REGENERATIVE GROWERS' KNOWLEDGE TRANSFER GROUP

Results so far

17 JULY 2023

The Regenerative Growers' Knowledge Transfer Group was set up by Fibreshed Ireland in December 2022 with support from Fibershed through a micro-grant.

This growing group started with 9 fibre and dye farmers and growers who are interested in or already implementing regenerative land management practices. The aim of this group is to share ideas and experiences over 6 thematic online sessions. As a result of these sessions, we will collaboratively develop a verification system for regenerative Irish textiles, inspired by Fibershed's Climate Beneficial™ programme in the USA.

The introduction session, as well as our growing Regenerative Farming Resource Library can be viewed here: https://fibreshedireland.ie/regenerative-growers-group/

Cover photo by Paige Green

Fibre & dye farmers and growers involved:

JESSICA LEONARD
Teacup Farm, Co. Mayo
Ecologist and Alpaca Farmer

LINDA COSTELLO
Co. Galway
Sheep farmer and spinner

BLATNAID GALLAGER
Galway Wool Co-Op, Co. Galway
Heritage sheep farmer

SANDRA KING
Irish Fibre Crafters, Co. Galway
Sheep smallholder & fibre crafter

TRISTAN LIENHARD
Apple Oak Fibreworks, Co. Clare
Dye plant grower and seed propagator

BENJAMIN & ANASTASIA VON AMMON
Alpaca Walk West Cork, Co. Cork
Sheep & alpaca farmers and knitter

HELEN KEYS & CHARLIE MALLON
Mallon Linen, Co. Tyrone
Flax farmers & processors
Irish linen ambassadors

SEAMUS BRADLEY
Co. Kildare
Sheep & vegetable farmer and shearer

PIETER PLOEG
Terranu, Co. Waterford
Regenerative farmer & educator

SESSION 1 — 19 / 01 / 2023

Preliminary definition, needs, desires & challenges

Photo by Aoife Long

SESSION 1 —— 19 / 01 / 2023

Preliminary definition, needs, desires & challenges

This was an interactive session led by natural dyer and Fibreshed Ireland co-founder Malú Colorín.

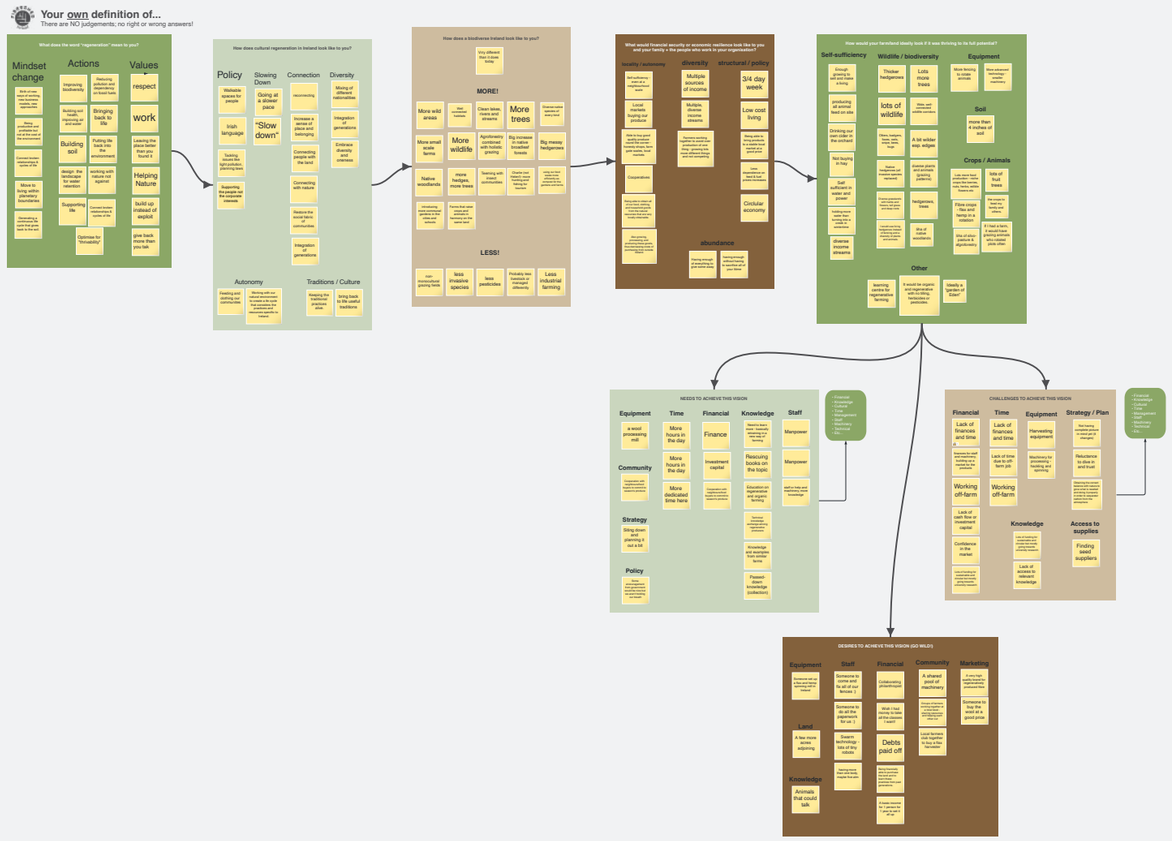
7/9 participating farmers and growers have provided feedback so far.

Participants were invited to provide brainstorm-style responses to the following prompts, using the Zoom whiteboards functionality:

QUESTIONS

(allow 3 minutes to brainstorm each):

- → What does the word “regeneration” mean to you?
- → How does cultural regeneration in Ireland look like to you?
- → How does a biodiverse Ireland look like to you?
- → What would financial security or economic resilience look like to you and your family + the people who work in your organisation?
- → How would your farm/land ideally look if it was thriving to its full potential?
  - › What are your NEEDS to achieve this vision?
  - › What are the CHALLENGES to achieve this vision?
  - › What are your DESIRES (✧ GO WILD! ✧)?



This is how the Zoom whiteboard looked after including everyone’s responses and organising them by broad themes.

See the next pages to read the results from this series of questions.

Regeneration means...

CHANGING MINDSETS:

- → Birthing new ways of working, new business models and new approaches
- → Being productive and profitable, but not at the cost of the environment
- → Connect broken relationships & cycles of life
- → Living within planetary boundaries
- → Generating a continuous life cycle that gives back to the soil

TAKING ACTION:

- → Improving biodiversity
- → Reducing pollution and dependency on fossil fuels
- → Building soil health
- → Improving air and water quality
- → Designing the landscape for water retention
- → Supporting life
- → Working with Nature, not against her
- → Connecting broken relationships & cycles of life

UPLIFTING VALUES:

- → Respect
- → Work
- → Leaving the place better than you found it
- → Helping Nature
- → Building up instead of exploiting
- → Giving back more than you take

Cultural regeneration looks like...

POLICY:

- → Walkable spaces for people
- → Uplifting the Irish language
- → Tackling light pollution
- → Changing planning laws
- → Supporting people, not corporate interests

CONNECTION:

- → Reconnecting
- → Increasing a sense of place and belonging
- → Connecting people with the Land / Nature
- → Restoring the social fabric of communities
- → Integrating different generations

DIVERSITY:

- → Mixing of different nationalities
- → Integrating different generations
- → Embracing diversity and oneness

SLOWING DOWN

TRADITIONS & CULTURE:

- → Keeping the traditional practices alive
- → Bringing useful traditions back to life

AUTONOMY:

- → Feeding and clothing our communities
- → Working with our natural environment to create a life cycle that considers the practices and resources specific to Ireland

Preliminary definition, needs, desires & challenges

A biodiverse Ireland needs...

MORE:

- → Wild areas
- → Well connected habitats
- → Clean lakes, rivers and streams
- → Trees
- → Diverse native species of every kind
- → Small scale farms
- → Wildlife
- → Agroforestry combined with holistic grazing
- → Native broadleaf forests
- → Big messy hedgerows
- → Insect communities
- → Hunting and fishing for tourism
- → Effective use of food waste as compost for gardens and farms
- → Communal gardens in the cities and schools
- → Farms that raise crops and animals in harmony on the same land

LESS:

- → Monocultural grazing fields
- → Invasive species
- → Pesticides
- → Livestock (or managed differently)
- → Industrial farming

Economic resilience involves...

LOCAL COOPERATION & AUTONOMY:

- → Self-sufficiency – even at a neighbourhood scale
- → Local markets buying our produce
- → Honesty shops, farm gate sales, local markets
- → Growing and processing all of our food, clothing and household goods from local natural resources
- → Cooperatives

DIVERSITY:

- → Multiple and diverse income streams
- → Farmers working together to avoid overproduction of one thing: growing lots more different things and not competing

ABUNDANCE:

- → Having enough of everything to give some away
- → Having enough without sacrificing all your time

STRUCTURAL & POLICY CHANGES:

- → 3-4 day week
- → Low-cost living
- → Bringing products to a stable local market at a good price
- → Less dependence on feed & fuel prices increases
- → Embracing the circular economy

A thriving farm/land involves...

SELF-SUFFICIENCY:

- → Enough growing to sell and make a living
- → Enjoying the produce of our Land
- → Not having to buy inputs or animal feed
- → Water and power self-sufficiency
- → Holding more water that can be turned into a creek in wintertime
- → Diverse income streams

WILDLIFE & BIODIVERSITY:

- → Thicker, native hedgerows forming wide, well-connected wildlife corridors
- → Lots more trees
- → Lots of wildlife
- → Diverse plants and animals (grazing patterns)
- → Diverse grasslands with herbs and flowers, tall grass and deep roots
- → Native woodlands

EQUIPMENT:

- → More fencing to rotate animals
- → More advanced technology / smaller machinery

HEALTHY SOIL:

- → More than 4 inches of soil

OTHER:

- → A learning centre for regenerative farming
- → A “Garden of Eden”

CROPS & ANIMALS:

- → Lots more food production: niche crops like berries, nuts, herbs, edible flowers, etc.
- → Lots of fruit trees
- → Fibre crops: flax and hemp in a rotation
- → Silvopasture & agroforestry
- → Grazing animals who rotate plots often
- → Organic, no tilling, no herbicides or pesticides

A thriving farm/land needs...

EQUIPMENT:

- → Fibre processing facilities
- → Machinery

COMMUNITY:

- → Cooperation with neighbours & food buyers to commit to the season’s produce (CSA)
- → Technical knowledge exchange among regenerative producers

STRATEGY:

- → Sitting down and putting a plan in place

POLICY:

- → Government incentives

STAFF:

- → Manpower

TIME:

- → More time on the farm

FINANCES:

- → Investment capital
- → Financing
- → Cooperation with neighbours & food buyers to commit to the season’s produce (CSA)

KNOWLEDGE:

- → Retraining in a new way of farming
- → Rescuing books on the topic
- → Easy, efficient access to specific information contained within books
- → Education on regenerative and organic farming
- → Technical knowledge exchange among regenerative producers
- → Examples from similar farms
- → A collection of passed-down knowledge

The challenges are...

FINANCIAL:

- → Lack of finances for staff and machinery
- → Building up a market for the products
- → Lack of confidence in the market
- → Having to work off-farm
- → Lack of cash flow or investment capital
- → Funding for sustainable and circular initiatives mostly goes towards university research

TIME:

- → Lack of time
- → Having to work off-farm

EQUIPMENT:

- → Harvesting equipment
- → Machinery for processing

STRATEGY / PLAN:

- → Not having a clear picture in mind
- → Reluctance to dive in and trust
- → Doubts about obtaining the correct balance with Nature to grow what is needed while doing it properly to sequester carbon from the atmosphere

KNOWLEDGE:

- → University research
- → Lack of access to relevant knowledge

ACCESS TO SUPPLIES:

- → Finding seed suppliers

Additional ideas...

EQUIPMENT:

- → Ireland needs a flax and hemp spinning mill

STREAMLINING:

- → Paperwork
- → Swarm technology
- → Repairs around the farm

COMMUNITY:

- → A shared pool of machinery
- → Groups of farmers working together at a local level - sharing resources and helping each other out
- → Local farmers club together to buy a flax harvester

LAND:

- → Access to more land

MARKETING:

- → A very high-quality brand for regeneratively produced fibre
- → Wool needs to be bought at a good price

KNOWLEDGE:

- → A better understanding of animals' needs
- → Knowledge transfer among different generations

FINANCIAL:

- → Debts need to be paid off
- → A basic income for 1 person for 1 year to set it all up
- → Collaborations with philanthropists or impact-focused investors

Preliminary definition, needs, desires & challenges

SESSION 2 ——— 23 / 02 / 2023

Biodiversity

Photo by Cam James

SESSION 2 ——— 23 / 02 / 2023

Biodiversity

This was an educational session followed by an open conversation and Q&A among all participants. Jessica Leonard –biologist, educator, farmer at Teacup Farm and Fibreshed Ireland board member– gave a presentation on the topic of Biodiversity in Agroecological Systems Above and Below Ground.

5/9 participating farmers and growers have provided feedback so far.

During the session, the following specific actions were discussed to increase biodiversity:

1. Creating habitat, specifically healthy hedgerows

- → Prioritising native plants, which have tight ecological relationships with native insects
- → Hedgerows provide food, shelter, nesting, and hibernating sites for a myriad of flora and fauna
- → The best hedgerow structure is large and dense at the bottom with tree “escapees”
- → Hedgerow management practices suggested included coppicing and planting new species, specifically those that can outcompete dominating species (like ivy). But the management actions to be taken are totally dependent on the specific system currently in place

2. Reducing light pollution at night by turning off non-essential lights

- → Artificial lights contribute to the death of nocturnal insects
- → Harms all sorts of animals by decreasing reproduction, disrupting migration, and increasing predation, among other things
- → Turn off unneeded lights, dim necessary ones, use motion-activated lighting, shield bulbs with caps at the top, and switch to bulbs that produce amber- or red-coloured light (produce wavelengths that are less attractive to insects)
- → The International Dark Sky Week website has further resources on the subject

3. Creating wildlife corridors

- → Look at hedges as if they were roads, and if they’re not linked, find a way to connect them so that animals can travel safely through them!

4. Adding water bodies to the farm/land

- → Support various insects, which in turn helps increase the number of insectivorous species
- → Can be any size!

5. Reducing or eliminating agrochemical use

- → Harmful to microorganisms and other soil life because they alter the soil pH
- → Harmful to non-target species such as pollinators

The following are questions that came up during the session, along with their answers:

How do you currently measure biodiversity in your farm/land?

- → Observation and comparison to previous observations
  - › plants on the pastures
  - › plants on the edges
  - › insects
  - › birds
  - › mammals
- → Stopping and not doing anything might feel counterintuitive, but it’s a great way to observe and also let Nature do its thing; not everything needs to be managed
- → Qualitative: note and picture taking
- → Quantitative: yearly counts
- → Refractometer readings
- → Periodic use of the microscope to check biology: soil biodiversity reflects biodiversity above ground
- → Digging a lot of holes to take a look at the soil/roots
- → Checking for soil compaction
- → I’d like to start recording soil biodiversity on my land

What's your experience with multi-species swards?

- → Sowed multi-species swards in 2020 (custom Cotswold Seeds mixture - before Brexit) and has observed the sheep enjoy grazing chicory, grasses and clovers. Some sections have not been grazed at all, some grazed by sheep, some with sheep followed by hens and some just hens. It seems different plants have begun to dominate in the different areas.
- → I source green manure seeds from Fruit Hill Farm (organic) and McGuinness Seeds. I'm not sure of the provenance of either, but not likely Irish.
- → We have multi-species swards but we don't sow them. We try our best to maintain and increase the diversity with grazing/scything and local species. We learn more each year this way.
- → Commercial multi-species swards don't have the same amount of diversity as traditional hay meadows.
- → Irish Seed Savers is starting to sell native wildflower species that could be added to a field to try to mimic traditional hay meadows — sheep will graze the plants they need if they're available to them
- → ~10 years ago, only around 30% of semi-natural grasslands remained in Ireland. Today, that number has decreased.
- → Years ago, policy in Ireland changed to promote the sowing of perennial ryegrass, in part to prevent cows from bloating with the presence of clover.
- → I want to start questioning more about the source of my seeds.

Have you noticed improvements in your livestock's health thanks to multi-species swards grazing?

- → We deworm only as needed. We run a faecal and do counts to determine if worming is necessary; no need so far
- → There are a number of factors that can lead to an overabundance of one type of parasite or another. Nutrition and a varied diet are a part of this.

Do you think it would be better if a third party independently assessed key indicators in your land, through tools such as soil tests and biodiversity surveys? Or would you rather it was self-assessed, with the assistance of an app or similar technology?

- → A mixed approach to get support from experts, but also learn during the process.
- → Open to a system of assessment that is effective - whatever that looks like. I think there is a big learning opportunity here: we want the producer to come away with more information they can put to use as a part of the process.
- → If we were to use an app, I would prefer Soilmentor. Nicole Masters (the creator) is very knowledgeable and I like that she promotes a hands-on approach. It helps you learn more about the different soil ecosystems throughout your farm.
- → A combination of both.

Illegal hunters are a problem for one of our farmers:

- → Illegal hunters justify their actions because they consider certain animal species a "pest"
- → Education to the general public and other farmers is needed about "pests" and their role within biodiversity
- → Badgers are blamed for TB
- → It's good to have a badger in your land because if you have your own, you prevent others –potentially infected with TB– from coming into your land. We need general education about this.

Two schemes to help increase biodiversity were mentioned:

ACRES SCHEME

Ireland's new agri-environment climate scheme under Ireland's CAP Strategic Plan. This is a 5-year scheme that encourages farmers to help address biodiversity decline. Some of the actions to be undertaken under the scheme include Planting new hedgerows, planting traditional orchards, planting trees in riparian buffer zones, tree belts for ammonia capture from farmyards and tree planting. One of our participating sheep farmers has signed up to the scheme. A list of actions and their associated rates of payment can be found here. Applications to the scheme are now closed.

THE HARE'S CORNER

An initiative to help landowners make more space for nature through the creation of a mini woodland, a mini orchard, a pond or a 'plan for nature'. One of our participating fibre and dye plant growers has taken part in this project to create ponds on their land. The scheme is currently closed but might reopen in the future. Their website has a list of resources that can be useful for anyone wanting to implement these actions, even if outside of the scheme. This scheme is specific to County Clare only and is coordinated by the Burrenbeo Trust, and funded by the DAFM through The EIP/Locally led schemes, by the EU Recovery Instrument Funding under the Rural Development Programme 2014-2022, and the Clare County Council and the National Parks and Wildlife Service.

The participation in schemes such as these can be beneficial to farmers seeking to increase biodiversity in their holdings since they'll help cover some of the additional costs associated with managing the land for biodiversity.

SESSION 3 — 30 / 03 / 2023

Feed the soil, not the plants

Photo by Mallon Linen

SESSION 3 ——— 30 / 03 / 2023

Feed the soil, not the plants

This was an educational session followed by an open conversation and Q&A among all participants. Soil scientist Dr Aga Piwowarczyck gave a fascinating presentation on the importance of feeding the soil, rather than the plants. The presentation was followed by a Q&A session among attendants.

5/9 participating farmers and growers have provided feedback so far.

About Dr Aga:

Aga is an experienced researcher who has worked in a variety of soil and environmental projects supporting the objectives of the Water Framework Directive (including i.e. Nitrates Directive), River Basin Management Plan and the proposal for a Soil Framework Directive.

Aga has a PhD in Biosystems Engineering from University College Dublin and a Master Degree in Environmental Protection from Wroclaw University of Life Sciences in Poland and University of Llerida in Spain.

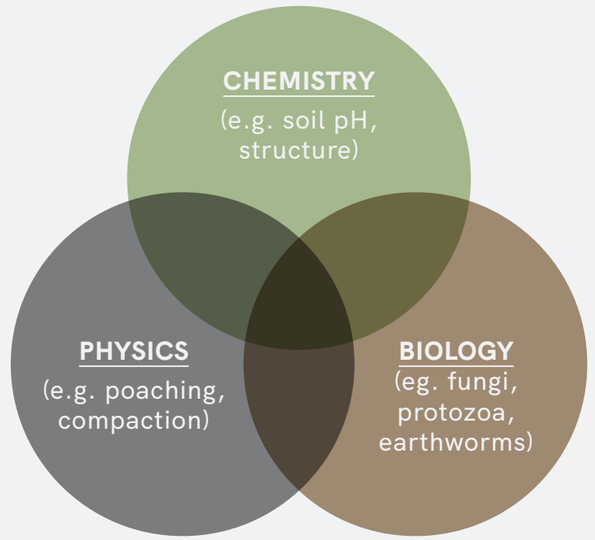
Aga has supervised and mentored undergraduate and postgraduate students in a variety of multidisciplinary projects (field and laboratory based) while collaborating with national and international universities, Department of Agriculture, Food and the Marine, and Teagasc Research Centres. During her time at UCD Aga worked for 3 consecutive years as a Part-time Laboratory Demonstrator teaching Soil Science Basics while carrying her PhD research work.

A snapshot of current conventional farming systems:

- → We started destroying the soil with the use of the plough and the introduction of monocultures
- → Increasing the use of artifical fertilisers (NPK) has made the Land (and consumers) dependant on them:
  - › Our farming systems depend on destructive practices
  - › Plants depend on pesticides
  - › Soils depend on artificial fertilisers
  - › Systems depend on ploughing and tilling
  - › Consumers have become used to / dependant on getting any kind of food quickly and available year-round: we've forgotten seasonality
- → Conventional agriculture is a "quick fix": applying synthetic nitrogen gives quick results, but is detrimental in the long run
- → We've been left with dirt, which is lifeless, instead of living soil

Soil is a complex and dynamic system

In order to have healthy soil, all three components of it need to be healthy:



Soil has many functions!

- → Gives us oxygen to breathe
- → Drinking water, since healthy soil acts as a filter
- → Habitat for wildlife
- → Food (plants and animals)
- → Fibre
- → Foundation for buildings and cities

1m3 of healthy soil has more diversity than 1km3 of ocean!

1 teaspoon of good soil has around:

- → **1 billion bacterial cells (10,000 bacterial genomes)**
- → **1 million individual fungi**
- → **1 million cells of protists**
- → **Hundreds of nematodes**

Magic Earthworms

- → The microbiome of earthworms is strongly related to our own microbiome
- → Their skin also has a microbiome that it leaves behind as it moves in the soil
- → We must make sure they have enough food: other microorganisms they can feed on
- → Earthworms don't decompose plant material, since they don't have enzimes! Instead, they take a chunk of organic matter which contains microorganisms (their food), it goes into their stomach, they squeeze out the juice of goodness, which they absorb and then they poop out the excesss: readily-available nutrients for plants!

Notes on soil management:

SOIL STRUCTURE:

- → Remember the soil needs to have air! The good guys are present when there is oxygen – earthworms need oxygen too
- → Pathogenic guys (fungus and nematodes that eat our crops) are usually found when there is no soil aeration
- → Good soil is: sand, silt and clay + organic matter. Bacteria make alkaline glues that bind the organic matter to particles so they can create micro porosity or micro aggregates
  - › Micropores are where soil moisture is stored
- → Fungus stabilises and creates macro porosity (with help of earthworms)

CONDUCTING AN AGGREGATE STABILITY TEST / SOIL STABILITY TEST:

- → Here is a video that explains how to conduct the test
- → Having a cottage cheese-like structure is perfect (if 80% of aggregates remain intact, this is great!)

ORGANIC MATTER MANAGEMENT:

- → Provide food (OM / compost), oxygen and water for the microorganisms so they can thrive

THE IMPORTANCE OF COVER CROPS:

- → Cover crops are a MUST! (even if they are "weeds"). They provide physical protection and food for microorganisms
- → **The soil sponge effect:** a cover of living plants helps keep water moisture in the soil and prevents runoff. Ideally, you want no runoff, instead a good, clean ammount of water as drainage that permeates down into the soil
- → When there are no cover crops, the water from rain or irrigation is not filtered and causes runoff of excess nitrates into waterways, polluting them

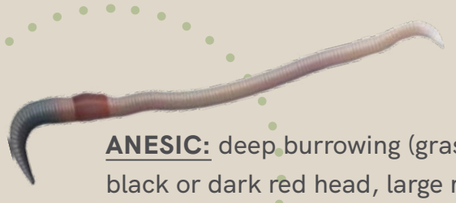
How to test your soil for earthworm activity:

(It's best to do it between December and April / May)

- → Use a spade or shovel to take a chunk of soil of 20cm x 20cm x 20cm
- → Count the earth worms in that area: 10+ is a good result!
- → You can then look at what kind of earthworms you have:

EPIGENIC: litter dwellers, dark head, length of a matchstick, fast moving. Sensitive to tillage & manure application. Carbon cycling & prey for birds.

ENDOGENIC: in the topsoil (arable), pale & green, small to medium in size. They curl up when handled. Sensitive to organic matter management. Soil aggregation & nutrients mobilisation for plants.



ANESIC: deep burrowing (grassland), black or dark red head, large making tunnels up to 2m. Sensitive to tillage & organic matter management. Improve infiltration, aeration & root development.

Earthworm images + information: AHDB

The Soil Food Web

- → Plants feed microorganisms in the soil. They produce sugars in their leaves through photosynthesis and then release exudates into the soil through their roots: Bacteria eat simple sugars and fungi eat complex sugars
- → Microorganisms (bacteria and fungi that are rich in nitrogen) become food for protozoa and nematodes. They pooop out excess nitrogen, which provides micro and macro nutrients that are readily-available for the plants!

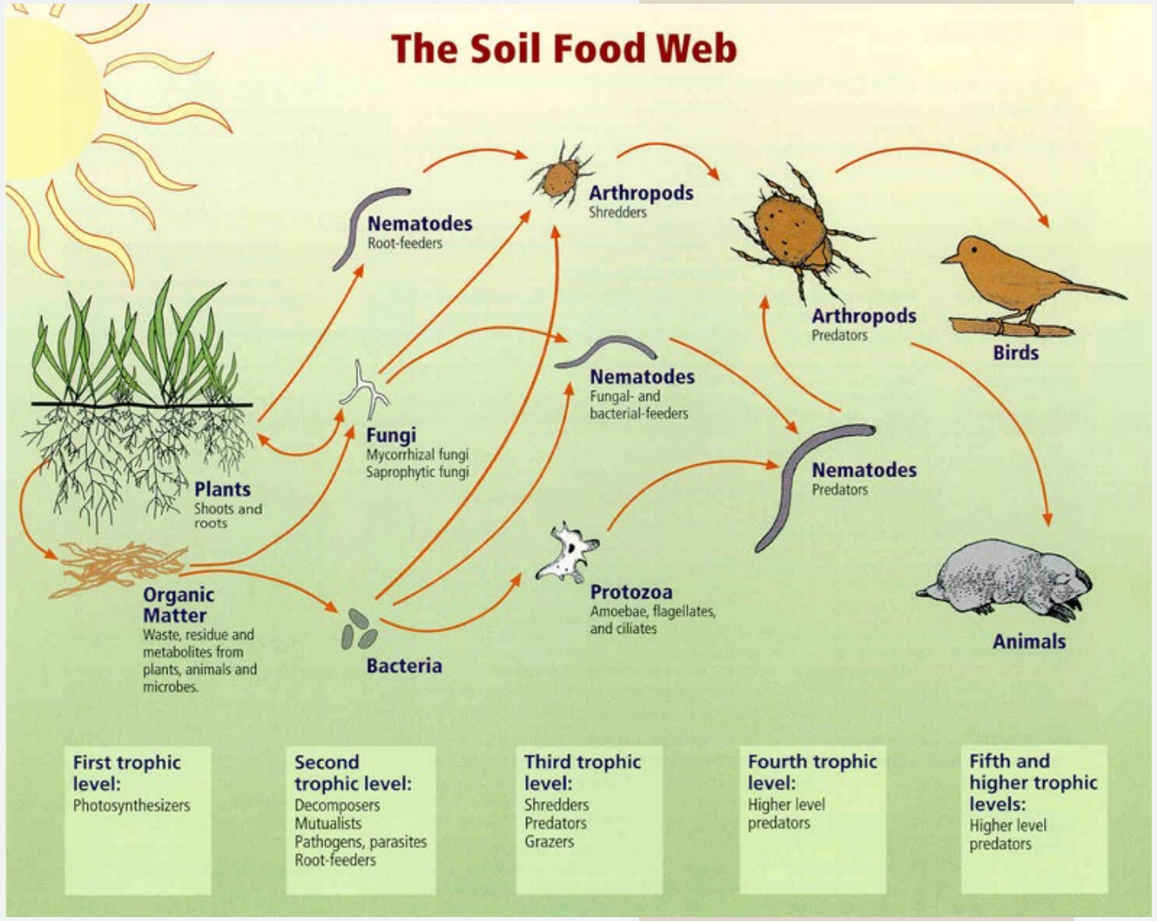


Image: USDA

Q&A with Dr Aga:

I'm growing flax in rotation with potatoes, oats and cereal. My farm is 50 acres in a region that has slightly acidic soil (pH 5.5 - 6). The land is made up of old meadows with a mix of around 8 -9 different grasses that have been growing for a very long time (rye grass, cocksfoot, bird's-foot-trefoil, etc).The farm is in a very hilly region: one side of the drumlin is sandy and the rest is typical heavy clay. I've noticed that the flax seems to pull a lot of nutrients off the soil, as the grass that grows afterwards doesn't look as good. I wonder if tilling and rotating crops is the best approach for soil health? We tried seed drilling in the past, but it didn't work. Maybe because of the grass. What do you recommend?

- → According to research from the US, crop rotation doesn't improve soil health; it's useful for managing pests.
- → Depending on the plant that you're growing, you're creating specific ecological conditions on the succession level: the more bacteria, the lower on the succession you are. The more fungi, the more carbon you're sequestering.
- → What do the plants you put above ground do to the microorganisms? (not the soil itself). Are you feeding bacteria or fungus? Do you have plants in a higher tier of succession (more complex)?
- → Soil biology affects soil chemistry.
- → Do a trial and see if you can grow flax in the same field twice.
- → Having as much diversity above ground as possible is recommended, therefore the rotation system could be beneficial
- → Intercropping could be an option.
- → The sandy bit might be gold!
- → Clay can be managed (to increase pH) and you can get a really good harvest. Adding lime creates compaction; not recommended. Instead, encourage the growth of mycorrhizal fungi (the ones that create kidney stones). They'll release calcium and glomalin. Add organic matter to increase the pH and feed the fungi. Do that instead of the rotation and see what happens.

Our farm is in the coast, with stony and clayish soil. It has been without animals for the past 10 years, but in the last 3 years we've added 2 heavy horses that like to gallop and eat a lot. We also rotate them with alpacas and sheep. I notice in a few spots we're getting lichen in the ground. What can we do to make the soil more productive with all those animals grazing rotationally (there are no animals there every day)? The horses take everything down, then the sheep come and then the alpaca. After the horses, the soil is more compacted. Regardless of the ground cover, the horses will create holes. The grass roots don't go deeper than 10cm. Under those 10cm there's just rock, gravel or clay. How can we produce more grass?

- → The lichen is a good sign!
- → There are two processes that happen in the soil: compaction or poaching. What you descruibe sounds like poaching (galloping horses in bad weather). The soil is saturated and adding heavy animals creates poaching.
- → Compaction is a more permanent change. If you had daisies in the field, it would mean the soil is compact.
- → In this case, the management can be the key: can the animals be together in the field? Mixed grazing can maximise the time spent on the same field.
- → Sheep are some of the worst animals: despite being lighter in weight, their tiny hooves piece the soil deeper than horses or cows.
- → Build good land cover (very dense grass) before you put animals out (especially sheep). Rushes, grass or wild flowers will do.
- → Never let the animals overgraze the field.
- → Agroforestry can help with draineage problems.
- → Add chicory to create deeper top soil (chicory has a deeper root system).
- → Move the animals 2-3 times a day.
- → Feed the soil with compost or extracts.

Has anyone done any baseline measurements on their soil?

- → One of our farmers has done worm counts and a basic pH test (5.5 - 6).
- → Someone else has done a general soil test, as well as micronutrients and pH (6.5 - 7)

What would be the key parameters we should ask farmers to measure?

HIGHLY RECOMMENDED:

- → **Soil texture (percentage of silica and clay):** this tells you the weight and draineage conditions to expect under rainfall — just once
- → **pH**
- → **Mineralizable soil Carbon:** how much carbon will become availabe for your microorganisms to use during the growing season. This will determine your organic management plan — before the growing season begins (May / June), every year, so you know how good you're managing the soil, the plants and the animals
- → **Organic carbon** — once every 5 years

NOT ESSENTIAL, BUT USEFUL:

- → **Biology:** full screening. This tells you exactly what kind of bacteria, fungus, protozoa and nematodes you have. It'll tell you if you have good guys or bad guys. It is an expensive test!
- → **Cation exchange capacity (CEC):** how much your soil can absorb and release nutrients (depends on clay content, type of clay and OM content)
- → **Protein test:** similar to minerizable carbon: it tells you how much nitrogen is available for the microorganisms
- → **Ammount of ammonia and nitrates:** Once you've done the fill biology test

AVOID:

- → **Solvita® test:** how quickly soil mineralises, but it doesn't diferentiate between good and bad guys; not very specific
- → NPK

If you're looking at soil visually, can you get an indication of whether you have good guys or bad guys?

- → Aggregates should be at least 5cm deep. If you can still see them at 20cm - 40cm deep, this is ideal
- → The darker the soil, the better (but not too dark!). Anything above 70% cocoa colour means you only have inorganic carbon (mineral). It's the same with your compost
- → Nasty smell is bad, it means the soil is waterlogged. This is especially present in drumlin areas where there is surface water gley or ground water gley
- → Mottling (rusty spots in the soil) indicates redox conditions. It is present in places where the soil seasonally gets oxygen and then no oxygen. Improve with roots; plant trees
- → Gley (grey colour) means there's no oxygen: suffocation
- → Dark brown colour as deep as possible is great
- → Earth worms and which ones (3 types) and how land management practices affect them

The New Zealand Flatworm could decimate your earthworm population!

- → You usually don't find them in big fields with animals or crops, just small gardens mostly
- → Jim Cronin says that once they move through, they eat everything and then die out

SESSION 4 —— 27 / 04 / 2023

Next steps

Photo by Seamus Bradley

SESSION 4 ——— 27 / 04 / 2023

Next steps

This was a group discussion led by Fibreshed Ireland co-founder Kit Christina Keawwantha. The time was used to re-focus on our plans for the group and our first year.

3/9 participating farmers and growers have provided feedback so far.

The following areas were discussed:

1. Collecting, cataloguing and testing fibre & dye samples:

We discussed the benefits of collecting fibre and dye samples from our members and how best to go about doing that.

WOOL & ALPACA FIBRE:

- → The method used by Fibershed, in which wool growers sent a sample lock of the finest and coarsest fleeces taken during shearing, was mentioned as a possible means of collecting samples
- → The lack of knowledge regarding the grading of fleeces was noted as a significant knowledge gap and possible avenues to fill this gap were discussed, such as reaching out to contacts in Scotland and links with wool shearers working in Australia
- → The merits of lab testing wool for micron counts was also discussed, but more feedback is needed from the group as to whether the cost involved is justified at present
- → Samples could be collected this year and recorded alongside the year, farm, flock number and breed of animal

FLAX FIBRE:

- → It was suggested that Irish Seed Savers and Mallon Linen collaborate to collect and catalogue samples, as they are currently already working on a project regarding testing different varieties of flax seed for fibre

NATURAL DYES:

- → It was suggested that AppleOak FibreWorks could advise and take the lead on collecting dye samples, as they are the most established natural dye house in Ireland
- → Although there have been several catalogues of natural, local dyes done over the years, they have lacked the necessary data needed to inform and guide natural dying practices at an industry level
- → It was therefore suggested that not only should the potential colours, colour-fastness and potential applications of each dye be catalogued and recorded, but also data regarding sustainable yields, potential volume of fibre that could be dyed sustainably, industry demand for the colours obtaines, and comparisons of similar colours / applications and their ecological footprints

2. Planning the Community Supported Yarn and National Fibre Exhibition:

- → We discussed the need to know estimated volumes and breed/species of fibre which can be supplied this season for the proposed CSY (Community Supported Yarn) and Regenerative Fibre Exhibition projects so we can begin talking with processors and mills
- → Several ways of processing the fibre were discussed, such as handspun or machine spun
- → We discussed the options of collecting all the fibre from all our growers to produce a single blended yarn, or whether to process ‘breed-specific’ yarns, or ‘farm-specific yarns’
- → We concluded that what will be possible will ultimately depend on the fibre available from our growers, as well as the specific requirements / minimim order quantities of processors and mills
- → A survey will be compiled to collect the necessary information from our growers
- → Preliminary contact will be made with wool processors to ask what options are viable

3. Assessing current regenerative practices, making plans and measuring impacts:

- An overview of possible regenerative practices was presented. These were taken from the Carbon Cycle Institute's Carbon Farm Planning course, which was recently completed by 2 of Fibreshed Ireland's board members: Kit and Jessica. Examples of regenerative practices were also taken from a local biodiversity project: The Bride Project.
- We discussed accessing premium markets by providing 'regenerative' fibre: **what is needed to measure or communicate what our farmers and growers are doing to support the regeneration and natural diversity of their lands?**
- Some members feel the need for more information on what they could do on their land to be more 'regenerative'
- A basic guide to potential regenerative practices will be compiled by Kit and Jessica, drawing on their Carbon Farm Planning training and the local Bride Project
- There is also interest in soil sampling, but the group lacks the confidence and knowledge in best practice
- Kit and Jessica have agreed to compile a standardized soil sampling protocol which our growers can use to collect baseline data on their soils. This will combine Christina and Jessica's prior knowledge on soil sampling as well as drawing on certain recommendations from our previous speaker, Dr Aga.

4. Mission-aligned partners and collaborations:

Kit presented a brief introduction and discussion of a new app that is being developed by a local dairy farmer which measures the Space for Nature (SFN) within a particular farm:

- The app remotely maps the farm and its SFN before a trained ecologist visits the farm to collect data on natural habitat quality and begins compiling species lists of the flora and fauna present
- A detailed report is then made, summarising the current state of the land and making recommendations for improving the natural biodiversity of the land
- The mapping, ecologist visit and report are currently priced at around €700 per farm, which was deemed too expensive for our growers to pay at present
- Possible avenues to reduce or part-fund the cost are being explored in order to trial the app and the potential it has to help growers gain premium markets for their produce

5. Identifying key knowledge gaps and questions to be answered:

- We asked our group participants to make a list of the top questions they have with regards to implementing regenerative practices on their farm
- Because they represent a wide diversity of enterprises and practices, the best way in wich we can draw in the information and support most relevant to them is if we clearly know what they need or want for their land
- This will be included in the follow-up survey to be sent out

6. Marketing, sharing and promotion:

- As 'regenerative fibre' and 'regenerative textiles' are such a new concept with no established market in Ireland, we need to start sharing the story of our farmers and growers (their farming practices, their motivations and their fibre/dye) in order to gain the support and appreciation from potential customers and designers
- We therefore asked the group if they would be willing to share information, photos, videos and/or stories which we could use to promote both the Regenerative Growers group in general and the fibre, dye and yarn produced from it. The general consensus was positive, so details will be collected to be shared through our website and social media channels.

SESSION 5 — 01 / 06 / 2023

Commonland's Four Returns framework

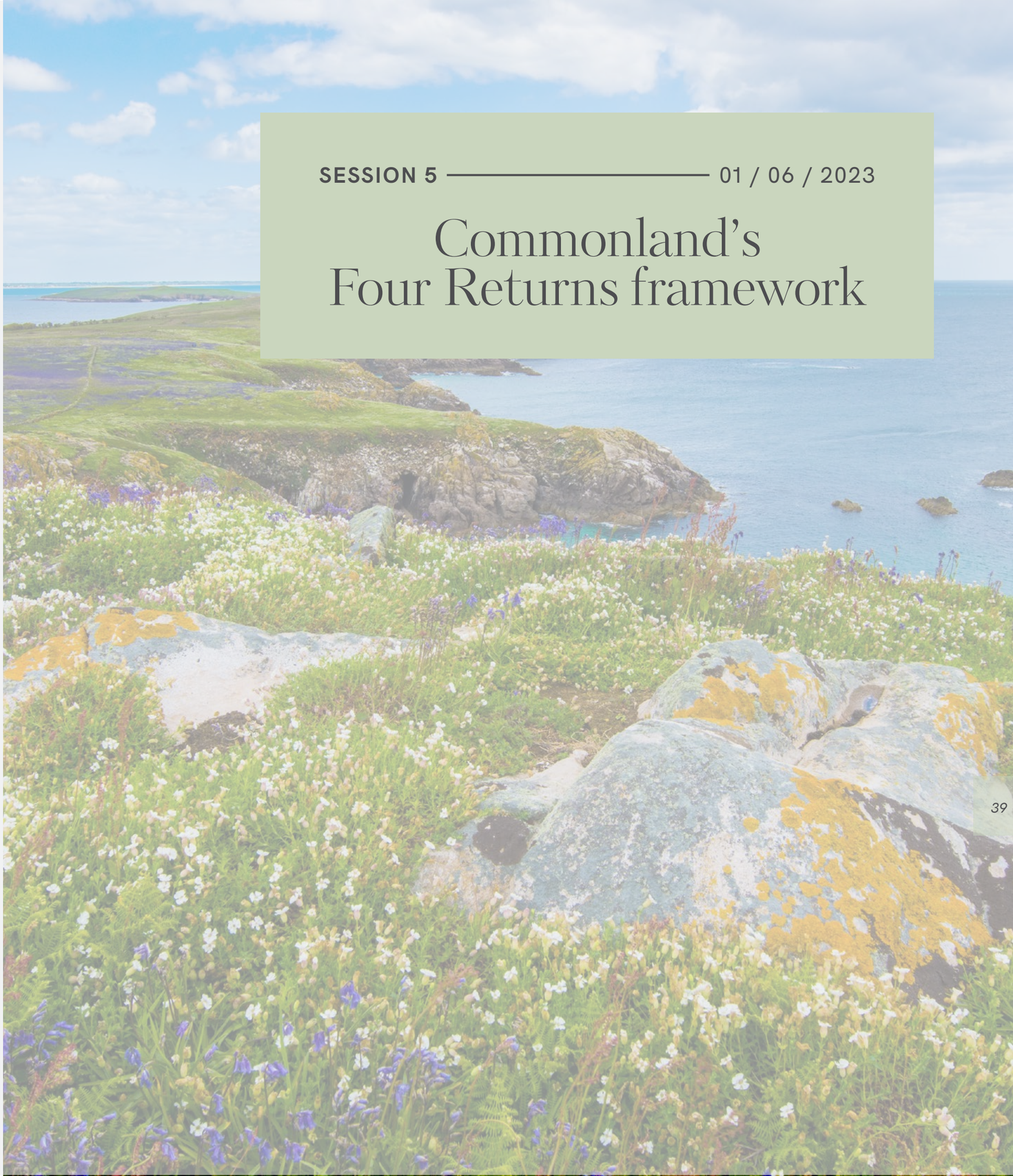


Photo by Wynand van Poortvliet

SESSION 5 ——— 01 / 06 / 2023

Commonland's Four Returns framework

This was a presentation by Pieter Ploeg, who has dedicated his efforts towards accelerating the transition towards a regenerative society on a thriving and resilient living earth for the last 15 years. He believes living healthy soil is the acupuncture point through which we can restore our relationship with nature and engage with biodiversity, food, climate and resilience challenges.

Currently, Pieter is part of the Commonland Foundation as Design Strategist and Facilitator with a focus on using Social Innovation Labs to cultivate transformative systemic change and create an enabling environment for the transition towards thriving ecosystems and communities. He currently coordinates the Bioregional Weaving Lab program in Europe.

He is also co-founder of Terranu, a regenerative learning farm in Waterford, Ireland. Their mission is to build soil and soul connections, diversify the land and ecosystem through regenerative agriculture, land stewardship and social learning. He is interested in incorporating poultry into organic orchards, therefore mimicking agroforestry while maintaining production levels. He enjoys the combination of practical and strategic work.

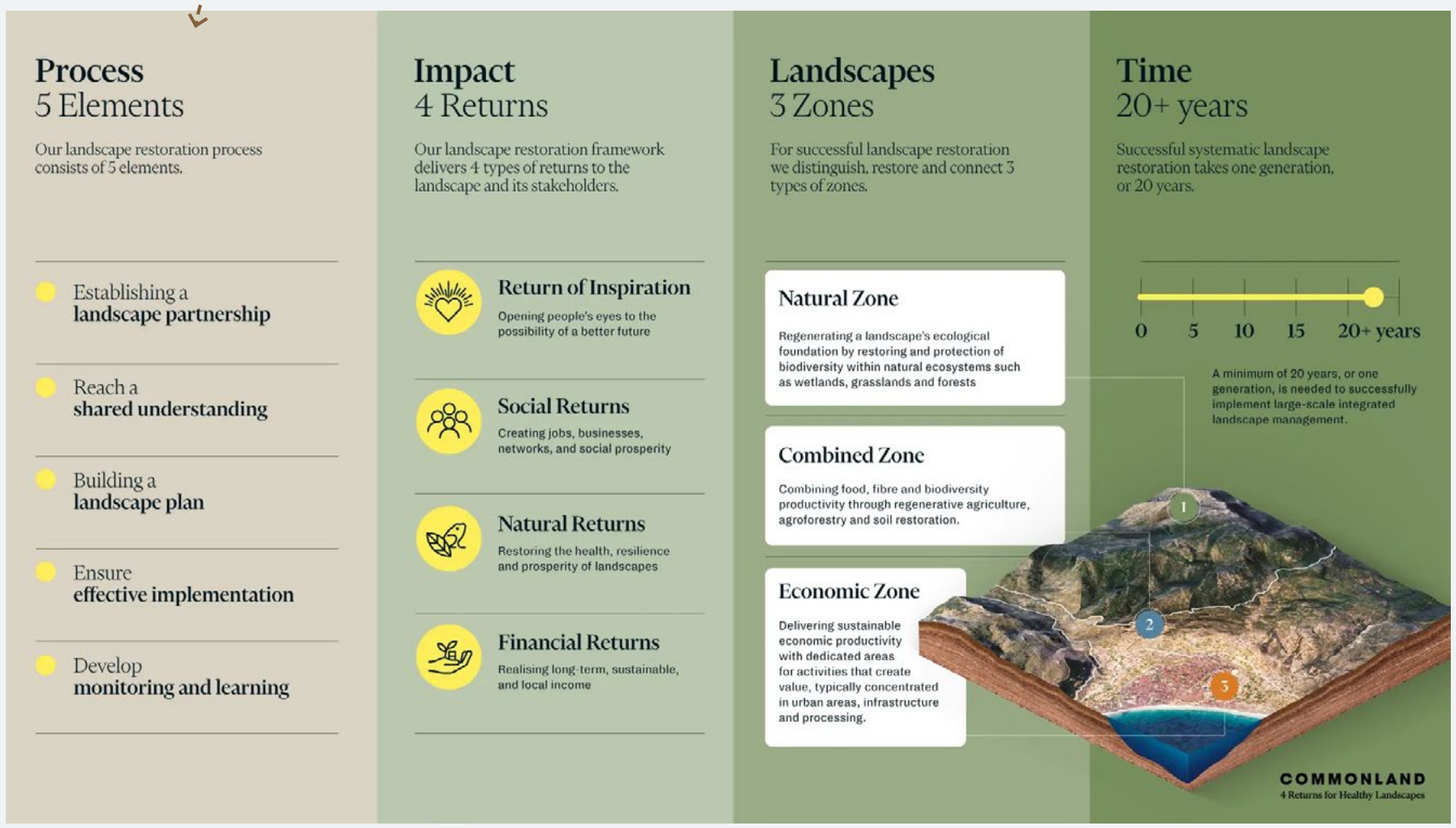
Pieter gave us an insightful presentation on the work that the Commonland Foundation has been doing in different locations around the world. We then focused on what the Bioregional Weaving Lab are doing right here in Waterford to accelerate this transition.

3/9 participating farmers and growers have provided feedback so far.

Commonland's work is focused on answering the question:

How can we restore landscapes so that not only nature, but also people can thrive?

- Commonland builds landscape partnerships around the world, with the aim of restoring 100 million hectares of landscape by 2040
- Testing approaches in more than 20 different landscapes to see what works and what doesn't
- **Long-term thinking:** it takes a minimum of 20 years to restore a landscape
- **Scale:** landscapes of at least 50K hectares formed by a small group of partners that grows over time
- Commonland follows a constant 5-step loop as partnerships grow:



CASE STUDY —

Altiplano Estepario, Spain:

- → Rain-fed almond and broccoli production, also fed with very intensive underground water — a lot of opportunities for restoration!
- → Desertification is happening very fast
- → Lack of vegetation has resulted in soil erosion into rivers
- → Ground cover has been removed, resulting in low biodiversity & soil erosion
- → Together with farmers they looked for ways to change the way they farm
- → When farmers join the programme, the first thing they do is cover the ground and maintaining that cover. There are challenges with the drought!
- → Once the system is in place, they can bring in sheep for grazing and providing natural fertiliser
- → The partnership helps farmers diversify, therefore showing others that it's possible to earn an income from different crops (e.g. La Junquera)
- → There is also an assosiation that purchases their production and brands it all together, bringing it to market with the story of the farmers
- → The partnership helps find markets for these products all accross Europe through a cohesive regenerative brand. They offer wine, pistacchios, olive oil, etc.

Learn more about this example here

CASE STUDY —

Baviaanskloof – Langkloof, South Africa:

- → Removed overgrazing of goats
- → Transitioned to growing lavender for the production of essential oils
- → Brought back native species that had been overgrazed in the past

Learn more about this example here

CASE STUDY —

Wheatbelt, Australia:

- → Transitioned to oats, which are better for the soil and can be used to produce oat drinks
- → Help farmers switch to organic and holistic grazing practices

Learn more about this example here

CASE STUDY —

Western Peat Meadows, the Netherlands:

- → Area that used to be flooded
- → Was drained to be made available for dairy production, which resulted in nutrient runoffs to drinking water and biodiversity loss

Learn more about this example here

- → Building trust among farmers is the first step before they can start trusting Commonland's advice
- → After 2019, Commonland decided to scale-up: find a group or association of farmers in different regions. One of those partners is Ashoka who had joined social enterprises in Europe related to food, farming, climate and biodoversity: how can we collectively increase our impact?
- → Commonland partnered with Ashoka to find landscapes where there is already collective action on the ground
- → The mission is to mobilise 1 million changemakers by 2025 to restore 1million hectares of Europe's land and sea and build momentum by 2030
- → A European programme began: The Bioregional Weaving Labs

Bioregional Weaving Labs

BIOREGION: a cluster of landscapes
WEAVING: to connect people, places and projects together
LAB: process of doing that actual partnership building. It takes a coupe of years, out of which the partnership emerges

Waterford Bioregional Weaving Lab, Ireland:

- → **Waterford:** not defined by the county borders, but more like a watershed. The boundaries are fuzzy. South East Ireland is too big and Waterford county too small. The Weaving Lab encompasses a space in between.
- → Waterford is one of 8 landscapes in Europe with a Bioregional Weaving Lab
- → 130+ people connected into the process
- → The project will run for 1 year and a half, in which a series of workshops are delivered; anyone is welcome to attend
- → The workshops are meant to connect people and find out who are those in the region already pioneering new ways of farming, bringing innovative products to market or restoring biodiversity in some areas
- → The workshops also serve to identify barriers: how can the partnership help these pioneers overcome the barriers for what they're innovating in to become the norm?
- → The 'Weaver' of the project brings all the people together, holds relationships and organises the workshops

What happens during these workshops?

- We look at a physical map of the bioregion and discuss: "what about the landscape or community speaks to you?" We then organise topics thematically. This serves to pinpoint people, places and projects.
- We build a problem tree, which helps us adopt a systems point of view. This helps us find consequences and root causes, systemic drivers and mental models.
- We work towards a collective vision where parters can align, instead of working on concrete specific projects
- Playful mapping into how the system is today and how they'd like the system to be in the future: what has changed? What is the most strategic action / next step for the region to take?
- We look at what has been done already
- Manifesto creation workshops help us establish a common vision piece that everyone can strive towards

After 1.5 years of workshops, 10 concepts were identified to help the whole system move forward. Examples are:

- Farming is no longer profitable for uplands farmers with a long tradition of sheep grazing, since there is no money to be made with wool and there are no subsidies. What could be a future for them? Could we pilot that in the common land?
- Vegetable growing is difficult and farmers' markets too much work. Supermarkets are inaccessible for many vegetable growers. There's a missmatch between consumer needs/wants and available products. New growers can't find access to land. Could we pilot a nw format for land ownership? Matching land owners with new growers in a model that can access customers directly, like a CSA?

What happens afterwards?

- Looking for seed funding to build a pilot
- The pilots will help us descover: what would be needed to make the concept successful?
- It's an ongoing learning process. Commonland's role is to support that process.
- We plan and send out funding proporsals for the collective landscape as a whole, not for particular projects
- On the 8th of September we'll be at GIY's Harvest Festival with a community and landscape finance event. How can we finance all these initiatives as one big package instead of small projects competing? This can help attract bigger funding.
- There is growing interest in other regions but the partnership doesn't want to get caught up around the national politics. An option could be to connect thematically across the island (e.g. fibre)

Key insights and learnings:

- Visiting people is first. Immersing yourself in the context and building human connection. Find those with a natural interest in participaring.
- Every workshop has had more participants than expected. Some people really stick and have taken on the job of connecting other folks to the project.
- There's an active group of Elders on their pension who want to contribute
- Word of mouth works well with the farming community
- There may be something to be gained in Fibreshed Ireland having more localised hubs: mini Fibreshed Ireland regions could bring more connections. This means you can actually get out and relate to people, connect with them.
- It helps to be in the same region; closeness brings a bigger sense of belonging
- The complexities of trying to coordinate so many people, aims and goals is a challenge
- The challenges are often related to particular interest groups who have very strong opinions about what is right and what is wrong and how change should happen. (e.g. "Consumer behaviour will *never* change" vs " Consumer behaviour is *the only way* we can bring change forth")
- A lot of people in the bioregion are really keen on forming grassroots connections, instead of expecting the government or big companies to drive change. People remain involved because they feel like they can actually show a different way is possible.

About the farmers involved with the Bioregional Weaving Lab:

- The bioregion's main farming activity is dairy, followed by beef. Farmers are connected through the co-ops.
- The government is pushing to increase ammounts of organic farms through a very corporate approach. This comes with a big risk of greenwashing and doesn't bring the same level of enthusiasim among farmers as the grassroots connecting.
- The farmers involved are the pioneering ones: doing things differently from the ground up, trying to inspire others
- The Bioregional Weaving Lab is not talking to the big dairy co-ops yet

- Everyone is always welcome to come in, even if they have never been part of the workshops
- Getting people inspired and connected to their landscape, feeding a sense of belonging. It's also an investment into the future: if folks feel inspired about the future of their own landscape, they'll make it work and not let it degrade.
- Building equity is the best way to get us to care about the environment
- Regional hubs will be important as Fibreshed Ireland progresses, at least initially throughout the four provences
- Build a community of trust first: a coallition of the willing; those who have an easier time connecting and agreeing with each other, before growing
- The BWL is fully transparent about what has happened in each of the workshops. Their website has open-source resources for organising.

SESSION 6 — 06 / 07 / 2023

Bringing it all together

Photo by Linda Costello

SESSION 6 ——— 06 / 07 / 2023

Bringing it all together

This was an interactive session led by Fibreshed Ireland co-founders Kit Christina Keawwantha and Malú Colorín.

4/9 participating farmers and growers have provided feedback so far.

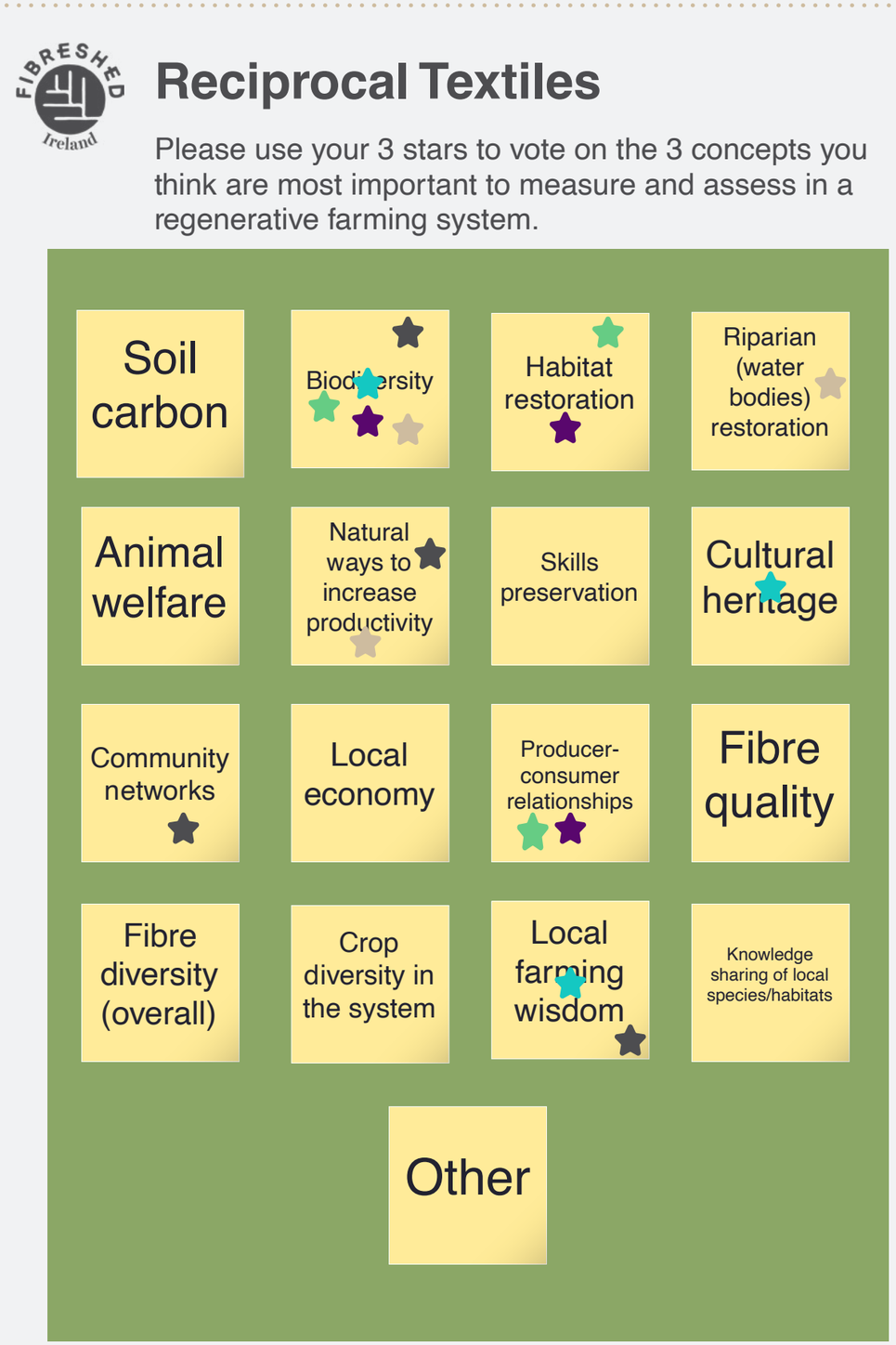
We started with a short recap presentation of what we've done so far, as well as an outline of the next steps for this project:

→ A travelling exhibition about the potential of Irish-grown fibres and dyes in 2024, with a sneak preview at the *Earth Rising* eco art festival in September 2023 at the Irish Museum of Modern Art

→ A Community-Supported Yarn scheme using the 2023 clip from two of our sheep farmers who have expressed interest in being part of this

After this recap, participants were invited to vote on the 3 concepts they each think are most important to measure and assess in a regenerative farming system. Afterwards, we dove deep into each of the concepts selected, brainstorming about how could we measure and communicate them best. For this exercise we used the Zoom whiteboards functionality:

As we were diving deep into each of the selected concepts, we noticed how many of them have interconections with each other. It is also interesting to note that of the eight selected concepts, half of them relate to our relationship with our non-human siblings and the other half are about relationships with our fellow humans.



BIODIVERSITY:

- → Taking regular notes & photos of observations
- → Recording bird songs
- → Wildlife cameras
- → Designated times for photos / recordings / notes and then collating that data from our network
- → Counting worms
- → Recording fungal growth
- → Looking at soil biodiversity through the microscope
- → Soil samples (lab)

HABITAT RESTORATION:

- → Baseline measurements (soil tests or visual) to then compare to
- → Mapping of the farm and identifying habitats and the spaces they take up on the farm – remote mapping (e.g. Bride Valley Project)
- → Once you know what habitats you have, you know which species you want to support
- → Usually various habitats exist in the same farm

CULTURAL HERITAGE:

- → Focusing on small farms
- → Learning spinning / carding / processing at home
- → Tourism as a way to bring interest into heritage skills/ traditions
- → Research Farm to Farm New Zealand
- → Traditional farming methods
- → What was farming like before the English colonised Ireland?
- → Irish language as a way to relate to the landscape
- → Education on all the roles that women / farmers play: multi-tasking

PRODUCER-CONSUMER RELATIONSHIPS:

- → Ways for farmers to sell more directly to consumers
- → Supporting farmers with social media / online markets
- → Farmers have no time to be doing all the documenting and content creation
- → Community networks to help farmers become independent from grants from Teagasc & the EU

NATURAL WAYS TO INCREASE PRODUCTIVITY:

- → Not relying on artificial inputs
- → Learning from permaculture / biodynamic / synthropic agriculture
- → The dilemma of mixed fibres (for compostability & traceability)
- → Fibres need to have a pathway back to the soil
- → Collaborative relationships for full circularity

RIPARIAN RESTORATION:

- → Not using synthetic inputs – excess nitrogen in waterways
- → Buffer zones to prevent erosion
- → Irish Water should be more responsible (rivers are not owned by the farmers) — research more about this!
- → Talamh Beo are arranging community groups around watersheds (in partnership with the EPA) — research and maybe link up with them?

LOCAL FARMING WISDOM:

- → Preserving old skills that are at risk of dying
- → Small fields
- → Mixed grazing
- → Stagnant drinking water results in parasites / worms
- → Blanket worming kills off critters and the bad guys become immune
- → Dependency on Teagasc for subsidies
- → What works for someone in one place, doesn't necessarily work for someone in another farm. Practices are relative to your specific area
- → How do we connect to other people around us, instead of relying on the national farming wisdom?
- → Using multispecies swards

COMMUNITY NETWORKS:

- → People in the community more connected with what's happening in their local farms
- → Making it easier for folks to reconnect with where their fibre's coming from
- → Knowledge sharing: schools coming to farms to learn about their local species / how things are produced / where fibre or food comes from
- → Eventually can result in more economic return (local economy!)
- → Getting neighbours to buy your fleece
- → The tradition of visiting
- → Meitheal
- → Social media is also a way to connect with the wider community of practice

Back cover photo and photo on this spread by Kit Christina Keawwantha

What's next

- We've decided to call our verification programme "Reciprocal Textiles", to signal reciprocity with the Land, with our local communities and in our local economy
- Kit is testing wool samples from Seamus Bradley's and Linda Costello's sheep. We'll use this wool to make up the first batch of our Reciprocal Yarn.
- Participation in the Earth Rising festival, organised by the Irish Museum of Modern Art (IMMA) in September 2023. During the festival we will have crafters demonstrating and teaching spinning, natural dyeing and weaving using fibre from some of the growers who participated on our Knowledge Transfer group
- Participation in the Let's Knit yarn festival in Doolin in October, where we'll be selling the Reciprocal Yarn made from Seamus Bradley's and Linda Costello's sheep
- Look for additional funding to organise and deliver a national travelling exhibition showcasing the benefits of Irish-grown natural fibres in a variety of applications (2024)
- Kit and Jessica -both trained as Carbon Farm Planners- are developing an open-source guide with recommendations to farmers, including a standardised technique to take soil samples based on a visual evaluation of soil structure (VESS)
- Together, they are also creating a sample Farm Plan in Jessica's farm, which can be used both as a guide for participants of the Reciprocal Textiles programme, and as a means of communicating beneficial practices to the public. The aim is to begin establising a Farm Plan framework that is affordable, relevant and impactful to both land, farmer and consumer. If successful, Farm Plans will also be developed for the other participating farmers.
- At least during the first year of the Reciprocal Textiles programme, we will rely on qualitative measurements taken by the farmers themselves to help tell the story of the land, farmer and fibre, therefore building closer connections between the growers and the consumers
- We are in discussions with Donal Sheehan from The Bride Project, who is developing an app to measure bidiversity in the farm. The app will be tested in Jessica's farm before we decide whether to use it with the rest of our participating farms.

To follow the progress of Fibreshed Ireland's Regenerative Growers' Knowledge Transfer Group, please visit **https://fibreshedireland.ie/regenerative-growers-group/**

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