THE ORGANIC RESEARCH CENTRE

ELM FARM

In this issue:

Cover photo

Dominic Amos (ORC) and Alex Stephens (Riverford): Innovative Farmers Field Lab on hot water seed treatment of chard (pp4-5). Photo: Soil Association

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Organic Research Centre

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About us

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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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Editorial: A new era – and another 40 Years – begin for ORC

This coming January heralds a new era, with the Organic Research Centre taking up a new home adjacent to the Royal Agricultural University in Cirencester.

ORC will reach 40 years of age next year, and is currently emerging successfully from a challenging year which has seen significant change. The departure last January of our long-standing and much respected Chief Executive, Nic Lampkin, presented an opportunity to conduct a radical rethink of ORC's business model, including the range of activities we engage in and our relationship with the other main players in the UK organic world. In March we employed an Interim CEO, Stuart Rogers, to work with the Trustees and staff to identify what needed to be done to put ORC onto a sound and sustainable financial and operational footing.

Also in March, the decision was taken to sell our current base, Elm Farm, which is only peripherally used for on-farm research purposes. In addition to generating substantial funds to restore reserves, the proceeds are now providing long-term stability, a source of investment income for core funding, and scope to invest in the organisation for the future.

Naturally, the decision to sell Elm Farm meant that we had to consider the question of ORC's future location. A selection of options was examined, and in July the Trustees arrived at a strong preference for taking serviced offices in a property owned by the RAU at Cirencester – a comfortable, flexible workspace, with privileged access to the facilities of the University's adjacent state-of-the-art innovation hub. Following consultations with staff, this decision has recently been confirmed and preparations for the move are already under way. We will officially open for business at our new address, Trent Lodge, on 20th January.

We see this as a great opportunity to enhance ORC's strategic links and positioning. ORC's status as an independent charity will not be affected. We are, however, establishing formal partnerships with both RAU and Reading University (and, excitingly, several UK organic organisations as well).

Trustees are reassured that the great majority of staff have chosen to make the move, although understandably it will not work for a handful. Sadly we will also be losing two of our Administration team whose roles will not be necessary at Trent Lodge, including Gillian Woodward, who has been associated with ORC in one capacity or another for 34 years, and we wish her and Suzanne Oliver both well for the future.

We also expect shortly to welcome a new Chief Executive. We are currently recruiting, and anticipate a further announcement soon.

Alongside the new premises we have substantially revised our Business Plan, focusing on the three years to 2021-22. In the process, Stuart and Bruce Pearce, our Director of Research & Innovation, canvassed the views of the main organic organisations and were encouraged to find how much the quality and objectivity of ORC's research and knowledge exchange work is valued. The Business Plan process also provided an opportunity to clarify our role. What seemed to come through most clearly from our canvassing of the sector, of funders, of our farmer network and of staff, is that ORC's uniqueness stems from the fact that we:

" combine scientific excellence with practical experience to deliver real benefits on the ground".

This doesn't just describe us, it's what drives us. So from now we are calling it our Mission.

The planning process has also helped us clarify, in our own minds at least, what we think of as ORC's other 'defining characteristics':

- The leading organisation committed to supporting the development and uptake of organic and agroecological farming through research and knowledge exchange
- A persuasive exponent of how organic and agroecological approaches contribute to the solutions of today's and tomorrow's problems
- A home for experts in a range of complementary areas of food and farming systems
- A collaborative hub, working directly with organic farms, food and farming professionals and other organisations
- A critical voice against siloed, top-down science and policy, carrying out participatory research and driving advances in organic food, farming and agroecology
- An influential force for policy change through targeted research and compelling practical evidence

Please feel free to let us know if you agree – or disagree.

A key part of our emerging strategy is a change in our approach to securing contract funding, while maintaining our unique approach to delivering research using participatory methods. Rather than re-actively responding to bidding opportunities, we intend to prioritise areas of research and knowledge exchange that play to our strengths, and develop pilot projects in these areas in advance of making bids for external funding. A benefit will be greater control of the research agenda and less reliance on opportunities that funders happen to favour, although there is a place for the latter as well, provided the work that we bid for fits with our strengths. We will be investing some of the proceeds from the Elm Farm sale as 'seed funding' over the next two years to support the change. Quite how this will work we are still working out. If there is an area of research that you think should be pursued, and is potentially fundable provided a convincing proposition can be developed, please contact Bruce.

The organic sector faces a challenging time over the coming months, given the uncertain future for UK farming and food supply arising with an Agriculture Bill and Brexit.

Next year we celebrate our 40th anniversary. With a refreshed business strategy, driven hopefully by a new CEO and from a new base, we are confident that ORC can continue to be a driving force in the British organic movement at a crucial moment when biodiversity is under unprecedented threat and UK agricultural policy is at a crossroads.

Mike Turnbull
Chair of Council of Management

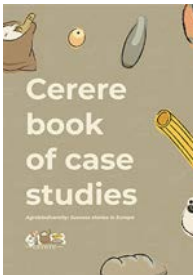
News in brief

Beyond 'mainstream' and 'alternative' in organic food supply chains

A new paper 'Beyond 'mainstream' and 'alternative' in organic food supply chains: Empirical examples of added value distribution from eight European countries' arising out of the DG-agri-funded 'Value added' project is being published in the *British Food Journal*. Lead author Stefano Orsini, Senior Researcher at ORC said: "The findings to some extent debunk the widely held belief that supermarkets use their position to extract bigger margins. Also, they clearly reveal the need for organic farmers to engage in collaborative marketing as a means of securing more value. And … perhaps most importantly, the use of the added value calculator overcame many of the problems inherent in the analysis of value chains where actors are unwilling to share information." https://orgprints.org/36859/

Agrobiodiversity: Success stories in Europe

The 'CEreal REnaissance in Rural Europe: embedding diversity in organic and low-input food systems' (CERERE) aimed to promote innovation through diversity-based 'alternative' cereal food systems in European agriculture via knowledge exchange between researchers, producers and other relevant stakeholders.



The project has published a book of case studies containing many examples of improved food systems grounded in agrobiodiversity from Finnish buckwheat farmers to supply chains for bread from ancient wheats in Italy. UK examples include: Wakelyns CCP wheat populations, Torth y Tir – a community-supported bakery in Wales, LEAF UK and Organic Arable.

European Conference on Crop Diversification 2019

Much of ORC's work revolves around diversity. Many of our researchers and projects we are working on were represented at the first European Conference on Crop Diversification 2019 which took place in September 2019 in Budapest, Hungary. The Proceedings, including abstracts, presentations and workshop reports are now online at www.cropdiversification2019.net/proceedings.html

White's Oats win award!

White's Oats were awarded Best Breakfast Product for their 'White's Organic Jumbo Oats' at the Quality Food and Drink Awards in London in November. Five years ago Organic Arable and White's initiated a programme of work to improve the quality of the organic oats being supplied to Whites. This has involved a research programme, trials and knowledge transfer activity to help Organic Arable farmers produce the highest quality oats. The farmers now talk a different language of 'hullability' and 'marketable yield' as they seek to learn how to grow better quality oats. "Everyone's hard work and the changes our farmers have implemented have paid off", said Organic Arable Managing Director Andrew Trump.

Strategic Research and Innovation Agenda

TP Organics unveiled the organic movement's research and innovation priorities at the Organic Innovation Days event in Brussels in December. The Agenda document will serve as a basis to advise the European Commission on Horizon Europe, the EU's next research and innovation framework programme to succeed Horizon 2020.

A team of experts, including Nic Lampkin and Susanne Padel, considered the latest, evidence-based scientific findings and input from workshops and the online consultation held in 2018-2019. The Agenda set out four priorities that research and innovation in the EU needs to focus on:

- Moving organics forward: Priorities for the organic sector
- Climate-resilient, diversified farming systems based on ecological approaches
- Redesign of food and agricultural policies
- Sustainable value chains for better food systems

https://tinyurl.com/TPOrg-SRIA

For more details on items on this page, including links to the publications, visit the News link at www.organicresearchcentre.com or, to receive more frequent updates, register for our E-bulletin service and follow us on Facebook, Twitter and Flickr.

Building the case for farmer-led innovation from the ground up

*As Innovative Farmers prepares to celebrate a significant milestone – the launch of its 100th field lab – **Helen Aldis**, Development Manager for Innovative Farmers at the Soil Association, looks back on what has been achieved by the programme so far.*

It seems common sense that practical projects led by farmers and growers are important for research to make a difference on the ground. Strange to think then, reflecting on achievements since 2012, how novel the first field labs seemed to researchers, policy makers and even farmers only seven years ago.

Launched in 2012 by the Soil Association as the Duchy Future Farming Programme, with funding from The Prince of Wales's Charitable Fund, its aim was to create a 'laboratory' for farming innovation with the involvement of industry bodies and the research community. The unique ingredient of the programme was the active involvement of UK organic and non-organic farmers (although at the outset it was only organic farmers) seeking an advancement in the adoption of agro-ecological farming practices by coming together to share their innovation and prove what is possible.

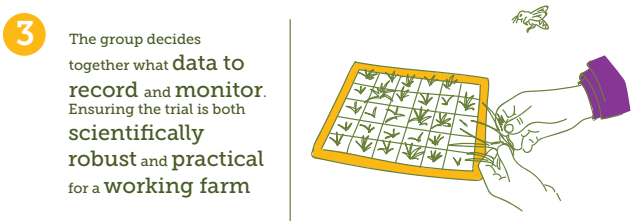
In 2015 the programme re-branded as Innovative Farmers and grew to become a delivery partnership with the Organic Research Centre, LEAF and Innovation for Agriculture. Innovative Farmers has been enhanced by the expertise and additional resources this has brought to the initiative. Furthermore, significant funding from AHDB will enable the support of 19 field labs by 2022 and help to share more widely the findings from trials. Industry support has been solid over the years with the involvement of Waitrose and Partners. In addition, the programme has garnered sponsorship from Thames Water, Riverford Organics, Anglia Farmers, Robin Appel, Buccleuch Estates and Produce World. Bolstered by *pro bono* support of 24 hours per field lab from the research community the programme is enhanced by a multi-actor approach to farmer-led innovation.

Thank you to the farmers, researchers and programme partners for making this happen and our principal funder The Prince of Wales's Charitable Fund.

To find out more about setting up a field lab, learn about the programme and how to get involved visit **innovativefarmers.org**

THE PRINCE OF WALES'S CHARITABLE FUND

How Innovative Farmers works



The programme delivers farmer-led field experiments and knowledge-exchange events, underpinned by large-scale data collection and targeted scientific research. It has engaged thousands of farmers and growers and supported the farming community to identify and adopt practices that improve their environmental impact, reduce their reliance on expensive inputs, and enhance the nutritional quality of their products.

Over the past seven years, Innovative Farmers has shown that agricultural research and knowledge exchange can yield the greatest benefits when addressing challenges that have been identified by farmers.

Creating a diverse range of field labs

The programme has supported a diverse range of field labs including:

Environmental benefit	Sustainability and resilience benefits
Soil	• Improving the long-term health of soil for growing crops reliably, improving soil biology and increasing carbon capture • Increasing the diversity of crops grown effectively without environmentally-damaging pesticides • Finding soil amendments that are naturally derived and sustainably sourced to help improve soil health
Climate	• Finding compost alternatives that are easy to produce from sustainable sources and reducing reliance on finite peat reserves • More farmers reducing their fertiliser use, or livestock using feed more efficiently has direct benefits to water quality, soil health and atmospheric ammonia and methane emissions
Biodiversity	• Managing problem pests and weeds without chemicals reduces loss of biodiversity and widespread kill effects • Increasing the diversity of grassland and crops increases the diversity of pollinating insects, their predators, and soil biology
Water	• Reducing ploughing helps prevent pollution from soil loss into watercourses, such as phosphate run-off
Sustainable farming	• Increasing homegrown protein feed-crops to reduce importing of soya as a protein source which is not sustainable for farmers and the environment • Making farms more adaptable and resilient to changing climate and markets through mixed land use such as agroforestry, intercropping, livestock and orchards
Animal Health & Welfare	• Reducing injury in flocks and improving herd management by enhanced skills in observing herd health; leads to less reliance on antibiotics with clear public and animal health and welfare benefits

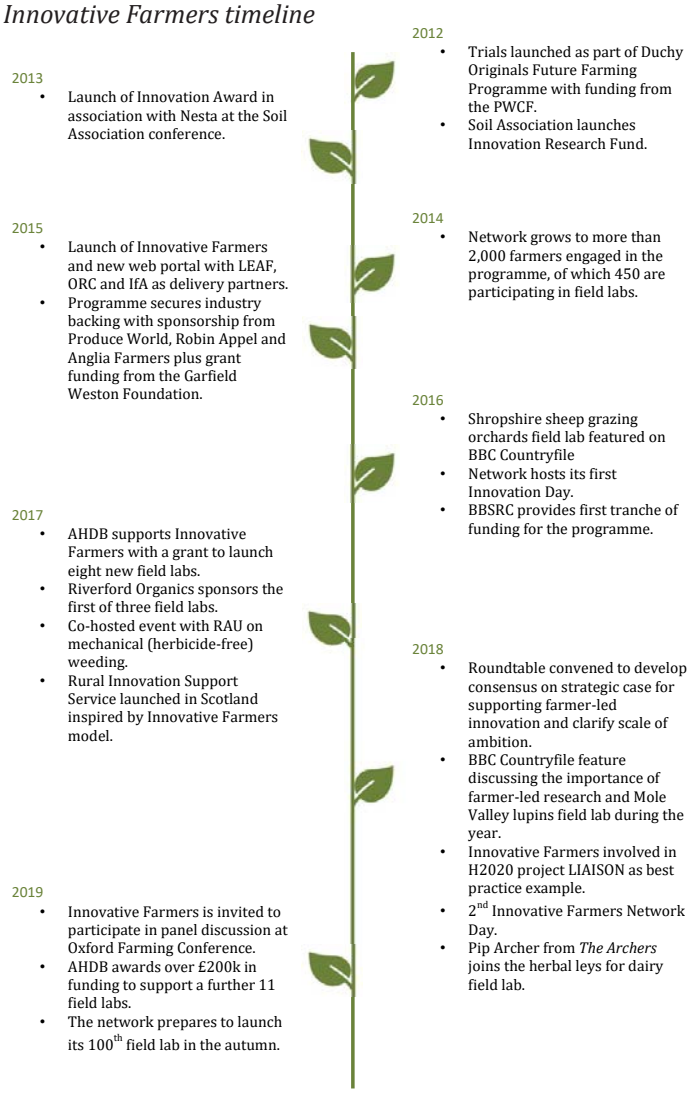
An evolving landscape

Now there are 100 field labs. Farmers and growers are involved all the way from Aberdeen to Ambridge, with Pip joining a group trialling diverse leys on The Archers. There have been stories about the groups' research in the farming press every week of the year with recent features on the BBC's Countryfile and Farming Today programmes.

Farmers and growers tell us they like field labs because the research is on their terms and aligned with their priorities. This means researchers and funders working differently to match the appetite for this successful, ground-up approach to farm innovation.

To find out more and read the progress of all the live field labs visit www.innovativefarmers.org

Innovative Farmers timeline



ORC and Innovative Farmers

ORC continues to provide research support within Innovative Farmers as a delivery partner, and is currently engaged with five different field labs. The wheat varieties lab will continue into a third year exploring performance of a range of genotypes under organic management and will link to activities within the new Defra-funded 'LiveWheat' project. The intercropping field lab will also continue for a third year to investigate cropping partnerships and approaches. The soil amendments field lab comes to an end this Winter with results due shortly, exploring the effects of additions of woodchip, biochar and compost on soils and crops. Work also continues with Riverford looking at hot water seed treatment for control of seed borne diseases of chard and comfrey tea as sustainable fertiliser for cherry tomato production. Finally we are setting up a new field lab starting next Spring investigating the use of clovers as living mulches in arable cropping.

There are also other field labs in the pipeline on topics such as silvopasture and sivoarable production, ramial woodchip and agroecological soil management" If you are interested in any of these topics or have your own idea for a field lab and want to work with researchers and other farmers or growers then please get in touch with Dominic Amos. dominic.a@organicresearchcentre.com

Ramial woodchip for soil health and fertility

A common challenge farmers face is maintaining and improving soil health and soil fertility. Repeated applications of compost give long term improvements in Soil Organic Matter (SOM), soil water retention and soil nutrient status. But this material either needs to be sourced externally, which can be costly and unsustainable, or composted on farm, which requires space and time for the composting process to take place. Could fresh ramial woodchip from the management of trees and hedges on the farm offer an alternative? Senior Agroforestry Researcher ***Sally Westaway*** *investigates.*

What is ramial woodchip?

Ramial Chipped Wood (RCW) is fresh un-composted woodchip made from smaller diameter material. Young branches are nutritionally the richest part of a tree and can contain as much as 75% of the minerals, amino acids, proteins, and enzymes found in the whole tree. There is some evidence to suggest that the application of RCW to cultivated soils has benefits for soil health. A long-term study in the US showed positive results in terms of soil biological activity and SOM compared with grass cover crops or resting the soil with harvested alfalfa sod hay crops[1]. Research at Laval University[2] in Canada confirmed these findings. However, few studies followed up on these findings in European arable and horticultural systems.

The requirement for smaller diameter material makes hedges and short rotation coppice agroforestry systems ideal for RCW production. Offering the potential for a sustainable source of fertility and organic matter that farmers can grow themselves, whilst also providing an economic incentive for both the management of existing, as well as the establishment of new, on-farm woody resources.

On-farm trials

Replicated field trials were established on three farms in Southern England in winter 2017/18 (T1), trials were repeated in winter 2018/19 (T2) to give two trials on each site. At Tolhurst Organics an additional RCW trial was established in winter 2016/17 (T0) as part of the EU-funded SustainFARM project. All three farms are livestock free with no animal inputs, and fertility comes from fertility building crops, compost and/or mineral nitrogen.

Table 1. Farms participating in the trials and treatments used

Farm	Treatments (3 replicates)	Application rate and timing
Tolhurst Organics: Organic vegetable production	1. RCW from mixed hedge 2. Composted woodchip 3. Control of nothing	T0: 70 m^3/ha applied to 1st yr of 2 yr legume ley T1 & T2: 40 m^3/ha applied to 1st yr of 2 yr legume ley
Wakelyns Agroforestry: Agroforestry alley cropping with organic arable rotation	RCW from: 1. Poplar Short Rotation Coppice (SRC) agroforestry 2. Willow SRC agroforestry 3. Hazel SRC agroforestry 4. Mixed hedgerow 5. Control of nothing	T1: 40 m^3/ha applied to 1st yr of 2 yr legume ley T2: 80 m^3/ha applied to 2nd yr of 2 yr legume ley (rate doubled and reapplied)
Down Farm: Conventional arable cropping	1. RCW from mixed hedge 2. Green waste compost 3. Control of nothing	T1 & T2: 150 m^3/ha applied before sowing of spring crop (barley/ oilseed rape)

WOOdchip for Fertile Soils (WOOFS)

The WOOdchip for Fertile Soils (WOOFS) project EIP Operational Group is a partnership of researchers, farmers and foresters from the UK led by the Organic Research Centre. We have set up field trials on three farms researching the addition of RCW sourced from on-farm woody resources as a soil improver. By linking management of farm hedges and trees with the improvement of soils for agricultural production the project aims to increase the sustainability of farm systems. Specific objectives are to:

1. Determine whether applying woodchip (composted and ramial) is beneficial to soil health and structure.
2. Identify an efficient methodology to produce and apply woodchip on farm.
3. Produce guidelines for farmers on optimum application rates, time of application, stage in a rotation, species of tree, size of chip etc.

EIP-AGRI funds the WOOdchip for Fertile Soils Operational Group

The European Agricultural Fund for Rural Development: Europe investing in rural areas

eip-agri

Baseline soil and compost/woodchip samples were collected at trial establishment, then in late summer 2018 and 2019 soil parameters were measured, crop/biomass samples taken, and worms counted. Trial T0 was cropped with potatoes in 2019 and crop yields and pest and disease incidence were measured.

Soils

The results from the first two years have shown no significant differences between the RCW treatments, the compost (green waste or woodchip) and the control plots for most of the soil parameters measured (P, K, Mg, SOM, pH and CO_2 burst). Some small differences between treatments in soil biological activity were observed. For example, in 2019 total bacteria was significantly higher in the woodchip plots compared to the green waste at Down Farm and the compost at Tolhurst Organics. It was also significantly higher in the willow woodchip plots at Wakelyns when compared to the other treatments, a pattern not seen in 2018. The total biomass of bacteria provides an indicator of abundance of food for predators, nutrient capacity and general diversity of the bacterial population and the health of the soil, suggesting some positive effects of the woodchip over the compost or control treatments. However, mycorrhizal root colonisation, fungi counts and fungi to bacteria ratios were also measured with no clear patterns seen between treatments at this stage.

Photo: Sally Westaway

Spreading ramial woodchip onto the trial plots at Tolhurst Organics, 2018.

Worms

Worm diversity and abundance also gives a good indicator of overall soil health. Both Tolhurst Organics and Wakelyns saw an increase in total numbers of worms between 2018 and 2019; however this was not seen at Down Farm and is likely to be a result of the reduced cultivation associated with the long term leys at the other two sites, and no significant differences in the total number of worms were seen between treatments. However some differences between the worm ecotypes were observed and at Tolhurst Organics more endogeic (soil living) worms were counted in the compost plots and significantly more epigeic (worms that live in and feed on the leaf litter) in the RCW plots ($p = 0.020$). This was not seen at Down Farm or Wakelyns.

Crop yield and disease incidence

The soilborne plant disease Verticillium wilt results in substantial yield losses in many potato production areas. Symptom severity and disease incidence were assessed 100 days and 120 days after planting (DAP) potatoes at Tolhurst Organics and used to calculate a disease intensity index. Disease incidence was significantly higher in the RCW plots at 100 DAP ($p < 0.001$), but not at 120 DAP ($p = 0.61$) (Figure 1)

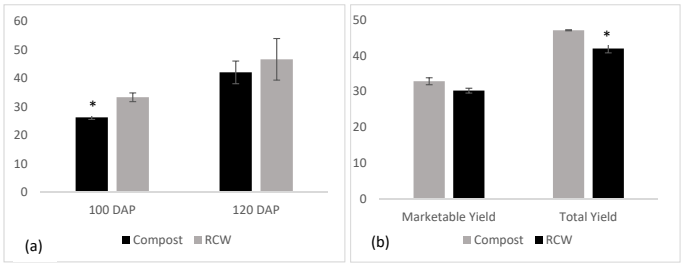


*Figure 1 (a): Potato Disease Intensity Index (%) at 100 and 120 DAP. (b) Total and marketable potato yields for Compost and RCW treatments. Mean +/- standard error * indicates significant results.*

Spring barley yields at Down Farm

There were no significant differences in yields seen in 2019, however in 2018 the spring barley yields were a lot lower reflecting the drought conditions that year and the control plots had a significantly lower average yield of 5.7 t/ha than either the woodchip (6.3 t/ha) or compost (6.4 t/ha) treatments ($p < 0.001$)

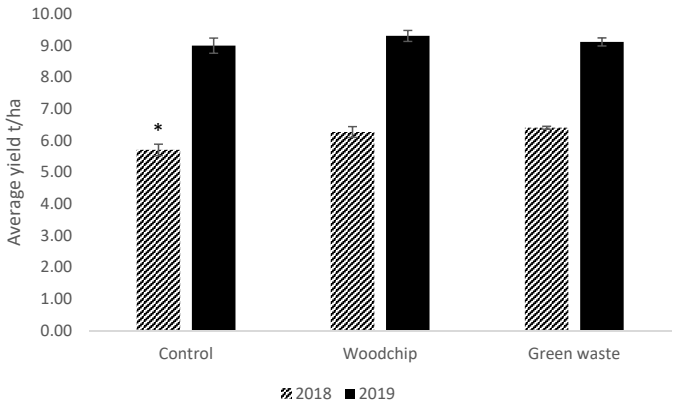


Figure 2: Average spring barley yields for the different treatments at Down Farm in 2018 and 2019. Mean +/- standard error (indicates significant results)*

Conclusions

No significant differences were observed between treatments for most of the soil parameters measured, suggesting that applying woodchip green, and so avoiding the need to compost, may be a viable alternative to other inputs. However, the breakdown of woodchip, colonization by fungus and subsequent action on the soil is a long-term process[3] and ideally needs to be studied over a long period of time. Potato total yield was significantly higher in compost treated soil; however, this difference was not significant for the marketable yield partially due to increased pest damage in the compost plots. There was no difference in the spring barley yields in 2019, but in 2018 the yield was significantly lower in the control plot with no organic material added. This suggests that woodchip and compost may both act to increase the water holding capacity of the soil and increase the crop resilience to extreme weather events. The trials have one more year to run and we will continue to monitor crop and soil parameters to further investigate these results. In addition, next year the group will carry out a cost/benefit analysis of the logistics and economics of producing both RCW and compost on farm versus buying in fertility and organic matter and an output will be a best practice/how to guide for farmers and growers.

Some initial figures from the case study at Tolhurst Organics are outlined in the recent ORC publication Productive Hedges: https://zenodo.org/record/2641808#.XLWiPehKjIU

Acknowledgements

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Many thanks to Martin Wolfe, Robert Benford and Iain Tolhurst for participation and enthusiasm with these trials and to ORC interns Anais Rousseau, Ellie Brown, Heidi Hoffman and Andres Cruz for help with data collection.

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Postgraduate Organic Farming students at SRUC: past and present

*Scotland's Rural College (SRUC) has a 25-year history of postgraduate teaching in Organic Farming and Sustainable Agriculture, and converted to an online distance learning format for the postgraduate programme in Organic Farming in 2002. Since then they have had over one hundred MSc graduates, and many more students completing the Postgraduate Diploma. Programme Leader **Dr Lou Ralph** caught up with a few of them to find out why they embarked on the programme and what it's meant to them.*

Caithriona McCarthy (MSc graduate 2014)

Signing up to the MSc in Organic Farming turned out to be one of the most challenging experiences of my life - and also one of the most worthwhile. I was in my 40's and teaching organic horticulture in the West of Ireland. I'd always been interested in food and how it's grown. Studying for the MSc equipped me with the knowledge and confidence to set up an educational organisation, the Edible Landscape Project, in 2012, on which I based my MSc thesis. As a social enterprise the Edible Landscape Project teaches local communities about the connection between Climate Change and – you guessed it – Food! The Edible Landscape Project is still up and running in the West of Ireland. I still teach Sustainable Horticulture and Entrepreneurship. The MSc in Organic Farming is definitely food for thought…

Tracy Wathen-Jones (MSc graduate 2014)

I grew up with small scale dairy farming and was a member and secretary of Winchester Junior Young Farmers. I subsequently studied and worked in nature conservation for 12 years. I later moved to Ireland where I ran my own smallholding alongside a landscape gardening business and award winning independent garden centre which I established with my husband. I studied first for my FETAC 5 Organic Horticulture, then SRUC's MSc in Organic Farming and IFOAM's EU Organic Leadership programme. Since returning to the UK five years ago I have been a director of the Community Supported Agriculture Network UK and have travelled to South Korea for an IFOAM Organic Leadership masterclass. My passion is finding and communicating integrative approaches to improve the health of people, planet, biodiversity, soil and livestock.

John Twyford (MSc graduate 2016)

I did the MSc in Organic Farming at SRUC while farm business manager at Old Plaw Hatch Farm, a mixed biodynamic farm in Sussex. What interested me most about the course was its rigorous, critical and scientific approach to organic farming. For example, it helped me to understand the most important aspects of soil management from the perspective of an organic land manager. I learned about the established benefits of organic farming to food quality and to society. At the same time the course challenged me to explore and face the legitimate arguments that are presented against organic farming. The course also provided a good overview of the organic market and the farm visits provided useful insights. I was able to implement much of what I learned on the farm. I also met some very interesting people from various walks of life who all shared a passion for organic farming. There isn't another course like it and I am very glad that it continues to thrive. After a year at Riverford Farm in Devon, I am just finishing an MBA. Between these two programmes and my own experience, I now feel very well equipped to contribute to organic farm businesses that seek to demonstrate exceptional husbandry and financial success.

Megan Batt (MSc graduate 2017)

I was a postgraduate Organic Farming distance learning student with SRUC whilst working as a shepherdess in the Scottish Borders. I had worked on a variety of organic farms and wanted to progress by gaining a formal qualification in the subject. The course was hugely influential, both in cementing my fundamental knowledge and widening my perspective of organic farming and the industry as a whole. My thesis looked at pursuing an organic sheep dairy enterprise in the Scottish Borders. Two years later, I now have a small flock of 70 sheep with my partner. We're not milking them, but along with Cheviots we have chosen to keep some Dorsets, a multipurpose breed, which are used in the sheep dairy industry (so you never know!). I hugely enjoyed the SRUC experience and now feel well equipped to move forward within the organic sector.

Robby Gass (MSc graduate 2017)

With more than 25 years of South African conventional and mixed organic farming experience I returned to Scotland, the land of my forebears, in 2013. Finding work in farming here was very difficult at first, but I was appointed manager of a horticultural training nursery and after completing the MSc opportunities opened up. My income grew to a new level, I was given more responsibility with autonomy and my opinion was treated with higher regard throughout.

I then started Alba Organics, an independent organic consultancy business, serving to improve the operations of experienced and prospective organic farmers with farms of various sizes and descriptions in Britain and Europe. I also lecture on Organic Food Production and Horticultural Science at Ayrshire College, constantly promoting the choice of organic food for a better planet with a healthy future.

The camaraderie between my fellow students and the staff at the SRUC was very special over the three years of study and it lives on regardless of the distances. The MSc Organic Farming degree is a game changer, for sure! It's changed my life.

Harm Rijneveld (MSc graduate 2017)

I started the MSc to give me more opportunities in (organic farming) teaching. I was raised on a small farm in the Netherlands, which was not officially organic, but we worked with low inputs and were nearly self-sufficient. Because of this and a work placement at an organic farm in the Netherlands, I became convinced by organic principles.

During the course I learned more about organic farming, farming in general and grazing management, which was the subject of my thesis.

After finishing the MSc I wanted a new challenge and applied for a teaching job at the Aeres University of Applied Sciences in Dronten. I'm working 50% as a tutor in livestock at the vocational college and 50% as a lecturer in dairy farming at the university. At both institutes I'm teaching about dairy but also about organic farming. The MSc brought me a lot of knowledge and the opportunity to get a job at a higher level. Using my knowledge from SRUC I set up a final year degree option about organic farming at the university in Dronten, which in the Dutch system is available to students from across the university network.

In the coming years I hope to teach future farmers about organic farming. As well as that I hope to become a part-time advisor in organic farming and nutrient cycles

Philip Day (current Year 2 PGDip student 2019-2020)

I'm 55 and although I have been an organic farm manager for many years I have no qualifications in the subject and I wanted to verify and consolidate my knowledge and experience into a recognisable qualification. The course has been stimulating in terms of content and also by sharing views and experiences with fellow participants from various backgrounds. Already, I have a better understanding of organics as a holistic approach rather than just a set of standards to follow. I think a little more carefully about how I farm and have made several small changes to our system. I'm certain the course will enable me to manage my farm more sustainably, more sympathetically and more profitably. Beyond farm management I hope to be able use my knowledge to advise and help others, enabling me to extend my agricultural career.

David McKay (current Year 1 PGDip student 2019-20)

I applied to the Organic Farming PGDip/MSc because I was hoping to turn a hobby of growing vegetables into a potential new career. I did so with some hesitation, as my professional background is in journalism and I have little practical experience of farming. So far, the course has been very enjoyable, and I would say inspiring and challenging in equal measure. Like many others, I am juggling coursework with family commitments and work. I started up my own freelance PR/communications business, Field Media Strategy, at the same time as I began the SRUC course, which has kept me busy to say the least!

Lou and the rest of the staff have all been fantastic – and extremely helpful on the first study weekend. My new classmates are a very friendly and enthusiastic bunch. We hail from all corners of the UK, Ireland and Europe, but share a passion for all things organic. Looking forward to the rest of the course!

Roger Rabbitte (current Year 2 PGDip student 2019-20)

Participation in the course has allowed me to deepen my knowledge of organic farming systems suitable to my local environment. It has improved my understanding of soils, fertility, grasses, green manures, weed control, crops, livestock, financial costings, farm accounting and marketing. The course has enabled me to source up to date information and statistics as well as relate with people of similar interests including those more experienced in various aspects of the organic food sector. Overall, the course will give me the confidence and knowledge to find an improved, well scrutinized and viable direction for my small farm, which was the fundamental reason why I joined the course. The course is time-consuming but achievable. It gets you thinking and I would encourage anyone interested to apply.

Alison Goldberger (current MSc student 2019-20)

I'm Scottish, but live in Austria where I run an organic arable and pig farm with my husband. The course has really helped me in my work as an organic farmer. My background is in journalism and I don't come from a farm, so I didn't know too much about the practical side of farming before I started. The course has been really useful in my life as an organic farmer – I'm now confident with crop rotations and understanding soil analysis results. I've also learned a lot from the other students in the course, and have implemented a few ideas into our farm from them. The first two years have been really valuable, and I'm currently enjoying putting together my masters project which looks at weed control in organic rapeseed.

SRUC delivers sector-leading research, education and consultancy and students on the Organic Farming programme have the benefit of teaching input from all three of these complementary strands, alongside input from other sector experts. Since 2015 this has included a formal teaching partnership with the Organic Research Centre, which further widens the base of expertise feeding into the programme. In addition, we have a long-term organic rotation trial and other relevant field trials located at our Craibstone campus near Aberdeen, which is where the teaching for the programme is based.

The programme uses part time online distance learning blended with residential study weekends and study tours, allowing students to gain a PGDip qualification in two years or an MSc in three years, as well as the option to study individual modules.

If you are interested in studying Organic Farming with us, please contact Programme Leader Dr Lou Ralph on lou.ralph@sruc.ac.uk or visit our website for more information.

http://www.sruc.ac.uk/pgorganicfarming

Sheep grazing within arable rotations

The Innovation for Sustainable Sheep and Goat Production in Europe (ISAGE) project contributed to a larger study of the role of sheep in arable rotations in conjunction with Honingham Thorpe Farms, Jack Peacock, Frontier Agriculture and Brown and Co. ***Marion Johnson***, ***Lisa Arguile*** *(ORC),* ***Nicola Noble*** *and* ***Wendy Jones*** *(National Sheep Association) report on lamb growth rates and the effects of different leys.*

"They are given the title of the 'Golden Hoof', throughout history, as farmers used the sheep to increase fertility of poor ground by allowing them to graze rich fertile land then moving them onto the poor land, so they transferred the nutrients over in their gut and deposited them in their droppings. The soil bacteria and fungi utilise the nutrients held in the droppings to build soil that could then support better crops." **Brian Barker[1]**

Photo: Marion Johnson

Historically sheep were kept on arable farms to help control weeds within cereal crops. In addition to applying grazing pressure to weeds, their manure provided essential nutrients for the following crop. Following World War II, the drive towards intensification, specialisation and an increased use of machinery led to an increased reliance on artificial herbicides and fertilisers, consequently, phasing out the original need for sheep.

Over the years, intensification has led to the loss of habitats both above and below ground and UK arable soils have experienced a 70% decline in soil carbon since the industrial revolution. The incorporation of diverse swards into a rotation, which have beneficial effects both above and below ground when managed correctly can help promote biodiversity. In contrast to a single species grass ley, diverse herbal leys are associated with complex root and shoot architecture. This complexity reduces soil compaction and increases water filtration rates, in conjunction with the creation of organic matter. Carefully chosen diverse leys provide a broader diet and have a reputation for reducing parasite burden within flocks due to the anthelmintic properties found within certain species.

With the turn of the tide and the current global focus on building soil carbon there is room for sheep to return to arable systems. The environmental benefits of mixed farming systems are well known, and the opportunity for facilitating benefits within arable systems is not to be forsaken. With little evidence and a lot of uncertainty, current adoption rates are low despite the promotion of the benefits by national advisory boards. By considering sheep in arable from the perspective of both the arable farmer and the sheep farmer, this study aimed to assess the benefits of reintroducing livestock into arable rotations.

Honingham Thorpe Farms

Honingham Thorpe Farms are a mixed farming and contracting business based five miles west of Norwich. The farm has a rich and diverse cropping background but at present focuses on contracting and a simple cropping system. The Honingham Thorpe business is extremely keen to explore 'shared' farming models " where the landowner seeks to share the benefits of spreading costs and the most up to date technology". The estate has also diversified into several smaller businesses including livery, potato storage and a food enterprise park.

Two flocks of Cheviot cross ewes and their twin lambs (Cheviot cross x Beltex) were grazed on either a herbal ley or a grass-clover ley. Lamb weight gains and parasite burdens were measured to see if herbal leys provided a benefit to the livestock. Pasture performance and soil characteristics were assessed to consider any benefits accruing to the arable system.

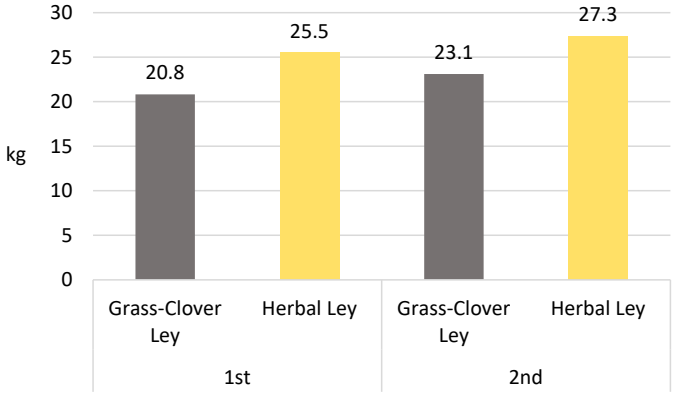


Figure 1: Average lamb weight at 1st and 2nd weighing in relation to grazing regime

Livestock performance

The average weight of lambs reared on the herbal leys was greater than those reared on grass/clover leys, supporting previous research. Faecal egg counts (FECs) were lower in the lambs grazed on the herbal ley than on the grass/clover.

Arable impacts

Initial establishment across both leys was poor, due to drought conditions during the early summer of 2018. On inspection the herbal mixture had a higher plant population and incorporated fewer weeds than the grass/clover mixture. Dry matter (DM) measurements taken in March 2019 following over-sowing were similar in both pastures, however from April the DM yield of the herbal ley was greater the grass/clover mixture.

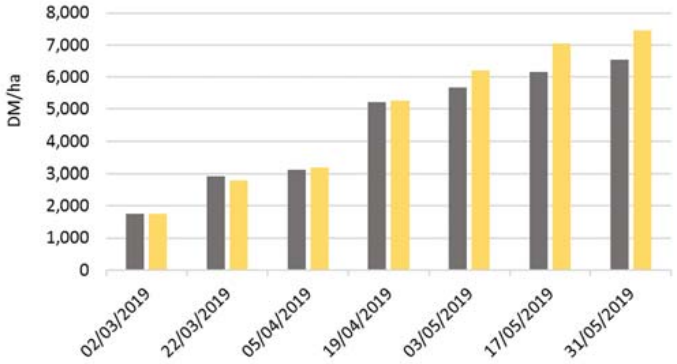


Figure 2: Estimated grass yield across pasture (kg DM/ha)

Herbal leys had deeper rooting systems than the grass/clover mixtures. Worm activity was recorded as low within both mixtures.

Herbal ley 2019 recovery

Sheep and arable relationships

All joint enterprises of this nature should be thoroughly investigated, and careful contracts drawn up, preferably with experienced advice and a clear understanding of expectations on both sides. For many arable farmers finding an experienced stockperson is difficult and sheep farmers may struggle with contract lengths and uncertainty of grazing. Attention must be paid to requirements for fencing, water and animal welfare. In this study the sheep had to be removed from the pasture as feed ran out in the drought; fortunately an alternative was available, but this may not always be the case. Provision should be made for as many unexpected events as possible when entering sheep-arable arrangements.

Conclusions

Integrating sheep into arable rotations is beneficial for arable farmers, helping to reduce weeds and improve soil fertility and quality. Sheep farmers benefit from clean grazing and if herbal leys are available good growth rates and lower rates of parasitism can be expected.

Reference

1. Barker B (2019) https://cereals-blog.ahdb.org.uk/the-return-of-the-golden-hoof/

iSAGE has received funding from the European Union's Horizon 2020 research and innovation programme (grant agreement 679302). More at www.isage.eu.

100% organic conversion – greenhouse gas (GHG) impacts

A 100% shift to organic farming in England and Wales would yield up to 40% less food if the nation did not change its diet, leading to increased imports and a net increase in GHG emissions, researchers have found. The study, published in *Nature Communications* was principally conducted by Dr Laurence Smith, whilst at Cranfield University (now of the Royal Agricultural University) and supported by ORC, with Professor Guy Kirk and Dr Adrian Williams of Cranfield University and Philip Jones of Reading University. Although organic farming generally creates lower GHG emissions per commodity, up to 20% lower for crops and 4% for livestock, it also produces less food energy output per hectare. Assessing the need for imports to make up the shortfall, and assuming that food diets and demands stay the same, the academic team estimated that the overseas land area needed to be changed to food production for England and Wales would increase by a factor of five. This additional land would likely be of sub-optimal quality and therefore not as productive as higher-quality land. Laurence Smith commented: "Although resource use can be improved under organic management, there is a need to consider the potential effect on land-use. Under a 100% organic scenario in England and Wales, a net-reduction in greenhouse gases would only be achievable if accompanied by a major increase in organic yields or widespread changes to national diets."

There has been considerable reaction to the paper and the headlines it has generated in the press. Criticism from organic commentators includes that it lacks a holistic perspective of what is needed to transition toward sustainable food systems, e.g. tackling food waste, diets and structural issues of our food system. Roger Kerr, OF&G Chief Executive and ORC Council member said: "Although the research recognises the benefits an organic system brings to soils and biodiversity, it fails to take a joined-up approach, which has proved to be great fodder for the advocates of 'business as usual' - something the IPCC and the UN have agreed is no longer an option."

Innovations to improve sustainability in the sheep and goat sector

The Horizon 2020 project iSAGE (Innovation for Sustainable Sheep and Goat Production in Europe) concluded their UK training and workshop week on the 6th December after four days of presentations discussing the European sheep and goat industry, in conjunction with a field trip to Yorkshire Dairy Goats. A collective audience of students, farmers, vets, academics and industry members facilitated constructive discussions surrounding the projects outputs and the future sustainability of the Industry. ORC presented findings from research into supply chain, sustainability and on-farm innovation providing greater detail on the current functioning of the industry with the hope of supporting policy recommendations in the near future.

Reshaping the research agenda: where do researchers fit in?

*ORC's Senior Crops and Breeding Researcher **Charlotte Bickler** questions the shape of a fulfilling career in research and how striving for this supports our efforts in transforming UK food and farming research*

The current changes at ORC highlight the challenging times that we're in. At times of change, we push to see opportunities on the horizon but let's be honest…the research funding environment is ruthless. For example, I have contributed to various research funding bids since I graduated from my PhD over four years ago but only one has been successful. This is despite spending the best part of 10 years becoming qualified as a researcher in the university system. There is mounting evidence that PhD students and academics have significantly poorer mental health than the general population[1] and no obvious improvements seem apparent as competition increases and job security decreases. ORC's intention to provide permanent researcher positions is admirable yet the struggle for funding remains an acute reality. I have begun to question whether some of the challenges that early career researchers face in building a stable research career mirror the challenges in pushing for funding to support an alternative agricultural research agenda. How can we work towards balance and holism in the current environment?

At the Oxford Real Farming Conference 2019, I attended a session that aimed to address *Reclaiming research for real food and farming: resetting the agenda for the public good*[2]. Following on from this, the Food Ethics Council led several contributors in writing a letter to key policy figures outlining our fears that the framework for publicly funded UK research does not provide the adequate support or intention to support "research that delivers biodiverse, agroecological…systems that produce nutritious, diverse foods, for localised food systems…". You can read the full text of the article online at: http://bit.ly/2PaipgD. I would also add that the current research framework is failing to provide fulfilling careers to many of those that are investing years of their lives in the university system. In the letter we argue that "supporting different approaches that put farmers and citizens at the centre of research would enable UK agricultural research to reach its full potential and deliver real impact". We should not overlook the role of researchers in achieving this.

My fear is that researchers are being cast as out of touch academics who don't want to engage or don't understand how to. Yet, I think the real question is who is deciding what an academic career is and ultimately what academic research should look like? Many researchers are interested in the theory but also motivated by supporting change and on the ground results. Partaking in knowledge exchange, communications and outreach activities as well as engaging stakeholders in the process are all fulfilling parts of this. However, they are often viewed as 'add-ons' to keep the funders happy. Indeed, we need to be aware of whether the right opportunities are being created, and if research funding already allocated to these sorts of activities is delivering the desired effects or is in fact 'stakeholder washing' to facilitate the engagement of business and corporations in making profit from publicly funded research, for example.

Ensuring that a variety of activities can be prioritised and nurtured as part of the research process, and the time that they take is fully acknowledged, could be an important step along the way to creating a happier and healthier research community. It is also clear that there are not enough academic jobs for the number of new PhD graduates. Encouraging the development of a range of skills that are translatable 'beyond the lab' is key to soothing some of the anxieties that surround the precariousness of a career in research and fears that academia is 'out of touch'. At the same time, we need to recognise what researchers can add to many different industries in the world of food and farming, and beyond, via the expertise that they have worked to hone, e.g. critical thinking and analysis.

At ORC we are already engaged in several projects that aim to work together with farmers and citizens to understand and address some of the challenges in organic and agroecological food and farming systems. We aim to support evidence-based decision processes at different scales, and the shift to more knowledge intensive practices. However, we are small fish in the ocean of UK research and have struggled to clearly define our niche. Is this because the research system itself is what needs to change, or at least support more of the kind of work that we do? This may be beginning to be addressed by the adoption of the Knowledge Exchange Framework alongside the Research (and Teaching) Excellence Framework in UK universities.

This will require researchers with a broad skill set that have the time to develop the "cross-sector collaborative approach" that we call for in our letter. The short termism and transience of the research environment is unlikely to foster this. Moving away from technological to agroecological approaches to research, and food and farming, is therefore likely to require a shift in how we approach scientific research and a career in research. Those of us who are already working towards this vision must now come together and focus on collaboration and partnership rather than competition regardless of the increasing pressures to not act so.

This discussion will continue at the Oxford Real Farming Conference (8-9 Jan 2020) in a session entitled *Gearing up for Agroecology: what levers will transform publicly-funded research and innovation for the public good?* which aims to broaden the coalition, initiated at ORFC19, pressing for publicly-funded (technical and socio-economic) research/ innovation to prioritise transformation to biodiverse, food sovereignty-based, agroecology.

Reference

1. Evans TM, Bira L, Gastelum JB, Weiss LT, Vanderford NL (2018) Evidence for a mental health crisis in graduate education. Nature Biotechnology, 36, 282–284.
2. Listen to Audio from the session at: https://soundcloud.com/user-775591787/cc-25

Soil analysis and management for organic and agroecological farming

ORC has been leading a European Innovation Partnership research project on agroecological soil management. The aim is to enhance productivity and sustainability of organic and agroecological farming by improving soil management. ***Dominic Amos, Anja Vieweger*** *and* ***Mark Measures*** *provide an update.*

Photo: Mark Measures

Organic and agroecological farming is fundamentally based on management of soil life and ecology to optimise forage and crop productivity. The processes of solubilisation of minerals, recycling of nutrients from manures, enhancing access to minerals through living systems and improved soil structure and N fixation by free living organisms are all dependant on a wide range of soil organisms, including fungi, bacteria, insects and earthworms. This dependence on soil life distinguishes organic and agroecological farming from conventional, where plant nutrient supply is largely focused on provision of soluble nutrients in the form of fertilisers that can be readily absorbed by the plant.

There is a critically important role for soil analysis in determining the correct management and use of any brought-in inputs in order to ensure that the soil supplies the necessary nutrients to the plant to optimise crop performance and quality.

Various commercial soil analysis techniques and associated soil management recommendations are available to organic and agro-ecological farmers as well as the Standard Analysis including pH, P, K, Mg analysis used by conventional farmers. None of these techniques have been systematically assessed for their suitability to provide sound recommendations for soil management and nutrient availability in organic and agroecological farming.

Recently organic farmers have been advised to use Standard Analysis techniques and to aim for a target index of one point lower than recommended for conventional farming. This target is based on anecdotal experience and knowledge of crop offtakes, but has never been validated.

The Base Cation Saturation Ratio (Albrecht) Analysis offered by some laboratories provides the potential for taking a more comprehensive soil management strategy. Others have tried to assess soil biological activity using soil respiration analysis. The validity of both these techniques has been questioned by soil specialists in the UK but they have been more widely used by organic and agroecological farms in the USA and elsewhere and significant claims are made in terms of soil health and fertility and forage and crop production, in turn linked to animal health.

Soil analysis review

Mark Measures has undertaken a review of all relevant soil analysis and management methods in his Winston Churchill Fellowship https://tinyurl.com/MM-WCTF-Soil which provides background information for the project.

The research project run by ORC in partnership with the Organic Milk Suppliers Cooperative, now in its second year, is monitoring three different soil analysis and management methods in field trials on each of three farms. It is too early to see results from the different treatments but we have completed a technical leaflet on the different soil analysis services available. The Soil Analysis Review is downloadable from the project page: https://tinyurl.com/EIP-soils

An event is planned, in conjunction with OMSCo, for June 2020 on agroecological soil management, with a focus on dairy farming. Details to follow!

This project has received funding from the European Agricultural Fund for Rural Development.

The European Agricultural Fund for Rural Development
Europe investing in rural areas

comment@organicresearchcentre.com

Inspiring healthy farms

After three groups of farmers in the UK, Germany and Austria identified their own personal strategies and philosophies on how to run a healthy farm and produce healthy food (ORC Bulletin 122, Spring/Summer 2017), we have collaborated again to develop farmer-to-farmer learning methods that are able to inspire other farmers to think about health on their own farm, and develop ideas to increase health in the entire farm system. ***Anja Vieweger*** *reports on first project findings.*

Our earlier research revealed that farmers have their own principles and visions when it comes to improving the health of their organic agricultural system. An international group of 16 example farmers had identified their own 'principles of health', defining successful strategies and practices that should be universally applicable and transferable to other farmers. The 10 statements are available in a booklet format for free download online; *Towards farmer principles of health – 10 key statements of farmers to improve health in organic agricultural systems*[1]. While many of these statements were well known already, commonly accepted and in line with the IFOAM principles[2], such as 'soil health is fundamental and the base for health in all other domains of the farm' some of the farmer statements were also relatively new, not often addressed and spoken about in the sector. They describe more holistic and softer approaches, such as 'developing and trusting own intuition' and 'the ability for self-observation and self-reflection'. Although not often talked about, these skills were identified by the farmers to be of particular importance for running a healthy farm. A general viewpoint that emerged during discussions with the farmers was that these ten statements in fact interact with each other, most of them are strongly linked or interwoven (depending on each other, but also enhancing each other) and they should not be assessed individually or measured in isolation. They stated that for a most comprehensive assessment or 'measurement' of farm system health all ten statements should be considered with equal importance and looked at in the big (whole) picture.

There is a need now to develop tools for transferring this tacit knowledge, and for monitoring and assessing health effects on organic farms; thereby helping farmers to reflect on the potential ways to improve health, but also helping research to identify general drivers of good farm health. In this new project, each individual farmer group in the UK, Austria and Germany has jointly agreed and described optimal conditions and the most appropriate and change-inspiring methodology to bring these specific instructions and strategies into the wider farming community. In three national workshops held during autumn 2018, the farmers elaborated a group strategy for the next steps in the project. Each group planned to organise a farmer-to-farmer learning/training event according to their own developed priorities and preferred approaches, and 'road-tested' their method of knowledge transfer with a wider group of farmers in their region during 2019.

Main discussion points in terms of an optimal setting for such an event were for example the length of the events, or the optimal size of the group that should work together on this. All groups agreed that this should be seen as a long-term learning process, and that this kind and amount of knowledge cannot be covered in a one-off event. They also all agreed that practical demonstration and showcasing the meaning of these statements in practice should be a major element of such training events.

Initially, all three groups planned for a repeated series of workshops or events, where the same group of farmers would meet regularly over a couple of months or years. They all identified that as a first step they should act as the facilitators and hosts of these events (farmer-to-farmer learning) themselves, with the potential for future groups forming out of the initial ones, where those farmers again could act as facilitators or trainers. In terms of length and scope of each event, the Austrian farmers for example felt that a two-day event would be the minimum for each meeting, as this length would offer enough time on the one hand to cover the large amount of thought-provoking information, as well as on the other hand to contemplate the issues over the evening/night and exchange with the group again the next day. The UK group preferred one-day events as 'UK farmers usually hesitate to leave the farm or business for longer than one day'. Here, the farmers decided that a group of about 20 participants would be about right, whereas in Austria a group of up to nine participants was set, to maximise interaction and individual contribution and benefits. In Germany, the group decided to make use of an already scheduled meeting of their regional farmer working group and organised a specifically themed workshop-day with those farmer colleagues in May 2019.

During November 2019, both the UK group and the Austrian group organised their own farmer-to-farmer learning event. They each invited a number of other farmers from their region to 'road test' the method they developed, and to gain feedback from this wider group on their ideas and approach. In each of these national events, also farmers from the other country groups participated, exchanged their experiences and inspired learning also between the three groups. On both sites the event was hosted by a farmer from the project group and in the UK it was organised at Tolhurst Organic C.I.C. on the 4th of November.

Iain Tolhurst with the UK workshop attendees

The Austrian group

After the farmers introduced themselves and gave some background to the event, they each selected two statements which they presented in more detail and described how they 'look' on their own farm, what they mean to them and how they apply them in practice. After lunch the group went on a farm walk and followed three different stations where the host Iain Tolhurst showed practical implementations of the soil health and biodiversity statements on his farm. The farmers also asked the group how this work would impact what they are doing on their own farm and how they 'measure' health. And finally, they presented ideas of what the next steps could look like in the UK, who potential hosts for future meetings could be, or if organising a series of specific 'themed meetings' to cover the 10 statements in more detail and for specific farming systems would be useful. The participants contributed very constructive feedback during the whole day, both on the actual statements, as well as the suggestion on how to inspire others and spread these ideas and knowledge to other farms. One suggestion for example was to set up a website where the ten statements are described in a bit more detail and where other farmers can contribute and show examples of their own farm and exchange personal experience of what these farmer principles of health mean for them.

The project will continue until the end of May 2020 and full outcomes, final conclusions across the three countries and jointly agreed farmer-to-farmer learning concepts will be reported in a future ORC Bulletin.

Acknowledgements

We are highly heartened and grateful for the continued enthusiasm, openness and engagement of all the farmers involved in this project.

Project partners are: Thomas F. Döring, University of Bonn, Bonn, Germany; Ralf Bloch and Johann Bachinger, Leibniz Centre for Agricultural Landscape Research (ZALF), Müncheberg, Germany.

The project is funded by the Ekhaga Foundation, Sweden.

Further information

1. Towards farmer principles of health – 10 key statements of farmers to improve health in organic agricultural systems https://tinyurl.com/Principles-Farmer-health
2. IFOAM Principles of Organic Agriculture. www.ifoam.bio/en/organic-landmarks/principles-organic-agriculture

ORC and Agricology at Oxford Real Farming Conference 2020

Agricology returns to ORFC hosting the Agroecology in Practice Room (Assembly Room) and discussions in the St Aldates room, together with the Pasture Fed livestock Association and the Soil Association. These sessions will dig deeper into a range of agroecological practices on a mixture of arable, horticultural and livestock farms, with researchers and farmers sharing their knowledge from experiences in the field. Come and join us!

We will kick off with a session exploring the benefits of pulses in crop rotations. There is a growing potential market for UK-grown pulses, which deliver a range of beneficial agroecosystem services including nitrogen fixation and habitat for pollinators and natural enemies but also face challenges in the production method and route to market. This session will bring together George Young (Fobbing Farms), Christine Watson (SRUC – Scotland's Rural College), Steve Belcher (PGRO) , Katie Bliss (ORC) and Josiah Meldrum of Hodmedod's.

Rosemary Collier (University of Warwick) and Adam Keeves (Organic Growers Alliance) will tackle *The Impact of Climate Change on UK Horticulture*, presenting experiences from UK growers and model examples of the changes to come, with specific detail on insects. The session will aim to highlight the issues growers should pay attention to, but importantly present techniques to build resilience in organic systems. Join for the break out session afterwards in the St Aldates room to share ideas on how you are and could be enhancing resilience.

On day two, we look at the *Future of Agroecological Weed Management integrating an ecological and technological perspective;* with insights from Chloe Maclaren (Rothamsted Research), Nicola Cannon (Royal Agricultural University), Sarah Cook (ADAS)and Mike Mallett (Maple Farm, Kelsale) who will share some insights on creating a weed resilient system to see how all this can work in practice.

Finally, if you want to get to know your soils better – bring along your soil analyses at 14.30 to the St Aldates room. Becky Wilson (Farm Carbon Cutting Toolkit), Jonathan Leake (University of Sheffield) and Mark Measures (EIP-AGRI Soils) will discuss methods of soil analysis (chemical, biological and carbon) and how to utilise the results to inform adaptation in management practices.

ORC's Lindsay Whistance will speak in the *Climate Friendly Farming: Moving Towards the Production of more Agroecological Proteins for Animal Feedstuffs* workshop on day two.

At the close of day two there will be a Martin Wolfe Memorial slot to remember Martin, who worked with us for more than 20 years amd was one of agriculture's outstanding thinkers and innovators. There will be a short video with Martin's own words followed by contributions from family and supporters, including ORC's Bruce Pearce, with the aim of taking forward the work of Martin and Anne at Wakelyns and keeping their memory alive.

For those who can't make it we will be filming the sessions which will be available after the event on the Agricology YouTube channel!

Events and announcements - details at www.organicresearchcentre.com

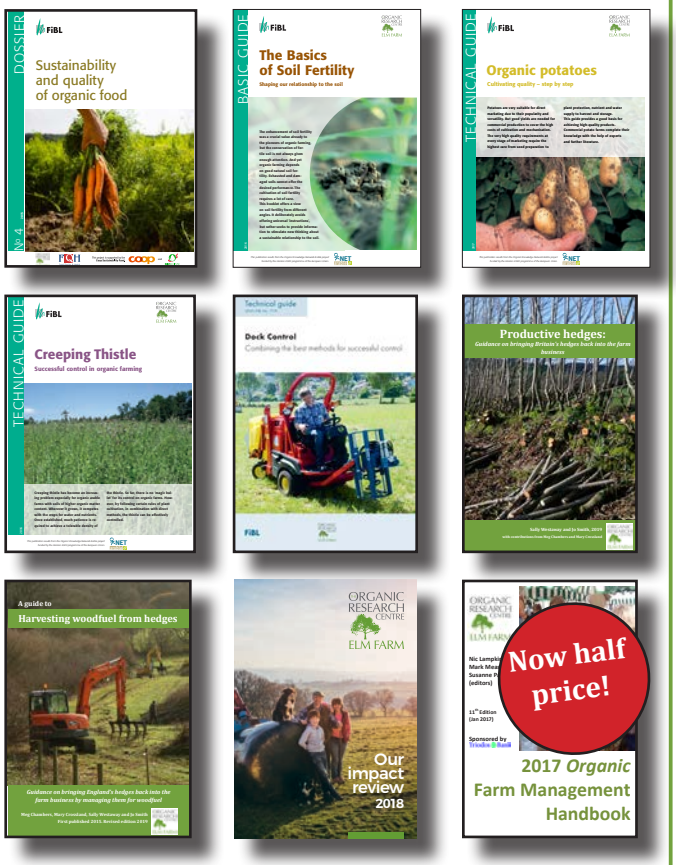
Events

8-9 January 2020: Oxford Real Farming Conference
The 11th annual Oxford Real Farming Conference at Oxford Town Hall. http://orfc.org.uk/

18-20 May 2020: 5th European Agroforestry Conference. Agroforestry for the transition towards sustainability and bioeconomy: Nuoro, Sardinia (Italy). https://www.euraf2020.eu/

21-27 September 2020: Organic World Congress 2020. ***From its Roots, Organic Inspires Life.*** Rennes, France. https://owc.ifoam.bio/2020/conference-fora

Technical guides/publications



Download or order hard copies and for full publications list: https://tinyurl.com/ORC-pubs

Impact Review: https://tinyurl.com/ ORC-impact18

Join ORC's Farmer and Business Supporters' Group

ORC is at the forefront of UK research on organic and other agroecological approaches to sustainable and healthy food production, including knowledge exchange and policy advocacy on behalf of organic farmers and businesses.

While much of this work is supported through project funds from the EU, governments and foundations, we rely heavily on donations from individual supporters to provide vital underpinning for our activities.

Regular monthly or annual donations help us to plan ahead with greater confidence about our ability to undertake new initiatives on behalf of organic farmers and food businesses.

Will you join the growing band of farmers and businesses willing to support us like this?

We're not just asking for your support – we're offering something in return to say thank you!

FAB supporters have:*

- The opportunity to attend FABS annual events to hear about our current activities, with space to discuss your priorities for research, information and policy initiatives
- Opportunities to participate in bids and funded projects
- Networking opportunities and events
- Pre-publication access to research reports, technical guides, bulletin articles, conference papers and other publications, with an invitation to feedback comments where appropriate
- Access to the research team and a quarterly update on progress and staff news, with links to on-line resources, for each of the main areas of ORC activity
- Links to and (optional) membership of relevant on-line discussion forums
- Discounted access to ORC conferences and events, including our annual conference
- Free subscriptions to ORC's printed bulletin, monthly e-bulletins and the Organic Farm Management Handbook every two years or so.

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To join the ORC FABS group, please pledge a regular annual donation (or monthly equivalent) of at least:

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We are keen to recognise the different levels of support, but all supporters will receive the same benefits.

To register, please contact Gillian Woodward at ORC:
01488 658298 ext. 554
gillian.w@organicresearchcentre.com

**We are reviewing our FABS activities – please contact Bruce Pearce if you would like to know more: bruce.p@organicresearchcentre.com*