festival for Food, Land and Climate Justice organised by the Landworkers' Alliance. At Abbey Home Farm, Cirencester, GL7 5HF <https://www.landskillsfair.com/>

26-29 July 2022: BIOFACH - World's Leading Trade Fair for Organic Food. Nuremberg, Germany. Real and virtual. <https://www.biofach.de/en>

31 August - 1 September 2022: Organics Europe Youth Event 2022. Frick, Switzerland.

18 October 2022: Organic Matters 2022. Organic Growers Alliance horticultural conference. Birmingham/online

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